



**LAMPIRAN A Single-Line Penyulang *Feeder 3* PT.PLN (Persero)  
Area Bangka**







**LAMPIRAN B** Data Pengukuran Gardu Sepanjang Penyulang Ceko  
(*feeder 3*) periode 2015-2016.

No.	Nama Gardu	Merk Trafo	Jarak (KM)		Daya Terpasang (kVA)	Daya Terpakai (kVA)
			GI-GD	GD-GD		
1.	SMA ST.YOSEP	STARLITE	6	6	100	8.31
2.	P685	VOLTRA	9.3	3.3	50	84.03
3.	P685	VOLTRA	10.4	1.1	50	10.10
4.	P083	STARLITE	10.55	0.15	200	72.21
5.	P394	STARLITE	10.85	0.3	100	63.39
6.	P712	MORAWA	11.15	0.3	100	105.88
7.	BTS P868	SINTRA	11.25	0.1	25	23.96
8.	P084	TRAFINDO	11.5	0.25	160	80.47
9.	P852	B & D	12.6	1.1	50	14.74
10.	P852	B & D	14.2	1.6	50	18.99
11.	P822	MORAWA	16.95	2.75	50	12.42
12.	BTS P476	MORAWA	17.1	0.15	25	24.56
13.	P525	STARLITE	17.55	0.45	50	62.77
14.	BTS	UNINDO	18.05	0.5	25	16.53
15.	P290	TRAFINDO	18.1	0.05	160	90
16.	P850	STARLITE	20.55	2.45	25	6.53
17.	P358	UNINDO	24.86	4.31	50	20.44
18.	P580	STARLITE	26.07	1.21	50	16.77
19.	P359	TRAFINDO	27.68	1.61	100	49.19
20.	P360	TRAFINDO	28.89	1.21	50	39.39
21.	P361	J & P	32.05	3.16	100	43.69
22.	P362	B & D	34.91	2.86	160	47.43
23.	P363	TRAFINDO	37.57	2.66	100	35.28
24.	P500	SINTRA	39.83	2.26	50	16.68
25.	P718	STRALITE	42.09	2.26	50	6.32
26.	P364	STRALITE	44.35	2.26	50	32.89
27.	BTS XL P472	STARLITE	49.76	5.41	25	23.67
28.	BTS	STARLITE	49.77	0.01	25	10.65
29.	P488	SINTRA	50.93	1.16	100	62.69
30.	P738	SINTRA	51.58	0.65	50	30.17
31.	P739	SINTRA	62.13	10.55	25	15.11
32.	P470	SINTRA	64.63	2.5	100	41.64
33.	P365	UNINDO	79.29	14.66	100	85.96
34.	BTS	UNINDO	79.6	0.31	25	20.89
35.	P489	STARLITE	80.76	1.16	100	23.92
36.	P490	STARLITE	81.81	1.05	50	19.27
37.	P366	VOLTRA	83.91	2.1	100	72.08

38.	P576	TRAFINDO	23.15	2.6	100	39.45
39.	P115	B & D	23.3	0.15	100	44.08
40.	P233	STRALITE	24.45	1.15	100	79.6
41.	P085	B & D	24.9	0.45	100	70.5
42.	Pxxx	B & D	27	2.1	100	69.73
43.	P142	TRAFINDO	28.15	1.15	160	67.59
44.	B & D	MORAWA	28.31	0.155	25	7.39
45.	P261	VOLTRA	28.61	0.3	50	29.08
46.	P987	VOLTRA	30.06	1.45	50	32.38
47.	P618	SINTRA	30.56	0.5	50	48.86
48.	P194	TRAFINDO	31.61	1.05	100	92.82
49.	P925	SINTRA	32.31	0.7	100	19.24
50.	P143	MORAWA	32.61	0.3	160	137.11
51.	P330	TRAFINDO	33.76	1.15	50	18.09
52.	P682	SINTRA	34.41	0.65	100	28.84
53.	P252	STRALITE	35.51	1.1	50	16.93
54.	BTS XL	B & D	36.51	1	25	18.21
55.	P236	STRALITE	36.71	0.2	50	85.98
56.	P431	MORAWA	37.26	0.55	50	40.96
57.	P620	J & P	38.86	1.6	50	38.05
58.	BTS	SINTRA	40.56	1.7	25	20.3
59.	P237	TRAFINDO	40.61	0.05	160	41.64
60.	P946	TRAFINDO	40.81	0.2	100	39.48
61.	BTS	MORAWA	41.91	1.1	25	10.6
62.	P235	SCHITEIREK	42.11	0.2	160	102.97
63.	P854	B & D	45.36	3.25	50	10.06
64.	P592	SINTRA	48.81	3.45	50	22.66
65.	P234	TRAFINDO	51.26	2.45	160	114.51
66.	P429	STARLITE	51.81	0.55	50	28.75
67.	Pxxx	STARLITE	52.11	0.3	50	15.62
68.	P997	MORAWA	52.31	0.2	100	54.12
69.	P619	STRALITE	35.01	2.4	100	63.68
70.	P144	SINTRA	35.61	0.6	50	94.88
71.	P589	MORAWA	35.96	0.35	100	53.3
72.	P152	STRALITE	38.71	2.75	50	130.02
73.	P719	TRAFINDO	39.31	0.6	50	10.91
74.	P628	STRALITE	43.56	4.25	100	72.68
75.	BTS	STRALITE	48.52	4.96	25	11.32
76.	P153	SINTRA	50.27	1.75	50	34.23
77.	P255	UNINDO	53.07	2.8	50	5.86
78.	BTS	UNINDO	54.06	1	25	15.03

79.	P221	UNINDO	55.12	1.05	50	73.97
80.	P687	VOLTRA	55.47	0.35	50	32.64
81.	P332	TRAFINDO	56.52	1.05	100	73.7
82.	BTS	MORAWA	57.37	0.85	25	20.31
83.	P331	B & D	57.57	0.2	100	48.65
84.	P172	SINTRA	58.17	0.6	160	59.48
85.	P829	SINTRA	58.62	0.45	50	53.79
86.	P154	B & D	59.52	0.9	50	78.02
87.	P721	MORAWA	60.72	1.2	100	105.88
88.	P851	VOLTRA	37.26	1.65	50	2.73
89.	P609	B & D	38.96	1.7	50	26.27
90.	P853	SINTRA	40.71	1.75	25	2.28
91.	P430	TRAFINDO	42.31	1.6	50	22.5
92.	BTS	UNINDO	42.56	0.25	25	10.13
93.	P238	J & P	42.61	0.05	100	11.68
94.	P745	J & P	42.71	0.1	25	13.71
95.	P397	TRAFINDO	42.91	0.2	100	40.16
96.	P334	UNINDO	43.91	1	50	58.07
97.	P905	TRAFINDO	44.96	1.05	50	32.21
98.	P239	TRAFINDO	45.01	0.05	160	70.9
99.	BTS	TRAFINDO	45.06	0.05	25	14.32
100.	P683	VOLTRA	43.36	0.75	50	12.64
101.	P606	SINTRA	45.41	2.05	100	83.16
102.	P641	TRAFINDO	47.01	1.6	50	14.89
103.	P845	VOLTRA	49.31	2.3	50	4.02
104.	P846	B & D	50.36	1.05	100	7.10
105.	P339	SINTRA	54.21	3.85	25	50.15
106.	BTS P474	SINTRA	54.66	0.45	100	63.21
107.	P357	MORAWA	55.41	0.75	100	61.92
108.	P760	SINTRA	56.16	0.75	100	10.91
109.	P352	B & D	48.56	5.2	100	61.63
110.	P353	PT.CCE	52.76	4.2	100	57.42
111.	P355	STRALITE	56.97	4.21	100	55.07
112.	BTS	SINTRA	57.18	0.21	25	13.04
113.	P354	B & D	60.14	2.96	100	65.9
114.	P499	VOLTRA	62.30	2.16	50	13.32
115.	P356	SINTRA	64.16	1.86	50	13.81

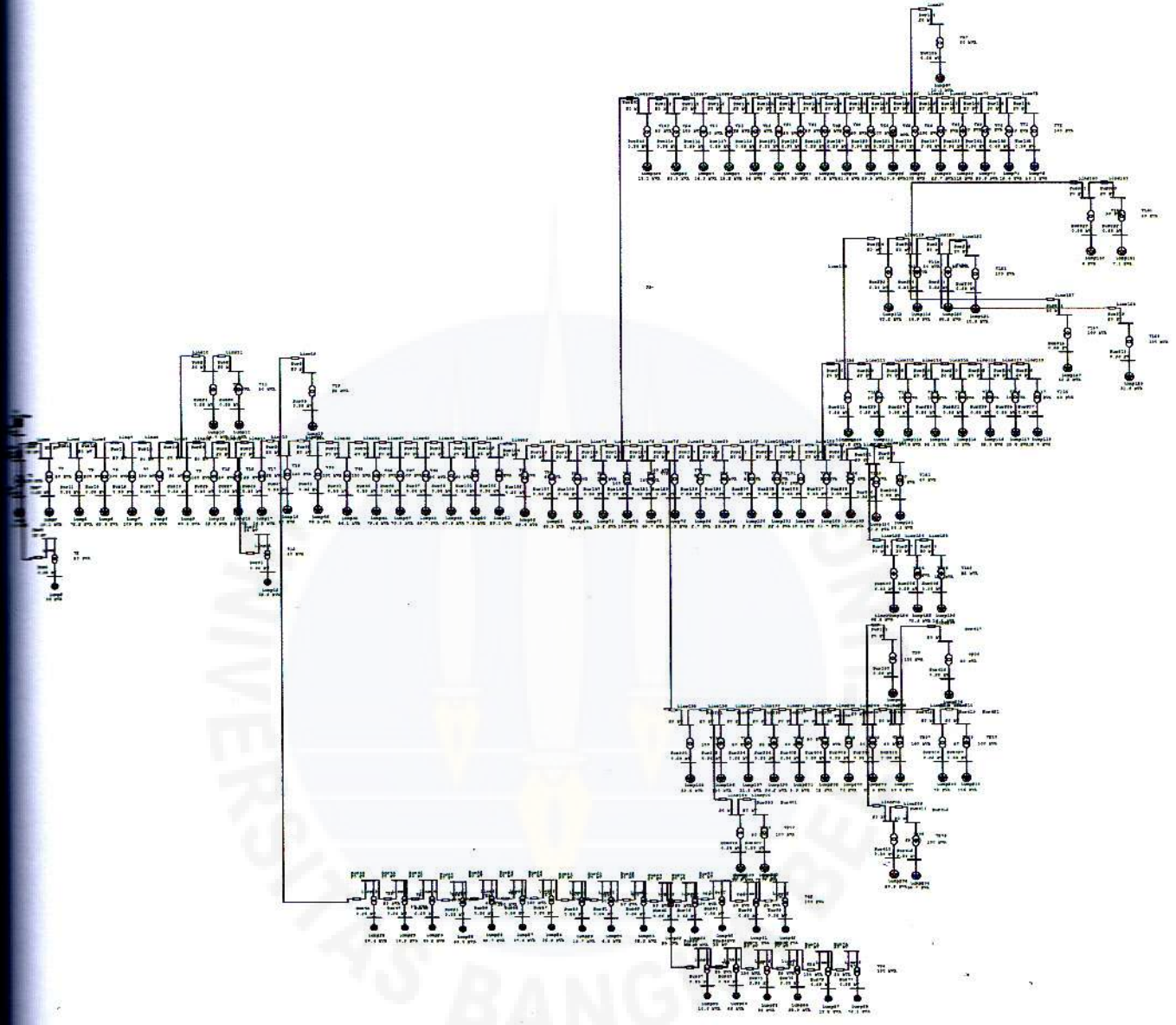


**LAMPIRAN C** *Single-Line* Jatuh Tegangan Penyulang Ceko (*feeder*  
3) Dari *Software ETAP*





# Line Diagram - OLV1





**LAMPIRAN D** Hasil Jatuh Tegangan Penyulang Ceko (*feeder 3*)  
Dengan luas penampang 150 mm<sup>2</sup> Dari *Software ETAP*

Project:  
 Location:  
 Contract:  
 Engineer:  
 Filename: TARIKKIGUNAWAN

**ETAP PowerStation**  
 4.0.0C  
 Study Case: LF

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 SN: KLGCONSULT  
 Revision: Base  
 Config.: Normal

**LOAD FLOW REPORT**

Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
* Bus1	20.000	20.000	0.0	4.486	3.440	0	0	0	0	Bus2	4.486	3.440	163	79.35		
Bus2	20.000	19.369	-0.7	0	0	0	0	0	0	Bus1	-4.382	-3.281	163	80.05		
										Bus4	0.074	0.056	2	79.31		
										Bus6	4.302	3.220	160	80.05		
										Bus3	0.007	0.004	0	84.76		
Bus3	0.380	0.367	-0.9	0	0	0.007	0.004	0	0	Bus2	-0.007	-0.004	13	85.00		
Bus4	20.000	19.363	-0.7	0	0	0	0	0	0	Bus2	-0.074	-0.056	2	79.32		
										Bus5	0.074	0.056	2	79.32		
Bus5	0.380	0.333	-6.4	0	0	0.071	0.044	0	0	Bus4	-0.071	-0.044	145	85.00		
Bus6	20.000	19.256	-0.8	0	0	0	0	0	0	Bus2	-4.283	-3.192	160	80.18		
										Bus10	4.275	3.187	159	80.17		
										Bus7	0.009	0.005	0	84.41		
Bus7	0.380	0.362	-1.4	0	0	0.009	0.005	0	0	Bus6	-0.009	-0.005	16	85.00		
Bus10	20.000	19.241	-0.8	0	0	0	0	0	0	Bus6	-4.272	-3.183	159	80.19		
										Bus12	4.210	3.143	157	80.13		
										Bus11	0.062	0.040	2	83.93		
Bus11	0.380	0.359	-1.9	0	0	0.061	0.038	0	0	Bus10	-0.061	-0.038	116	85.00		
Bus12	20.000	19.210	-0.8	0	0	0	0	0	0	Bus10	-4.206	-3.136	157	80.17		
										Bus14	4.151	3.099	155	80.13		
										Bus13	0.054	0.036	1	83.06		
Bus13	0.380	0.353	-2.9	0	0	0.054	0.033	0	0	Bus12	-0.054	-0.033	103	85.00		
Bus14	20.000	19.180	-0.9	0	0	0	0	0	0	Bus12	-4.146	-3.092	155	80.16		
										Bus16	4.055	3.027	152	80.13		
										Bus15	0.092	0.065	3	81.59		
Bus15	0.380	0.344	-4.4	0	0	0.090	0.056	0	0	Bus14	-0.090	-0.056	178	85.00		
Bus16	20.000	19.170	-0.9	0	0	0	0	0	0	Bus14	-4.053	-3.025	152	80.14		
										Bus18	4.033	3.010	151	80.13		
										Bus17	0.021	0.014	0	81.94		
Bus17	0.380	0.346	-4.1	0	0	0.020	0.013	0	0	Bus16	-0.020	-0.013	40	85.00		
Bus18	20.000	19.146	-0.9	0	0	0	0	0	0	Bus16	-4.029	-3.005	151	80.16		
										Bus20	0.029	0.019	1	83.97		
										Bus24	3.931	2.941	148	80.08		
										Bus19	0.069	0.046	2	83.47		
Bus19	0.380	0.354	-2.5	0	0	0.068	0.042	0	0	Bus18	-0.068	-0.042	131	85.00		
Bus20	20.000	19.145	-0.9	0	0	0	0	0	0	Bus18	-0.029	-0.019	1	83.97		
										Bus22	0.016	0.011	0	83.86		
										Bus21	0.013	0.008	0	84.12		
Bus21	0.380	0.358	-1.8	0	0	0.012	0.008	0	0	Bus20	-0.012	-0.008	23	85.00		
Bus22	20.000	19.145	-0.9	0	0	0	0	0	0	Bus20	-0.016	-0.011	0	83.86		
										Bus23	0.016	0.011	0	83.86		
Bus23	0.380	0.357	-2.1	0	0	0.016	0.010	0	0	Bus22	-0.016	-0.010	30	85.00		
Bus24	20.000	18.885	-1.2	0	0	0	0	0	0	Bus18	-3.892	-2.881	148	80.38		
										Bus26	3.881	2.874	147	80.37		
										Bus25	0.011	0.007	0	84.24		
Bus25	0.380	0.354	-2.0	0	0	0.011	0.007	0	0	Bus24	-0.011	-0.007	20	85.00		

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**ETAP PowerStation**

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Study Case: LF

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 Config.: Normal

Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus26	20.000	18.870	-1.2	0	0	0	0	0	0	Bus24	-3.879	-2.871	147	80.38		
										Bus30	0.055	0.040	2	80.71		
										Bus34	3.803	2.816	144	80.37		
										Bus27	0.022	0.015	0	81.69		
Bus27	0.380	0.339	-4.6	0	0	0.021	0.013	0	0	Bus26	-0.021	-0.013	42	85.00		
Bus30	20.000	18.870	-1.2	0	0	0	0	0	0	Bus26	-0.055	-0.040	2	80.71		
										Bus31	0.055	0.040	2	80.71		
Bus31	0.380	0.333	-5.6	0	0	0.053	0.033	0	0	Bus30	-0.053	-0.033	108	85.00		
Bus34	20.000	18.824	-1.3	0	0	0	0	0	0	Bus26	-3.796	-2.805	144	80.43		
										Bus36	3.782	2.796	144	80.42		
										Bus35	0.014	0.010	0	82.88		
										Bus34	-0.014	-0.009	27	85.00		
Bus35	0.380	0.345	-3.5	0	0	0.014	0.009	0	0	Bus34	-0.014	-0.009	27	85.00		
Bus36	20.000	18.584	-1.5	0	0	0	0	0	0	Bus34	-3.747	-2.742	144	80.70		
										Bus38	0.006	0.004	0	84.18		
										Bus44	0.625	0.426	23	82.63		
										Bus88	3.039	2.261	117	80.23		
										Bus37	0.077	0.052	2	83.16		
										Bus36	-0.076	-0.047	151	85.00		
										Bus39	0.006	0.004	0	84.18		
Bus37	0.380	0.342	-3.5	0	0	0.076	0.047	0	0	Bus36	-0.076	-0.047	151	85.00		
										Bus38	-0.006	-0.004	0	84.18		
										Bus39	0.006	0.004	0	84.18		
Bus38	20.000	18.583	-1.5	0	0	0	0	0	0	Bus36	-0.006	-0.004	0	84.18		
										Bus39	0.006	0.004	0	84.18		
										Bus38	-0.006	-0.003	10	85.00		
Bus39	0.380	0.348	-2.4	0	0	0.006	0.003	0	0	Bus38	-0.006	-0.003	10	85.00		
										Bus36	-0.623	-0.424	23	82.71		
										Bus46	0.606	0.412	22	82.68		
										Bus45	0.017	0.011	0	83.68		
Bus44	20.000	18.520	-1.6	0	0	0	0	0	0	Bus36	-0.623	-0.424	23	82.71		
										Bus46	0.606	0.412	22	82.68		
Bus45	0.380	0.344	-3.0	0	0	0.017	0.011	0	0	Bus44	-0.017	-0.011	34	85.00		
										Bus46	-0.605	-0.411	22	82.71		
										Bus48	0.591	0.402	22	82.68		
										Bus47	0.014	0.009	0	83.92		
Bus46	20.000	18.502	-1.6	0	0	0	0	0	0	Bus44	-0.605	-0.411	22	82.71		
										Bus48	0.591	0.402	22	82.68		
										Bus47	0.014	0.009	0	83.92		
										Bus46	-0.014	-0.009	28	85.00		
Bus47	0.380	0.345	-2.8	0	0	0.014	0.009	0	0	Bus46	-0.014	-0.009	28	85.00		
										Bus46	-0.591	-0.401	22	82.71		
										Bus50	0.548	0.373	20	82.65		
										Bus49	0.042	0.028	1	83.39		
Bus49	0.380	0.342	-3.4	0	0	0.042	0.026	0	0	Bus48	-0.042	-0.026	83	85.00		
										Bus48	-0.548	-0.373	20	82.67		
Bus50	20.000	18.464	-1.7	0	0	0	0	0	0	Bus48	-0.548	-0.373	20	82.67		
										Bus52	0.514	0.350	19	82.70		
										Bus51	0.034	0.023	1	82.32		
										Bus50	-0.033	-0.021	67	85.00		
Bus51	0.380	0.335	-4.5	0	0	0.033	0.021	0	0	Bus50	-0.033	-0.021	67	85.00		
										Bus50	-0.513	-0.348	19	82.75		
										Bus54	0.476	0.324	18	82.68		
										Bus53	0.037	0.025	1	83.57		
Bus52	20.000	18.425	-1.7	0	0	0	0	0	0	Bus50	-0.513	-0.348	19	82.75		
										Bus52	-0.037	-0.023	73	85.00		
Bus53	0.380	0.342	-3.3	0	0	0.037	0.023	0	0	Bus52	-0.037	-0.023	73	85.00		
										Bus52	-0.475	-0.323	18	82.72		
										Bus56	0.435	0.297	16	82.60		
										Bus55	0.040	0.026	1	84.04		
Bus54	20.000	18.393	-1.8	0	0	0	0	0	0	Bus52	-0.475	-0.323	18	82.72		
										Bus54	-0.040	-0.025	79	85.00		
Bus55	0.380	0.344	-2.8	0	0	0.040	0.025	0	0	Bus54	-0.040	-0.025	79	85.00		
										Bus54	-0.434	-0.296	16	82.64		
										Bus58	0.404	0.276	15	82.54		
Bus56	20.000	18.365	-1.8	0	0	0	0	0	0	Bus54	-0.434	-0.296	16	82.64		

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**ETAP PowerStation**

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 Revision: Base  
 Config.: Normal

Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus57	0.380	0.342	-3.0	0	0	0.030	0.019	0	0	Bus57	0.030	0.020	1	83.84		
Bus58	20.000	18.343	-1.8	0	0	0	0	0	0	Bus56	-0.030	-0.019	59	85.00		
Bus59	0.380	0.342	-3.0	0	0	0.014	0.009	0	0	Bus56	-0.404	-0.276	15	82.57		
Bus60	20.000	18.322	-1.9	0	0	0	0	0	0	Bus60	0.390	0.267	14	82.52		
Bus61	0.380	0.346	-2.3	0	0	0.005	0.003	0	0	Bus59	0.014	0.009	0	83.91		
Bus62	20.000	18.301	-1.9	0	0	0	0	0	0	Bus58	-0.014	-0.009	28	85.00		
Bus63	0.380	0.335	-4.3	0	0	0.028	0.017	0	0	Bus58	-0.389	-0.266	14	82.55		
Bus64	20.000	18.254	-2.0	0	0	0	0	0	0	Bus62	0.384	0.263	14	82.52		
Bus65	0.380	0.326	-5.6	0	0	0.021	0.013	0	0	Bus61	0.005	0.003	0	84.60		
Bus66	20.000	18.254	-2.0	0	0	0	0	0	0	Bus60	-0.005	-0.003	10	85.00		
Bus67	0.380	0.339	-3.5	0	0	0.009	0.006	0	0	Bus60	-0.384	-0.262	14	82.55		
Bus68	20.000	18.185	-2.0	0	0	0	0	0	0	Bus64	0.355	0.243	13	82.53		
Bus69	0.380	0.328	-5.2	0	0	0.073	0.045	0	0	Bus63	0.028	0.019	1	82.76		
Bus70	20.000	18.184	-2.0	0	0	0	0	0	0	Bus62	-0.028	-0.017	56	85.00		
Bus71	0.380	0.325	-5.8	0	0	0.021	0.013	0	0	Bus62	-0.355	-0.242	13	82.59		
Bus72	20.000	18.181	-2.1	0	0	0	0	0	0	Bus66	0.205	0.141	7	82.41		
Bus73	0.380	0.341	-2.9	0	0	0.020	0.013	0	0	Bus78	0.128	0.086	4	83.08		
Bus74	20.000	18.179	-2.1	0	0	0	0	0	0	Bus65	0.022	0.015	0	81.43		
Bus75	0.380	0.338	-3.4	0	0	0.016	0.010	0	0	Bus64	-0.021	-0.013	44	85.00		
Bus76	20.000	18.176	-2.1	0	0	0	0	0	0	Bus64	-0.205	-0.141	7	82.41		
Bus77	0.380	0.331	-4.7	0	0	0.061	0.038	0	0	Bus68	0.195	0.135	7	82.35		
Bus78	20.000	18.250	-2.0	0	0	0	0	0	0	Bus67	0.009	0.006	0	83.58		
Bus79	0.380	0.334	-4.2	0	0	0.053	0.033	0	0	Bus66	-0.009	-0.006	18	85.00		
Bus80	20.000	18.248	-2.0	0	0	0	0	0	0	Bus66	-0.009	-0.006	18	85.00		
										Bus70	0.121	0.082	4	82.74		
										Bus69	0.074	0.052	2	81.96		
										Bus68	-0.073	-0.045	151	85.00		
										Bus68	-0.121	-0.082	4	82.74		
										Bus72	0.099	0.066	3	83.04		
										Bus71	0.022	0.015	0	81.40		
										Bus70	-0.021	-0.013	44	85.00		
										Bus70	-0.099	-0.066	3	83.04		
										Bus74	0.079	0.053	3	82.74		
										Bus73	0.020	0.013	0	84.21		
										Bus72	-0.020	-0.013	40	85.00		
										Bus72	-0.079	-0.053	3	82.74		
										Bus76	0.062	0.043	2	82.48		
										Bus75	0.017	0.011	0	83.71		
										Bus74	-0.016	-0.010	32	85.00		
										Bus74	-0.062	-0.043	2	82.49		
										Bus77	0.062	0.043	2	82.49		
										Bus76	-0.061	-0.038	125	85.00		
										Bus64	-0.128	-0.086	4	83.08		
										Bus80	0.075	0.050	2	83.25		
										Bus79	0.054	0.036	2	82.86		
										Bus78	-0.053	-0.033	108	85.00		
										Bus78	-0.075	-0.050	2	83.25		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
										Bus82	0.049	0.032	1	83.41		
										Bus81	0.026	0.017	0	82.94		
Bus81	0.380	0.335	-4.1	0	0	0.026	0.016	0	0	Bus80	-0.026	-0.016	52	85.00		
Bus82	20.000	18.236	-2.0	0	0	0	0	0	0	Bus80	-0.049	-0.032	1	83.43		
										Bus84	0.036	0.023	1	83.61		
										Bus83	0.013	0.009	0	82.94		
Bus83	0.380	0.335	-4.2	0	0	0.013	0.008	0	0	Bus82	-0.013	-0.008	26	85.00		
Bus84	20.000	18.234	-2.0	0	0	0	0	0	0	Bus82	-0.036	-0.023	1	83.61		
										Bus85	0.036	0.023	1	83.61		
Bus85	0.380	0.338	-3.5	0	0	0.035	0.022	0	0	Bus84	-0.035	-0.022	70	85.00		
Bus88	20.000	18.387	-1.8	0	0	0	0	0	0	Bus36	-3.016	-2.225	117	80.47		
										Bus90	2.982	2.203	116	80.43		
										Bus89	0.034	0.022	1	83.70		
Bus89	0.380	0.342	-3.1	0	0	0.034	0.021	0	0	Bus88	-0.034	-0.021	66	85.00		
Bus90	20.000	18.376	-1.8	0	0	0	0	0	0	Bus88	-2.981	-2.201	116	80.45		
										Bus92	2.943	2.176	115	80.41		
										Bus91	0.038	0.025	1	83.54		
Bus91	0.380	0.341	-3.3	0	0	0.037	0.023	0	0	Bus90	-0.037	-0.023	74	85.00		
Bus92	20.000	18.291	-1.9	0	0	0	0	0	0	Bus90	-2.933	-2.161	115	80.51		
										Bus94	2.865	2.114	112	80.47		
										Bus93	0.069	0.047	2	82.24		
Bus93	0.380	0.332	-4.8	0	0	0.068	0.042	0	0	Bus92	-0.068	-0.042	138	85.00		
Bus94	20.000	18.259	-1.9	0	0	0	0	0	0	Bus92	-2.861	-2.108	112	80.51		
										Bus96	2.800	2.067	110	80.46		
										Bus95	0.061	0.041	2	82.57		
Bus95	0.380	0.333	-4.5	0	0	0.060	0.037	0	0	Bus94	-0.060	-0.037	122	85.00		
Bus96	20.000	18.111	-2.1	0	0	0	0	0	0	Bus94	-2.784	-2.042	110	80.64		
										Bus98	2.724	2.001	107	80.60		
										Bus97	0.060	0.041	2	82.56		
Bus97	0.380	0.330	-4.6	0	0	0.059	0.037	0	0	Bus96	-0.059	-0.037	121	85.00		
Bus98	20.000	18.031	-2.2	0	0	0	0	0	0	Bus96	-2.715	-1.987	107	80.70		
										Bus100	2.657	1.949	105	80.63		
										Bus99	0.058	0.038	2	83.55		
Bus99	0.380	0.334	-3.7	0	0	0.057	0.036	0	0	Bus98	-0.057	-0.036	116	85.00		
Bus100	20.000	18.021	-2.2	0	0	0	0	0	0	Bus98	-2.656	-1.948	105	80.65		
										Bus102	2.650	1.943	105	80.64		
										Bus101	0.006	0.004	0	84.00		
Bus101	0.380	0.337	-3.3	0	0	0.006	0.004	0	0	Bus100	-0.006	-0.004	12	85.00		
Bus102	20.000	18.001	-2.2	0	0	0	0	0	0	Bus100	-2.648	-1.940	105	80.66		
										Bus104	2.623	1.923	104	80.64		
										Bus103	0.025	0.017	0	82.96		
Bus103	0.380	0.330	-4.4	0	0	0.025	0.015	0	0	Bus102	-0.025	-0.015	50	85.00		
Bus104	20.000	17.904	-2.3	0	0	0	0	0	0	Bus102	-2.613	-1.908	104	80.76		
										Bus106	2.585	1.889	103	80.74		
										Bus105	0.028	0.019	1	82.69		
Bus105	0.380	0.327	-4.8	0	0	0.028	0.017	0	0	Bus104	-0.028	-0.017	57	85.00		
Bus106	20.000	17.871	-2.4	0	0	0	0	0	0	Bus104	-2.581	-1.883	103	80.78		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
										Bus108	2.539	1.853	101	80.77		
										Bus107	0.042	0.030	1	81.35		
Bus107	0.380	0.319	-6.1	0	0	0.042	0.026	0	0	Bus106	-0.042	-0.026	88	85.00		
Bus108	20.000	17.803	-2.4	0	0	0	0	0	0	Bus106	-2.532	-1.842	101	80.86		
										Bus146	2.452	1.785	98	80.84		
										Bus109	0.080	0.057	3	81.53		
Bus109	0.380	0.319	-6.0	0	0	0.079	0.049	0	0	Bus108	-0.079	-0.049	168	85.00		
Bus112	20.000	17.712	-2.6	0	0	0	0	0	0	Bus261	-0.597	-0.415	23	82.10		
										Bus114	0.572	0.399	22	82.02		
										Bus113	0.025	0.016	0	83.99		
Bus113	0.380	0.331	-3.6	0	0	0.024	0.015	0	0	Bus112	-0.024	-0.015	50	85.00		
Bus114	20.000	17.697	-2.6	0	0	0	0	0	0	Bus112	-0.572	-0.399	22	82.04		
										Bus116	0.557	0.389	22	82.00		
										Bus115	0.014	0.009	0	83.81		
Bus115	0.380	0.330	-3.9	0	0	0.014	0.009	0	0	Bus114	-0.014	-0.009	29	85.00		
Bus116	20.000	17.682	-2.6	0	0	0	0	0	0	Bus114	-0.557	-0.389	22	82.01		
										Bus118	0.541	0.378	21	82.01		
										Bus117	0.016	0.011	0	82.30		
Bus117	0.380	0.321	-5.4	0	0	0.015	0.010	0	0	Bus116	-0.015	-0.010	32	85.00		
Bus118	20.000	17.680	-2.6	0	0	0	0	0	0	Bus116	-0.541	-0.378	21	82.01		
										Bus120	0.466	0.316	18	82.72		
										Bus119	0.076	0.062	3	77.67		
Bus119	0.380	0.296	-9.9	0	0	0.073	0.045	0	0	Bus118	-0.073	-0.045	167	85.00		
Bus120	20.000	17.673	-2.6	0	0	0	0	0	0	Bus118	-0.465	-0.316	18	82.73		
										Bus122	0.430	0.291	16	82.80		
										Bus121	0.035	0.025	1	81.92		
Bus121	0.380	0.319	-5.8	0	0	0.035	0.022	0	0	Bus120	-0.035	-0.022	74	85.00		
Bus122	20.000	17.656	-2.6	0	0	0	0	0	0	Bus120	-0.430	-0.291	16	82.82		
										Bus124	0.397	0.268	15	82.87		
										Bus123	0.033	0.023	1	82.16		
Bus123	0.380	0.320	-5.6	0	0	0.032	0.020	0	0	Bus122	-0.032	-0.020	68	85.00		
Bus124	20.000	17.639	-2.7	0	0	0	0	0	0	Bus122	-0.397	-0.268	15	82.89		
										Bus126	0.379	0.255	14	82.94		
										Bus125	0.018	0.012	0	81.94		
Bus125	0.380	0.318	-5.8	0	0	0.017	0.011	0	0	Bus124	-0.017	-0.011	36	85.00		
Bus126	20.000	17.639	-2.7	0	0	0	0	0	0	Bus124	-0.379	-0.255	14	82.94		
										Bus128	0.344	0.232	13	82.82		
										Bus127	0.036	0.023	1	84.08		
Bus127	0.380	0.330	-3.6	0	0	0.035	0.022	0	0	Bus126	-0.035	-0.022	72	85.00		
Bus128	20.000	17.637	-2.7	0	0	0	0	0	0	Bus126	-0.344	-0.232	13	82.82		
										Bus130	0.310	0.210	12	82.74		
										Bus129	0.034	0.022	1	83.59		
Bus129	0.380	0.327	-4.2	0	0	0.034	0.021	0	0	Bus128	-0.034	-0.021	69	85.00		
Bus130	20.000	17.629	-2.7	0	0	0	0	0	0	Bus128	-0.310	-0.210	12	82.75		
										Bus132	0.301	0.204	11	82.73		
										Bus131	0.009	0.006	0	83.48		
Bus131	0.380	0.326	-4.3	0	0	0.009	0.006	0	0	Bus130	-0.009	-0.006	18	85.00		



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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus132	20.000	17.627	-2.7	0	0	0	0	0	0	Bus130	-0.301	-0.204	11	82.73		
										Bus134	0.009	0.005	0	84.29		
										Bus136	0.203	0.138	8	82.71		
										Bus133	0.089	0.060	3	82.62		
Bus133	0.380	0.322	-5.2	0	0	0.088	0.054	0	0	Bus132	-0.088	-0.054	184	85.00		
Bus134	20.000	17.627	-2.7	0	0	0	0	0	0	Bus132	-0.009	-0.005	0	84.29		
										Bus135	0.009	0.005	0	84.29		
Bus135	0.380	0.331	-3.4	0	0	0.009	0.005	0	0	Bus134	-0.009	-0.005	17	85.00		
Bus136	20.000	17.610	-2.7	0	0	0	0	0	0	Bus132	-0.203	-0.138	8	82.73		
										Bus138	0.184	0.125	7	82.67		
										Bus137	0.019	0.013	0	83.36		
Bus137	0.380	0.325	-4.4	0	0	0.019	0.012	0	0	Bus136	-0.019	-0.012	40	85.00		
Bus138	20.000	17.598	-2.7	0	0	0	0	0	0	Bus136	-0.184	-0.125	7	82.68		
										Bus140	0.085	0.057	3	83.12		
										Bus139	0.099	0.068	3	82.31		
Bus139	0.380	0.319	-5.5	0	0	0.098	0.061	0	0	Bus138	-0.098	-0.061	207	85.00		
Bus140	20.000	17.597	-2.7	0	0	0	0	0	0	Bus138	-0.085	-0.057	3	83.12		
										Bus142	0.060	0.040	2	83.21		
										Bus141	0.025	0.017	0	82.88		
Bus141	0.380	0.323	-4.9	0	0	0.024	0.015	0	0	Bus140	-0.024	-0.015	51	85.00		
Bus142	20.000	17.597	-2.7	0	0	0	0	0	0	Bus140	-0.060	-0.040	2	83.21		
										Bus144	0.046	0.031	1	83.02		
										Bus143	0.013	0.009	0	83.89		
Bus143	0.380	0.328	-3.9	0	0	0.013	0.008	0	0	Bus142	-0.013	-0.008	27	85.00		
Bus144	20.000	17.597	-2.7	0	0	0	0	0	0	Bus142	-0.046	-0.031	1	83.02		
										Bus145	0.046	0.031	1	83.02		
Bus145	0.380	0.323	-4.8	0	0	0.046	0.028	0	0	Bus144	-0.046	-0.028	96	85.00		
Bus146	20.000	17.759	-2.5	0	0	0	0	0	0	Bus108	-2.447	-1.779	98	80.89		
										Bus148	2.431	1.768	97	80.87		
										Bus147	0.016	0.010	0	84.34		
Bus147	0.380	0.334	-3.2	0	0	0.016	0.010	0	0	Bus146	-0.016	-0.010	33	85.00		
Bus148	20.000	17.740	-2.5	0	0	0	0	0	0	Bus146	-2.429	-1.765	97	80.89		
										Bus150	1.698	1.256	68	80.39		
										Bus261	0.613	0.426	24	82.11		
										Bus149	0.118	0.083	4	81.80		
Bus149	0.380	0.319	-5.9	0	0	0.116	0.072	0	0	Bus148	-0.116	-0.072	247	85.00		
Bus150	20.000	17.634	-2.7	0	0	0	0	0	0	Bus148	-1.690	-1.245	68	80.52		
										Bus152	1.635	1.207	66	80.45		
										Bus151	0.055	0.037	2	82.65		
Bus151	0.380	0.322	-5.1	0	0	0.054	0.034	0	0	Bus150	-0.054	-0.034	114	85.00		
Bus152	20.000	17.609	-2.7	0	0	0	0	0	0	Bus150	-1.634	-1.205	66	80.48		
										Bus197	0.776	0.547	31	81.74		
										Bus391	0.773	0.587	31	79.65		
										Bus153	0.084	0.071	3	76.57		
Bus153	0.380	0.289	-10.9	0	0	0.081	0.050	0	0	Bus152	-0.081	-0.050	189	85.00		
Bus180	0.380	0.315	-5.9	0	0	0.063	0.039	0	0	Bus181	-0.063	-0.039	135	85.00		
Bus181	20.000	17.388	-3.0	0	0	0	0	0	0	Bus409	-0.064	-0.044	2	82.16		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus196	0.380	0.333	-2.9	0	0	0	0	0	0	Bus180	0.064	0.044	2	82.16		
Bus197	20.000	17.576	-2.7	0	0	0	0	0	0	Bus197	-0.002	-0.001	4	85.00		
Bus198	0.380	0.323	-4.8	0	0	0.022	0.014	0	0	Bus152	-0.775	-0.546	31	81.78		
Bus199	20.000	17.542	-2.8	0	0	0	0	0	0	Bus199	0.773	0.544	31	81.77		
Bus200	0.380	0.331	-3.2	0	0	0	0	0	0	Bus196	0.002	0.001	0	84.81		
Bus201	20.000	17.509	-2.8	0	0	0	0	0	0	Bus199	-0.022	-0.014	47	85.00		
Bus202	0.380	0.323	-4.6	0	0	0.019	0.012	0	0	Bus197	-0.772	-0.543	31	81.81		
Bus203	20.000	17.478	-2.9	0	0	0	0	0	0	Bus201	0.749	0.527	30	81.77		
Bus204	0.380	0.324	-4.4	0	0	0.009	0.005	0	0	Bus198	0.023	0.015	0	83.07		
Bus205	20.000	17.474	-2.9	0	0	0	0	0	0	Bus201	-0.002	-0.001	4	85.00		
Bus216	20.000	17.473	-2.9	0	0	0	0	0	0	Bus199	-0.748	-0.526	30	81.82		
Bus217	0.380	0.330	-3.3	0	0	0.010	0.006	0	0	Bus203	0.746	0.525	30	81.81		
Bus222	20.000	17.431	-2.9	0	0	0	0	0	0	Bus200	0.002	0.001	0	84.68		
Bus223	0.380	0.318	-5.4	0	0	0.052	0.032	0	0	Bus203	-0.019	-0.012	40	85.00		
Bus224	20.000	17.449	-2.9	0	0	0	0	0	0	Bus201	-0.745	-0.523	30	81.85		
Bus225	0.380	0.314	-6.2	0	0	0.071	0.044	0	0	Bus205	0.726	0.510	29	81.81		
Bus226	20.000	17.411	-2.9	0	0	0	0	0	0	Bus202	0.019	0.013	0	83.35		
Bus227	0.380	0.319	-5.2	0	0	0.049	0.030	0	0	Bus205	-0.009	-0.005	18	85.00		
Bus228	20.000	17.397	-3.0	0	0	0	0	0	0	Bus203	-0.726	-0.510	29	81.82		
Bus229	0.380	0.319	-5.1	0	0	0.047	0.029	0	0	Bus216	0.717	0.504	28	81.80		
Bus230	20.000	17.396	-3.0	0	0	0	0	0	0	Bus204	0.009	0.006	0	83.52		
Bus231	0.380	0.320	-5.0	0	0	0.011	0.007	0	0	Bus205	-0.717	-0.504	28	81.80		
Bus232	20.000	17.390	-3.0	0	0	0	0	0	0	Bus299	0.198	0.136	7	82.45		
										Bus310	0.510	0.363	20	81.49		
										Bus217	0.010	0.006	0	84.59		
										Bus216	-0.010	-0.006	20	85.00		
										Bus310	-0.241	-0.163	9	82.83		
										Bus226	0.188	0.127	7	82.87		
										Bus223	0.053	0.036	2	82.68		
										Bus222	-0.052	-0.032	111	85.00		
										Bus310	-0.257	-0.192	10	80.21		
										Bus238	0.185	0.141	7	79.61		
										Bus225	0.072	0.051	2	81.78		
										Bus224	-0.071	-0.044	153	85.00		
										Bus222	-0.188	-0.127	7	82.90		
										Bus228	0.138	0.093	5	82.92		
										Bus227	0.049	0.033	1	82.84		
										Bus226	-0.049	-0.030	103	85.00		
										Bus226	-0.138	-0.093	5	82.94		
										Bus230	0.091	0.061	3	82.94		
										Bus229	0.047	0.032	1	82.93		
										Bus228	-0.047	-0.029	99	85.00		
										Bus228	-0.091	-0.061	3	82.94		
										Bus232	0.080	0.054	3	82.92		
										Bus231	0.011	0.007	0	83.06		
										Bus230	-0.011	-0.007	23	85.00		
										Bus230	-0.080	-0.054	3	82.93		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
										Bus234	0.023	0.015	0	84.01		
										Bus233	0.057	0.039	2	82.49		
Bus233	0.380	0.317	-5.6	0	0	0.056	0.035	0	0	Bus232	-0.056	-0.035	120	85.00		
Bus234	20.000	17.389	-3.0	0	0	0	0	0	0	Bus232	-0.023	-0.015	0	84.02		
										Bus236	0.012	0.008	0	84.00		
										Bus235	0.011	0.007	0	84.03		
Bus235	0.380	0.325	-4.0	0	0	0.011	0.007	0	0	Bus234	-0.011	-0.007	23	85.00		
Bus236	20.000	17.388	-3.0	0	0	0	0	0	0	Bus234	-0.012	-0.008	0	84.00		
										Bus237	0.012	0.008	0	84.00		
Bus237	0.380	0.325	-4.1	0	0	0.012	0.007	0	0	Bus236	-0.012	-0.007	24	85.00		
Bus238	20.000	17.441	-2.9	0	0	0	0	0	0	Bus224	-0.185	-0.141	7	79.62		
										Bus240	0.120	0.098	5	77.52		
										Bus314	0.043	0.029	1	83.13		
										Bus321	0.009	0.006	0	84.57		
										Bus239	0.013	0.008	0	83.92		
Bus239	0.380	0.325	-4.1	0	0	0.013	0.008	0	0	Bus238	-0.013	-0.008	26	85.00		
Bus240	20.000	17.439	-2.9	0	0	0	0	0	0	Bus238	-0.120	-0.098	5	77.52		
										Bus242	0.009	0.006	0	84.61		
										Bus319	0.053	0.036	2	82.67		
										Bus241	0.058	0.056	2	71.83		
Bus241	0.380	0.261	-15.2	0	0	0.054	0.033	0	0	Bus240	-0.054	-0.033	139	85.00		
Bus242	20.000	17.439	-2.9	0	0	0	0	0	0	Bus240	-0.009	-0.006	0	84.61		
										Bus243	0.009	0.006	0	84.61		
Bus243	0.380	0.329	-3.3	0	0	0.009	0.006	0	0	Bus242	-0.009	-0.006	19	85.00		
Bus260	0.380	0.330	-3.9	0	0	0.015	0.010	0	0	Bus261	-0.015	-0.010	31	85.00		
Bus261	20.000	17.722	-2.5	0	0	0	0	0	0	Bus112	0.597	0.415	23	82.09		
										Bus148	-0.613	-0.426	24	82.13		
										Bus260	0.015	0.010	0	83.72		
Bus298	0.380	0.321	-5.0	0	0	0.012	0.007	0	0	Bus299	-0.012	-0.007	24	85.00		
Bus299	20.000	17.472	-2.9	0	0	0	0	0	0	Bus216	-0.198	-0.136	7	82.45		
										Bus301	0.186	0.128	7	82.41		
										Bus298	0.012	0.008	0	82.96		
Bus300	0.380	0.324	-4.4	0	0	0.034	0.021	0	0	Bus301	-0.034	-0.021	71	85.00		
Bus301	20.000	17.471	-2.9	0	0	0	0	0	0	Bus299	-0.186	-0.128	7	82.42		
										Bus303	0.051	0.038	2	80.31		
										Bus308	0.101	0.067	4	83.09		
										Bus300	0.034	0.023	1	83.53		
Bus302	0.380	0.306	-7.6	0	0	0.049	0.031	0	0	Bus303	-0.049	-0.031	109	85.00		
Bus303	20.000	17.470	-2.9	0	0	0	0	0	0	Bus301	-0.051	-0.038	2	80.31		
										Bus302	0.051	0.038	2	80.31		
Bus304	0.380	0.323	-4.6	0	0	0.060	0.037	0	0	Bus307	-0.060	-0.037	126	85.00		
Bus305	0.380	0.320	-5.1	0	0	0.012	0.008	0	0	Bus306	-0.012	-0.008	25	85.00		
Bus306	20.000	17.468	-2.9	0	0	0	0	0	0	Bus307	-0.012	-0.008	0	82.87		
										Bus305	0.012	0.008	0	82.87		
Bus307	20.000	17.468	-2.9	0	0	0	0	0	0	Bus306	0.012	0.008	0	82.87		
										Bus308	-0.073	-0.049	2	83.29		
										Bus304	0.061	0.040	2	83.37		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus308	20.000	17.469	-2.9	0	0	0	0	0	0	Bus301	-0.101	-0.067	4	83.09		
										Bus307	0.073	0.049	2	83.29		
										Bus309	0.028	0.019	1	82.58		
Bus309	0.380	0.318	-5.4	0	0	0.027	0.017	0	0	Bus308	-0.027	-0.017	58	85.00		
Bus310	20.000	17.463	-2.9	0	0	0	0	0	0	Bus222	0.241	0.163	9	82.79		
										Bus224	0.258	0.192	10	80.20		
										Bus216	-0.510	-0.362	20	81.50		
										Bus311	0.011	0.007	0	84.10		
Bus311	0.380	0.327	-3.8	0	0	0.011	0.007	0	0	Bus310	-0.011	-0.007	22	85.00		
Bus314	20.000	17.437	-2.9	0	0	0	0	0	0	Bus238	-0.043	-0.029	1	83.14		
										Bus315	0.043	0.029	1	83.14		
Bus315	0.380	0.321	-4.9	0	0	0.043	0.026	0	0	Bus314	-0.043	-0.026	90	85.00		
Bus318	0.380	0.318	-5.4	0	0	0.053	0.033	0	0	Bus319	-0.053	-0.033	112	85.00		
Bus319	20.000	17.438	-2.9	0	0	0	0	0	0	Bus240	-0.053	-0.036	2	82.67		
										Bus318	0.053	0.036	2	82.67		
Bus320	0.380	0.330	-3.2	0	0	0	0	0	0	Bus321	-0.003	-0.002	7	85.00		
Bus321	20.000	17.440	-2.9	0	0	0	0	0	0	Bus238	-0.009	-0.006	0	84.58		
										Bus323	0.006	0.004	0	84.50		
										Bus320	0.003	0.002	0	84.72		
Bus322	0.380	0.329	-3.4	0	0	0.006	0.004	0	0	Bus323	-0.006	-0.004	12	85.00		
Bus323	20.000	17.440	-2.9	0	0	0	0	0	0	Bus321	-0.006	-0.004	0	84.50		
										Bus322	0.006	0.004	0	84.50		
Bus390	0.380	0.324	-4.8	0	0	0.045	0.028	0	0	Bus391	-0.045	-0.028	95	85.00		
Bus391	20.000	17.601	-2.7	0	0	0	0	0	0	Bus152	-0.773	-0.586	31	79.66		
										Bus393	0.727	0.556	30	79.45		
										Bus390	0.046	0.031	1	83.05		
Bus392	0.380	0.261	-15.3	0	0	0.110	0.068	0	0	Bus393	-0.110	-0.068	287	85.00		
Bus393	20.000	17.548	-2.8	0	0	0	0	0	0	Bus391	-0.726	-0.553	30	79.51		
										Bus395	0.535	0.388	21	80.95		
										Bus399	0.072	0.049	2	82.51		
										Bus392	0.119	0.116	5	71.48		
Bus394	0.380	0.323	-4.6	0	0	0.010	0.006	0	0	Bus395	-0.010	-0.006	20	85.00		
Bus395	20.000	17.479	-2.8	0	0	0	0	0	0	Bus393	-0.533	-0.386	21	81.04		
										Bus397	0.524	0.379	21	80.99		
										Bus394	0.010	0.006	0	83.34		
Bus396	0.380	0.317	-5.6	0	0	0.029	0.018	0	0	Bus397	-0.029	-0.018	62	85.00		
Bus397	20.000	17.455	-2.9	0	0	0	0	0	0	Bus395	-0.523	-0.378	21	81.02		
										Bus403	0.494	0.358	20	80.94		
										Bus396	0.029	0.020	1	82.41		
Bus398	0.380	0.329	-3.6	0	0	0.009	0.006	0	0	Bus399	-0.009	-0.006	19	85.00		
Bus399	20.000	17.547	-2.8	0	0	0	0	0	0	Bus393	-0.072	-0.049	2	82.51		
										Bus401	0.063	0.043	2	82.25		
										Bus398	0.009	0.006	0	84.23		
Bus400	0.380	0.318	-5.6	0	0	0.062	0.038	0	0	Bus401	-0.062	-0.038	131	85.00		
Bus401	20.000	17.540	-2.8	0	0	0	0	0	0	Bus399	-0.063	-0.043	2	82.26		
										Bus400	0.063	0.043	2	82.26		
Bus402	0.380	0.329	-3.4	0	0	0.005	0.003	0	0	Bus403	-0.005	-0.003	10	85.00		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus403	20.000	17.419	-2.9	0	0	0	0	0	0	Bus397	-0.493	-0.357	20	80.99		
										Bus405	0.488	0.354	19	80.95		
										Bus402	0.005	0.003	0	84.58		
Bus404	0.380	0.318	-5.3	0	0	0.013	0.008	0	0	Bus405	-0.013	-0.008	27	85.00		
Bus405	20.000	17.406	-2.9	0	0	0	0	0	0	Bus403	-0.488	-0.353	19	80.97		
										Bus407	0.475	0.345	19	80.92		
										Bus404	0.013	0.009	0	82.74		
Bus406	0.380	0.296	-9.3	0	0	0.063	0.039	0	0	Bus407	-0.063	-0.039	144	85.00		
Bus407	20.000	17.393	-2.9	0	0	0	0	0	0	Bus405	-0.474	-0.344	19	80.94		
										Bus409	0.409	0.293	16	81.30		
										Bus406	0.065	0.051	2	78.67		
Bus408	0.380	0.317	-5.6	0	0	0.028	0.017	0	0	Bus409	-0.028	-0.017	59	85.00		
Bus409	20.000	17.390	-3.0	0	0	0	0	0	0	Bus181	0.064	0.044	2	82.16		
										Bus407	-0.409	-0.293	16	81.30		
										Bus411	0.059	0.040	2	82.79		
										Bus415	0.258	0.190	10	80.62		
										Bus408	0.028	0.019	1	82.52		
Bus410	0.380	0.313	-6.2	0	0	0.017	0.011	0	0	Bus411	-0.017	-0.011	37	85.00		
Bus411	20.000	17.388	-3.0	0	0	0	0	0	0	Bus409	-0.059	-0.040	2	82.79		
										Bus413	0.042	0.028	1	83.19		
										Bus410	0.018	0.012	0	81.85		
Bus412	0.380	0.320	-4.9	0	0	0.041	0.026	0	0	Bus413	-0.041	-0.026	87	85.00		
Bus413	20.000	17.388	-3.0	0	0	0	0	0	0	Bus411	-0.042	-0.028	1	83.19		
										Bus412	0.042	0.028	1	83.18		
Bus414	0.380	0.323	-4.4	0	0	0.051	0.031	0	0	Bus415	-0.051	-0.031	106	85.00		
Bus415	20.000	17.386	-3.0	0	0	0	0	0	0	Bus409	-0.258	-0.190	10	80.62		
										Bus417	0.047	0.034	1	80.66		
										Bus419	0.161	0.122	6	79.66		
										Bus414	0.051	0.033	2	83.63		
Bus416	0.380	0.307	-7.4	0	0	0.046	0.028	0	0	Bus417	-0.046	-0.028	101	85.00		
Bus417	20.000	17.385	-3.0	0	0	0	0	0	0	Bus415	-0.047	-0.034	1	80.66		
										Bus416	0.047	0.034	1	80.66		
Bus418	0.380	0.294	-9.7	0	0	0.066	0.041	0	0	Bus419	-0.066	-0.041	153	85.00		
Bus419	20.000	17.382	-3.0	0	0	0	0	0	0	Bus415	-0.161	-0.122	6	79.66		
										Bus421	0.092	0.067	3	80.73		
										Bus418	0.069	0.055	2	78.23		
Bus420	0.380	0.307	-7.3	0	0	0.090	0.056	0	0	Bus421	-0.090	-0.056	199	85.00		
Bus421	20.000	17.379	-3.0	0	0	0	0	0	0	Bus419	-0.092	-0.067	3	80.74		
										Bus420	0.092	0.067	3	80.74		

\* 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



**LAMPIRAN E** Hasil Jatuh Tegangan Penyulang Ceko (*feeder 3*)  
Dengan luas penampang 185 mm<sup>2</sup> Dari *Software ETAP*

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**LOAD FLOW REPORT**

Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
* Bus1	20.000	20.000	0.0	4.407	3.398	0	0	0	0	Bus2	4.407	3.398	160	79.19		
Bus2	20.000	19.441	-0.7	0	0	0	0	0	0	Bus1	-4.326	-3.247	160	79.97		
										Bus4	0.073	0.056	2	79.36		
										Bus6	4.245	3.187	157	79.98		
										Bus3	0.007	0.004	0	84.76		
Bus3	0.380	0.368	-1.0	0	0	0.007	0.004	0	0	Bus2	-0.007	-0.004	13	85.00		
Bus4	20.000	19.436	-0.7	0	0	0	0	0	0	Bus2	-0.073	-0.056	2	79.37		
										Bus5	0.073	0.056	2	79.37		
Bus5	0.380	0.335	-6.4	0	0	0.071	0.044	0	0	Bus4	-0.071	-0.044	144	85.00		
Bus6	20.000	19.341	-0.9	0	0	0	0	0	0	Bus2	-4.231	-3.160	157	80.12		
										Bus10	4.223	3.155	157	80.11		
										Bus7	0.009	0.005	0	84.41		
Bus7	0.380	0.364	-1.5	0	0	0.009	0.005	0	0	Bus6	-0.009	-0.005	16	85.00		
Bus10	20.000	19.327	-0.9	0	0	0	0	0	0	Bus6	-4.221	-3.151	157	80.13		
										Bus12	4.159	3.111	155	80.08		
										Bus11	0.062	0.040	2	83.94		
Bus11	0.380	0.361	-2.0	0	0	0.061	0.038	0	0	Bus10	-0.061	-0.038	115	85.00		
Bus12	20.000	19.300	-0.9	0	0	0	0	0	0	Bus10	-4.155	-3.104	155	80.11		
										Bus14	4.101	3.068	153	80.07		
										Bus13	0.054	0.036	1	83.08		
Bus13	0.380	0.355	-3.0	0	0	0.054	0.033	0	0	Bus12	-0.054	-0.033	103	85.00		
Bus14	20.000	19.274	-1.0	0	0	0	0	0	0	Bus12	-4.097	-3.061	153	80.11		
										Bus16	4.005	2.996	149	80.08		
										Bus15	0.092	0.065	3	81.63		
Bus15	0.380	0.346	-4.5	0	0	0.090	0.056	0	0	Bus14	-0.090	-0.056	177	85.00		
Bus16	20.000	19.265	-1.0	0	0	0	0	0	0	Bus14	-4.004	-2.994	149	80.09		
										Bus18	3.983	2.979	149	80.08		
										Bus17	0.021	0.014	0	81.97		
Bus17	0.380	0.348	-4.1	0	0	0.020	0.013	0	0	Bus16	-0.020	-0.013	39	85.00		
Bus18	20.000	19.243	-1.0	0	0	0	0	0	0	Bus16	-3.981	-2.974	149	80.11		
										Bus20	0.029	0.019	1	83.98		
										Bus24	3.883	2.910	145	80.02		
										Bus19	0.069	0.045	2	83.48		
Bus19	0.380	0.356	-2.6	0	0	0.068	0.042	0	0	Bus18	-0.068	-0.042	130	85.00		
Bus20	20.000	19.243	-1.0	0	0	0	0	0	0	Bus18	-0.029	-0.019	1	83.98		
										Bus22	0.016	0.011	0	83.87		
										Bus21	0.013	0.008	0	84.13		
Bus21	0.380	0.360	-1.9	0	0	0.012	0.008	0	0	Bus20	-0.012	-0.008	23	85.00		
Bus22	20.000	19.242	-1.0	0	0	0	0	0	0	Bus20	-0.016	-0.011	0	83.87		
										Bus23	0.016	0.011	0	83.87		
Bus23	0.380	0.359	-2.2	0	0	0.016	0.010	0	0	Bus22	-0.016	-0.010	30	85.00		
Bus24	20.000	19.012	-1.3	0	0	0	0	0	0	Bus18	-3.852	-2.853	145	80.36		
										Bus26	3.842	2.846	145	80.35		
										Bus25	0.011	0.007	0	84.25		
Bus25	0.380	0.357	-2.1	0	0	0.011	0.007	0	0	Bus24	-0.011	-0.007	20	85.00		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus26	20.000	19.000	-1.4	0	0	0	0	0	0	Bus24	-3.840	-2.843	145	80.37		
										Bus30	0.055	0.040	2	80.78		
										Bus34	3.764	2.788	142	80.35		
										Bus27	0.022	0.015	0	81.74		
Bus27	0.380	0.341	-4.7	0	0	0.021	0.013	0	0	Bus26	-0.021	-0.013	42	85.00		
Bus30	20.000	18.999	-1.4	0	0	0	0	0	0	Bus26	-0.055	-0.040	2	80.78		
Bus31	0.380	0.336	-5.7	0	0	0.053	0.033	0	0	Bus30	-0.053	-0.033	107	85.00		
										Bus26	-3.759	-2.778	142	80.42		
Bus34	20.000	18.959	-1.4	0	0	0	0	0	0	Bus26	-3.759	-2.778	142	80.42		
										Bus36	3.744	2.769	141	80.41		
										Bus35	0.014	0.010	0	82.91		
Bus35	0.380	0.348	-3.6	0	0	0.014	0.009	0	0	Bus34	-0.014	-0.009	27	85.00		
Bus36	20.000	18.746	-1.7	0	0	0	0	0	0	Bus34	-3.717	-2.718	141	80.72		
										Bus38	0.006	0.004	0	84.19		
										Bus44	0.623	0.425	23	82.64		
										Bus88	3.011	2.238	115	80.25		
										Bus37	0.077	0.051	2	83.20		
										Bus36	-0.076	-0.047	150	85.00		
Bus37	0.380	0.345	-3.6	0	0	0.076	0.047	0	0	Bus36	-0.076	-0.047	150	85.00		
Bus38	20.000	18.746	-1.7	0	0	0	0	0	0	Bus36	-0.006	-0.004	0	84.19		
										Bus39	0.006	0.004	0	84.19		
										Bus38	-0.006	-0.003	10	85.00		
Bus39	0.380	0.351	-2.6	0	0	0.006	0.003	0	0	Bus38	-0.006	-0.003	10	85.00		
Bus44	20.000	18.690	-1.8	0	0	0	0	0	0	Bus36	-0.622	-0.422	23	82.73		
										Bus46	0.605	0.411	22	82.70		
										Bus45	0.017	0.011	0	83.71		
										Bus44	-0.017	-0.011	33	85.00		
										Bus44	-0.604	-0.410	22	82.73		
Bus45	0.380	0.347	-3.2	0	0	0.017	0.011	0	0	Bus44	-0.017	-0.011	33	85.00		
										Bus48	0.590	0.401	22	82.70		
										Bus47	0.014	0.009	0	83.94		
Bus46	20.000	18.674	-1.8	0	0	0	0	0	0	Bus44	-0.604	-0.410	22	82.73		
										Bus46	-0.014	-0.009	27	85.00		
Bus47	0.380	0.349	-3.0	0	0	0.014	0.009	0	0	Bus46	-0.014	-0.009	27	85.00		
Bus48	20.000	18.654	-1.9	0	0	0	0	0	0	Bus46	-0.589	-0.400	22	82.73		
										Bus50	0.547	0.372	20	82.68		
										Bus49	0.042	0.028	1	83.42		
										Bus48	-0.042	-0.026	82	85.00		
										Bus48	-0.547	-0.372	20	82.70		
Bus49	0.380	0.345	-3.5	0	0	0.042	0.026	0	0	Bus48	-0.042	-0.026	82	85.00		
										Bus52	0.513	0.349	19	82.72		
										Bus51	0.034	0.023	1	82.38		
Bus50	20.000	18.640	-1.9	0	0	0	0	0	0	Bus48	-0.547	-0.372	20	82.70		
										Bus50	-0.512	-0.347	19	82.77		
										Bus54	0.475	0.323	17	82.71		
Bus51	0.380	0.339	-4.6	0	0	0.033	0.021	0	0	Bus50	-0.033	-0.021	67	85.00		
										Bus53	0.037	0.025	1	83.60		
Bus52	20.000	18.606	-1.9	0	0	0	0	0	0	Bus50	-0.512	-0.347	19	82.77		
Bus53	0.380	0.345	-3.4	0	0	0.037	0.023	0	0	Bus52	-0.037	-0.023	73	85.00		
										Bus52	-0.475	-0.322	17	82.76		
										Bus56	0.434	0.296	16	82.63		
Bus54	20.000	18.577	-2.0	0	0	0	0	0	0	Bus55	0.040	0.026	1	84.06		
										Bus54	-0.040	-0.025	78	85.00		
Bus55	0.380	0.347	-3.0	0	0	0.040	0.025	0	0	Bus54	-0.040	-0.025	78	85.00		
Bus56	20.000	18.553	-2.0	0	0	0	0	0	0	Bus54	-0.434	-0.295	16	82.67		
										Bus58	0.404	0.276	15	82.58		



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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus57	0.380	0.346	-3.2	0	0	0.030	0.019	0	0	Bus57	0.030	0.020	1	83.87		
Bus58	20.000	18.533	-2.1	0	0	0	0	0	0	Bus56	-0.030	-0.019	58	85.00		
Bus59	0.380	0.346	-3.2	0	0	0.014	0.009	0	0	Bus56	-0.403	-0.275	15	82.61		
Bus60	20.000	18.515	-2.1	0	0	0	0	0	0	Bus60	0.389	0.266	14	82.56		
Bus61	0.380	0.349	-2.5	0	0	0.005	0.003	0	0	Bus59	0.014	0.009	0	83.93		
Bus62	20.000	18.496	-2.1	0	0	0	0	0	0	Bus58	-0.014	-0.009	27	85.00		
Bus63	0.380	0.339	-4.4	0	0	0.028	0.017	0	0	Bus58	-0.389	-0.265	14	82.59		
Bus64	20.000	18.455	-2.2	0	0	0	0	0	0	Bus62	0.383	0.262	14	82.57		
Bus65	0.380	0.330	-5.8	0	0	0.021	0.013	0	0	Bus61	0.005	0.003	0	84.60		
Bus66	20.000	18.455	-2.2	0	0	0	0	0	0	Bus60	-0.005	-0.003	10	85.00		
Bus67	0.380	0.343	-3.7	0	0	0.009	0.006	0	0	Bus60	-0.383	-0.262	14	82.59		
Bus68	20.000	18.393	-2.3	0	0	0	0	0	0	Bus64	0.355	0.242	13	82.58		
Bus69	0.380	0.332	-5.4	0	0	0.073	0.045	0	0	Bus63	0.028	0.019	1	82.81		
Bus70	20.000	18.393	-2.3	0	0	0	0	0	0	Bus62	-0.028	-0.017	56	85.00		
Bus71	0.380	0.329	-5.9	0	0	0.021	0.013	0	0	Bus62	-0.354	-0.241	13	82.64		
Bus72	20.000	18.390	-2.3	0	0	0	0	0	0	Bus66	0.204	0.140	7	82.46		
Bus73	0.380	0.345	-3.1	0	0	0.020	0.013	0	0	Bus78	0.128	0.086	4	83.12		
Bus74	20.000	18.388	-2.3	0	0	0	0	0	0	Bus65	0.022	0.015	0	81.52		
Bus75	0.380	0.342	-3.6	0	0	0.016	0.010	0	0	Bus64	-0.021	-0.013	43	85.00		
Bus76	20.000	18.386	-2.3	0	0	0	0	0	0	Bus64	-0.204	-0.140	7	82.46		
Bus77	0.380	0.335	-4.9	0	0	0.061	0.038	0	0	Bus68	0.195	0.134	7	82.41		
Bus78	20.000	18.451	-2.2	0	0	0	0	0	0	Bus67	0.009	0.006	0	83.62		
Bus79	0.380	0.338	-4.4	0	0	0.053	0.033	0	0	Bus66	-0.009	-0.006	17	85.00		
Bus80	20.000	18.450	-2.2	0	0	0	0	0	0	Bus66	-0.009	-0.006	17	85.00		
										Bus70	0.121	0.082	4	82.80		
										Bus69	0.074	0.052	2	82.03		
										Bus68	-0.073	-0.045	149	85.00		
										Bus68	-0.121	-0.082	4	82.80		
										Bus72	0.099	0.066	3	83.08		
										Bus71	0.022	0.015	0	81.49		
										Bus70	-0.021	-0.013	43	85.00		
										Bus70	-0.099	-0.066	3	83.09		
										Bus74	0.079	0.053	2	82.79		
										Bus73	0.020	0.013	0	84.23		
										Bus72	-0.020	-0.013	40	85.00		
										Bus72	-0.079	-0.053	2	82.79		
										Bus76	0.062	0.042	2	82.54		
										Bus75	0.017	0.011	0	83.74		
										Bus74	-0.016	-0.010	32	85.00		
										Bus74	-0.062	-0.042	2	82.55		
										Bus77	0.062	0.042	2	82.55		
										Bus76	-0.061	-0.038	124	85.00		
										Bus64	-0.128	-0.086	4	83.13		
										Bus80	0.075	0.050	2	83.29		
										Bus79	0.054	0.036	2	82.91		
										Bus78	-0.053	-0.033	107	85.00		
										Bus78	-0.075	-0.050	2	83.29		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
										Bus82	0.049	0.032	1	83.45		
Bus81	0.380	0.339	-4.3	0	0	0.026	0.016	0	0	Bus81	0.026	0.017	0	82.99		
										Bus80	-0.026	-0.016	51	85.00		
Bus82	20.000	18.439	-2.2	0	0	0	0	0	0	Bus80	-0.049	-0.032	1	83.46		
										Bus84	0.036	0.023	1	83.64		
										Bus83	0.013	0.009	0	82.99		
Bus83	0.380	0.339	-4.3	0	0	0.013	0.008	0	0	Bus82	-0.013	-0.008	25	85.00		
Bus84	20.000	18.437	-2.2	0	0	0	0	0	0	Bus82	-0.036	-0.023	1	83.64		
										Bus85	0.036	0.023	1	83.64		
Bus85	0.380	0.342	-3.7	0	0	0.035	0.022	0	0	Bus84	-0.035	-0.022	70	85.00		
Bus88	20.000	18.573	-2.0	0	0	0	0	0	0	Bus36	-2.993	-2.205	115	80.51		
										Bus90	2.959	2.183	114	80.48		
										Bus89	0.034	0.022	1	83.73		
Bus89	0.380	0.345	-3.3	0	0	0.034	0.021	0	0	Bus88	-0.034	-0.021	66	85.00		
Bus90	20.000	18.563	-2.0	0	0	0	0	0	0	Bus88	-2.958	-2.181	114	80.49		
										Bus92	2.920	2.156	112	80.45		
										Bus91	0.038	0.025	1	83.58		
Bus91	0.380	0.344	-3.5	0	0	0.037	0.023	0	0	Bus90	-0.037	-0.023	73	85.00		
Bus92	20.000	18.488	-2.1	0	0	0	0	0	0	Bus90	-2.913	-2.142	112	80.57		
										Bus94	2.844	2.094	110	80.52		
										Bus93	0.069	0.047	2	82.30		
Bus93	0.380	0.336	-4.9	0	0	0.068	0.042	0	0	Bus92	-0.068	-0.042	136	85.00		
Bus94	20.000	18.460	-2.1	0	0	0	0	0	0	Bus92	-2.841	-2.089	110	80.57		
										Bus96	2.781	2.048	108	80.52		
										Bus95	0.061	0.041	2	82.63		
Bus95	0.380	0.337	-4.6	0	0	0.060	0.037	0	0	Bus94	-0.060	-0.037	120	85.00		
Bus96	20.000	18.329	-2.3	0	0	0	0	0	0	Bus94	-2.768	-2.024	108	80.72		
										Bus98	2.708	1.983	105	80.68		
										Bus97	0.060	0.041	2	82.62		
Bus97	0.380	0.334	-4.8	0	0	0.059	0.037	0	0	Bus96	-0.059	-0.037	120	85.00		
Bus98	20.000	18.259	-2.4	0	0	0	0	0	0	Bus96	-2.701	-1.970	105	80.79		
										Bus100	2.643	1.932	103	80.73		
										Bus99	0.058	0.038	2	83.59		
Bus99	0.380	0.339	-3.9	0	0	0.057	0.036	0	0	Bus98	-0.057	-0.036	115	85.00		
Bus100	20.000	18.250	-2.4	0	0	0	0	0	0	Bus98	-2.642	-1.931	103	80.74		
										Bus102	2.636	1.927	103	80.73		
										Bus101	0.006	0.004	0	84.02		
Bus101	0.380	0.341	-3.5	0	0	0.006	0.004	0	0	Bus100	-0.006	-0.004	12	85.00		
Bus102	20.000	18.232	-2.5	0	0	0	0	0	0	Bus100	-2.634	-1.924	103	80.76		
										Bus104	2.609	1.907	102	80.74		
										Bus103	0.025	0.017	0	83.02		
Bus103	0.380	0.335	-4.6	0	0	0.025	0.015	0	0	Bus102	-0.025	-0.015	50	85.00		
Bus104	20.000	18.147	-2.6	0	0	0	0	0	0	Bus102	-2.601	-1.892	102	80.87		
										Bus106	2.574	1.873	101	80.85		
										Bus105	0.028	0.019	1	82.75		
Bus105	0.380	0.332	-5.0	0	0	0.028	0.017	0	0	Bus104	-0.028	-0.017	56	85.00		
Bus106	20.000	18.118	-2.6	0	0	0	0	0	0	Bus104	-2.571	-1.868	101	80.90		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
										Bus108	2.529	1.838	99	80.89		
										Bus107	0.042	0.030	1	81.46		
Bus107	0.380	0.324	-6.3	0	0	0.042	0.026	0	0	Bus106	-0.042	-0.026	87	85.00		
Bus108	20.000	18.058	-2.7	0	0	0	0	0	0	Bus106	-2.523	-1.828	99	80.98		
										Bus146	2.443	1.771	96	80.96		
										Bus109	0.080	0.057	3	81.64		
Bus109	0.380	0.324	-6.2	0	0	0.079	0.049	0	0	Bus108	-0.079	-0.049	165	85.00		
Bus112	20.000	17.979	-2.9	0	0	0	0	0	0	Bus261	-0.596	-0.413	23	82.19		
										Bus114	0.572	0.397	22	82.11		
										Bus113	0.025	0.016	0	84.02		
Bus113	0.380	0.336	-3.9	0	0	0.024	0.015	0	0	Bus112	-0.024	-0.015	49	85.00		
Bus114	20.000	17.965	-2.9	0	0	0	0	0	0	Bus112	-0.571	-0.397	22	82.14		
										Bus116	0.557	0.387	21	82.09		
										Bus115	0.014	0.009	0	83.84		
Bus115	0.380	0.335	-4.1	0	0	0.014	0.009	0	0	Bus114	-0.014	-0.009	29	85.00		
Bus116	20.000	17.952	-2.9	0	0	0	0	0	0	Bus114	-0.557	-0.387	21	82.11		
										Bus118	0.541	0.376	21	82.10		
										Bus117	0.016	0.011	0	82.39		
Bus117	0.380	0.326	-5.6	0	0	0.015	0.010	0	0	Bus116	-0.015	-0.010	32	85.00		
Bus118	20.000	17.950	-2.9	0	0	0	0	0	0	Bus116	-0.541	-0.376	21	82.11		
										Bus120	0.465	0.315	18	82.79		
										Bus119	0.076	0.061	3	77.94		
Bus119	0.380	0.302	-9.9	0	0	0.073	0.045	0	0	Bus118	-0.073	-0.045	164	85.00		
Bus120	20.000	17.944	-2.9	0	0	0	0	0	0	Bus118	-0.465	-0.315	18	82.80		
										Bus122	0.430	0.290	16	82.86		
										Bus121	0.035	0.025	1	82.03		
Bus121	0.380	0.324	-6.0	0	0	0.035	0.022	0	0	Bus120	-0.035	-0.022	73	85.00		
Bus122	20.000	17.929	-2.9	0	0	0	0	0	0	Bus120	-0.429	-0.290	16	82.88		
										Bus124	0.397	0.267	15	82.94		
										Bus123	0.033	0.023	1	82.26		
Bus123	0.380	0.325	-5.8	0	0	0.032	0.020	0	0	Bus122	-0.032	-0.020	67	85.00		
Bus124	20.000	17.914	-3.0	0	0	0	0	0	0	Bus122	-0.396	-0.267	15	82.96		
										Bus126	0.379	0.255	14	83.00		
										Bus125	0.018	0.012	0	82.05		
Bus125	0.380	0.324	-6.0	0	0	0.017	0.011	0	0	Bus124	-0.017	-0.011	36	85.00		
Bus126	20.000	17.914	-3.0	0	0	0	0	0	0	Bus124	-0.379	-0.255	14	83.00		
										Bus128	0.343	0.232	13	82.89		
										Bus127	0.036	0.023	1	84.11		
Bus127	0.380	0.335	-3.9	0	0	0.035	0.022	0	0	Bus126	-0.035	-0.022	71	85.00		
Bus128	20.000	17.912	-3.0	0	0	0	0	0	0	Bus126	-0.343	-0.232	13	82.89		
										Bus130	0.310	0.210	12	82.81		
										Bus129	0.034	0.022	1	83.63		
Bus129	0.380	0.333	-4.4	0	0	0.034	0.021	0	0	Bus128	-0.034	-0.021	68	85.00		
Bus130	20.000	17.905	-3.0	0	0	0	0	0	0	Bus128	-0.309	-0.209	12	82.82		
										Bus132	0.300	0.203	11	82.80		
										Bus131	0.009	0.006	0	83.53		
Bus131	0.380	0.332	-4.5	0	0	0.009	0.006	0	0	Bus130	-0.009	-0.006	18	85.00		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus132	20.000	17.904	-3.0	0	0	0	0	0	0	Bus130	-0.300	-0.203	11	82.80		
										Bus134	0.009	0.005	0	84.31		
										Bus136	0.203	0.138	7	82.78		
										Bus133	0.089	0.060	3	82.70		
Bus133	0.380	0.327	-5.4	0	0	0.088	0.054	0	0	Bus132	-0.088	-0.054	181	85.00		
Bus134	20.000	17.903	-3.0	0	0	0	0	0	0	Bus132	-0.009	-0.005	0	84.31		
										Bus135	0.009	0.005	0	84.31		
Bus135	0.380	0.336	-3.7	0	0	0.009	0.005	0	0	Bus134	-0.009	-0.005	17	85.00		
Bus136	20.000	17.888	-3.0	0	0	0	0	0	0	Bus132	-0.203	-0.137	7	82.81		
										Bus138	0.184	0.125	7	82.74		
										Bus137	0.019	0.013	0	83.41		
Bus137	0.380	0.331	-4.7	0	0	0.019	0.012	0	0	Bus136	-0.019	-0.012	39	85.00		
Bus138	20.000	17.878	-3.0	0	0	0	0	0	0	Bus136	-0.184	-0.124	7	82.76		
										Bus140	0.085	0.056	3	83.18		
										Bus139	0.099	0.068	3	82.40		
Bus139	0.380	0.325	-5.7	0	0	0.098	0.061	0	0	Bus138	-0.098	-0.061	204	85.00		
Bus140	20.000	17.877	-3.0	0	0	0	0	0	0	Bus138	-0.085	-0.056	3	83.18		
										Bus142	0.060	0.040	2	83.27		
										Bus141	0.025	0.017	0	82.95		
Bus141	0.380	0.328	-5.2	0	0	0.024	0.015	0	0	Bus140	-0.024	-0.015	50	85.00		
Bus142	20.000	17.877	-3.0	0	0	0	0	0	0	Bus140	-0.060	-0.040	2	83.27		
										Bus144	0.046	0.031	1	83.09		
										Bus143	0.013	0.009	0	83.93		
Bus143	0.380	0.334	-4.2	0	0	0.013	0.008	0	0	Bus142	-0.013	-0.008	27	85.00		
Bus144	20.000	17.877	-3.0	0	0	0	0	0	0	Bus142	-0.046	-0.031	1	83.09		
										Bus145	0.046	0.031	1	83.09		
Bus145	0.380	0.329	-5.1	0	0	0.046	0.028	0	0	Bus144	-0.046	-0.028	94	85.00		
Bus146	20.000	18.019	-2.8	0	0	0	0	0	0	Bus108	-2.439	-1.765	96	81.02		
										Bus148	2.423	1.754	95	81.00		
										Bus147	0.016	0.010	0	84.36		
Bus147	0.380	0.339	-3.5	0	0	0.016	0.010	0	0	Bus146	-0.016	-0.010	32	85.00		
Bus148	20.000	18.003	-2.8	0	0	0	0	0	0	Bus146	-2.422	-1.752	95	81.02		
										Bus150	1.691	1.245	67	80.54		
										Bus261	0.612	0.424	23	82.19		
										Bus149	0.118	0.083	4	81.90		
Bus149	0.380	0.324	-6.0	0	0	0.116	0.072	0	0	Bus148	-0.116	-0.072	243	85.00		
Bus150	20.000	17.910	-3.0	0	0	0	0	0	0	Bus148	-1.685	-1.234	67	80.68		
										Bus152	1.631	1.197	65	80.62		
										Bus151	0.055	0.037	2	82.73		
Bus151	0.380	0.327	-5.3	0	0	0.054	0.034	0	0	Bus150	-0.054	-0.034	112	85.00		
Bus152	20.000	17.887	-3.0	0	0	0	0	0	0	Bus150	-1.629	-1.194	65	80.65		
										Bus197	0.775	0.544	30	81.85		
										Bus391	0.771	0.581	31	79.86		
										Bus153	0.084	0.070	3	76.92		
Bus153	0.380	0.295	-10.9	0	0	0.081	0.050	0	0	Bus152	-0.081	-0.050	185	85.00		
Bus180	0.380	0.321	-6.2	0	0	0.063	0.039	0	0	Bus181	-0.063	-0.039	132	85.00		
Bus181	20.000	17.699	-3.3	0	0	0	0	0	0	Bus409	-0.064	-0.044	2	82.27		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus196	0.380	0.338	-3.2	0	0	0	0	0	0	Bus180	0.064	0.044	2	82.27		
Bus197	20.000	17.859	-3.0	0	0	0	0	0	0	Bus197	-0.002	-0.001	4	85.00		
Bus198	0.380	0.328	-5.1	0	0	0.022	0.014	0	0	Bus152	-0.774	-0.542	30	81.90		
Bus199	20.000	17.829	-3.1	0	0	0	0	0	0	Bus199	0.771	0.541	30	81.89		
Bus200	0.380	0.336	-3.5	0	0	0	0	0	0	Bus196	0.002	0.001	0	84.82		
Bus201	20.000	17.800	-3.1	0	0	0	0	0	0	Bus199	-0.022	-0.014	46	85.00		
Bus202	0.380	0.329	-4.9	0	0	0.019	0.012	0	0	Bus197	-0.771	-0.539	30	81.93		
Bus203	20.000	17.773	-3.2	0	0	0	0	0	0	Bus201	0.748	0.524	29	81.90		
Bus204	0.380	0.330	-4.7	0	0	0.009	0.005	0	0	Bus198	0.023	0.015	0	83.13		
Bus205	20.000	17.769	-3.2	0	0	0	0	0	0	Bus201	-0.002	-0.001	3	85.00		
Bus216	20.000	17.768	-3.2	0	0	0	0	0	0	Bus199	-0.747	-0.523	29	81.95		
Bus217	0.380	0.335	-3.6	0	0	0.010	0.006	0	0	Bus203	0.745	0.521	29	81.94		
Bus222	20.000	17.731	-3.2	0	0	0	0	0	0	Bus200	0.002	0.001	0	84.69		
Bus223	0.380	0.324	-5.6	0	0	0.052	0.032	0	0	Bus203	-0.019	-0.012	39	85.00		
Bus224	20.000	17.747	-3.2	0	0	0	0	0	0	Bus201	-0.745	-0.520	29	81.98		
Bus225	0.380	0.320	-6.4	0	0	0.071	0.044	0	0	Bus205	0.725	0.507	28	81.94		
Bus226	20.000	17.714	-3.3	0	0	0	0	0	0	Bus202	0.019	0.013	0	83.41		
Bus227	0.380	0.325	-5.5	0	0	0.049	0.030	0	0	Bus205	-0.009	-0.005	17	85.00		
Bus228	20.000	17.701	-3.3	0	0	0	0	0	0	Bus203	-0.725	-0.507	28	81.95		
Bus229	0.380	0.325	-5.4	0	0	0.047	0.029	0	0	Bus216	0.717	0.501	28	81.93		
Bus230	20.000	17.701	-3.3	0	0	0	0	0	0	Bus204	0.009	0.006	0	83.58		
Bus231	0.380	0.326	-5.3	0	0	0.011	0.007	0	0	Bus205	-0.717	-0.501	28	81.93		
Bus232	20.000	17.695	-3.3	0	0	0	0	0	0	Bus299	0.197	0.135	7	82.54		
										Bus310	0.509	0.360	20	81.64		
										Bus217	0.010	0.006	0	84.60		
										Bus216	-0.010	-0.006	20	85.00		
										Bus310	-0.241	-0.162	9	82.90		
										Bus226	0.188	0.126	7	82.94		
										Bus223	0.053	0.036	2	82.76		
										Bus222	-0.052	-0.032	109	85.00		
										Bus310	-0.257	-0.190	10	80.45		
										Bus238	0.185	0.139	7	79.89		
										Bus225	0.072	0.050	2	81.90		
										Bus224	-0.071	-0.044	150	85.00		
										Bus222	-0.188	-0.126	7	82.97		
										Bus228	0.138	0.093	5	82.99		
										Bus227	0.049	0.033	1	82.92		
										Bus226	-0.049	-0.030	102	85.00		
										Bus226	-0.138	-0.093	5	83.01		
										Bus230	0.091	0.061	3	83.02		
										Bus229	0.047	0.032	1	83.01		
										Bus228	-0.047	-0.029	97	85.00		
										Bus228	-0.091	-0.061	3	83.02		
										Bus232	0.080	0.054	3	83.00		
										Bus231	0.011	0.007	0	83.13		
										Bus230	-0.011	-0.007	23	85.00		
										Bus230	-0.080	-0.054	3	83.01		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
										Bus234	0.023	0.015	0	84.05		
										Bus233	0.057	0.039	2	82.58		
Bus233	0.380	0.323	-5.8	0	0	0.056	0.035	0	0	Bus232	-0.056	-0.035	117	85.00		
Bus234	20.000	17.694	-3.3	0	0	0	0	0	0	Bus232	-0.023	-0.015	0	84.05		
										Bus236	0.012	0.008	0	84.03		
										Bus235	0.011	0.007	0	84.07		
Bus235	0.380	0.331	-4.3	0	0	0.011	0.007	0	0	Bus234	-0.011	-0.007	23	85.00		
Bus236	20.000	17.694	-3.3	0	0	0	0	0	0	Bus234	-0.012	-0.008	0	84.03		
										Bus237	0.012	0.008	0	84.03		
Bus237	0.380	0.331	-4.3	0	0	0.012	0.007	0	0	Bus236	-0.012	-0.007	24	85.00		
Bus238	20.000	17.740	-3.2	0	0	0	0	0	0	Bus224	-0.185	-0.139	7	79.90		
										Bus240	0.120	0.096	5	77.92		
										Bus314	0.043	0.029	1	83.20		
										Bus321	0.009	0.006	0	84.59		
										Bus239	0.013	0.008	0	83.96		
Bus239	0.380	0.331	-4.3	0	0	0.013	0.008	0	0	Bus238	-0.013	-0.008	25	85.00		
Bus240	20.000	17.739	-3.2	0	0	0	0	0	0	Bus238	-0.120	-0.096	5	77.93		
										Bus242	0.009	0.006	0	84.63		
										Bus319	0.053	0.036	2	82.75		
										Bus241	0.057	0.054	2	72.53		
Bus241	0.380	0.269	-14.9	0	0	0.054	0.033	0	0	Bus240	-0.054	-0.033	135	85.00		
Bus242	20.000	17.739	-3.2	0	0	0	0	0	0	Bus240	-0.009	-0.006	0	84.63		
										Bus243	0.009	0.006	0	84.63		
Bus243	0.380	0.335	-3.6	0	0	0.009	0.006	0	0	Bus242	-0.009	-0.006	18	85.00		
Bus260	0.380	0.335	-4.2	0	0	0.015	0.010	0	0	Bus261	-0.015	-0.010	31	85.00		
Bus261	20.000	17.987	-2.8	0	0	0	0	0	0	Bus112	0.596	0.414	23	82.18		
										Bus148	-0.612	-0.424	23	82.22		
										Bus260	0.015	0.010	0	83.76		
Bus298	0.380	0.327	-5.3	0	0	0.012	0.007	0	0	Bus299	-0.012	-0.007	24	85.00		
Bus299	20.000	17.767	-3.2	0	0	0	0	0	0	Bus216	-0.197	-0.135	7	82.54		
										Bus301	0.186	0.127	7	82.51		
										Bus298	0.012	0.008	0	83.03		
Bus300	0.380	0.330	-4.7	0	0	0.034	0.021	0	0	Bus301	-0.034	-0.021	70	85.00		
Bus301	20.000	17.767	-3.2	0	0	0	0	0	0	Bus299	-0.186	-0.127	7	82.51		
										Bus303	0.051	0.037	2	80.49		
										Bus308	0.101	0.067	3	83.16		
										Bus300	0.034	0.023	1	83.58		
Bus302	0.380	0.312	-7.8	0	0	0.049	0.031	0	0	Bus303	-0.049	-0.031	107	85.00		
Bus303	20.000	17.765	-3.2	0	0	0	0	0	0	Bus301	-0.051	-0.037	2	80.49		
										Bus302	0.051	0.037	2	80.49		
Bus304	0.380	0.329	-4.9	0	0	0.060	0.037	0	0	Bus307	-0.060	-0.037	124	85.00		
Bus305	0.380	0.326	-5.4	0	0	0.012	0.008	0	0	Bus306	-0.012	-0.008	25	85.00		
Bus306	20.000	17.764	-3.2	0	0	0	0	0	0	Bus307	-0.012	-0.008	0	82.94		
										Bus305	0.012	0.008	0	82.94		
Bus307	20.000	17.764	-3.2	0	0	0	0	0	0	Bus306	0.012	0.008	0	82.94		
										Bus308	-0.073	-0.048	2	83.35		
										Bus304	0.061	0.040	2	83.43		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus308	20.000	17.764	-3.2	0	0	0	0	0	0	Bus301	-0.101	-0.067	3	83.16		
										Bus307	0.073	0.048	2	83.35		
										Bus309	0.028	0.019	1	82.66		
Bus309	0.380	0.324	-5.7	0	0	0.027	0.017	0	0	Bus308	-0.027	-0.017	57	85.00		
Bus310	20.000	17.759	-3.2	0	0	0	0	0	0	Bus222	0.241	0.163	9	82.86		
										Bus224	0.257	0.190	10	80.43		
										Bus216	-0.509	-0.360	20	81.66		
										Bus311	0.011	0.007	0	84.13		
Bus311	0.380	0.332	-4.1	0	0	0.011	0.007	0	0	Bus310	-0.011	-0.007	21	85.00		
Bus314	20.000	17.736	-3.2	0	0	0	0	0	0	Bus238	-0.043	-0.029	1	83.20		
										Bus315	0.043	0.029	1	83.20		
Bus315	0.380	0.327	-5.1	0	0	0.043	0.026	0	0	Bus314	-0.043	-0.026	88	85.00		
Bus318	0.380	0.324	-5.6	0	0	0.053	0.033	0	0	Bus319	-0.053	-0.033	110	85.00		
Bus319	20.000	17.738	-3.2	0	0	0	0	0	0	Bus240	-0.053	-0.036	2	82.75		
										Bus318	0.053	0.036	2	82.75		
										Bus321	-0.003	-0.002	6	85.00		
Bus320	0.380	0.336	-3.5	0	0	0	0	0	0	Bus238	-0.009	-0.006	0	84.59		
Bus321	20.000	17.740	-3.2	0	0	0	0	0	0	Bus323	0.006	0.004	0	84.51		
										Bus320	0.003	0.002	0	84.73		
										Bus323	-0.006	-0.004	12	85.00		
										Bus321	-0.006	-0.004	0	84.51		
Bus322	0.380	0.334	-3.8	0	0	0.006	0.004	0	0	Bus323	-0.006	-0.004	12	85.00		
Bus323	20.000	17.739	-3.2	0	0	0	0	0	0	Bus322	0.006	0.004	0	84.51		
										Bus391	-0.045	-0.028	93	85.00		
										Bus391	-0.771	-0.581	31	79.87		
Bus390	0.380	0.329	-5.0	0	0	0.045	0.028	0	0	Bus393	0.725	0.550	29	79.66		
										Bus390	0.046	0.031	1	83.12		
										Bus393	-0.110	-0.068	279	85.00		
										Bus391	-0.724	-0.548	29	79.74		
Bus392	0.380	0.269	-15.1	0	0	0.110	0.068	0	0	Bus395	0.533	0.385	21	81.07		
Bus393	20.000	17.834	-3.1	0	0	0	0	0	0	Bus399	0.072	0.049	2	82.59		
										Bus392	0.118	0.113	5	72.18		
										Bus395	-0.010	-0.006	19	85.00		
										Bus393	-0.532	-0.383	21	81.18		
Bus394	0.380	0.329	-4.9	0	0	0.010	0.006	0	0	Bus397	0.523	0.377	20	81.14		
										Bus394	0.010	0.006	0	83.40		
										Bus397	-0.029	-0.018	61	85.00		
Bus395	20.000	17.780	-3.2	0	0	0	0	0	0	Bus395	-0.522	-0.376	20	81.18		
										Bus403	0.493	0.356	19	81.10		
										Bus396	0.029	0.020	1	82.50		
										Bus399	-0.009	-0.006	18	85.00		
Bus396	0.380	0.323	-5.8	0	0	0.029	0.018	0	0	Bus393	-0.072	-0.049	2	82.59		
Bus397	20.000	17.759	-3.2	0	0	0	0	0	0	Bus401	0.063	0.043	2	82.35		
										Bus398	0.009	0.006	0	84.25		
										Bus399	-0.009	-0.006	18	85.00		
Bus398	0.380	0.335	-3.9	0	0	0.009	0.006	0	0	Bus393	-0.072	-0.049	2	82.59		
Bus399	20.000	17.833	-3.1	0	0	0	0	0	0	Bus401	0.063	0.043	2	82.35		
										Bus398	0.009	0.006	0	84.25		
										Bus401	-0.062	-0.038	129	85.00		
Bus400	0.380	0.324	-5.9	0	0	0.062	0.038	0	0	Bus399	-0.063	-0.043	2	82.36		
Bus401	20.000	17.827	-3.1	0	0	0	0	0	0	Bus400	0.063	0.043	2	82.36		
										Bus403	-0.005	-0.003	10	85.00		
Bus402	0.380	0.335	-3.7	0	0	0.005	0.003	0	0							

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus403	20.000	17.727	-3.3	0	0	0	0	0	0	Bus397	-0.492	-0.355	19	81.15		
										Bus405	0.487	0.351	19	81.11		
										Bus402	0.005	0.003	0	84.60		
Bus404	0.380	0.324	-5.6	0	0	0.013	0.008	0	0	Bus405	-0.013	-0.008	26	85.00		
Bus405	20.000	17.716	-3.3	0	0	0	0	0	0	Bus403	-0.487	-0.351	19	81.13		
										Bus407	0.474	0.342	19	81.08		
										Bus404	0.013	0.009	0	82.82		
Bus406	0.380	0.303	-9.4	0	0	0.063	0.039	0	0	Bus407	-0.063	-0.039	141	85.00		
Bus407	20.000	17.704	-3.3	0	0	0	0	0	0	Bus405	-0.474	-0.342	19	81.10		
										Bus409	0.409	0.291	16	81.45		
										Bus406	0.065	0.050	2	78.94		
Bus408	0.380	0.323	-5.8	0	0	0.028	0.017	0	0	Bus409	-0.028	-0.017	58	85.00		
Bus409	20.000	17.701	-3.3	0	0	0	0	0	0	Bus181	0.064	0.044	2	82.27		
										Bus407	-0.409	-0.291	16	81.45		
										Bus411	0.059	0.040	2	82.87		
										Bus415	0.258	0.188	10	80.80		
										Bus408	0.028	0.019	1	82.61		
Bus410	0.380	0.319	-6.5	0	0	0.017	0.011	0	0	Bus411	-0.017	-0.011	36	85.00		
Bus411	20.000	17.700	-3.3	0	0	0	0	0	0	Bus409	-0.059	-0.040	2	82.87		
										Bus413	0.042	0.028	1	83.25		
										Bus410	0.018	0.012	0	81.97		
Bus412	0.380	0.326	-5.2	0	0	0.041	0.026	0	0	Bus413	-0.041	-0.026	86	85.00		
Bus413	20.000	17.700	-3.3	0	0	0	0	0	0	Bus411	-0.042	-0.028	1	83.25		
										Bus412	0.042	0.028	1	83.25		
Bus414	0.380	0.329	-4.7	0	0	0.051	0.031	0	0	Bus415	-0.051	-0.031	104	85.00		
Bus415	20.000	17.697	-3.3	0	0	0	0	0	0	Bus409	-0.258	-0.188	10	80.80		
										Bus417	0.047	0.034	1	80.84		
										Bus419	0.161	0.121	6	79.88		
										Bus414	0.051	0.033	1	83.68		
Bus416	0.380	0.313	-7.6	0	0	0.046	0.028	0	0	Bus417	-0.046	-0.028	99	85.00		
Bus417	20.000	17.697	-3.3	0	0	0	0	0	0	Bus415	-0.047	-0.034	1	80.84		
										Bus416	0.047	0.034	1	80.84		
Bus418	0.380	0.300	-9.8	0	0	0.066	0.041	0	0	Bus419	-0.066	-0.041	149	85.00		
Bus419	20.000	17.694	-3.3	0	0	0	0	0	0	Bus415	-0.161	-0.121	6	79.89		
										Bus421	0.092	0.067	3	80.90		
										Bus418	0.069	0.054	2	78.53		
Bus420	0.380	0.313	-7.5	0	0	0.090	0.056	0	0	Bus421	-0.090	-0.056	195	85.00		
Bus421	20.000	17.691	-3.3	0	0	0	0	0	0	Bus419	-0.092	-0.067	3	80.91		
										Bus420	0.092	0.067	3	80.91		

\* 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





**LAMPIRAN F** Hasil Jatuh Tegangan Penyulang Ceko (*feeder 3*)  
Dengan luas penampang 240 mm<sup>2</sup> Dari *Software ETAP*

Project:  
 Location:  
 Contract:  
 Engineer:  
 Filename: TARIKKIGUNAWAN

**ETAP PowerStation**  
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**LOAD FLOW REPORT**

Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR	
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap		
* Bus1	20.000	20.000	0.0	4.337	3.358	0	0	0	0	Bus2	4.337	3.358	158	79.07			
Bus2	20.000	19.509	-0.8	0	0	0	0	0	0	Bus1	-4.276	-3.216	158	79.93			
										Bus4	0.073	0.056	2	79.41			
										Bus6	4.196	3.155	155	79.93			
										Bus3	0.007	0.004	0	84.77			
Bus3	0.380	0.369	-1.1	0	0	0.007	0.004	0	0	Bus2	-0.007	-0.004	12	85.00			
Bus4	20.000	19.504	-0.8	0	0	0	0	0	0	Bus2	-0.073	-0.056	2	79.41			
										Bus5	0.073	0.056	2	79.41			
Bus5	0.380	0.336	-6.5	0	0	0.071	0.044	0	0	Bus4	-0.071	-0.044	144	85.00			
Bus6	20.000	19.421	-1.0	0	0	0	0	0	0	Bus2	-4.185	-3.130	155	80.08			
										Bus10	4.177	3.124	155	80.08			
										Bus7	0.009	0.005	0	84.42			
Bus7	0.380	0.365	-1.6	0	0	0.009	0.005	0	0	Bus6	-0.009	-0.005	15	85.00			
Bus10	20.000	19.409	-1.0	0	0	0	0	0	0	Bus6	-4.175	-3.121	155	80.10			
										Bus12	4.113	3.081	152	80.04			
										Bus11	0.062	0.040	2	83.95			
Bus11	0.380	0.362	-2.1	0	0	0.061	0.038	0	0	Bus10	-0.061	-0.038	115	85.00			
Bus12	20.000	19.386	-1.0	0	0	0	0	0	0	Bus10	-4.111	-3.074	152	80.08			
										Bus14	4.056	3.038	150	80.04			
										Bus13	0.054	0.036	1	83.09			
Bus13	0.380	0.357	-3.0	0	0	0.054	0.033	0	0	Bus12	-0.054	-0.033	102	85.00			
Bus14	20.000	19.362	-1.1	0	0	0	0	0	0	Bus12	-4.053	-3.031	150	80.08			
										Bus16	3.962	2.967	147	80.05			
										Bus15	0.092	0.065	3	81.66			
Bus15	0.380	0.347	-4.5	0	0	0.090	0.056	0	0	Bus14	-0.090	-0.056	176	85.00			
Bus16	20.000	19.355	-1.1	0	0	0	0	0	0	Bus14	-3.961	-2.964	147	80.06			
										Bus18	3.940	2.950	146	80.05			
										Bus17	0.021	0.014	0	82.00			
Bus17	0.380	0.349	-4.2	0	0	0.020	0.013	0	0	Bus16	-0.020	-0.013	39	85.00			
Bus18	20.000	19.336	-1.1	0	0	0	0	0	0	Bus16	-3.938	-2.945	146	80.08			
										Bus20	0.029	0.019	1	83.99			
										Bus24	3.840	2.881	143	79.99			
										Bus19	0.069	0.045	2	83.50			
Bus19	0.380	0.358	-2.7	0	0	0.068	0.042	0	0	Bus18	-0.068	-0.042	129	85.00			
Bus20	20.000	19.335	-1.1	0	0	0	0	0	0	Bus18	-0.029	-0.019	1	83.99			
										Bus22	0.016	0.011	0	83.88			
										Bus21	0.013	0.008	0	84.14			
Bus21	0.380	0.362	-2.0	0	0	0.012	0.008	0	0	Bus20	-0.012	-0.008	23	85.00			
Bus22	20.000	19.335	-1.1	0	0	0	0	0	0	Bus20	-0.016	-0.011	0	83.88			
										Bus23	0.016	0.011	0	83.88			
Bus23	0.380	0.360	-2.3	0	0	0.016	0.010	0	0	Bus22	-0.016	-0.010	30	85.00			
Bus24	20.000	19.134	-1.5	0	0	0	0	0	0	Bus18	-3.817	-2.827	143	80.36			
										Bus26	3.807	2.821	142	80.35			
										Bus25	0.011	0.007	0	84.26			
Bus25	0.380	0.359	-2.3	0	0	0.011	0.007	0	0	Bus24	-0.011	-0.007	19	85.00			

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**ETAP PowerStation**

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus26	20.000	19.123	-1.5	0	0	0	0	0	0	Bus24	-3.806	-2.818	142	80.37		
										Bus30	0.055	0.040	2	80.84		
										Bus34	3.730	2.763	140	80.35		
										Bus27	0.022	0.015	0	81.78		
Bus27	0.380	0.344	-4.8	0	0	0.021	0.013	0	0	Bus26	-0.021	-0.013	41	85.00		
Bus30	20.000	19.122	-1.5	0	0	0	0	0	0	Bus26	-0.055	-0.040	2	80.84		
Bus31	0.380	0.338	-5.8	0	0	0.053	0.033	0	0	Bus31	0.055	0.040	2	80.84		
										Bus30	-0.053	-0.033	107	85.00		
Bus34	20.000	19.087	-1.5	0	0	0	0	0	0	Bus26	-3.726	-2.753	140	80.42		
Bus35	0.380	0.350	-3.7	0	0	0.014	0.009	0	0	Bus36	3.711	2.744	139	80.41		
										Bus35	0.014	0.010	0	82.94		
										Bus34	-0.014	-0.009	27	85.00		
										Bus36	-3.691	-2.696	139	80.75		
Bus37	0.380	0.348	-3.7	0	0	0.076	0.047	0	0	Bus38	0.006	0.004	0	84.21		
										Bus44	0.622	0.423	22	82.66		
										Bus88	2.987	2.218	113	80.29		
										Bus37	0.077	0.051	2	83.23		
Bus38	20.000	18.901	-1.9	0	0	0	0	0	0	Bus36	-0.076	-0.047	149	85.00		
Bus39	0.380	0.354	-2.7	0	0	0.006	0.003	0	0	Bus36	-0.006	-0.004	0	84.21		
										Bus39	0.006	0.004	0	84.21		
										Bus38	-0.006	-0.003	10	85.00		
										Bus36	-0.621	-0.421	22	82.75		
Bus44	20.000	18.852	-2.0	0	0	0	0	0	0	Bus46	0.603	0.410	22	82.73		
Bus45	0.380	0.351	-3.3	0	0	0.017	0.011	0	0	Bus45	0.017	0.011	0	83.73		
										Bus44	-0.017	-0.011	33	85.00		
										Bus46	-0.603	-0.409	22	82.75		
										Bus48	0.589	0.400	21	82.72		
Bus47	0.380	0.352	-3.1	0	0	0.014	0.009	0	0	Bus47	0.014	0.009	0	83.96		
										Bus46	-0.014	-0.009	27	85.00		
										Bus46	-0.588	-0.399	21	82.76		
										Bus50	0.546	0.371	20	82.70		
Bus49	0.380	0.348	-3.7	0	0	0.042	0.026	0	0	Bus49	0.042	0.028	1	83.45		
										Bus48	-0.042	-0.026	81	85.00		
										Bus48	-0.546	-0.371	20	82.73		
										Bus52	0.512	0.348	19	82.75		
Bus51	0.380	0.342	-4.7	0	0	0.033	0.021	0	0	Bus51	0.034	0.023	1	82.43		
										Bus50	-0.033	-0.021	66	85.00		
										Bus50	-0.512	-0.347	19	82.80		
										Bus54	0.474	0.322	17	82.74		
Bus53	0.380	0.349	-3.6	0	0	0.037	0.023	0	0	Bus53	0.037	0.025	1	83.62		
										Bus52	-0.037	-0.023	72	85.00		
										Bus52	-0.474	-0.321	17	82.79		
										Bus56	0.433	0.295	16	82.67		
Bus55	0.380	0.351	-3.2	0	0	0.040	0.025	0	0	Bus55	0.040	0.026	1	84.08		
										Bus54	-0.040	-0.025	78	85.00		
										Bus54	-0.433	-0.294	16	82.71		
										Bus58	0.403	0.275	15	82.62		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus57	0.380	0.349	-3.4	0	0	0.030	0.019	0	0	Bus57	0.030	0.020	1	83.89		
Bus58	20.000	18.715	-2.2	0	0	0	0	0	0	Bus56	-0.030	-0.019	58	85.00		
Bus59	0.380	0.349	-3.4	0	0	0.014	0.009	0	0	Bus56	-0.403	-0.274	15	82.65		
Bus60	20.000	18.698	-2.3	0	0	0	0	0	0	Bus60	0.389	0.265	14	82.60		
Bus61	0.380	0.353	-2.7	0	0	0.005	0.003	0	0	Bus59	0.014	0.009	0	83.95		
Bus62	20.000	18.682	-2.3	0	0	0	0	0	0	Bus58	-0.014	-0.009	27	85.00		
Bus63	0.380	0.342	-4.6	0	0	0.028	0.017	0	0	Bus58	-0.388	-0.265	14	82.64		
Bus64	20.000	18.646	-2.4	0	0	0	0	0	0	Bus62	0.383	0.261	14	82.61		
Bus65	0.380	0.334	-5.9	0	0	0.021	0.013	0	0	Bus61	0.005	0.003	0	84.61		
Bus66	20.000	18.646	-2.4	0	0	0	0	0	0	Bus60	-0.005	-0.003	10	85.00		
Bus67	0.380	0.346	-3.8	0	0	0.009	0.006	0	0	Bus60	-0.383	-0.261	14	82.64		
Bus68	20.000	18.592	-2.5	0	0	0	0	0	0	Bus64	0.355	0.242	13	82.62		
Bus69	0.380	0.336	-5.5	0	0	0.073	0.045	0	0	Bus63	0.028	0.019	1	82.85		
Bus70	20.000	18.592	-2.5	0	0	0	0	0	0	Bus62	-0.028	-0.017	55	85.00		
Bus71	0.380	0.333	-6.0	0	0	0.021	0.013	0	0	Bus62	-0.354	-0.241	13	82.69		
Bus72	20.000	18.590	-2.5	0	0	0	0	0	0	Bus66	0.204	0.140	7	82.51		
Bus73	0.380	0.349	-3.3	0	0	0.020	0.013	0	0	Bus78	0.128	0.086	4	83.16		
Bus74	20.000	18.588	-2.5	0	0	0	0	0	0	Bus65	0.022	0.015	0	81.60		
Bus75	0.380	0.346	-3.8	0	0	0.016	0.010	0	0	Bus64	-0.021	-0.013	43	85.00		
Bus76	20.000	18.586	-2.5	0	0	0	0	0	0	Bus64	-0.204	-0.140	7	82.51		
Bus77	0.380	0.339	-5.0	0	0	0.061	0.038	0	0	Bus68	0.195	0.134	7	82.46		
Bus78	20.000	18.643	-2.4	0	0	0	0	0	0	Bus67	0.009	0.006	0	83.65		
Bus79	0.380	0.342	-4.5	0	0	0.053	0.033	0	0	Bus66	-0.009	-0.006	17	85.00		
Bus80	20.000	18.642	-2.4	0	0	0	0	0	0	Bus66	-0.009	-0.006	17	85.00		
										Bus70	0.121	0.082	4	82.85		
										Bus69	0.074	0.052	2	82.10		
										Bus68	-0.073	-0.045	147	85.00		
										Bus68	-0.121	-0.081	4	82.85		
										Bus72	0.099	0.066	3	83.13		
										Bus71	0.022	0.015	0	81.57		
										Bus70	-0.021	-0.013	43	85.00		
										Bus70	-0.099	-0.066	3	83.13		
										Bus74	0.079	0.053	2	82.84		
										Bus73	0.020	0.013	0	84.25		
										Bus72	-0.020	-0.013	39	85.00		
										Bus72	-0.079	-0.053	2	82.85		
										Bus76	0.062	0.042	2	82.60		
										Bus75	0.017	0.011	0	83.76		
										Bus74	-0.016	-0.010	32	85.00		
										Bus74	-0.062	-0.042	2	82.61		
										Bus77	0.062	0.042	2	82.61		
										Bus76	-0.061	-0.038	122	85.00		
										Bus64	-0.128	-0.086	4	83.17		
										Bus80	0.075	0.049	2	83.32		
										Bus79	0.054	0.036	2	82.95		
										Bus78	-0.053	-0.033	105	85.00		
										Bus78	-0.075	-0.049	2	83.32		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
										Bus82	0.049	0.032	1	83.48		
										Bus81	0.026	0.017	0	83.03		
Bus81	0.380	0.343	-4.5	0	0	0.026	0.016	0	0	Bus80	-0.026	-0.016	50	85.00		
Bus82	20.000	18.632	-2.4	0	0	0	0	0	0	Bus80	-0.049	-0.032	1	83.50		
										Bus84	0.036	0.023	1	83.67		
										Bus83	0.013	0.009	0	83.03		
Bus83	0.380	0.342	-4.5	0	0	0.013	0.008	0	0	Bus82	-0.013	-0.008	25	85.00		
Bus84	20.000	18.631	-2.4	0	0	0	0	0	0	Bus82	-0.036	-0.023	1	83.67		
										Bus85	0.036	0.023	1	83.67		
Bus85	0.380	0.346	-3.8	0	0	0.035	0.022	0	0	Bus84	-0.035	-0.022	69	85.00		
Bus88	20.000	18.750	-2.1	0	0	0	0	0	0	Bus36	-2.973	-2.186	113	80.57		
										Bus90	2.939	2.164	112	80.53		
										Bus89	0.034	0.022	1	83.76		
Bus89	0.380	0.349	-3.5	0	0	0.034	0.021	0	0	Bus88	-0.034	-0.021	65	85.00		
Bus90	20.000	18.741	-2.2	0	0	0	0	0	0	Bus88	-2.938	-2.162	112	80.55		
										Bus92	2.901	2.137	110	80.51		
										Bus91	0.038	0.025	1	83.60		
Bus91	0.380	0.348	-3.6	0	0	0.037	0.023	0	0	Bus90	-0.037	-0.023	73	85.00		
Bus92	20.000	18.676	-2.3	0	0	0	0	0	0	Bus90	-2.895	-2.124	110	80.63		
										Bus94	2.826	2.077	108	80.59		
										Bus93	0.069	0.047	2	82.36		
Bus93	0.380	0.339	-5.0	0	0	0.068	0.042	0	0	Bus92	-0.068	-0.042	135	85.00		
Bus94	20.000	18.651	-2.3	0	0	0	0	0	0	Bus92	-2.824	-2.072	108	80.63		
										Bus96	2.764	2.030	106	80.59		
										Bus95	0.061	0.041	2	82.68		
Bus95	0.380	0.341	-4.8	0	0	0.060	0.037	0	0	Bus94	-0.060	-0.037	119	85.00		
Bus96	20.000	18.537	-2.5	0	0	0	0	0	0	Bus94	-2.754	-2.008	106	80.80		
										Bus98	2.694	1.967	103	80.76		
										Bus97	0.060	0.041	2	82.68		
Bus97	0.380	0.339	-5.0	0	0	0.059	0.037	0	0	Bus96	-0.059	-0.037	118	85.00		
Bus98	20.000	18.476	-2.6	0	0	0	0	0	0	Bus96	-2.689	-1.955	103	80.88		
										Bus100	2.631	1.917	101	80.82		
										Bus99	0.058	0.038	2	83.62		
Bus99	0.380	0.343	-4.1	0	0	0.057	0.036	0	0	Bus98	-0.057	-0.036	113	85.00		
Bus100	20.000	18.468	-2.7	0	0	0	0	0	0	Bus98	-2.631	-1.916	101	80.83		
										Bus102	2.624	1.912	101	80.83		
										Bus101	0.006	0.004	0	84.05		
Bus101	0.380	0.345	-3.7	0	0	0.006	0.004	0	0	Bus100	-0.006	-0.004	12	85.00		
Bus102	20.000	18.452	-2.7	0	0	0	0	0	0	Bus100	-2.623	-1.909	101	80.86		
										Bus104	2.598	1.892	100	80.83		
										Bus103	0.025	0.017	0	83.07		
Bus103	0.380	0.339	-4.7	0	0	0.025	0.015	0	0	Bus102	-0.025	-0.015	49	85.00		
Bus104	20.000	18.378	-2.8	0	0	0	0	0	0	Bus102	-2.592	-1.878	100	80.98		
										Bus106	2.564	1.859	99	80.96		
										Bus105	0.028	0.019	1	82.81		
Bus105	0.380	0.336	-5.1	0	0	0.028	0.017	0	0	Bus104	-0.028	-0.017	55	85.00		
Bus106	20.000	18.353	-2.9	0	0	0	0	0	0	Bus104	-2.562	-1.855	99	81.01		

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**ETAP PowerStation**  
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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
										Bus108	2.520	1.825	97	81.00		
										Bus107	0.042	0.030	1	81.56		
Bus107	0.380	0.329	-6.4	0	0	0.042	0.026	0	0	Bus106	-0.042	-0.026	85	85.00		
Bus108	20.000	18.300	-3.0	0	0	0	0	0	0	Bus106	-2.516	-1.815	97	81.10		
										Bus146	2.436	1.759	94	81.08		
										Bus109	0.080	0.057	3	81.73		
Bus109	0.380	0.329	-6.4	0	0	0.079	0.049	0	0	Bus108	-0.079	-0.049	162	85.00		
Bus112	20.000	18.231	-3.1	0	0	0	0	0	0	Bus261	-0.596	-0.411	22	82.27		
										Bus114	0.571	0.396	21	82.20		
										Bus113	0.025	0.016	0	84.05		
Bus113	0.380	0.341	-4.1	0	0	0.024	0.015	0	0	Bus112	-0.024	-0.015	48	85.00		
Bus114	20.000	18.219	-3.1	0	0	0	0	0	0	Bus112	-0.571	-0.395	21	82.22		
										Bus116	0.556	0.386	21	82.18		
										Bus115	0.014	0.009	0	83.88		
Bus115	0.380	0.340	-4.3	0	0	0.014	0.009	0	0	Bus114	-0.014	-0.009	28	85.00		
Bus116	20.000	18.208	-3.2	0	0	0	0	0	0	Bus114	-0.556	-0.385	21	82.20		
										Bus118	0.540	0.375	20	82.19		
										Bus117	0.016	0.011	0	82.47		
Bus117	0.380	0.331	-5.8	0	0	0.015	0.010	0	0	Bus116	-0.015	-0.010	31	85.00		
Bus118	20.000	18.206	-3.2	0	0	0	0	0	0	Bus116	-0.540	-0.374	20	82.20		
										Bus120	0.465	0.314	17	82.85		
										Bus119	0.076	0.060	3	78.19		
Bus119	0.380	0.307	-9.9	0	0	0.073	0.045	0	0	Bus118	-0.073	-0.045	161	85.00		
Bus120	20.000	18.201	-3.2	0	0	0	0	0	0	Bus118	-0.465	-0.314	17	82.86		
										Bus122	0.429	0.289	16	82.92		
										Bus121	0.035	0.025	1	82.12		
Bus121	0.380	0.329	-6.2	0	0	0.035	0.022	0	0	Bus120	-0.035	-0.022	71	85.00		
Bus122	20.000	18.188	-3.2	0	0	0	0	0	0	Bus120	-0.429	-0.289	16	82.95		
										Bus124	0.396	0.266	15	83.00		
										Bus123	0.033	0.023	1	82.34		
Bus123	0.380	0.330	-6.0	0	0	0.032	0.020	0	0	Bus122	-0.032	-0.020	66	85.00		
Bus124	20.000	18.175	-3.2	0	0	0	0	0	0	Bus122	-0.396	-0.266	15	83.02		
										Bus126	0.379	0.254	14	83.06		
										Bus125	0.018	0.012	0	82.14		
Bus125	0.380	0.329	-6.2	0	0	0.017	0.011	0	0	Bus124	-0.017	-0.011	35	85.00		
Bus126	20.000	18.175	-3.2	0	0	0	0	0	0	Bus124	-0.379	-0.254	14	83.06		
										Bus128	0.343	0.231	13	82.95		
										Bus127	0.036	0.023	1	84.14		
Bus127	0.380	0.340	-4.1	0	0	0.035	0.022	0	0	Bus126	-0.035	-0.022	70	85.00		
Bus128	20.000	18.174	-3.2	0	0	0	0	0	0	Bus126	-0.343	-0.231	13	82.95		
										Bus130	0.309	0.209	11	82.87		
										Bus129	0.034	0.022	1	83.67		
Bus129	0.380	0.338	-4.6	0	0	0.034	0.021	0	0	Bus128	-0.034	-0.021	67	85.00		
Bus130	20.000	18.167	-3.2	0	0	0	0	0	0	Bus128	-0.309	-0.209	11	82.89		
										Bus132	0.300	0.203	11	82.87		
										Bus131	0.009	0.006	0	83.57		
Bus131	0.380	0.337	-4.8	0	0	0.009	0.006	0	0	Bus130	-0.009	-0.006	18	85.00		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus132	20.000	18.166	-3.2	0	0	0	0	0	0	Bus130	-0.300	-0.203	11	82.87		
										Bus134	0.009	0.005	0	84.33		
										Bus136	0.203	0.137	7	82.85		
										Bus133	0.089	0.060	3	82.77		
Bus133	0.380	0.332	-5.6	0	0	0.088	0.054	0	0	Bus132	-0.088	-0.054	178	85.00		
Bus134	20.000	18.165	-3.2	0	0	0	0	0	0	Bus132	-0.009	-0.005	0	84.33		
										Bus135	0.009	0.005	0	84.33		
Bus135	0.380	0.341	-4.0	0	0	0.009	0.005	0	0	Bus134	-0.009	-0.005	17	85.00		
Bus136	20.000	18.153	-3.3	0	0	0	0	0	0	Bus132	-0.203	-0.137	7	82.88		
										Bus138	0.184	0.124	7	82.81		
										Bus137	0.019	0.013	0	83.46		
Bus137	0.380	0.336	-4.9	0	0	0.019	0.012	0	0	Bus136	-0.019	-0.012	39	85.00		
Bus138	20.000	18.144	-3.3	0	0	0	0	0	0	Bus136	-0.183	-0.124	7	82.83		
										Bus140	0.084	0.056	3	83.23		
										Bus139	0.099	0.068	3	82.49		
Bus139	0.380	0.330	-5.9	0	0	0.098	0.061	0	0	Bus138	-0.098	-0.061	201	85.00		
Bus140	20.000	18.143	-3.3	0	0	0	0	0	0	Bus138	-0.084	-0.056	3	83.24		
										Bus142	0.060	0.040	2	83.33		
										Bus141	0.025	0.017	0	83.02		
Bus141	0.380	0.333	-5.4	0	0	0.024	0.015	0	0	Bus140	-0.024	-0.015	49	85.00		
Bus142	20.000	18.143	-3.3	0	0	0	0	0	0	Bus140	-0.060	-0.040	2	83.33		
										Bus144	0.046	0.031	1	83.15		
										Bus143	0.013	0.009	0	83.96		
Bus143	0.380	0.339	-4.4	0	0	0.013	0.008	0	0	Bus142	-0.013	-0.008	26	85.00		
Bus144	20.000	18.143	-3.3	0	0	0	0	0	0	Bus142	-0.046	-0.031	1	83.15		
										Bus145	0.046	0.031	1	83.15		
Bus145	0.380	0.334	-5.2	0	0	0.046	0.028	0	0	Bus144	-0.046	-0.028	93	85.00		
Bus146	20.000	18.267	-3.0	0	0	0	0	0	0	Bus108	-2.433	-1.753	94	81.14		
										Bus148	2.417	1.742	94	81.12		
										Bus147	0.016	0.010	0	84.38		
Bus147	0.380	0.343	-3.7	0	0	0.016	0.010	0	0	Bus146	-0.016	-0.010	32	85.00		
Bus148	20.000	18.252	-3.1	0	0	0	0	0	0	Bus146	-2.416	-1.740	94	81.15		
										Bus150	1.686	1.235	66	80.68		
										Bus261	0.611	0.422	23	82.27		
										Bus149	0.118	0.083	4	81.99		
Bus149	0.380	0.329	-6.2	0	0	0.116	0.072	0	0	Bus148	-0.116	-0.072	240	85.00		
Bus150	20.000	18.171	-3.2	0	0	0	0	0	0	Bus148	-1.682	-1.225	66	80.84		
										Bus152	1.627	1.188	64	80.77		
										Bus151	0.055	0.037	2	82.80		
Bus151	0.380	0.333	-5.5	0	0	0.054	0.034	0	0	Bus150	-0.054	-0.034	110	85.00		
Bus152	20.000	18.152	-3.3	0	0	0	0	0	0	Bus150	-1.626	-1.185	64	80.81		
										Bus197	0.773	0.541	30	81.95		
										Bus391	0.769	0.576	30	80.06		
										Bus153	0.084	0.069	3	77.22		
Bus153	0.380	0.301	-10.9	0	0	0.081	0.050	0	0	Bus152	-0.081	-0.050	182	85.00		
Bus180	0.380	0.327	-6.3	0	0	0.063	0.039	0	0	Bus181	-0.063	-0.039	130	85.00		
Bus181	20.000	17.983	-3.6	0	0	0	0	0	0	Bus409	-0.063	-0.044	2	82.37		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus196	0.380	0.343	-3.5	0	0	0	0	0	0	Bus180	0.063	0.044	2	82.37		
Bus197	20.000	18.127	-3.3	0	0	0	0	0	0	Bus197	-0.002	-0.001	4	85.00		
Bus198	0.380	0.334	-5.3	0	0	0.022	0.014	0	0	Bus152	-0.772	-0.539	30	82.00		
Bus199	20.000	18.101	-3.4	0	0	0	0	0	0	Bus199	0.770	0.538	29	81.99		
Bus200	0.380	0.342	-3.7	0	0	0	0	0	0	Bus196	0.002	0.001	0	84.82		
Bus201	20.000	18.075	-3.4	0	0	0	0	0	0	Bus199	-0.022	-0.014	45	85.00		
Bus202	0.380	0.334	-5.1	0	0	0.019	0.012	0	0	Bus197	-0.770	-0.536	29	82.04		
Bus203	20.000	18.052	-3.5	0	0	0	0	0	0	Bus201	0.747	0.521	29	82.01		
Bus204	0.380	0.335	-4.9	0	0	0.009	0.005	0	0	Bus198	0.023	0.015	0	83.19		
Bus205	20.000	18.049	-3.5	0	0	0	0	0	0	Bus201	-0.002	-0.001	3	85.00		
Bus216	20.000	18.048	-3.5	0	0	0	0	0	0	Bus199	-0.746	-0.520	29	82.06		
Bus217	0.380	0.341	-3.9	0	0	0.010	0.006	0	0	Bus203	0.744	0.519	28	82.05		
Bus222	20.000	18.016	-3.5	0	0	0	0	0	0	Bus200	0.002	0.001	0	84.70		
Bus223	0.380	0.330	-5.8	0	0	0.052	0.032	0	0	Bus203	-0.019	-0.012	38	85.00		
Bus224	20.000	18.030	-3.5	0	0	0	0	0	0	Bus201	-0.744	-0.517	28	82.10		
Bus225	0.380	0.326	-6.6	0	0	0.071	0.044	0	0	Bus205	0.725	0.505	28	82.06		
Bus226	20.000	18.001	-3.6	0	0	0	0	0	0	Bus202	0.019	0.013	0	83.46		
Bus227	0.380	0.331	-5.7	0	0	0.049	0.030	0	0	Bus205	-0.009	-0.005	17	85.00		
Bus228	20.000	17.990	-3.6	0	0	0	0	0	0	Bus203	-0.725	-0.504	28	82.07		
Bus229	0.380	0.331	-5.6	0	0	0.047	0.029	0	0	Bus216	0.716	0.499	27	82.05		
Bus230	20.000	17.989	-3.6	0	0	0	0	0	0	Bus204	0.009	0.006	0	83.62		
Bus231	0.380	0.331	-5.5	0	0	0.011	0.007	0	0	Bus205	-0.716	-0.499	27	82.05		
Bus232	20.000	17.985	-3.6	0	0	0	0	0	0	Bus299	0.197	0.135	7	82.62		
										Bus310	0.509	0.358	19	81.78		
										Bus217	0.010	0.006	0	84.61		
										Bus216	-0.010	-0.006	19	85.00		
										Bus310	-0.241	-0.162	9	82.97		
										Bus226	0.188	0.126	7	83.01		
										Bus223	0.053	0.036	2	82.84		
										Bus222	-0.052	-0.032	107	85.00		
										Bus310	-0.257	-0.188	10	80.66		
										Bus238	0.185	0.138	7	80.13		
										Bus225	0.072	0.050	2	82.01		
										Bus224	-0.071	-0.044	147	85.00		
										Bus222	-0.188	-0.126	7	83.04		
										Bus228	0.138	0.093	5	83.06		
										Bus227	0.049	0.033	1	82.99		
										Bus226	-0.049	-0.030	100	85.00		
										Bus226	-0.138	-0.093	5	83.08		
										Bus230	0.091	0.061	3	83.08		
										Bus229	0.047	0.032	1	83.07		
										Bus228	-0.047	-0.029	96	85.00		
										Bus228	-0.091	-0.061	3	83.08		
										Bus232	0.080	0.054	3	83.07		
										Bus231	0.011	0.007	0	83.19		
										Bus230	-0.011	-0.007	22	85.00		
										Bus230	-0.080	-0.053	3	83.08		



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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
										Bus234	0.023	0.015	0	84.08		
										Bus233	0.057	0.039	2	82.67		
Bus233	0.380	0.328	-6.0	0	0	0.056	0.035	0	0	Bus232	-0.056	-0.035	115	85.00		
Bus234	20.000	17.984	-3.6	0	0	0	0	0	0	Bus232	-0.023	-0.015	0	84.08		
										Bus236	0.012	0.008	0	84.06		
										Bus235	0.011	0.007	0	84.10		
Bus235	0.380	0.337	-4.6	0	0	0.011	0.007	0	0	Bus234	-0.011	-0.007	22	85.00		
Bus236	20.000	17.984	-3.6	0	0	0	0	0	0	Bus234	-0.012	-0.008	0	84.06		
										Bus237	0.012	0.008	0	84.06		
Bus237	0.380	0.336	-4.6	0	0	0.012	0.007	0	0	Bus236	-0.012	-0.007	23	85.00		
Bus238	20.000	18.024	-3.5	0	0	0	0	0	0	Bus224	-0.185	-0.138	7	80.14		
										Bus240	0.120	0.095	4	78.27		
										Bus314	0.043	0.029	1	83.26		
										Bus321	0.009	0.006	0	84.60		
										Bus239	0.013	0.008	0	83.99		
Bus239	0.380	0.337	-4.6	0	0	0.013	0.008	0	0	Bus238	-0.013	-0.008	25	85.00		
Bus240	20.000	18.022	-3.5	0	0	0	0	0	0	Bus238	-0.120	-0.095	4	78.27		
										Bus242	0.009	0.006	0	84.64		
										Bus319	0.053	0.036	2	82.83		
										Bus241	0.057	0.053	2	73.14		
Bus241	0.380	0.277	-14.7	0	0	0.054	0.033	0	0	Bus240	-0.054	-0.033	131	85.00		
Bus242	20.000	18.022	-3.5	0	0	0	0	0	0	Bus240	-0.009	-0.006	0	84.64		
										Bus243	0.009	0.006	0	84.64		
Bus243	0.380	0.340	-3.9	0	0	0.009	0.006	0	0	Bus242	-0.009	-0.006	18	85.00		
Bus260	0.380	0.340	-4.4	0	0	0.015	0.010	0	0	Bus261	-0.015	-0.010	30	85.00		
Bus261	20.000	18.239	-3.1	0	0	0	0	0	0	Bus112	0.596	0.412	22	82.26		
										Bus148	-0.611	-0.422	23	82.30		
										Bus260	0.015	0.010	0	83.80		
Bus298	0.380	0.332	-5.5	0	0	0.012	0.007	0	0	Bus299	-0.012	-0.007	23	85.00		
Bus299	20.000	18.047	-3.5	0	0	0	0	0	0	Bus216	-0.197	-0.135	7	82.62		
										Bus301	0.186	0.127	7	82.59		
										Bus298	0.012	0.008	0	83.10		
Bus300	0.380	0.335	-4.9	0	0	0.034	0.021	0	0	Bus301	-0.034	-0.021	69	85.00		
Bus301	20.000	18.047	-3.5	0	0	0	0	0	0	Bus299	-0.186	-0.127	7	82.60		
										Bus303	0.050	0.037	2	80.65		
										Bus308	0.101	0.067	3	83.22		
										Bus300	0.034	0.023	1	83.63		
Bus302	0.380	0.318	-7.9	0	0	0.049	0.031	0	0	Bus303	-0.049	-0.031	105	85.00		
Bus303	20.000	18.046	-3.5	0	0	0	0	0	0	Bus301	-0.050	-0.037	2	80.65		
										Bus302	0.050	0.037	2	80.65		
Bus304	0.380	0.334	-5.1	0	0	0.060	0.037	0	0	Bus307	-0.060	-0.037	122	85.00		
Bus305	0.380	0.331	-5.6	0	0	0.012	0.008	0	0	Bus306	-0.012	-0.008	24	85.00		
Bus306	20.000	18.045	-3.5	0	0	0	0	0	0	Bus307	-0.012	-0.008	0	83.01		
										Bus305	0.012	0.008	0	83.01		
Bus307	20.000	18.045	-3.5	0	0	0	0	0	0	Bus306	0.012	0.008	0	83.01		
										Bus308	-0.073	-0.048	2	83.40		
										Bus304	0.061	0.040	2	83.48		

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Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus308	20.000	18.045	-3.5	0	0	0	0	0	0	Bus301	-0.101	-0.067	3	83.22		
										Bus307	0.073	0.048	2	83.40		
										Bus309	0.028	0.019	1	82.74		
Bus309	0.380	0.330	-5.8	0	0	0.027	0.017	0	0	Bus308	-0.027	-0.017	56	85.00		
Bus310	20.000	18.040	-3.5	0	0	0	0	0	0	Bus222	0.241	0.162	9	82.92		
										Bus224	0.257	0.188	10	80.63		
										Bus216	-0.508	-0.358	19	81.79		
										Bus311	0.011	0.007	0	84.15		
Bus311	0.380	0.338	-4.4	0	0	0.011	0.007	0	0	Bus310	-0.011	-0.007	21	85.00		
Bus314	20.000	18.020	-3.5	0	0	0	0	0	0	Bus238	-0.043	-0.029	1	83.26		
										Bus315	0.043	0.029	1	83.26		
Bus315	0.380	0.332	-5.4	0	0	0.043	0.026	0	0	Bus314	-0.043	-0.026	87	85.00		
Bus318	0.380	0.330	-5.8	0	0	0.053	0.033	0	0	Bus319	-0.053	-0.033	108	85.00		
Bus319	20.000	18.022	-3.5	0	0	0	0	0	0	Bus240	-0.053	-0.036	2	82.83		
										Bus318	0.053	0.036	2	82.83		
										Bus321	-0.003	-0.002	6	85.00		
Bus320	0.380	0.341	-3.8	0	0	0	0	0	0	Bus321	-0.003	-0.002	6	85.00		
Bus321	20.000	18.023	-3.5	0	0	0	0	0	0	Bus238	-0.009	-0.006	0	84.60		
										Bus323	0.006	0.004	0	84.53		
										Bus320	0.003	0.002	0	84.74		
										Bus323	-0.006	-0.004	12	85.00		
Bus322	0.380	0.340	-4.0	0	0	0.006	0.004	0	0	Bus323	-0.006	-0.004	12	85.00		
Bus323	20.000	18.023	-3.5	0	0	0	0	0	0	Bus321	-0.006	-0.004	0	84.53		
										Bus322	0.006	0.004	0	84.53		
Bus390	0.380	0.334	-5.2	0	0	0.045	0.028	0	0	Bus391	-0.045	-0.028	92	85.00		
Bus391	20.000	18.146	-3.3	0	0	0	0	0	0	Bus152	-0.769	-0.575	30	80.07		
										Bus393	0.723	0.545	28	79.87		
										Bus390	0.046	0.031	1	83.18		
										Bus393	-0.110	-0.068	271	85.00		
Bus392	0.380	0.276	-14.8	0	0	0.110	0.068	0	0	Bus391	-0.722	-0.543	28	79.95		
Bus393	20.000	18.105	-3.3	0	0	0	0	0	0	Bus395	0.533	0.383	20	81.21		
										Bus399	0.072	0.049	2	82.67		
										Bus392	0.118	0.111	5	72.78		
										Bus395	-0.010	-0.006	19	85.00		
										Bus393	-0.532	-0.381	20	81.31		
Bus394	0.380	0.334	-5.1	0	0	0.010	0.006	0	0	Bus395	0.522	0.374	20	81.27		
										Bus394	0.010	0.006	0	83.45		
										Bus397	-0.029	-0.018	60	85.00		
Bus395	20.000	18.034	-3.5	0	0	0	0	0	0	Bus395	-0.522	-0.374	20	81.31		
										Bus403	0.492	0.353	19	81.23		
										Bus396	0.029	0.020	1	82.59		
										Bus399	-0.009	-0.006	18	85.00		
Bus396	0.380	0.329	-6.0	0	0	0.029	0.018	0	0	Bus397	-0.029	-0.018	60	85.00		
Bus397	20.000	18.034	-3.5	0	0	0	0	0	0	Bus395	-0.522	-0.374	20	81.31		
										Bus403	0.492	0.353	19	81.23		
										Bus396	0.029	0.020	1	82.59		
										Bus399	-0.009	-0.006	18	85.00		
										Bus393	-0.072	-0.049	2	82.67		
Bus398	0.380	0.340	-4.1	0	0	0.009	0.006	0	0	Bus401	0.063	0.043	2	82.43		
Bus399	20.000	18.105	-3.3	0	0	0	0	0	0	Bus398	0.009	0.006	0	84.28		
										Bus399	-0.072	-0.049	2	82.67		
Bus400	0.380	0.329	-6.0	0	0	0.062	0.038	0	0	Bus401	-0.062	-0.038	127	85.00		
Bus401	20.000	18.099	-3.3	0	0	0	0	0	0	Bus399	-0.063	-0.043	2	82.44		
										Bus400	0.063	0.043	2	82.44		
Bus402	0.380	0.340	-4.0	0	0	0.005	0.003	0	0	Bus403	-0.005	-0.003	10	85.00		

Project:  
 Location:  
 Contract:  
 Engineer:  
 Filename: TARIKKIGUNAWAN

**ETAP PowerStation**

4.0.0C

Study Case: LF

Page: 10  
 Date: 06-20-2017  
 SN: KLGCONSULT  
 Revision: Base  
 Config.: Normal

Bus		Voltage			Generation		Motor Load		Static Load		Load Flow					XFMR
ID	kV	kV	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	% PF	% Tap	
Bus403	20.000	18.007	-3.5	0	0	0	0	0	0	Bus397	-0.492	-0.352	19	81.28		
										Bus405	0.487	0.349	19	81.25		
										Bus402	0.005	0.003	0	84.61		
Bus404	0.380	0.330	-5.8	0	0	0.013	0.008	0	0	Bus405	-0.013	-0.008	26	85.00		
Bus405	20.000	17.997	-3.5	0	0	0	0	0	0	Bus403	-0.487	-0.349	19	81.27		
										Bus407	0.474	0.340	18	81.22		
										Bus404	0.013	0.009	0	82.89		
Bus406	0.380	0.309	-9.4	0	0	0.063	0.039	0	0	Bus407	-0.063	-0.039	138	85.00		
Bus407	20.000	17.987	-3.6	0	0	0	0	0	0	Bus405	-0.474	-0.340	18	81.24		
										Bus409	0.409	0.290	16	81.57		
										Bus406	0.065	0.050	2	79.17		
Bus408	0.380	0.329	-6.0	0	0	0.028	0.017	0	0	Bus409	-0.028	-0.017	57	85.00		
Bus409	20.000	17.984	-3.6	0	0	0	0	0	0	Bus181	0.063	0.044	2	82.36		
										Bus407	-0.409	-0.290	16	81.58		
										Bus411	0.059	0.040	2	82.94		
										Bus415	0.258	0.187	10	80.95		
										Bus408	0.028	0.019	1	82.69		
Bus410	0.380	0.325	-6.6	0	0	0.017	0.011	0	0	Bus411	-0.017	-0.011	36	85.00		
Bus411	20.000	17.983	-3.6	0	0	0	0	0	0	Bus409	-0.059	-0.040	2	82.94		
										Bus413	0.042	0.028	1	83.31		
										Bus410	0.018	0.012	0	82.07		
Bus412	0.380	0.332	-5.4	0	0	0.041	0.026	0	0	Bus413	-0.041	-0.026	84	85.00		
Bus413	20.000	17.983	-3.6	0	0	0	0	0	0	Bus411	-0.042	-0.028	1	83.31		
										Bus412	0.042	0.028	1	83.31		
										Bus415	-0.051	-0.031	102	85.00		
Bus414	0.380	0.334	-4.9	0	0	0.051	0.031	0	0	Bus415	-0.051	-0.031	102	85.00		
Bus415	20.000	17.981	-3.6	0	0	0	0	0	0	Bus409	-0.258	-0.187	10	80.96		
										Bus417	0.047	0.034	1	80.99		
										Bus419	0.160	0.120	6	80.07		
										Bus414	0.051	0.033	1	83.73		
Bus416	0.380	0.319	-7.7	0	0	0.046	0.028	0	0	Bus417	-0.046	-0.028	97	85.00		
Bus417	20.000	17.981	-3.6	0	0	0	0	0	0	Bus415	-0.047	-0.034	1	80.99		
										Bus416	0.047	0.034	1	80.99		
Bus418	0.380	0.307	-9.8	0	0	0.066	0.041	0	0	Bus419	-0.066	-0.041	146	85.00		
Bus419	20.000	17.978	-3.6	0	0	0	0	0	0	Bus415	-0.160	-0.120	6	80.08		
										Bus421	0.092	0.066	3	81.05		
										Bus418	0.068	0.054	2	78.78		
Bus420	0.380	0.319	-7.7	0	0	0.090	0.056	0	0	Bus421	-0.090	-0.056	191	85.00		
Bus421	20.000	17.976	-3.6	0	0	0	0	0	0	Bus419	-0.092	-0.066	3	81.05		
										Bus420	0.092	0.066	3	81.05		

\* 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



**LAMPIRAN G** Tabel Hasil Pengolahan Jatuh Tegangan Penyulang  
Ceko (*feeder 3*) Dari *Software ETAP*.

No.	Nama Gardu	Jarak (KM)		Luas Penampang 150 mm <sup>2</sup>		Luas Penampang 185 mm <sup>2</sup>		Luas Penampang 240 mm <sup>2</sup>	
		GI-GD	GD-GD	GI-GD	%	GI-GD	%	GI-GD	%
1.	ST.YOSEP	6	6	0.625	3.125	0.559	2.795	0.491	2.445
2.	P685	9.3	3.3	0.631	3.155	0.564	2.820	0.496	2.480
3.	P685	10.4	1.1	0.737	3.685	0.659	3.395	0.579	2.895
4.	P083	10.55	0.15	0.753	3.765	0.673	3.365	0.591	2.955
5.	P394	10.85	0.3	0.783	3.915	0.700	3.500	0.614	3.070
6.	P712	11.15	0.3	0.820	4.100	0.726	3.630	0.638	3.190
7.	BTS P868	11.25	0.1	0.380	4.150	0.735	3.675	0.645	3.225
8.	P084	11.5	0.25	0.854	4.270	0.766	3.830	0.664	3.320
9.	P852	12.6	1.1	0.855	4.275	0.757	3.785	0.665	3.325
10.	P852	14.2	1.6	0.855	4.275	0.758	3.790	0.665	3.325
11.	P822	16.95	2.75	1.115	4.575	0.988	4.940	0.866	4.330
12.	BTS P476	17.1	0.15	1.130	5.560	1.000	5.000	0.877	4.385
13.	P525	17.55	0.45	1.130	5.650	1.001	5.005	0.878	4.390
14.	BTS	18.05	0.5	1.176	5.880	1.041	5.205	0.913	4.565
15.	P290	18.1	0.05	1.416	7.080	1.254	6.270	1.099	5.495
16.	P850	20.55	2.45	1.417	7.085	1.254	6.270	1.199	5.995
17.	P358	24.86	4.31	1.480	7.400	1.310	6.550	1.148	5.740
18.	P580	26.07	1.21	1.480	7.400	1.326	6.630	1.162	5.810
19.	P359	27.68	1.61	1.520	7.600	1.346	6.730	1.179	5.895
20.	P360	28.89	1.21	1.536	7.680	1.360	6.800	1.192	5.960
21.	P361	32.05	3.16	1.575	7.875	1.394	6.970	1.222	6.110
22.	P362	34.91	2.86	1.607	8.035	1.423	7.115	1.247	6.235
23.	P363	37.57	2.66	1.635	8.175	1.447	7.235	1.268	6.340
24.	P500	39.83	2.26	1.657	8.285	1.467	7.335	1.285	6.325
25.	P718	42.09	2.26	1.678	8.390	1.485	7.425	1.302	6.425
26.	P364	44.35	2.26	1.699	8.495	1.504	7.520	1.318	6.510
27.	BTS XL P472	49.76	5.41	1.746	8.730	1.545	7.725	1.354	6.770
28.	BTS	49.77	0.01	1.746	8.730	1.545	7.725	1.354	6.770
29.	P488	50.93	1.16	1.750	8.750	1.549	7.745	1.357	6.785
30.	P738	51.58	0.65	1.752	8.760	1.550	7.750	1.358	6.790
31.	P739	62.13	10.55	1.764	8.820	1.561	7.805	1.368	6.840
32.	P470	64.63	2.5	1.766	8.830	1.563	7.815	1.369	6.845
33.	P365	79.29	14.66	1.815	9.075	1.607	8.035	1.408	7.040
34.	BTS	79.6	0.31	1.816	9.080	1.607	8.035	1.408	7.040
35.	P489	80.76	1.16	1.819	9.095	1.610	8.050	1.410	7.050
36.	P490	81.81	1.05	1.821	9.105	1.612	8.060	1.412	7.060
37.	P366	83.91	2.1	1.824	9.120	1.614	8.070	1.414	7.070

38.	P576	23.15	2.6	1.613	8.065	1.427	7.135	1.250	6.250
39.	P115	23.3	0.15	1.624	8.120	1.437	7.185	1.259	6.295
40.	P233	24.45	1.15	1.709	8.545	1.512	7.560	1.324	6.620
41.	P085	24.9	0.45	1.741	8.705	1.540	7.700	1.349	7.345
42.	Pxxx	27	2.1	1.889	9.445	1.671	8.355	1.463	7.315
43.	P142	28.15	1.15	1.969	9.845	1.741	8.705	1.524	7.620
44.	B & D	28.31	0.155	1.979	9.895	1.750	8.750	1.532	7.660
45.	P261	28.61	0.3	1.999	9.995	1.768	8.840	1.548	7.740
46.	P987	30.06	1.45	2.096	10.480	1.853	9.265	1.622	8.110
47.	P618	30.56	0.5	2.129	10.645	1.882	9.410	1.647	8.235
48.	P194	31.61	1.05	2.197	10.985	1.942	9.710	1.700	8.500
49.	P925	32.31	0.7	2.241	11.205	1.981	9.905	1.733	8.665
50.	P143	32.61	0.3	2.260	11.300	1.997	9.985	1.748	8.740
51.	P330	33.76	1.15	2.278	11.390	2.013	10.065	1.761	8.805
52.	P682	34.41	0.65	2.288	11.440	2.021	10.105	1.769	8.845
53.	P252	35.51	1.1	2.303	11.515	2.035	10.175	1.781	8.905
54.	BTS XL	36.51	1	2.318	11.590	2.048	10.240	1.792	8.960
55.	P236	36.71	0.2	2.320	11.600	2.050	10.250	1.794	8.970
56.	P431	37.26	0.55	2.327	11.635	2.056	10.280	1.799	8.995
57.	P620	38.86	1.6	2.344	11.720	2.071	10.355	1.812	9.060
58.	BTS	40.56	1.7	2.361	11.805	2.086	10.430	1.825	9.125
59.	P237	40.61	0.05	2.361	11.805	2.086	10.430	1.825	9.125
60.	P946	40.81	0.2	2.363	11.815	2.088	10.440	1.826	9.130
61.	BTS	41.91	1.1	2.371	11.855	2.095	10.475	1.833	9.165
62.	P235	42.11	0.2	2.373	11.865	2.096	10.480	1.834	9.170
63.	P854	45.36	3.25	2.373	11.865	2.097	10.485	1.835	9.175
64.	P592	48.81	3.45	2.390	11.950	2.112	10.560	1.847	9.235
65.	P234	51.26	2.45	2.402	12.010	2.122	10.610	1.856	9.280
66.	P429	51.81	0.55	2.403	12.015	2.123	10.615	1.857	9.285
67.	Pxxx	52.11	0.3	2.403	12.015	2.123	10.615	1.857	9.285
68.	P997	52.31	0.2	2.403	12.015	2.123	10.615	1.857	9.285
69.	P619	35.01	2.4	2.366	11.830	2.090	10.450	1.829	9.145
70.	P144	35.61	0.6	2.391	11.955	2.113	10.565	1.848	9.240
71.	P589	35.96	0.35	2.399	11.995	2.119	10.595	1.854	9.270
72.	P152	38.71	2.75	2.452	12.260	2.166	10.830	1.895	9.475
73.	P719	39.31	0.6	2.453	12.265	2.167	10.835	1.895	9.475
74.	P628	43.56	4.25	2.460	12.300	2.173	10.865	1.991	9.955
75.	BTS	48.52	4.96	2.521	12.605	2.220	11.100	1.947	9.735
76.	P153	50.27	1.75	2.545	12.725	2.241	11.205	1.966	9.830
77.	P255	53.07	2.8	2.581	12.905	2.273	11.365	1.993	9.965

78.	BTS	54.06	1	2.594	12.970	2.284	11.420	2.003	10.015
79.	P221	55.12	1.05	2.607	13.035	2.296	11.480	2.013	10.065
80.	P687	55.47	0.35	2.610	13.050	2.299	11.495	2.016	10.080
81.	P332	56.52	1.05	2.612	13.060	2.301	11.505	2.017	10.085
82.	BTS	57.37	0.85	2.612	13.060	2.300	11.500	2.017	10.085
83.	P331	57.57	0.2	2.612	13.060	2.300	11.500	2.017	10.085
84.	P172	58.17	0.6	2.614	13.070	2.303	11.515	2.019	10.095
85.	P829	58.62	0.45	2.615	13.075	2.303	11.515	2.019	10.095
86.	P154	59.52	0.9	2.618	13.090	2.306	11.530	2.022	10.110
87.	P721	60.72	1.2	2.621	13.105	2.309	11.545	2.024	10.120
88.	P851	37.26	1.65	2.424	12.120	2.141	10.705	1.873	9.365
89.	P609	38.96	1.7	2.458	12.290	2.171	10.855	1.899	9.395
90.	P853	40.71	1.75	2.491	12.455	2.200	11.000	1.925	9.625
91.	P430	42.31	1.6	2.522	12.610	2.227	11.135	1.948	9.740
92.	BTS	42.56	0.25	2.526	12.630	2.231	11.155	1.951	9.755
93.	P238	42.61	0.05	2.527	12.635	2.232	11.160	1.952	9.760
94.	P745	42.71	0.1	2.528	12.640	2.233	11.165	1.953	9.765
95.	P397	42.91	0.2	2.529	12.645	2.233	11.165	1.953	9.765
96.	P334	43.91	1	2.530	12.650	2.235	11.175	1.954	9.770
97.	P905	44.96	1.05	2.531	12.655	2.236	11.180	1.955	9.775
98.	P239	45.01	0.05	2.532	12.660	2.236	11.180	1.955	9.775
99.	BTS	45.06	0.05	2.532	12.660	2.236	11.180	1.955	9.775
100.	P683	43.36	0.75	2.537	12.685	2.241	11.205	1.960	9.800
101.	P606	45.41	2.05	2.551	12.755	2.253	11.265	1.970	9.850
102.	P641	47.01	1.6	2.559	12.795	2.260	11.300	1.976	9.880
103.	P845	49.31	2.3	2.560	12.800	2.260	11.300	1.977	9.885
104.	P846	50.36	1.05	2.560	12.800	2.261	11.305	1.977	9.885
105.	P339	54.21	3.85	2.563	12.815	2.264	11.320	1.980	9.900
106.	BTS P474	54.66	0.45	2.561	12.805	2.261	11.305	1.978	9.890
107.	P357	55.41	0.75	2.562	12.810	2.262	11.310	1.978	9.890
108.	P760	56.16	0.75	2.561	12.805	2.261	11.305	1.978	9.890
109.	P352	48.56	5.2	2.569	12.845	2.269	11.345	1.984	9.920
110.	P353	52.76	4.2	2.589	12.945	2.286	11.430	1.999	9.995
111.	P355	56.97	4.21	2.603	13.015	2.299	11.495	2.010	10.050
112.	BTS	57.18	0.21	2.604	13.020	2.299	11.495	2.011	10.055
113.	P354	60.14	2.96	2.610	13.050	2.305	11.525	2.015	10.075
114.	P499	62.30	2.16	2.611	13.055	2.306	11.530	2.016	10.080
115.	P356	64.16	1.86	2.612	13.060	2.306	11.530	2.016	10.080