

Project:
Location:
Contract:
Engineer:
Filename: unbalance

ETAP
12.6.0H

Study Case: LF

Page: 1
Date: 05-02-2017
SN:
Revision: Base
Config.: Normal

Bus Loading Summary Report

Bus			Directly Connected Load								Total Bus Load			
			Constant kVA		Constant Z		Constant I		Generic		MVA	% PF	Amp	Percent Loading
ID	kV	Rated Amp	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar				
Bus1	33.000		0	0	0	0	0	0	0	0	3.033	90.6	53.1	
Bus2	33.000		0	0	0	0	0	0	0	0	3.033	90.6	53.1	
Bus3	33.000		0	0	0	0	0	0	0	0	1.170	91.4	20.5	
Bus4	33.000		0	0	0	0	0	0	0	0	1.170	91.4	20.5	
Bus5	0.400		0.032	0.016	0.008	0.004	0	0	0	0	0.045	90.0	65.2	
Bus6	33.000		0	0	0	0	0	0	0	0	1.125	91.5	19.7	
Bus7	33.000		0	0	0	0	0	0	0	0	1.125	91.5	19.7	
Bus8	0.400		0.099	0.055	0.024	0.014	0	0	0	0	0.141	87.2	205.4	
Bus9	33.000		0	0	0	0	0	0	0	0	0.983	92.1	17.2	
Bus10	33.000		0	0	0	0	0	0	0	0	0.224	90.9	3.9	
Bus11	33.000		0	0	0	0	0	0	0	0	0.059	89.6	1.0	
Bus12	0.400		0.042	0.021	0.010	0.005	0	0	0	0	0.059	90.0	85.9	
Bus13	33.000		0	0	0	0	0	0	0	0	0.165	91.3	2.9	
Bus14	0.400		0.025	0.009	0.006	0.002	0	0	0	0	0.033	94.0	47.3	
Bus15	33.000		0	0	0	0	0	0	0	0	0.132	90.6	2.3	
Bus17	33.000		0	0	0	0	0	0	0	0	0.026	88.2	0.5	
Bus18	33.000		0	0	0	0	0	0	0	0	0.026	88.2	0.5	
Bus19	0.400		0.018	0.010	0.005	0.002	0	0	0	0	0.026	88.3	37.6	
Bus20	0.400		0.077	0.034	0.019	0.008	0	0	0	0	0.105	91.5	153.4	
Bus21	33.000		0	0	0	0	0	0	0	0	1.863	90.0	32.6	
Bus22	0.400		0.058	0.018	0.014	0.004	0	0	0	0	0.076	95.6	110.0	
Bus24	33.000		0	0	0	0	0	0	0	0	1.787	89.7	31.3	
Bus25	0.400		0.022	0.010	0.005	0.003	0	0	0	0	0.030	90.0	43.3	
Bus26	33.000		0	0	0	0	0	0	0	0	0.030	89.8	0.5	
Bus27	0.400		0.022	0.010	0.005	0.003	0	0	0	0	0.030	90.0	43.5	
Bus28	33.000		0	0	0	0	0	0	0	0	1.726	89.7	30.2	
Bus30	0.400		0.045	0.012	0.011	0.003	0	0	0	0	0.058	96.4	84.1	
Bus31	33.000		0	0	0	0	0	0	0	0	1.669	89.5	29.2	
Bus32	33.000		0	0	0	0	0	0	0	0	0.148	94.0	2.6	
Bus34	0.400		0.093	0.028	0.023	0.007	0	0	0	0	0.122	95.8	176.9	
Bus35	33.000		0	0	0	0	0	0	0	0	0.027	84.8	0.5	
Bus37	0.400		0.018	0.011	0.004	0.003	0	0	0	0	0.026	85.0	38.3	
Bus38	33.000		0	0	0	0	0	0	0	0	1.522	89.0	26.6	
Bus41	0.400		0.144	0.050	0.036	0.012	0	0	0	0	0.190	94.5	276.6	
Bus42	33.000		0	0	0	0	0	0	0	0	0.263	94.7	4.6	
Bus43	33.000		0	0	0	0	0	0	0	0	0.072	96.1	1.3	

Project:
Location:
Contract:
Engineer:
Filename: unbalance

ETAP
12.6.0H

Study Case: LF

Page: 2
Date: 05-02-2017
SN:
Revision: Base
Config.: Normal

Bus			Directly Connected Load								Total Bus Load			
			Constant kVA		Constant Z		Constant I		Generic		MVA	% PF	Amp	Percent Loading
ID	kV	Rated Amp	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar				
Bus44	33.000		0	0	0	0	0	0	0	0	0.072	96.1	1.3	
Bus46	0.400		0.044	0.011	0.011	0.003	0	0	0	0	0.056	97.1	82.1	
Bus47	33.000		0	0	0	0	0	0	0	0	0.015	92.4	0.3	
Bus51	33.000		0	0	0	0	0	0	0	0	0.015	92.4	0.3	
Bus52	0.400		0.011	0.005	0.003	0.001	0	0	0	0	0.015	92.5	22.2	
Bus53	33.000		0	0	0	0	0	0	0	0	1.261	87.5	22.1	
Bus54	33.000		0	0	0	0	0	0	0	0	1.261	87.5	22.1	
Bus56	0.400		0.013	0.004	0.003	0.001	0	0	0	0	0.017	94.5	24.4	
Bus57	33.000		0	0	0	0	0	0	0	0	1.245	87.4	21.8	
Bus59	0.400		0.144	0.050	0.036	0.012	0	0	0	0	0.190	94.5	276.7	
Bus60	33.000		0	0	0	0	0	0	0	0	0.080	89.7	1.4	
Bus62	0.400		0.058	0.028	0.014	0.007	0	0	0	0	0.080	90.1	116.3	
Bus63	33.000		0	0	0	0	0	0	0	0	0.976	85.6	17.1	
Bus64	33.000		0	0	0	0	0	0	0	0	0.976	85.6	17.1	
Bus66	0.400		0.091	0.040	0.022	0.010	0	0	0	0	0.124	91.7	180.7	
Bus68	0.400		0.055	0.016	0.014	0.004	0	0	0	0	0.072	95.9	104.5	
Bus69	33.000		0	0	0	0	0	0	0	0	0.072	95.7	1.3	
Bus70	33.000		0	0	0	0	0	0	0	0	0.782	83.4	13.7	
Bus72	0.400		0.093	0.028	0.023	0.007	0	0	0	0	0.122	95.8	177.0	
Bus73	33.000		0	0	0	0	0	0	0	0	0.124	93.4	2.2	
Bus75	0.400		0.038	0.015	0.009	0.004	0	0	0	0	0.050	93.0	73.1	
Bus76	33.000		0	0	0	0	0	0	0	0	0.073	93.8	1.3	
Bus78	0.400		0.013	0.010	0.003	0.002	0	0	0	0	0.020	79.4	29.1	
Bus79	33.000		0	0	0	0	0	0	0	0	0.054	97.0	0.9	
Bus81	0.400		0.042	0.010	0.010	0.002	0	0	0	0	0.054	97.2	78.2	
Bus82	33.000		0	0	0	0	0	0	0	0	0.054	97.0	0.9	
Bus83	33.000		0	0	0	0	0	0	0	0	0.547	76.7	9.6	
Bus85	0.400		0.044	0.011	0.011	0.003	0	0	0	0	0.056	97.0	81.8	
Bus86	33.000		0	0	0	0	0	0	0	0	0.057	96.8	1.0	
Bus87	33.000		0	0	0	0	0	0	0	0	0.497	73.5	8.7	
Bus89	0.400		0.037	0.013	0.009	0.003	0	0	0	0	0.049	94.4	71.2	
Bus90	33.000		0	0	0	0	0	0	0	0	0.473	73.6	8.3	
Bus92	0.400		0.069	0.026	0.017	0.006	0	0	0	0	0.091	93.7	132.5	
Bus93	33.000		0	0	0	0	0	0	0	0	0.300	87.4	5.3	
Bus95	0.400		0.018	0.011	0.004	0.003	0	0	0	0	0.026	85.0	38.3	
Bus96	33.000		0	0	0	0	0	0	0	0	0.273	87.7	4.8	
Bus98	0.400		0.045	0.012	0.011	0.003	0	0	0	0	0.058	96.4	84.2	
Bus99	33.000		0	0	0	0	0	0	0	0	0.102	67.6	1.8	

Project:
Location:
Contract:
Engineer:
Filename: unbalance

ETAP
12.6.0H

Study Case: LF

Page: 3
Date: 05-02-2017
SN:
Revision: Base
Config.: Normal

Bus			Directly Connected Load								Total Bus Load			
			Constant kVA		Constant Z		Constant I		Generic		MVA	% PF	Amp	Percent Loading
ID	kV	Rated Amp	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar				
Bus101	0.400		0.055	0.060	0.014	0.015	0	0	0	0	0.101	67.9	147.0	
Bus102	33.000		0	0	0	0	0	0	0	0	0.102	67.6	1.8	
Bus103	33.000		0	0	0	0	0	0	0	0	0.122	94.2	2.1	
Bus105	0.400		0.038	0.015	0.009	0.004	0	0	0	0	0.050	93.0	73.2	
Bus106	33.000		0	0	0	0	0	0	0	0	0.071	95.1	1.2	
Bus108	0.400		0.054	0.017	0.013	0.004	0	0	0	0	0.071	95.4	103.0	
Bus113	33.000		0	0	0	0	0	0	0	0	0.145	20.2	2.5	
Bus114	33.000		0	0	0	0	0	0	0	0	0.166	51.7	2.9	
Bus116	0.400		0.026	0.010	0.006	0.003	0	0	0	0	0.035	92.9	50.3	
Bus119	0.400		0.019	0.006	0.005	0.002	0	0	0	0	0.025	95.4	36.8	
Bus120	33.000		0	0	0	0	0	0	0	0	0.025	95.3	0.4	
Bus121	33.000		0	0	0	0	0	0	0	0	0.209	81.5	3.7	
Bus124	33.000		0	0	0	0	0	0	0	0	0.089	94.7	1.6	
Bus125	0.400		0.068	0.022	0.017	0.005	0	0	0	0	0.089	95.0	129.1	
Bus126	33.000		0	0	0	0	0	0	0	0	0.260	93.4	4.6	
Bus127	33.000		0	0	0	0	0	0	0	0	0.279	96.9	4.9	
Bus129	0.400		0.022	0.010	0.005	0.003	0	0	0	0	0.030	90.0	43.4	
Bus132	33.000		0	0	0	0	0	0	0	0	0.313	98.4	5.5	
Bus133	0.400		0.031	0.010	0.008	0.002	0	0	0	0	0.040	95.0	58.3	
Bus134	33.000		0	0	0	0	0	0	0	0	0	0.0	0.0	
Bus135	33.000		0	0	0	0	0	0	0	0	0.311	99.0	5.5	
Bus138	33.000		0	0	0	0	0	0	0	0	0.377	99.3	6.6	
Bus139	0.400		0.053	0.028	0.013	0.007	0	0	0	0	0.075	88.7	109.0	
Bus142	33.000		0	0	0	0	0	0	0	0	0.076	95.3	1.3	
Bus143	0.400		0.058	0.018	0.014	0.004	0	0	0	0	0.075	95.6	110.0	
Bus145	33.000		0	0	0	0	0	0	0	0	0.759	92.4	13.3	
Bus146	33.000		0	0	0	0	0	0	0	0	0.759	92.4	13.3	
Bus148	0.400		0.045	0.024	0.011	0.006	0	0	0	0	0.064	88.4	93.2	
Bus150	0.400		0.013	0.004	0.003	0.001	0	0	0	0	0.017	94.5	24.4	
Bus151	33.000		0	0	0	0	0	0	0	0	0.017	94.5	0.3	
Bus152	33.000		0	0	0	0	0	0	0	0	0.097	92.5	1.7	
Bus154	0.400		0.005	0.002	0.001	0	0	0	0	0	0.007	94.9	9.9	
Bus155	33.000		0	0	0	0	0	0	0	0	0.090	92.3	1.6	
Bus157	0.400		0.013	0.004	0.003	0.001	0	0	0	0	0.017	94.5	24.4	
Bus158	33.000		0	0	0	0	0	0	0	0	0.074	91.8	1.3	
Bus159	33.000		0	0	0	0	0	0	0	0	0.074	91.8	1.3	
Bus160	33.000		0	0	0	0	0	0	0	0	0.074	91.8	1.3	
Bus162	0.400		0.018	0.010	0.004	0.002	0	0	0	0	0.025	88.3	36.9	

Project:
Location:
Contract:
Engineer:
Filename: unbalance

ETAP
12.6.0H

Study Case: LF

Page: 4
Date: 05-02-2017
SN:
Revision: Base
Config.: Normal

Bus			Directly Connected Load								Total Bus Load			
			Constant kVA		Constant Z		Constant I		Generic		MVA	% PF	Amp	Percent Loading
ID	kV	Rated Amp	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar				
Bus163	33.000		0	0	0	0	0	0	0	0	0.048	93.4	0.8	
Bus165	0.400		0.025	0.009	0.006	0.002	0	0	0	0	0.033	94.0	47.3	
Bus166	33.000		0	0	0	0	0	0	0	0	0.015	92.4	0.3	
Bus167	33.000		0	0	0	0	0	0	0	0	0.015	92.4	0.3	
Bus168	33.000		0	0	0	0	0	0	0	0	0.015	92.4	0.3	
Bus170	0.400		0.011	0.005	0.003	0.001	0	0	0	0	0.015	92.5	22.2	
Bus171	33.000		0	0	0	0	0	0	0	0	0.015	92.4	0.3	
Bus172	33.000		0	0	0	0	0	0	0	0	0.581	92.8	10.2	
Bus173	33.000		0	0	0	0	0	0	0	0	0.581	92.8	10.2	
Bus175	0.400		0.043	0.014	0.010	0.003	0	0	0	0	0.056	95.0	82.2	
Bus176	33.000		0	0	0	0	0	0	0	0	0.524	92.6	9.2	
Bus178	0.400		0.032	0.011	0.008	0.003	0	0	0	0	0.042	94.8	61.7	
Bus179	33.000		0	0	0	0	0	0	0	0	0.043	94.6	0.7	
Bus180	33.000		0	0	0	0	0	0	0	0	0.481	92.4	8.4	
Bus181	33.000		0	0	0	0	0	0	0	0	0.185	90.0	3.2	
Bus183	0.400		0.111	0.054	0.027	0.013	0	0	0	0	0.153	90.0	225.6	
Bus184	33.000		0	0	0	0	0	0	0	0	0.029	93.8	0.5	
Bus185	33.000		0	0	0	0	0	0	0	0	0.029	93.8	0.5	
Bus188	0.400		0.013	0.004	0.003	0.001	0	0	0	0	0.017	94.5	24.4	
Bus189	33.000		0	0	0	0	0	0	0	0	0.012	92.8	0.2	
Bus191	0.400		0.009	0.004	0.002	0.001	0	0	0	0	0.012	92.9	17.6	
Bus192	33.000		0	0	0	0	0	0	0	0	0.012	92.8	0.2	
Bus193	33.000		0	0	0	0	0	0	0	0	0	0.0	0.0	
Bus194	33.000		0	0	0	0	0	0	0	0	0.237	93.3	4.2	
Bus195	33.000		0	0	0	0	0	0	0	0	0.237	93.3	4.2	
Bus196	33.000		0	0	0	0	0	0	0	0	0.237	93.3	4.2	
Bus197	33.000		0	0	0	0	0	0	0	0	0.237	93.3	4.2	
Bus198	33.000		0	0	0	0	0	0	0	0	0.125	91.3	2.2	
Bus200	0.400		0.091	0.040	0.022	0.010	0	0	0	0	0.124	91.7	180.7	
Bus201	33.000		0	0	0	0	0	0	0	0	0.015	92.4	0.3	
Bus203	0.400		0.011	0.005	0.003	0.001	0	0	0	0	0.015	92.5	22.2	
Bus204	33.000		0	0	0	0	0	0	0	0	0	0.0	0.0	
Bus205	33.000		0	0	0	0	0	0	0	0	0	0.0	0.0	
Bus206	33.000		0	0	0	0	0	0	0	0	0	0.0	0.0	
Bus208	0.400		0.045	0.014	0.011	0.004	0	0	0	0	0.059	95.2	86.0	
Bus209	33.000		0	0	0	0	0	0	0	0	0.112	95.3	2.0	
Bus211	0.400		0.074	0.022	0.018	0.005	0	0	0	0	0.097	96.0	140.4	
Bus212	0.400		0	0	0	0	0	0	0	0	0.380	100.0	555.2	

Bus			Directly Connected Load								Total Bus Load			
			Constant kVA		Constant Z		Constant I		Generic		MVA	% PF	Amp	Percent Loading
ID	kV	Rated Amp	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar				
Bus213	33.000		0	0	0	0	0	0	0	0	0.375	100.0	6.6	

* Indicates operating load of a bus exceeds the bus critical limit (100.0% of the Continuous Ampere rating).

Indicates operating load of a bus exceeds the bus marginal limit (95.0% of the Continuous Ampere rating).

Project:
Location:
Contract:
Engineer:
Filename: unbalance

ETAP
12.6.0H

Study Case: LF

Page: 6
Date: 05-02-2017
SN:
Revision: Base
Config.: Normal

Branch Loading Summary Report

CKT / Branch		Cable & Reactor			Transformer				
ID	Type	Ampacity (Amp)	Loading Amp	%	Capability (MVA)	Loading (input)		Loading (output)	
						MVA	%	MVA	%
T1 Al-masjid Al_kaber	Transformer				0.630	0.192	30.4	0.190	30.2
T2 Mothalath Al_borg	Transformer				0.630	0.030	4.8	0.030	4.8
T3 Maskaneh	Transformer				0.630	0.191	30.4	0.190	30.2
T4 Bear mtawi'	Transformer				0.630	0.142	22.6	0.141	22.4
T5 Wad algamary 1	Transformer				0.400	0.106	26.5	0.105	26.4
T6 Wad algamary 2	Transformer				0.250	0.026	10.4	0.026	10.4
T7 Al_deir 1	Transformer				0.630	0.122	19.4	0.122	19.3
T8 Karam al_ashqar	Transformer				0.250	0.059	23.8	0.059	23.7
T9 Abu al_humas	Transformer				0.630	0.122	19.4	0.122	19.3
T10 Meqtaa' duma	Transformer				0.630	0.092	14.6	0.091	14.5
T11 Wad ali	Transformer				0.250	0.097	38.9	0.097	38.7
T12 Aqabit gharrarah	Transformer				0.630	0.089	14.2	0.089	14.1
T13 Qata't al_jamal	Transformer				0.630	0.051	8.0	0.050	8.0
T14 Al_markaz	Transformer				0.630	0.072	11.5	0.072	11.4
T15 Abu hashim	Transformer				0.250	0.125	50.0	0.124	49.6
T16 Sa'ada	Transformer				0.630	0.058	9.2	0.058	9.2
T17 Al_baladiya	Transformer				0.630	0.058	9.2	0.058	9.2
T18 Al_sheehk	Transformer				0.630	0.125	19.8	0.124	19.7
T19 Kerbit alama	Transformer				0.630	0.030	4.8	0.030	4.8
T20 Aqabit al_tarsha	Transformer				0.250	0.076	30.5	0.076	30.2
T21 Al_mustashfah	Transformer				0.630	0.051	8.0	0.050	8.0
T22 Da'na	Transformer				0.630	0.026	4.2	0.026	4.2
T23 Kurza	Transformer				0.630	0.076	12.1	0.075	12.0
T24 Al-deire 2	Transformer				0.630	0.027	4.2	0.026	4.2
T25 Rasmi wahab	Transformer				0.250	0.045	18.1	0.045	18.0
T26 Baten alqar'	Transformer				0.250	0.065	25.8	0.064	25.6
T27 Al_muntazah	Transformer				0.250	0.026	10.2	0.025	10.2
T28 Domet al_wridat	Transformer				0.630	0.071	11.3	0.071	11.2
T29 Juret al_dama	Transformer				0.630	0.080	12.8	0.080	12.6
T30 Kafar joul	Transformer				0.250	0.156	62.5	0.153	61.2
T31 Sam'a	Transformer				0.250	0.015	6.1	0.015	6.1
T32 Khalet al_ayaseh	Transformer				0.630	0.025	4.0	0.025	4.0
T33 Al_mizrab	Transformer				0.250	0.017	6.8	0.017	6.7

Project:
Location:
Contract:
Engineer:
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ETAP
12.6.0H

Study Case: LF

Page: 7
Date: 05-02-2017
SN:
Revision: Base
Config.: Normal

CKT / Branch		Cable & Reactor			Transformer				
ID	Type	Ampacity (Amp)	Loading Amp	%	Capability (MVA)	Loading (input)		Loading (output)	
						MVA	%	MVA	%
T34 Al_shadaqa	Transformer				0.250	0.017	6.8	0.017	6.7
T35 Al_shuqfan	Transformer				0.250	0.043	17.1	0.042	16.9
T36 Al_estad	Transformer				0.250	0.017	6.8	0.017	6.7
T37 EshreeteH	Transformer				0.630	0.054	8.6	0.054	8.5
T38 Al_muhtasib	Transformer				0.630	0.040	6.4	0.040	6.4
T39 Jammoq	Transformer				0.630	0.057	9.0	0.056	8.9
T40 Al_helal	Transformer				0.250	0.007	2.8	0.007	2.7
T41 Al_muntazah 2	Transformer				0.250	0.033	13.1	0.033	13.0
T42 Abu njeem 2	Transformer				0.250	0.033	13.1	0.033	13.1
T43 Al_jame'a	Transformer				0.630	0.035	5.5	0.035	5.5
T44 Alghwla	Transformer				0.250	0.012	4.9	0.012	4.9
T45 Masafi	Transformer				0.630	0.049	7.8	0.049	7.8
T46 Al_jebreni	Transformer				0.630	0.075	12.0	0.075	11.9
T47 Abu_njeem 1	Transformer				0.160	0.059	37.2	0.059	36.7
T48 Inab al_kabeer	Transformer				0.250	0.015	6.2	0.015	6.1
T49 Shweki	Transformer				0.630	0.015	2.4	0.015	2.4
T50 Al-baha	Transformer				0.630	0.057	9.0	0.056	8.9
T51 Inab al_sagher	Transformer				0.250	0.057	22.8	0.056	22.5
T52 Bank al_eskan	Transformer				0.630	0.017	2.7	0.017	2.7
T53 Al_tork	Transformer				0.630	0.102	16.1	0.101	16.0
T54 Wad algamary 3	Transformer				0.630	0.030	4.8	0.030	4.7
T55 Mana'	Transformer				0.630	0.020	3.2	0.020	3.2
T56 Al_jebreny step up	Transformer				0.630	0.380	60.3	0.375	59.5

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

Project:
Location:
Contract:
Engineer:
Filename: unbalance

ETAP
12.6.0H

Study Case: LF

Page: 8
Date: 05-02-2017
SN:
Revision: Base
Config.: Normal

Branch Losses Summary Report

CKT / Branch ID	From-To Bus Flow		To-From Bus Flow		Losses		% Bus Voltage		Vd % Drop in Vmag
	MW	Mvar	MW	Mvar	kW	kvar	From	To	
R36	2.747	1.286	-2.746	-1.286	0.2	0.1	100.0	100.0	0.01
C61	1.070	0.474	-1.070	-0.474	0.0	0.0	100.0	100.0	0.00
C96	1.676	0.812	-1.676	-0.812	0.1	0.1	100.0	100.0	0.01
R106	1.070	0.474	-1.070	-0.474	0.1	0.0	100.0	100.0	0.01
R190	1.029	0.454	-1.029	-0.454	0.1	0.1	100.0	100.0	0.01
T25 Rasmi wahab	0.041	0.020	-0.040	-0.020	0.1	0.3	100.0	99.4	0.59
R436	1.029	0.454	-1.029	-0.454	0.3	0.2	100.0	99.9	0.03
C59	0.906	0.384	-0.906	-0.384	0.0	0.0	99.9	99.9	0.00
T4 Bear mtawi'	0.123	0.071	-0.123	-0.069	0.2	1.4	99.9	99.3	0.62
C514	0.204	0.094	-0.204	-0.094	0.0	0.0	99.9	99.9	0.00
Co600	0.702	0.290	-0.702	-0.290	0.1	0.1	99.9	99.9	0.01
C463	0.053	0.026	-0.053	-0.026	0.0	0.0	99.9	99.9	0.00
C526	0.150	0.067	-0.150	-0.067	0.0	0.0	99.9	99.9	0.00
T47 Abu_njeem 1	0.053	0.026	-0.053	-0.026	0.5	0.8	99.9	98.5	1.39
C422	0.120	0.056	-0.120	-0.056	0.0	0.0	99.9	99.9	0.00
T42 Abu njeem 2	0.031	0.011	-0.031	-0.011	0.1	0.2	99.9	99.6	0.38
C193	0.023	0.012	-0.023	-0.012	0.0	0.0	99.9	99.9	0.00
T5 Wad algamary 1	0.097	0.044	-0.096	-0.043	0.3	1.2	99.9	99.2	0.72
R455	0.023	0.012	-0.023	-0.012	0.0	0.0	99.9	99.9	0.00
T6 Wad algamary 2	0.023	0.012	-0.023	-0.012	0.0	0.1	99.9	99.6	0.35
C473	1.604	0.789	-1.603	-0.788	0.4	0.3	100.0	100.0	0.03
T20 Aqabit al_tarsha	0.073	0.023	-0.072	-0.022	0.4	0.9	100.0	99.1	0.85
C246	1.549	0.762	-1.549	-0.762	0.2	0.1	100.0	99.9	0.01
C330	0.027	0.013	-0.027	-0.013	0.0	0.0	100.0	100.0	0.00
T2 Mothalath Al_borg	0.027	0.013	-0.027	-0.013	0.0	0.1	100.0	99.8	0.12
T54 Wad algamary 3	0.027	0.013	-0.027	-0.013	0.1	0.2	100.0	99.3	0.70
C128	1.493	0.746	-1.493	-0.746	0.1	0.1	99.9	99.9	0.01
T17 Al_baladiya	0.056	0.016	-0.056	-0.015	0.1	0.4	99.9	99.6	0.32
C80	0.139	0.051	-0.139	-0.051	0.0	0.0	99.9	99.9	0.00
C162	1.354	0.695	-1.353	-0.695	0.1	0.1	99.9	99.9	0.01
C622	0.022	0.014	-0.022	-0.014	0.0	0.0	99.9	99.9	0.00
T7 Al_deir 1	0.117	0.037	-0.116	-0.035	0.4	1.6	99.9	99.2	0.70
T24 Al-deire 2	0.022	0.014	-0.022	-0.014	0.0	0.1	99.9	99.6	0.38
C56	0.249	0.085	-0.249	-0.085	0.0	0.0	99.9	99.9	0.00
C191	1.104	0.610	-1.104	-0.610	0.1	0.1	99.9	99.9	0.01

Project:
Location:
Contract:
Engineer:
Filename: unbalance

ETAP
12.6.0H

Study Case: LF

Page: 9
Date: 05-02-2017
SN:
Revision: Base
Config.: Normal

CKT / Branch ID	From-To Bus Flow		To-From Bus Flow		Losses		% Bus Voltage		Vd % Drop in Vmag
	MW	Mvar	MW	Mvar	kW	kvar	From	To	
T1 Al-masjid Al_kaber	-0.180	-0.062	0.180	0.065	0.4	2.5	99.3	99.9	0.64
C727	0.069	0.020	-0.069	-0.020	0.0	0.0	99.9	99.9	0.00
R950	0.069	0.020	-0.069	-0.020	0.0	0.0	99.9	99.9	0.00
R410	0.014	0.006	-0.014	-0.006	0.0	0.0	99.9	99.9	0.00
T50 Al-baha	0.055	0.014	-0.055	-0.013	0.5	0.8	99.9	98.8	1.13
R1499	0.014	0.006	-0.014	-0.006	0.0	0.0	99.9	99.9	0.00
T49 Shweki	0.014	0.006	-0.014	-0.006	0.0	0.1	99.9	99.6	0.34
C160	1.104	0.610	-1.104	-0.610	0.1	0.1	99.9	99.9	0.01
C97	1.088	0.605	-1.088	-0.605	0.0	0.0	99.9	99.9	0.00
T52 Bank al_eskan	0.016	0.006	-0.016	-0.005	0.0	0.1	99.9	99.5	0.36
C120	0.836	0.504	-0.836	-0.504	0.0	0.0	99.9	99.9	0.00
C450	0.072	0.036	-0.072	-0.036	0.0	0.0	99.9	99.9	0.00
T3 Maskaneh	0.180	0.065	-0.180	-0.062	0.4	2.5	99.9	99.3	0.64
T29 Juret al_dama	0.072	0.036	-0.072	-0.035	0.4	1.1	99.9	98.9	1.05
C216	0.836	0.504	-0.835	-0.504	0.1	0.0	99.9	99.9	0.01
C100	0.069	0.021	-0.069	-0.021	0.0	0.0	99.9	99.9	0.00
C361	0.652	0.432	-0.652	-0.432	0.1	0.0	99.9	99.9	0.01
T18 Al_sheehk	0.114	0.051	-0.114	-0.049	0.4	1.7	99.9	99.0	0.85
T14 Al_markaz	-0.069	-0.020	0.069	0.021	0.1	0.6	99.5	99.9	0.41
C163	0.420	0.351	-0.420	-0.351	0.0	0.0	99.9	99.9	0.00
C728	0.115	0.044	-0.115	-0.044	0.0	0.0	99.9	99.9	0.00
T9 Abu al_humas	0.117	0.037	-0.116	-0.035	0.4	1.6	99.9	99.2	0.70
C462	0.068	0.025	-0.068	-0.025	0.0	0.0	99.9	99.9	0.00
T13 Qata't al_jamal	0.047	0.019	-0.047	-0.019	0.1	0.3	99.9	99.6	0.33
C280	0.053	0.013	-0.053	-0.013	0.0	0.0	99.9	99.9	0.00
T55 Mana'	0.016	0.012	-0.016	-0.012	0.0	0.1	99.9	99.6	0.30
C419	0.053	0.013	-0.053	-0.013	0.0	0.0	99.9	99.9	0.00
T37 Eshreeteh	-0.052	-0.013	0.053	0.013	0.2	0.5	99.3	99.9	0.55
C365	0.365	0.337	-0.365	-0.337	0.0	0.0	99.9	99.9	0.01
C409	0.055	0.014	-0.055	-0.014	0.0	0.0	99.9	99.9	0.00
T39 Jammoq	-0.055	-0.014	0.055	0.014	0.2	0.5	99.3	99.9	0.59
C603	0.319	0.320	-0.319	-0.320	0.0	0.0	99.9	99.9	0.01
T45 Masafi	0.046	0.017	-0.046	-0.016	0.2	0.4	99.9	99.3	0.57
C203	-0.029	0.142	0.029	-0.142	0.0	0.0	99.9	99.9	0.00
C399	0.262	0.146	-0.262	-0.146	0.0	0.0	99.9	99.9	0.00
T10 Meqtaa' duma	0.086	0.033	-0.085	-0.032	0.2	0.9	99.9	99.3	0.58
C117	0.240	0.132	-0.240	-0.132	0.0	0.0	99.9	99.9	0.00

Project:
Location:
Contract:
Engineer:
Filename: unbalance

ETAP
12.6.0H

Study Case: LF

Page: 10
Date: 05-02-2017
SN:
Revision: Base
Config.: Normal

CKT / Branch ID	From-To Bus Flow		To-From Bus Flow		Losses		% Bus Voltage		Vd % Drop in Vmag
	MW	Mvar	MW	Mvar	kW	kvar	From	To	
T22 Da'na	0.022	0.014	-0.022	-0.014	0.0	0.1	99.9	99.5	0.38
C476	0.115	0.041	-0.115	-0.041	0.0	0.0	99.9	99.9	0.00
Co57	0.069	0.075	-0.069	-0.075	0.0	0.0	99.9	99.9	0.00
T16 Sa'ada	0.056	0.016	-0.056	-0.015	0.1	0.4	99.9	99.5	0.32
C319	0.069	0.075	-0.069	-0.075	0.0	0.0	99.9	99.9	0.00
T53 Al_tork	-0.069	-0.074	0.069	0.075	0.1	0.7	99.3	99.9	0.59
C587	0.068	0.022	-0.068	-0.022	0.0	0.0	99.9	99.9	0.00
T21 Al_mustashfah	0.047	0.019	-0.047	-0.019	0.2	0.4	99.9	99.2	0.62
T28 Domet al_wridat	0.068	0.022	-0.067	-0.021	0.3	0.8	99.9	99.1	0.80
C322	-0.029	0.142	0.029	-0.142	0.0	0.0	99.9	99.9	0.00
C461	0.024	0.008	-0.024	-0.008	0.0	0.0	99.9	99.9	0.00
C577	-0.086	0.121	0.086	-0.121	0.0	0.0	99.9	99.9	0.00
T43 Al_jame'a	0.032	0.013	-0.032	-0.013	0.1	0.2	99.9	99.4	0.42
T32 Khalet al_ayaseh	-0.024	-0.008	0.024	0.008	0.0	0.1	99.6	99.9	0.28
C107	0.085	0.029	-0.085	-0.029	0.0	0.0	99.9	99.9	0.00
C518	-0.170	0.093	0.170	-0.093	0.0	0.0	99.9	99.9	0.00
T12 Aqabit gharrarah	0.085	0.029	-0.084	-0.028	0.3	0.8	99.9	99.2	0.64
C517	-0.243	0.069	0.243	-0.069	0.0	0.0	99.9	99.9	0.00
R803	0.073	0.023	-0.073	-0.023	0.0	0.0	99.9	99.9	0.00
C815	-0.270	0.056	0.270	-0.056	0.0	0.0	99.9	99.9	0.01
T19 Kerbit alama	0.027	0.013	-0.027	-0.013	0.1	0.1	99.9	99.5	0.39
C.450	-0.308	0.043	0.308	-0.043	0.0	0.0	99.9	99.9	0.00
R560	0.000	0.000	0.000	0.000			99.9	99.9	
T38 Al_muhtasib	0.038	0.013	-0.038	-0.013	0.1	0.3	99.9	99.4	0.46
C880	-0.308	0.043	0.308	-0.043	0.0	0.0	99.9	99.9	0.01
T46 Al_jebreni	0.067	0.035	-0.066	-0.035	0.4	0.9	99.9	98.9	1.01
T23 Kurza	0.073	0.023	-0.072	-0.022	0.4	0.9	99.9	99.0	0.85
Co130	0.702	0.290	-0.702	-0.290	0.0	0.0	99.9	99.9	0.00
Co58	0.090	0.037	-0.090	-0.037	0.0	0.0	99.9	99.9	0.00
R164	0.539	0.217	-0.539	-0.217	0.0	0.0	99.9	99.9	0.00
R844	0.016	0.006	-0.016	-0.006	0.0	0.0	99.9	99.9	0.00
T26 Baten alqar'	0.057	0.031	-0.057	-0.030	0.3	0.7	99.9	99.1	0.87
T34 Al_shadaqa	-0.016	-0.005	0.016	0.006	0.0	0.0	99.7	99.9	0.19
Co999	0.083	0.035	-0.083	-0.035	0.0	0.0	99.9	99.9	0.00
T40 Al_helal	0.007	0.002	-0.007	-0.002	0.0	0.0	99.9	99.8	0.08
Co294	0.067	0.029	-0.067	-0.029	0.0	0.0	99.9	99.9	0.00
T33 Al_mizrab	0.016	0.006	-0.016	-0.005	0.0	0.0	99.9	99.7	0.19

Project:
Location:
Contract:
Engineer:
Filename: unbalance

ETAP
12.6.0H

Study Case: LF

Page: 11
Date: 05-02-2017
SN:
Revision: Base
Config.: Normal

CKT / Branch ID	From-To Bus Flow		To-From Bus Flow		Losses		% Bus Voltage		Vd % Drop in Vmag
	MW	Mvar	MW	Mvar	kW	kvar	From	To	
D711	0.067	0.029	-0.067	-0.029	0.0	0.0	99.9	99.9	0.00
D655	0.067	0.029	-0.067	-0.029	0.0	0.0	99.9	99.9	0.00
D634	0.045	0.017	-0.045	-0.017	0.0	0.0	99.9	99.9	0.00
T27 Al_muntazah	0.023	0.012	-0.022	-0.012	0.0	0.1	99.9	99.6	0.34
D718	0.014	0.006	-0.014	-0.006	0.0	0.0	99.9	99.9	0.00
T41 Al_muntazah 2	0.031	0.011	-0.031	-0.011	0.1	0.2	99.9	99.5	0.38
D240	0.014	0.006	-0.014	-0.006	0.0	0.0	99.9	99.9	0.00
D256	0.014	0.006	-0.014	-0.006	0.0	0.0	99.9	99.9	0.00
D276	0.014	0.006	-0.014	-0.006	0.0	0.0	99.9	99.9	0.00
T48 Inab al_kabeer	-0.014	-0.006	0.014	0.006	0.0	0.1	99.6	99.9	0.34
R734	0.539	0.217	-0.539	-0.217	0.1	0.1	99.9	99.9	0.02
C352	0.485	0.198	-0.485	-0.198	0.0	0.0	99.9	99.9	0.01
T51 Inab al_sagher	0.054	0.018	-0.053	-0.017	0.5	0.8	99.9	98.7	1.21
C558	0.040	0.014	-0.040	-0.014	0.0	0.0	99.9	99.9	0.00
C806	0.444	0.184	-0.444	-0.184	0.1	0.0	99.9	99.9	0.01
T35 Al_shuqfan	-0.040	-0.013	0.040	0.014	0.3	0.4	99.0	99.9	0.91
R150	0.221	0.085	-0.221	-0.085	0.0	0.0	99.9	99.9	0.00
R1435	0.167	0.081	-0.167	-0.081	0.0	0.0	99.9	99.9	0.01
T8 Karam al_ashqar	0.057	0.018	-0.056	-0.018	0.1	0.4	99.9	99.5	0.35
Co261	0.027	0.010	-0.027	-0.010	0.0	0.0	99.9	99.9	0.00
T30 Kafar joul	0.139	0.071	-0.138	-0.067	1.6	4.0	99.9	97.8	2.05
Co645	0.027	0.010	-0.027	-0.010	0.0	0.0	99.9	99.9	0.00
Co528	0.011	0.005	-0.011	-0.005	0.0	0.0	99.9	99.9	0.00
T36 Al_estad	0.016	0.006	-0.016	-0.005	0.0	0.0	99.9	99.7	0.19
Co14	0.000	0.000	0.000	0.000			99.9	99.9	0.00
R10	0.011	0.005	-0.011	-0.005	0.0	0.0	99.9	99.9	0.00
T44 Alghwla	-0.011	-0.005	0.011	0.005	0.0	0.0	99.7	99.9	0.15
R380	0.221	0.085	-0.221	-0.085	0.0	0.0	99.9	99.9	0.01
C.20	0.221	0.085	-0.221	-0.085	0.0	0.0	99.9	99.9	0.00
R45	0.221	0.085	-0.221	-0.085	0.0	0.0	99.9	99.9	0.00
C368	0.114	0.051	-0.114	-0.051	0.0	0.0	99.9	99.9	0.00
C811	0.107	0.034	-0.107	-0.034	0.0	0.0	99.9	99.9	0.00
T15 Abu hashim	0.114	0.051	-0.114	-0.049	0.4	1.7	99.9	99.0	0.85
C60	0.000	0.000	0.000	0.000			99.9	99.9	0.00
C440	-0.014	-0.006	0.014	0.006	0.0	0.0	99.9	99.9	0.00
T31 Sam'a	0.014	0.006	-0.014	-0.006	0.0	0.0	99.9	99.7	0.19
Co260	0.000	0.000	0.000	0.000			99.9	99.9	

CKT / Branch	From-To Bus Flow		To-From Bus Flow		Losses		% Bus Voltage		Vd
	MW	Mvar	MW	Mvar	kW	kvar	From	To	% Drop in Vmag
Co.1032	0.000	0.000	0.000	0.000			99.9	99.9	0.00
T11 Wad ali	0.093	0.028	-0.093	-0.027	0.3	1.0	99.9	99.3	0.55
T56 Al jebreny step up	0.380	0.000	-0.375	0.008	5.2	7.8	98.8	99.9	1.10
					19.4	45.8			

Project:
Location:
Contract:
Engineer:
Filename: unbalance

ETAP
12.6.0H

Study Case: LF

Page: 13
Date: 05-02-2017
SN:
Revision: Base
Config.: Normal

Alert Summary Report

% Alert Settings

	<u>Critical</u>	<u>Marginal</u>
<u>Loading</u>		
Bus	100.0	95.0
Cable	100.0	95.0
Reactor	100.0	95.0
Line	100.0	95.0
Transformer	100.0	95.0
Panel	100.0	95.0
Protective Device	100.0	95.0
Generator	100.0	95.0
Inverter/Charger	100.0	95.0
<u>Bus Voltage</u>		
OverVoltage	105.0	102.0
UnderVoltage	95.0	98.0
<u>Generator Excitation</u>		
OverExcited (Q Max.)	100.0	95.0
UnderExcited (Q Min.)	100.0	

Critical Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
Gen2	Generator	Under Excited	0.000	Mvar	0.000	0.0	3-Phase
Gen2	Generator	Overload	0.380	MW	0.380	100.0	3-Phase

Marginal Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
Bus183	Bus	Under Voltage	0.400	kV	0.391	97.8	3-Phase

Project:
Location:
Contract:
Engineer:
Filename: unbalance

ETAP
12.6.0H

Study Case: LF

Page: 14
Date: 05-02-2017
SN:
Revision: Base
Config.: Normal

SUMMARY OF TOTAL GENERATION , LOADING & DEMAND

	<u>MW</u>	<u>Mvar</u>	<u>MVA</u>	<u>% PF</u>
Source (Swing Buses):	2.747	1.286	3.033	90.56 Lagging
Source (Non-Swing Buses):	0.380	0.000	0.380	100.00 Lagging
Total Demand:	3.127	1.286	3.381	92.48 Lagging
Total Motor Load:	2.494	0.996	2.685	92.87 Lagging
Total Static Load:	0.613	0.245	0.660	92.88 Lagging
Total Constant I Load:	0.000	0.000	0.000	
Total Generic Load:	0.000	0.000	0.000	
Apparent Losses:	0.019	0.046		
System Mismatch:	0.000	0.000		

Number of Iterations: 2