

Project:
Location:
Contract:
Engineer:
Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 1
Date: 05-05-2010
SN: KLGCONSULT
Revision: Base
Config.: Normal

Electrical Transient Analyzer Program

ETAP PowerStation

Load Flow Analysis

Loading Category: Design

Load Diversity Factor: None

	<u>Swing</u>	<u>Generator</u>	<u>Load</u>	<u>Total</u>
Number of Buses:	1	0	60	61

	<u>XFMR2</u>	<u>XFMR3</u>	<u>Reactor</u>	<u>Line/Cable</u>	<u>Impedance</u>	<u>Tie PD</u>	<u>Total</u>
Number of Branches:	19	0	0	47	0	0	66

Method of Solution: Newton-Raphson Method

Maximum No. of Iteration: 9999

Precision of Solution: 0.000001

System Frequency: 50.00

Unit System: Metric

Project Filename: average

Output Filename: C:\Users\Abdullah\Desktop\Graduation\avg\Ramallah\Untitled.If1

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation
 4.0.0C

Study Case: LF

Page: 2
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

BUS Input Data

Bus		Initial Voltage			Generator		Motor Load		Static Load		Mvar Limits	
ID	Type	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	Max.	Min.
Abu Qash	Load	11.000	100.0	0.0								
Abu Shukheidim	Load	11.000	100.0	0.0								
'Ajjul	Load	11.000	100.0	0.0			0.338	0.164	0.508	0.246		
Al Mazra'a El Qibleya	Load	11.000	100.0	0.0			0.198	0.096	0.297	0.144		
Al Mazra'a El Qiblya	Load	0.400	100.0	0.0			0.205	0.099	0.308	0.149		
al moalemen	Load	33.000	100.0	0.0								
al moalmen*	Load	33.000	100.0	0.0								
al tahona	Load	33.000	100.0	0.0								
al terah	Load	33.000	100.0	0.0								
A'tara	Load	11.000	100.0	0.0								
beiten central	Load	33.000	100.0	0.0								
beiten central*	Load	33.000	100.0	0.0								
beiten west	Load	33.000	100.0	0.0								
beiten west*	Load	33.000	100.0	0.0								
Bus1	Load	6.600	100.0	0.0			0.549	0.266	0.824	0.399		
Bus2	Load	11.000	100.0	0.0			1.673	0.810	2.509	1.215		
Bus3	Load	11.000	100.0	0.0			2.961	1.434	4.442	2.151		
Bus4	Load	11.000	100.0	0.0			3.197	1.548	4.795	2.322		
Bus5	Load	11.000	100.0	0.0			0.813	0.394	1.220	0.591		
Bus6	Load	11.000	100.0	0.0			0.810	0.392	1.215	0.588		
Bus7	Load	11.000	100.0	0.0								
Bus8	Load	11.000	100.0	0.0								
Bus9	Load	11.000	100.0	0.0			1.451	0.703	2.176	1.054		
Bus10	Load	11.000	100.0	0.0								
Bus17	Load	0.400	100.0	0.0			0.104	0.051	0.157	0.076		
Bus18	Load	0.400	100.0	0.0			0.108	0.052	0.162	0.078		
Bus19	Load	0.400	100.0	0.0			0.069	0.033	0.104	0.050		
Bus24	Load	11.000	100.0	0.0								
Bus25	Load	11.000	100.0	0.0			0.289	0.140	0.434	0.210		
Bus27	Load	0.400	100.0	0.0			0.105	0.051	0.158	0.077		
Bus28	Load	11.000	100.0	0.0								
Bus31	Load	0.400	100.0	0.0			0.064	0.031	0.097	0.047		
Bus33	Load	0.400	100.0	0.0			0.073	0.036	0.110	0.053		
Bus35	Load	11.000	100.0	0.0			0.367	0.178	0.551	0.267		
Bus36	Load	0.400	100.0	0.0			0.072	0.035	0.108	0.052		

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 3
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

Bus		Initial Voltage			Generator		Motor Load		Static Load		Mvar Limits	
ID	Type	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	Max.	Min.
Bus37	Load	0.400	100.0	0.0			0.067	0.033	0.101	0.049		
connection bus al terah	Load	33.000	100.0	0.0								
connection bus for al ram	Load	33.000	100.0	0.0								
connection bus ramallah	Load	33.000	100.0	0.0								
Deir Abu Mash'al	Load	11.000	100.0	0.0			0.202	0.098	0.302	0.146		
Deir Dibwan	Load	11.000	100.0	0.0			0.988	0.478	1.482	0.718		
Deir Ibzi'	Load	11.000	100.0	0.0			0.142	0.069	0.213	0.103		
Deir Nidham	Load	11.000	100.0	0.0			0.154	0.075	0.231	0.112		
Deir Qaddis	Load	11.000	100.0	0.0								
'Ein Arik	Load	11.000	100.0	0.0			0.135	0.065	0.203	0.098		
El Mazra'a El Sharqeya	Load	11.000	100.0	0.0								
israel main bus	Swing	33.000	100.0	0.0								
Jammala	Load	11.000	100.0	0.0			0.139	0.067	0.209	0.101		
kafr 'Aqab	Load	11.000	100.0	0.0			0.608	0.295	0.913	0.442		
Kafr Ni'ma	Load	11.000	100.0	0.0			0.129	0.062	0.193	0.094		
Kfar Malik	Load	11.000	100.0	0.0								
Kharbat El Misbah	Load	11.000	100.0	0.0			0.166	0.080	0.249	0.121		
Kober	Load	11.000	100.0	0.0								
ramallah north	Load	33.000	100.0	0.0								
ramallah north*	Load	33.000	100.0	0.0								
Ras Karkar	Load	11.000	100.0	0.0			0.374	0.181	0.562	0.272		
silvana	Load	33.000	100.0	0.0								
silvana*	Load	33.000	100.0	0.0								
Sinjil	Load	11.000	100.0	0.0								
sivana**	Load	33.000	100.0	0.0								
Umm Safah	Load	11.000	100.0	0.0								
Total Number of Buses: 61							0.000	0.000	16.553	8.017	24.830	12.026

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 4
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

LINE / CABLE Input Data

Line/Cable		Ohms or Mohs / 1000 m per Conductor (Cable) or per Phase (Line)						
ID	Library	Size	Length(m)	#/Phase	T (°C)	R	X	Y
Cable1			2226.0	3	75	0.265000	0.352000	
al ram			2000.0	1	75	0.543000	0.352000	
al ram*			1000.0	1	75	0.543000	0.352000	
al ram**			1000.0	1	75	0.543000	0.352000	
beit eil			2000.0	1	75	0.543000	0.352000	
en areek			2000.0	1	75	0.543000	0.352000	
Line1			3000.0	1	75	0.543000	0.352000	
Line2			2700.0	1	75	0.543000	0.352000	
Line4			10400.0	1	75	0.543000	0.352000	
Line6			8000.0	1	75	0.543000	0.352000	
Line7			2400.0	1	75	0.543000	0.352000	
Line8			1200.0	1	75	0.543000	0.352000	
Line9			1100.0	1	75	0.543000	0.352000	
Line10			900.0	1	75	0.543000	0.352000	
Line11			850.0	1	75	0.543000	0.352000	
Line12			770.0	1	75	0.543000	0.352000	
Line13			1650.0	1	75	0.543000	0.352000	
Line14			1500.0	1	75	0.543000	0.352000	
Line15			2230.0	1	75	0.543000	0.352000	
Line16			1000.0	1	75	0.543000	0.352000	
Line17			920.0	1	75	0.543000	0.352000	
Line18			1800.0	1	75	0.543000	0.352000	
Line19			1220.0	1	75	0.543000	0.352000	
Line20			1600.0	1	75	0.543000	0.352000	
Line21			1250.0	1	75	0.543000	0.352000	
Line22			1400.0	1	75	0.543000	0.352000	
Line23			2100.0	1	75	0.543000	0.352000	
Line24			3000.0	1	75	0.543000	0.352000	
Line25			2000.0	1	75	0.543000	0.352000	
Line26			1300.0	1	75	0.543000	0.352000	
Line27			1200.0	1	75	0.543000	0.352000	
Line52			1200.0	1	75	0.543000	0.352000	
Line53			1400.0	1	75	0.543000	0.352000	
Line54			1530.0	1	75	0.543000	0.352000	
Line55			1120.0	1	75	0.543000	0.352000	

Project:
Location:
Contract:
Engineer:
Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 5
Date: 05-05-2010
SN: KLGCONSULT
Revision: Base
Config.: Normal

Line/Cable		Ohms or Mohs / 1000 m per Conductor (Cable) or per Phase (Line)						
ID	Library	Size	Length(m)	#/Phase	T (°C)	R	X	Y
Line56			1223.0	1	75	0.543000	0.352000	
Line57			1230.0	1	75	0.543000	0.352000	
Line58			1430.0	1	75	0.543000	0.352000	
Line59			1420.0	1	75	0.543000	0.352000	
Line61			2223.0	1	75	0.543000	0.352000	
Line62			2765.0	1	75	0.543000	0.352000	
offer			2000.0	1	75	0.543000	0.352000	
pereg			2000.0	1	75	0.543000	0.352000	
rama l			2000.0	1	75	0.543000	0.352000	
ramallah			2000.0	1	75	0.543000	0.352000	
ramallah*			1000.0	1	75	0.543000	0.352000	
ramallah**			1000.0	1	75	0.543000	0.352000	

Line / Cable resistances are listed at the specified temperatures.

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 6
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

2-WINDING TRANSFORMER Input Data

Transformer ID	Rating			Z Variation			% Tap Setting		Adjusted	Phase Shift			
	MVA	Prim. kV	Sec. kV	% Z	X/R	+ 5%	- 5%	% Tol.	Prim.	Sec.	% Z	Type	Angle
T1	3.000	33.000	6.600	7.000	10.7	0	0	0	0	0	7.0000	Std Pos. Seq.	0.0
T2	10.000	33.000	11.000	7.000	15.5	0	0	0	0	0	7.0000	Std Pos. Seq.	0.0
T3	10.000	33.000	11.000	7.000	15.5	0	0	0	0	0	7.0000	Std Pos. Seq.	0.0
T4	15.000	33.000	11.000	7.000	18.6	0	0	0	0	0	7.0000	Std Pos. Seq.	0.0
T5	10.000	33.000	11.000	7.000	5.8	0	0	0	0	0	7.0000	Std Pos. Seq.	0.0
T6	5.000	33.000	11.000	7.000	12.1	0	0	0	0	0	7.0000	Std Pos. Seq.	0.0
T7	15.000	33.000	11.000	7.250	18.6	0	0	0	0	0	7.2500	Std Pos. Seq.	0.0
T8	15.000	33.000	11.000	7.000	18.6	0	0	0	0	0	7.0000	Std Pos. Seq.	0.0
T9	15.000	33.000	11.000	7.000	18.6	0	0	0	0	0	7.0000	Std Pos. Seq.	0.0
T10	10.000	33.000	11.000	7.000	15.5	0	0	0	0	0	7.0000	Std Pos. Seq.	0.0
T11	1.000	11.000	0.400	5.750	5.8	0	0	0	0	0	5.7500	Std Pos. Seq.	0.0
T12	0.630	11.000	0.400	5.750	5.8	0	0	0	0	0	5.7500	Std Pos. Seq.	0.0
T13	0.630	11.000	0.400	5.750	5.8	0	0	0	0	0	5.7500	Std Pos. Seq.	0.0
T14	0.400	11.000	0.400	5.200	5.1	0	0	0	0	0	5.2000	Std Pos. Seq.	0.0
T15	0.630	11.000	0.400	5.750	5.8	0	0	0	0	0	5.7500	Std Pos. Seq.	0.0
T16	0.400	11.000	0.400	5.200	5.1	0	0	0	0	0	5.2000	Std Pos. Seq.	0.0
T17	0.630	11.000	0.400	5.750	5.8	0	0	0	0	0	5.7500	Std Pos. Seq.	0.0
T18	0.400	11.000	0.400	5.200	5.1	0	0	0	0	0	5.2000	Std Pos. Seq.	0.0
T19	0.400	11.000	0.400	5.200	5.1	0	0	0	0	0	5.2000	Std Pos. Seq.	0.0

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 7
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

BRANCH CONNECTIONS

CKT/Branch		Connected Bus ID		% Impedance, Pos. Seq., 100 MVAb			
ID	Type	From Bus	To Bus	R	X	Z	Y
T1	2W XFMR	beiten central	Bus1	21.77	232.32	233.33	
T2	2W XFMR	beiten west*	Bus2	4.51	69.85	70.00	
T3	2W XFMR	al tahona	Bus3	4.51	69.85	70.00	
T4	2W XFMR	ramallah north*	Bus4	2.51	46.60	46.67	
T5	2W XFMR	ramallah north	Bus5	11.91	68.98	70.00	
T6	2W XFMR	al terah	Bus6	11.49	139.53	140.00	
T7	2W XFMR	silvana	Bus7	2.59	48.26	48.33	
T8	2W XFMR	silvana*	Bus8	2.51	46.60	46.67	
T9	2W XFMR	al moalemen	Bus9	2.51	46.60	46.67	
T10	2W XFMR	al moalmen*	Bus10	4.51	69.85	70.00	
T11	2W XFMR	Abu Qash	Al Mazra'a El Qiblya	97.86	566.61	575.00	
T12	2W XFMR	Kober	Bus17	155.33	899.38	912.70	
T13	2W XFMR	A'tara	Bus18	155.33	899.38	912.70	
T14	2W XFMR	Umm Safah	Bus19	250.14	1275.71	1300.00	
T15	2W XFMR	Kfar Malik	Bus27	155.33	899.38	912.70	
T16	2W XFMR	Bus28	Bus36	250.14	1275.71	1300.00	
T17	2W XFMR	Ras Karkar	Bus31	155.33	899.38	912.70	
T18	2W XFMR	El Mazra'a El Sharqeya	Bus33	250.14	1275.71	1300.00	
T19	2W XFMR	Deir Qaddis	Bus37	250.14	1275.71	1300.00	
Cable1	Cable	ramallah north	al tahona	1.81	2.40	3.00	
al ram	Line	israel main bus	connection bus for al ram	9.97	6.46	11.88	
al ram*	Line	connection bus for al ram	al tahona	4.99	3.23	5.94	
al ram**	Line	connection bus for al ram	al moalmen*	4.99	3.23	5.94	
beit eil	Line	israel main bus	beiten west*	9.97	6.46	11.88	
en areek	Line	israel main bus	silvana*	9.97	6.46	11.88	
Line1	Line	beiten west	beiten central	14.96	9.70	17.83	
Line2	Line	ramallah north	beiten west	13.46	8.73	16.04	
Line4	Line	ramallah north*	sivana**	51.86	33.62	61.80	
Line6	Line	ramallah north*	connection bus al terah	39.89	25.86	47.54	
Line7	Line	sivana**	connection bus al terah	11.97	7.76	14.26	
Line8	Line	connection bus al terah	al terah	5.98	3.88	7.13	
Line9	Line	Bus5	Abu Qash	49.36	32.00	58.83	
Line10	Line	Abu Qash	Abu Shukheidim	40.39	26.18	48.13	
Line11	Line	Abu Shukheidim	Kober	38.14	24.73	45.46	
Line12	Line	Abu Shukheidim	A'tara	34.55	22.40	41.18	
Line13	Line	A'tara	Umm Safah	74.05	48.00	88.24	

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 8
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

CKT/Branch		Connected Bus ID		% Impedance, Pos. Seq., 100 MVAb			
ID	Type	From Bus	To Bus	R	X	Z	Y
Line14	Line	Umm Safah	'Ajjul	67.31	43.64	80.22	
Line15	Line	Bus7	kafr 'Aqab	100.07	64.87	119.26	
Line16	Line	Bus8	Deir Dibwan	44.88	29.09	53.48	
Line17	Line	Deir Dibwan	Sinjil	41.29	26.76	49.20	
Line18	Line	kafr 'Aqab	Bus25	80.78	52.36	96.26	
Line19	Line	kafr 'Aqab	Bus24	54.75	35.49	65.25	
Line20	Line	Bus24	Kfar Malik	71.80	46.55	85.57	
Line21	Line	A'tara	Bus24	56.10	36.36	66.85	
Line22	Line	Sinjil	Bus28	62.83	40.73	74.87	
Line23	Line	Ras Karkar	Sinjil	94.24	61.09	112.31	
Line24	Line	Sinjil	'Ajjul	134.63	87.27	160.44	
Line25	Line	Sinjil	El Mazra'a El Sharqeya	89.75	58.18	106.96	
Line26	Line	Sinjil	Bus35	58.34	37.82	69.52	
Line27	Line	Ras Karkar	Deir Qaddis	53.85	34.91	64.18	
Line52	Line	Bus10	'Ein Arik	53.85	34.91	64.18	
Line53	Line	'Ein Arik	Deir Ibzi'	62.83	40.73	74.87	
Line54	Line	Deir Ibzi'	Kharbat El Misbah	68.66	44.51	81.82	
Line55	Line	Kharbat El Misbah	Deir Nidham	50.26	32.58	59.90	
Line56	Line	Deir Nidham	Deir Abu Mash'al	54.88	35.58	65.41	
Line57	Line	Deir Abu Mash'al	Jammala	55.20	35.78	65.78	
Line58	Line	Al Mazra'a El Qibleya	Jammala	64.17	41.60	76.48	
Line59	Line	Kafr Ni'ma	Al Mazra'a El Qibleya	63.72	41.31	75.94	
Line61	Line	Bus10	Ras Karkar	99.76	64.67	118.89	
Line62	Line	Bus9	Kafr Ni'ma	124.08	80.44	147.87	
offer	Line	israel main bus	silvana*	9.97	6.46	11.88	
pereg	Line	israel main bus	sivana**	9.97	6.46	11.88	
rama1	Line	israel main bus	beiten central*	9.97	6.46	11.88	
ramallah	Line	israel main bus	connection bus ramallah	9.97	6.46	11.88	
ramallah*	Line	connection bus ramallah	silvana	4.99	3.23	5.94	
ramallah**	Line	connection bus ramallah	al moalemen	4.99	3.23	5.94	

Project:
Location:
Contract:
Engineer:
Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 9
Date: 05-05-2010
SN: KLGCONSULT
Revision: Base
Config.: Normal

EQUIPMENT CABLE Input Data

Equipment Cable		Equipment		ohms / 1000 m per Conductor							O/L
ID	ID	Type	Library	Size	L(m)	#/ph	T (°C)	R	X	Y	Heater R (ohm)

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 10
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

LOAD FLOW REPORT

Bus		Voltage		Generation		Motor Load		Static Load		Load Flow				XFMR	
ID	kV	%Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	% Tap
Abu Qash	11.000	94.805	-1.3	0	0	0	0	0	0	Bus5	-1.07	-0.65	69	85.5	
										Abu Shukheidim	0.60	0.41	40	82.8	
										Al Mazra'a El Qiblya	0.47	0.25	29	88.8	
Abu Shukheidim	11.000	94.438	-1.3	0	0	0	0	0	0	Abu Qash	-0.60	-0.40	40	82.8	
										Kober	0.24	0.12	15	89.0	
										A'tara	0.36	0.28	25	78.5	
'Ajjul	11.000	93.776	-1.4	0	0	0.34	0.16	0.45	0.22	Umm Safah	-0.18	-0.03	10	98.6	
										Sinjil	-0.61	-0.35	39	86.6	
Al Mazra'a El Qibleya	11.000	93.929	-1.6	0	0	0.20	0.10	0.26	0.13	Jammala	0.61	0.34	39	87.2	
										Kafr Ni'ma	-1.07	-0.57	67	88.4	
Al Mazra'a El Qiblya	0.400	92.881	-2.9	0	0	0.21	0.10	0.27	0.13	Abu Qash	-0.47	-0.23	812	90.0	
al moalemen	33.000	98.648	-0.1	0	0	0	0	0	0	connection bus ramallah	-4.94	-2.59	98	88.6	
										Bus9	4.94	2.59	98	88.6	
al moalmen*	33.000	97.855	-0.1	0	0	0	0	0	0	connection bus for al ram	-2.85	-1.44	57	89.3	
										Bus10	2.85	1.44	57	89.3	
al tahona	33.000	97.265	-0.1	0	0	0	0	0	0	ramallah north	4.33	2.37	88	87.7	
										connection bus for al ram	-11.27	-6.18	231	87.7	
										Bus3	6.94	3.81	142	87.7	
al terah	33.000	97.632	-0.1	0	0	0	0	0	0	connection bus al terah	-1.94	-1.00	39	88.8	
										Bus6	1.94	1.00	39	88.8	
A'tara	11.000	94.241	-1.3	0	0	0	0	0	0	Abu Shukheidim	-0.35	-0.28	25	78.5	
										Umm Safah	0.34	0.11	19	94.9	
										Bus24	-0.23	0.04	13	-98.5	
										Bus18	0.25	0.13	15	89.0	
beiten central	33.000	96.616	-0.2	0	0	0	0	0	0	beiten west	-1.29	-0.68	26	88.6	
										Bus1	1.29	0.68	26	88.6	
beiten central*	33.000	100.000	0.0	0	0	0	0	0	0	israel main bus					
beiten west	33.000	96.885	-0.2	0	0	0	0	0	0	beiten central	1.30	0.68	26	88.6	
										ramallah north	-1.30	-0.68	26	88.6	
beiten west*	33.000	99.453	0.0	0	0	0	0	0	0	israel main bus	-4.08	-2.12	80	88.7	
										Bus2	4.08	2.12	80	88.7	
Bus1	6.600	94.743	-2.0	0	0	0.55	0.27	0.74	0.36	beiten central	-1.29	-0.62	132	90.0	
Bus2	11.000	97.816	-1.7	0	0	1.67	0.81	2.40	1.16	beiten west*	-4.07	-1.97	242	90.0	
Bus3	11.000	94.328	-3.0	0	0	2.96	1.43	3.95	1.91	al tahona	-6.91	-3.35	427	90.0	
Bus4	11.000	93.783	-2.4	0	0	3.20	1.55	4.22	2.04	ramallah north*	-7.41	-3.59	461	90.0	

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 11
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

Bus ID	kV	Voltage		Generation		Motor Load		Static Load		ID	Load Flow				XFMR	
		%Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar		MW	Mvar	Amp	%PF	% Tap	
Bus5	11.000	95.583	-1.3	0	0	0.81	0.39	1.11	0.54	Abu Qash	1.08	0.66	69	85.4		
										ramallah north	-3.01	-1.59	186	88.4		
Bus6	11.000	96.006	-1.7	0	0	0.81	0.39	1.12	0.54	al terah	-1.93	-0.93	117	90.0		
Bus7	11.000	98.158	-0.8	0	0	0	0	0	0	kafr 'Aqab	2.67	1.16	155	91.7		
										silvana	-2.67	-1.16	155	91.7		
Bus8	11.000	98.576	-1.1	0	0	0	0	0	0	Deir Dibwan	4.26	2.14	253	89.4		
										silvana*	-4.26	-2.14	253	89.4		
Bus9	11.000	97.325	-1.4	0	0	1.45	0.70	2.06	1.00	Kafr Ni'ma	1.42	0.74	86	88.6		
										al moalemen	-4.93	-2.44	296	89.6		
Bus10	11.000	96.715	-1.3	0	0	0	0	0	0	'Ein Arik	1.61	0.74	96	90.9		
										Ras Karkar	1.24	0.63	75	89.3		
										al moalmen*	-2.85	-1.37	171	90.2		
Bus17	0.400	92.761	-2.6	0	0	0.10	0.05	0.13	0.07	Kober	-0.24	-0.12	413	90.0		
Bus18	0.400	92.640	-2.7	0	0	0.11	0.05	0.14	0.07	A'tara	-0.25	-0.12	427	90.0		
Bus19	0.400	92.417	-2.6	0	0	0.07	0.03	0.09	0.04	Umm Safah	-0.16	-0.08	273	90.0		
Bus24	11.000	94.364	-1.3	0	0	0	0	0	0	kafr 'Aqab	-0.48	-0.08	26	98.5		
										Kfar Malik	0.24	0.12	15	89.0		
										A'tara	0.23	-0.04	13	-98.5		
Bus25	11.000	93.913	-1.2	0	0	0.29	0.14	0.38	0.19	kafr 'Aqab	-0.67	-0.33	41	90.0		
Bus27	0.400	92.555	-2.6	0	0	0.11	0.05	0.14	0.07	Kfar Malik	-0.24	-0.12	417	90.0		
Bus28	11.000	94.825	-1.4	0	0	0	0	0	0	Sinjil	-0.17	-0.09	10	89.0		
										Bus36	0.17	0.09	10	89.0		
Bus31	0.400	94.069	-2.2	0	0	0.06	0.03	0.09	0.04	Ras Karkar	-0.15	-0.07	255	90.0		
Bus33	0.400	93.159	-2.7	0	0	0.07	0.04	0.10	0.05	El Mazra'a El Sharqeya	-0.17	-0.08	291	90.0		
Bus35	11.000	94.275	-1.4	0	0	0.37	0.18	0.49	0.24	Sinjil	-0.86	-0.41	52	90.0		
Bus36	0.400	93.258	-2.6	0	0	0.07	0.03	0.09	0.05	Bus28	-0.17	-0.08	285	90.0		
Bus37	0.400	93.438	-2.5	0	0	0.07	0.03	0.09	0.04	Deir Qaddis	-0.16	-0.08	266	90.0		
connection bus al terah	33.000	97.791	-0.1	0	0	0	0	0	0	ramallah north*	3.57	1.91	72	88.2		
										sivana**	-5.50	-2.91	111	88.4		
										al terah	1.94	1.01	39	88.8		
connection bus for al ram	33.000	98.048	-0.1	0	0	0	0	0	0	israel main bus	-14.22	-7.68	288	88.0		
										al tabona	11.36	6.23	231	87.7		
										al moalmen*	2.86	1.44	57	89.3		
connection bus ramallah	33.000	98.983	-0.1	0	0	0	0	0	0	israel main bus	-7.63	-3.81	150	89.5		
										silvana	2.67	1.21	51	91.2		
										al moalemen	4.95	2.60	98	88.5		
Deir Abu Mash'al	11.000	93.120	-1.6	0	0	0.20	0.10	0.26	0.13	Deir Nidham	-0.18	-0.04	10	97.6		
										Jammala	-0.29	-0.18	19	84.0		

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 12
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

Bus ID	kV	Voltage		Generation		Motor Load		Static Load		Load Flow					XFMR	
		%Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	% Tap	
Deir Dibwan	11.000	96.006	-1.3	0	0	0.99	0.48	1.37	0.66	Bus8	-4.16	-2.07	253	89.5		
										Sinjil	1.80	0.93	110	88.9		
Deir Ibzi'	11.000	94.468	-1.5	0	0	0.14	0.07	0.19	0.09	'Ein Arik	-1.26	-0.57	76	91.2		
										Kharbat El Misbah	0.93	0.40	56	91.7		
Deir Nidham	11.000	93.241	-1.6	0	0	0.15	0.07	0.20	0.10	Kharbat El Misbah	-0.53	-0.21	32	92.9		
										Deir Abu Mash'al	0.18	0.04	10	97.5		
Deir Qaddis	11.000	94.902	-1.4	0	0	0	0	0	0	Ras Karkar	-0.16	-0.08	9	89.1		
										Bus37	0.16	0.08	9	89.1		
'Ein Arik	11.000	95.550	-1.4	0	0	0.14	0.07	0.18	0.09	Bus10	-1.59	-0.73	96	90.9		
										Deir Ibzi'	1.27	0.57	76	91.2		
El Mazra'a El Sharqeya	11.000	94.757	-1.4	0	0	0	0	0	0	Sinjil	-0.17	-0.09	10	89.0		
										Bus33	0.17	0.09	10	89.0		
* israel main bus	33.000	100.000	0.0	40.30	21.28	0	0	0	0	connection bus for al ram	14.49	7.85	288	87.9		
										beiten west*	4.10	2.14	80	88.7		
										silvana*	2.14	1.13	42	88.5		
										silvana*	2.14	1.13	42	88.5		
										sivana**	9.72	5.18	192	88.2		
										beiten central*						
Jammala	11.000	93.360	-1.6	0	0	0.14	0.07	0.18	0.09	Deir Abu Mash'al	0.29	0.18	19	84.0		
										Al Mazra'a El Qibleya	-0.61	-0.34	39	87.2		
Kafr 'Aqab	11.000	94.672	-1.2	0	0	0.61	0.29	0.82	0.40	Bus7	-2.58	-1.10	155	91.9		
										Bus25	0.68	0.33	41	90.0		
										Bus24	0.48	0.09	26	98.4		
Kafr Ni'ma	11.000	94.905	-1.6	0	0	0.13	0.06	0.17	0.08	Al Mazra'a El Qibleya	1.08	0.57	67	88.4		
										Bus9	-1.38	-0.72	86	88.7		
Kfar Malik	11.000	94.118	-1.3	0	0	0	0	0	0	Bus24	-0.24	-0.12	15	89.0		
										Bus27	0.24	0.12	15	89.0		
Kharbat El Misbah	11.000	93.603	-1.6	0	0	0.17	0.08	0.22	0.11	Deir Ibzi'	-0.92	-0.40	56	91.7		
										Deir Nidham	0.54	0.21	32	92.9		
Kober	11.000	94.308	-1.3	0	0	0	0	0	0	Abu Shukheidim	-0.24	-0.12	15	89.0		
										Bus17	0.24	0.12	15	89.0		
ramallah north	33.000	97.126	-0.2	0	0	0	0	0	0	al tahona	-4.32	-2.36	88	87.8		
										beiten west	1.30	0.68	26	88.6		
										Bus5	3.02	1.68	62	87.4		
ramallah north*	33.000	95.833	-0.2	0	0	0	0	0	0	sivana**	-3.94	-2.09	81	88.3		
										connection bus al terah	-3.50	-1.86	72	88.3		
										Bus4	7.43	3.95	153	88.3		

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 13
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

Bus		Voltage		Generation		Motor Load		Static Load		Load Flow					XFMR	
ID	kV	%Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	% Tap	
Ras Karkar	11.000	95.020	-1.4	0	0	0.37	0.18	0.51	0.25	Sinjil	0.03	0.03	2	70.1		
										Deir Qaddis	0.16	0.08	9	89.1		
										Bus10	-1.22	-0.61	75	89.4		
										Bus31	0.15	0.08	9	89.4		
silvana	33.000	98.808	-0.1	0	0	0	0	0	0	connection bus ramallah	-2.67	-1.20	51	91.2		
										Bus7	2.67	1.20	51	91.2		
silvana*	33.000	99.714	0.0	0	0	0	0	0	0	israel main bus	-2.13	-1.12	42	88.5		
										israel main bus	-2.13	-1.12	42	88.5		
										Bus8	4.27	2.25	84	88.5		
Sinjil	11.000	94.972	-1.4	0	0	0	0	0	0	Deir Dibwan	-1.78	-0.92	110	89.0		
										Bus28	0.17	0.09	10	89.0		
										Ras Karkar	-0.03	-0.03	2	70.1		
										'Ajjul	0.61	0.35	39	86.6		
										El Mazra'a El Sharqeya	0.17	0.09	10	89.0		
										Bus35	0.86	0.42	52	90.0		
sivana**	33.000	98.695	-0.1	0	0	0	0	0	0	ramallah north*	4.05	2.16	81	88.2		
										connection bus al terah	5.55	2.94	111	88.4		
										israel main bus	-9.60	-5.11	192	88.3		
Umm Safah	11.000	93.918	-1.4	0	0	0	0	0	0	A'tara	-0.34	-0.11	19	95.0		
										'Ajjul	0.18	0.03	10	98.6		
										Bus19	0.16	0.08	9	89.1		

* Indicates a voltage regulated bus (voltage controlled or swing type machine connected to it)

Indicates a bus with a load mismatch of more than 0.1 MVA

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation
 4.0.0C

Study Case: LF

Page: 14
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

BUS LOADING Summary Report

Bus			Bus Total Load					
ID	kV	Rated Amp	MW	Mvar	MVA	% PF	Amp	% Loading
Abu Qash	11.000		1.072	0.651	1.255	85.5	69.45	
Abu Shukheidim	11.000		0.596	0.404	0.720	82.8	40.01	
'Ajjul	11.000		0.785	0.380	0.872	90.0	48.80	
Al Mazra'a El Qibleya	11.000		1.071	0.566	1.211	88.4	67.68	
Al Mazra'a El Qiblya	0.400		0.471	0.228	0.523	90.0	812.81	
al moalemen	33.000		4.938	2.591	5.577	88.6	98.90	
al moalmen*	33.000		2.855	1.441	3.198	89.3	57.17	
al tahona	33.000		11.271	6.177	12.852	87.7	231.18	
al terah	33.000		1.936	1.004	2.181	88.8	39.08	
A'tara	11.000		0.587	0.280	0.650	90.3	36.22	
beiten central	33.000		1.293	0.677	1.460	88.6	26.43	
beiten central*	33.000					0.0		
beiten west	33.000		1.297	0.679	1.464	88.6	26.43	
beiten west*	33.000		4.083	2.122	4.601	88.7	80.94	
Bus1	6.600		1.288	0.624	1.431	90.0	132.16	
Bus2	11.000		4.073	1.973	4.526	90.0	242.83	
Bus3	11.000		6.913	3.348	7.681	90.0	427.39	
Bus4	11.000		7.414	3.591	8.238	90.0	461.05	
Bus5	11.000		3.008	1.591	3.403	88.4	186.87	
Bus6	11.000		1.930	0.935	2.144	90.0	117.23	
Bus7	11.000		2.668	1.162	2.910	91.7	155.61	
Bus8	11.000		4.262	2.137	4.767	89.4	253.83	
Bus9	11.000		4.930	2.442	5.502	89.6	296.71	
Bus10	11.000		2.850	1.366	3.160	90.2	171.51	
Bus17	0.400		0.239	0.116	0.266	90.0	413.46	
Bus18	0.400		0.247	0.120	0.274	90.0	427.65	
Bus19	0.400		0.158	0.076	0.175	90.0	273.61	
Bus24	11.000		0.476	0.125	0.492	96.7	27.36	
Bus25	11.000		0.672	0.325	0.746	90.0	41.70	
Bus27	0.400		0.241	0.117	0.268	90.0	417.62	
Bus28	11.000		0.167	0.085	0.187	89.0	10.38	
Bus31	0.400		0.150	0.073	0.167	90.0	255.69	
Bus33	0.400		0.169	0.082	0.188	90.0	291.01	
Bus35	11.000		0.857	0.415	0.952	90.0	53.00	

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 15
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

Bus			Bus Total Load					
ID	kV	Rated Amp	MW	Mvar	MVA	% PF	Amp	% Loading
Bus36	0.400		0.166	0.080	0.184	90.0	285.35	
Bus37	0.400		0.155	0.075	0.173	90.0	266.87	
connection bus al terah	33.000		5.504	2.912	6.227	88.4	111.41	
connection bus for al ram	33.000		14.218	7.677	16.158	88.0	288.32	
connection bus ramallah	33.000		7.629	3.808	8.527	89.5	150.71	
Deir Abu Mash'al	11.000		0.464	0.225	0.515	90.0	29.05	
Deir Dibwan	11.000		4.157	2.068	4.643	89.5	253.83	
Deir Ibzi'	11.000		1.260	0.566	1.381	91.2	76.75	
Deir Nidham	11.000		0.534	0.212	0.575	92.9	32.34	
Deir Qaddis	11.000		0.156	0.080	0.175	89.1	9.70	
'Ein Arik	11.000		1.594	0.729	1.753	90.9	96.27	
El Mazra'a El Sharqeya	11.000		0.170	0.087	0.191	89.0	10.58	
israel main bus	33.000		40.297	21.282	45.572	88.4	797.30	
Jammala	11.000		0.607	0.341	0.696	87.2	39.15	
kafr 'Aqab	11.000		2.580	1.105	2.807	91.9	155.61	
Kafr Ni'ma	11.000		1.385	0.719	1.560	88.7	86.29	
Kfar Malik	11.000		0.242	0.124	0.272	89.0	15.19	
Kharbat El Misbah	11.000		0.920	0.400	1.003	91.7	56.23	
Kober	11.000		0.240	0.123	0.270	89.0	15.04	
ramallah north	33.000		4.323	2.359	4.925	87.8	88.72	
ramallah north*	33.000		7.434	3.950	8.418	88.3	153.68	
Ras Karkar	11.000		1.218	0.612	1.363	89.4	75.27	
silvana	33.000		2.670	1.204	2.929	91.2	51.87	
silvana*	33.000		4.268	2.246	4.822	88.5	84.61	
Sinjil	11.000		1.814	0.946	2.046	88.7	113.07	
sivana**	33.000		9.601	5.105	10.874	88.3	192.76	
Umm Safah	11.000		0.337	0.111	0.355	95.0	19.86	

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 16
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

BRANCH LOADING Summary Report

CKT / Branch		Cable & Reactor			Transformer				
ID	Type	Ampacity (Amp)	Loading Amp	%	Capacity (MVA)	Loading (input)		Loading (output)	
						MVA	%	MVA	%
T1	Transformer				3.000	1.460	48.7	1.431	47.7
T2	Transformer				10.000	4.601	46.0	4.526	45.3
T3	Transformer				10.000	7.920	79.2	7.681	76.8
T4	Transformer				15.000	8.418	56.1	8.238	54.9
T5	Transformer				10.000	3.458	34.6	3.403	34.0
T6	Transformer				5.000	2.181	43.6	2.144	42.9
T7	Transformer				15.000	2.929	19.5	2.910	19.4
T8	Transformer				15.000	4.822	32.1	4.767	31.8
T9	Transformer				15.000	5.577	37.2	5.502	36.7
T10	Transformer				10.000	3.198	32.0	3.160	31.6
T11	Transformer				1.000	0.534	53.4	0.523	52.3
T12	Transformer				0.630	0.270	42.9	0.266	42.2
T13	Transformer				0.630	0.279	44.3	0.274	43.6
T14	Transformer				0.400	0.178	44.5	0.175	43.8
T15	Transformer				0.630	0.272	43.2	0.268	42.5
T16	Transformer				0.400	0.187	46.9	0.184	46.1
T17	Transformer				0.630	0.168	26.7	0.167	26.5
T18	Transformer				0.400	0.191	47.8	0.188	47.0
T19	Transformer				0.400	0.175	43.9	0.173	43.2

* Indicates a branch with operating load exceeding the branch capability

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 17
 Date: 05-05-2010
 SN: KLGCONSULT
 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	
Line9	-1.072	-0.651	1.081	0.657	8.6	5.6	94.8	95.6	0.78
Line10	0.598	0.406	-0.596	-0.404	2.3	1.5	94.8	94.4	0.37
T11	0.474	0.246	-0.471	-0.228	3.1	18.0	94.8	92.9	1.92
Line11	0.241	0.123	-0.240	-0.123	0.3	0.2	94.4	94.3	0.13
Line12	0.355	0.281	-0.354	-0.280	0.8	0.5	94.4	94.2	0.20
Line14	-0.179	-0.030	0.179	0.030	0.3	0.2	93.8	93.9	0.14
Line24	-0.606	-0.350	0.614	0.355	7.5	4.9	93.8	95.0	1.20
Line58	0.611	0.343	-0.607	-0.341	3.6	2.3	93.9	93.4	0.57
Line59	-1.071	-0.566	1.082	0.573	10.6	6.9	93.9	94.9	0.98
ramallah**	-4.938	-2.591	4.954	2.601	15.9	10.3	98.6	99.0	0.33
T9	4.938	2.591	-4.930	-2.442	8.0	148.9	98.6	97.3	1.32
al ram**	-2.855	-1.441	2.860	1.444	5.3	3.5	97.9	98.0	0.19
T10	2.855	1.441	-2.850	-1.366	4.8	74.6	97.9	96.7	1.14
Cable1	4.328	2.365	-4.323	-2.359	4.6	6.2	97.3	97.1	0.14
al ram*	-11.271	-6.177	11.358	6.233	87.1	56.4	97.3	98.0	0.78
T3	6.943	3.811	-6.913	-3.348	29.9	463.2	97.3	94.3	2.94
Line8	-1.936	-1.004	1.939	1.006	3.0	1.9	97.6	97.8	0.16
T6	1.936	1.004	-1.930	-0.935	5.7	69.6	97.6	96.0	1.63
Line13	0.339	0.112	-0.337	-0.111	1.1	0.7	94.2	93.9	0.32
Line21	-0.233	0.040	0.233	-0.040	0.4	0.2	94.2	94.4	0.12
T13	0.248	0.128	-0.247	-0.120	1.4	7.9	94.2	92.6	1.60
Line1	-1.293	-0.677	1.297	0.679	3.4	2.2	96.6	96.9	0.27
T1	1.293	0.677	-1.288	-0.624	5.0	53.0	96.6	94.7	1.87
rama1							100.0	100.0	
Line2	-1.297	-0.679	1.300	0.681	3.1	2.0	96.9	97.1	0.24
beit eil	-4.083	-2.122	4.104	2.136	21.3	13.8	99.5	100.0	0.55
T2	4.083	2.122	-4.073	-1.973	9.6	149.5	99.5	97.8	1.64
T4	-7.414	-3.591	7.434	3.950	19.3	359.6	93.8	95.8	2.05
T5	-3.008	-1.591	3.024	1.678	15.1	87.4	95.6	97.1	1.54
Line15	2.668	1.162	-2.580	-1.105	88.0	57.0	98.2	94.7	3.49
T7	-2.668	-1.162	2.670	1.204	2.3	42.4	98.2	98.8	0.65
Line16	4.262	2.137	-4.157	-2.068	105.0	68.0	98.6	96.0	2.57
T8	-4.262	-2.137	4.268	2.246	5.9	109.0	98.6	99.7	1.14
Line62	1.418	0.741	-1.385	-0.719	33.5	21.7	97.3	94.9	2.42
Line52	1.612	0.741	-1.594	-0.729	18.1	11.7	96.7	95.5	1.16
Line61	1.238	0.625	-1.218	-0.612	20.5	13.3	96.7	95.0	1.69
T12	-0.239	-0.116	0.240	0.123	1.3	7.4	92.8	94.3	1.55
T14	-0.158	-0.076	0.159	0.081	0.9	4.6	92.4	93.9	1.50
Line19	-0.476	-0.084	0.477	0.085	1.4	0.9	94.4	94.7	0.31
Line20	0.243	0.125	-0.242	-0.124	0.6	0.4	94.4	94.1	0.25
Line18	-0.672	-0.325	0.677	0.329	5.1	3.3	93.9	94.7	0.76
T15	-0.241	-0.117	0.242	0.124	1.3	7.5	92.6	94.1	1.56

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation
 4.0.0C

Study Case: LF

Page: 18
 Date: 05-05-2010
 SN: KLGCONSULT
 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	
Line22	-0.167	-0.085	0.167	0.086	0.2	0.2	94.8	95.0	0.15
T16	0.167	0.085	-0.166	-0.080	1.0	5.0	94.8	93.3	1.57
T17	-0.150	-0.073	0.150	0.075	0.5	2.8	94.1	95.0	0.95
T18	-0.169	-0.082	0.170	0.087	1.0	5.2	93.2	94.8	1.60
Line26	-0.857	-0.415	0.863	0.419	5.9	3.9	94.3	95.0	0.70
T19	-0.155	-0.075	0.156	0.080	0.9	4.4	93.4	94.9	1.46
Line6	3.566	1.906	-3.497	-1.862	68.2	44.2	97.8	95.8	1.96
Line7	-5.504	-2.912	5.553	2.944	48.5	31.5	97.8	98.7	0.90
al ram	-14.218	-7.677	14.489	7.853	270.8	175.6	98.0	100.0	1.95
ramallah	-7.629	-3.808	7.703	3.856	74.0	48.0	99.0	100.0	1.02
ramallah*	2.675	1.207	-2.670	-1.204	4.4	2.8	99.0	98.8	0.17
Line56	-0.179	-0.040	0.179	0.040	0.2	0.1	93.1	93.2	0.12
Line57	-0.285	-0.184	0.286	0.185	0.7	0.5	93.1	93.4	0.24
Line17	1.803	0.929	-1.785	-0.917	18.4	11.9	96.0	95.0	1.03
Line53	-1.260	-0.566	1.274	0.574	13.4	8.7	94.5	95.5	1.08
Line54	0.928	0.405	-0.920	-0.400	7.9	5.1	94.5	93.6	0.86
Line55	-0.534	-0.212	0.536	0.214	1.9	1.2	93.2	93.6	0.36
Line27	-0.156	-0.080	0.157	0.080	0.2	0.1	94.9	95.0	0.12
Line25	-0.170	-0.087	0.170	0.087	0.4	0.2	94.8	95.0	0.21
en areek	2.140	1.127	-2.134	-1.123	5.8	3.8	100.0	99.7	0.29
offer	2.140	1.127	-2.134	-1.123	5.8	3.8	100.0	99.7	0.29
pereg	9.722	5.184	-9.601	-5.105	121.1	78.5	100.0	98.7	1.30
Line4	-3.936	-2.089	4.048	2.161	112.1	72.7	95.8	98.7	2.86
Line23	0.029	0.030	-0.029	-0.030	0.0	0.0	95.0	95.0	0.05
					1328.5	2408.5			

Project:
Location:
Contract:
Engineer:
Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 19
Date: 05-05-2010
SN: KLGCONSULT
Revision: Base
Config.: Normal

EQUIPMENT CABLE LOSSES Summary Report

<u>Equipment Cable</u>	<u>Connected</u>	<u>Losses</u>		<u>% Voltage</u>		<u>Vd</u>	<u>Vst</u>
<u>ID</u>	<u>Load Type</u>	<u>kW</u>	<u>kvar</u>	<u>Bus</u>	<u>Load</u>	<u>% Drop</u> <u>in Vmag</u>	<u>% for</u> <u>Motor</u>

Project:
 Location:
 Contract:
 Engineer:
 Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 20
 Date: 05-05-2010
 SN: KLGCONSULT
 Revision: Base
 Config.: Normal

Alert Summary Report

% Alert Settings

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

Critical Report

ID	Device Type	Rating	Unit	Calculated	%Mag.	Condition
Abu Qash	Bus	11.000	kV	10.429	94.8	UnderVoltage
Abu Shukheidim	Bus	11.000	kV	10.388	94.4	UnderVoltage
'Ajjul	Bus	11.000	kV	10.315	93.8	UnderVoltage
Al Mazra'a El Qibleya	Bus	11.000	kV	10.332	93.9	UnderVoltage
Al Mazra'a El Qiblya	Bus	0.400	kV	0.372	92.9	UnderVoltage
A'tara	Bus	11.000	kV	10.367	94.2	UnderVoltage
Bus1	Bus	6.600	kV	6.253	94.7	UnderVoltage
Bus17	Bus	0.400	kV	0.371	92.8	UnderVoltage
Bus18	Bus	0.400	kV	0.371	92.6	UnderVoltage
Bus19	Bus	0.400	kV	0.370	92.4	UnderVoltage
Bus24	Bus	11.000	kV	10.380	94.4	UnderVoltage
Bus25	Bus	11.000	kV	10.330	93.9	UnderVoltage
Bus27	Bus	0.400	kV	0.370	92.6	UnderVoltage
Bus28	Bus	11.000	kV	10.431	94.8	UnderVoltage
Bus3	Bus	11.000	kV	10.376	94.3	UnderVoltage
Bus31	Bus	0.400	kV	0.376	94.1	UnderVoltage
Bus33	Bus	0.400	kV	0.373	93.2	UnderVoltage
Bus35	Bus	11.000	kV	10.370	94.3	UnderVoltage
Bus36	Bus	0.400	kV	0.373	93.3	UnderVoltage

Project:
Location:
Contract:
Engineer:
Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 21
Date: 05-05-2010
SN: KLGCONSULT
Revision: Base
Config.: Normal

Critical Report

<u>ID</u>	<u>Device Type</u>	<u>Rating</u>	<u>Unit</u>	<u>Calculated</u>	<u>%Mag.</u>	<u>Condition</u>
Bus37	Bus	0.400	kV	0.374	93.4	UnderVoltage
Bus4	Bus	11.000	kV	10.316	93.8	UnderVoltage
Deir Abu Mash'al	Bus	11.000	kV	10.243	93.1	UnderVoltage
Deir Ibzi'	Bus	11.000	kV	10.391	94.5	UnderVoltage
Deir Nidham	Bus	11.000	kV	10.257	93.2	UnderVoltage
Deir Qaddis	Bus	11.000	kV	10.439	94.9	UnderVoltage
El Mazra'a El Sharqeya	Bus	11.000	kV	10.423	94.8	UnderVoltage
Jammala	Bus	11.000	kV	10.270	93.4	UnderVoltage
kafr 'Aqab	Bus	11.000	kV	10.414	94.7	UnderVoltage
Kafr Ni'ma	Bus	11.000	kV	10.440	94.9	UnderVoltage
Kfar Malik	Bus	11.000	kV	10.353	94.1	UnderVoltage
Kharbat El Misbah	Bus	11.000	kV	10.296	93.6	UnderVoltage
Kober	Bus	11.000	kV	10.374	94.3	UnderVoltage
Sinjil	Bus	11.000	kV	10.447	95.0	UnderVoltage
Umm Safah	Bus	11.000	kV	10.331	93.9	UnderVoltage

Marginal Report

<u>ID</u>	<u>Device Type</u>	<u>Rating</u>	<u>Unit</u>	<u>Calculated</u>	<u>%Mag.</u>	<u>Condition</u>
al moalmen*	Bus	33.000	kV	32.292	97.9	UnderVoltage
al tahona	Bus	33.000	kV	32.097	97.3	UnderVoltage
al terah	Bus	33.000	kV	32.219	97.6	UnderVoltage
beiten central	Bus	33.000	kV	31.883	96.6	UnderVoltage
beiten west	Bus	33.000	kV	31.972	96.9	UnderVoltage
Bus10	Bus	11.000	kV	10.639	96.7	UnderVoltage
Bus2	Bus	11.000	kV	10.760	97.8	UnderVoltage
Bus5	Bus	11.000	kV	10.514	95.6	UnderVoltage
Bus6	Bus	11.000	kV	10.561	96.0	UnderVoltage
Bus9	Bus	11.000	kV	10.706	97.3	UnderVoltage
connection bus al terah	Bus	33.000	kV	32.271	97.8	UnderVoltage
Deir Dibwan	Bus	11.000	kV	10.561	96.0	UnderVoltage
'Ein Arik	Bus	11.000	kV	10.510	95.5	UnderVoltage
ramallah north	Bus	33.000	kV	32.052	97.1	UnderVoltage
ramallah north*	Bus	33.000	kV	31.625	95.8	UnderVoltage
Ras Karkar	Bus	11.000	kV	10.452	95.0	UnderVoltage

Project:
Location:
Contract:
Engineer:
Filename: average

ETAP PowerStation

4.0.0C

Study Case: LF

Page: 22
Date: 05-05-2010
SN: KLGCONSULT
Revision: Base
Config.: Normal

SUMMARY OF TOTAL GENERATION, LOADING & DEMAND

	<u>MW</u>	<u>Mvar</u>	<u>MVA</u>	<u>% PF</u>
Swing Bus(es):	40.297	21.282	45.572	88.43 Lagging
Generators:	0.000	0.000	0.000	100.00 Lagging
Total Demand:	40.297	21.282	45.572	88.43 Lagging
Total Motor Load:	16.553	8.017	18.392	90.00 Lagging
Total Static Load:	22.415	10.856		
Apparent Losses:	1.328	2.409		
System Mismatch:	0.000	0.000		

Number of Iterations: 3