

Table (A1) Bus Input Data

Project:
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Bus Input Data

Bus			Initial Voltage		Load							
					Constant kVA		Constant Z		Constant I		Generic	
ID	kV	Sub-sy	%	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
AFRA	110.000	1	95.7	-16.7								
ARM	220.000	1	100.0	0.0								
Atbara 220	220.000	1	100.0	0.0								
Atbara 500	500.000	1	104.8	-3.1			0.000	106.250				
ATB AUX	33.000	1	100.0	0.0								
Bageir	110.000	1	100.0	0.0							27.250	15.260
BANT	110.000	1	95.7	-16.7								
Bus1	13.800	1	102.2	0.0								
Bus2	110.000	1	100.0	0.0								
Bus3	33.000	1	105.8	-16.5								
Bus4	13.800	1	102.2	0.0								
Bus5	110.000	1	100.0	0.0								
Bus6	110.000	1	100.0	0.0								
Bus7	13.800	1	102.2	0.0								
Bus8	13.800	1	102.2	0.0								
Bus9	13.800	1	102.2	0.0								
Bus10	13.800	1	102.2	0.0								
Bus11	13.800	1	102.2	0.0								
Bus12	13.800	1	102.2	0.0								
Bus13	13.800	1	102.2	0.0								
Bus14	13.800	1	102.2	0.0								
Bus15	11.000	1	100.0	0.0								
Bus16	11.000	1	100.0	0.0								
Bus17	11.000	1	100.0	0.0								
Bus18	11.000	1	100.0	0.0								
Bus19	11.000	1	100.0	0.0								
Bus20	11.000	1	100.0	0.0								
Bus21	11.000	1	100.0	0.0								
Bus22	11.000	1	100.0	0.0								
Bus25	33.000	1	105.8	-16.5								
Bus41	11.000	1	100.0	0.0								
Bus43	11.000	1	100.0	0.0								
Bus50	11.000	1	100.0	-12.6								
Bus52	11.000	1	100.0	0.0								

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Bus			Initial Voltage		Load							
ID	kV	Sub-sy	%	Ang.	Constant kVA		Constant Z		Constant I		Generic	
					MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
Bus53	11.000	1	100.0	0.0								
Bus54	13.800	1	100.0	0.0								
Bus55	11.000	1	100.0	0.0								
Bus57	11.000	1	100.0	0.0								
Bus58	11.000	1	100.0	0.0								
Bus62	33.000	1	100.0	0.0								
Bus63	33.000	1	100.0	0.0								
Bus64	33.000	1	100.0	0.0								
Bus65	33.000	1	100.0	0.0								
Bus67	33.000	1	100.0	0.0							19.293	9.156
Bus69	11.000	1	100.0	0.0								
Bus73	11.000	1	100.0	0.0								
Bus74	11.000	1	100.0	0.0								
Bus75	11.000	1	100.0	0.0								
Bus77	10.500	1	104.8	0.0								
Bus78	10.500	1	104.8	0.0								
Bus79	10.500	1	104.8	0.0								
Bus80	10.500	1	104.8	0.0								
Bus81	10.500	1	104.8	0.0								
Bus82	10.500	1	104.8	0.0								
Bus83	11.000	1	100.0	0.0								
Bus84	11.000	1	100.0	0.0								
Bus85	11.000	1	100.0	0.0								
Bus86	11.000	1	100.0	0.0								
Bus87	11.000	1	100.0	0.0								
Bus89	500.000	1	105.5	-0.9								
Bus91	11.000	1	100.0	-12.6								
Bus93	13.800	1	100.0	0.0								
Bus95	33.000	1	105.8	-16.5								
Bus96	215.000	1	96.4	-15.3								
Bus97	215.000	1	96.4	-15.3								
Bus98	215.000	1	96.4	-15.3								
Bus100	215.000	1	96.4	-15.9								
Bus101	215.000	1	96.4	-15.9								
Bus102	215.000	1	96.4	-15.9								
Bus104	115.000	1	105.6	-19.1								

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ID	kV	Sub-sy	%	Ang.	Constant kVA		Constant Z		Constant I		Generic	
					MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
Bus105	115.000	1	105.6	-19.1								
Bus106	500.000	1	99.5	1.7			0.000	125.000				
Bus107	525.000	1	99.5	1.7			0.000	137.813				
Bus108	11.000	1	100.0	1.7							5.232	3.270
Bus109	33.000	1	100.0	1.7							7.630	4.905
Bus110	33.000	1	100.0	1.7							16.023	11.990
Bus111	11.000	1	99.5	1.7							31.828	21.909
Bus112	11.000	1	100.0	1.7							21.800	11.990
Bus113	33.000	1	100.0	1.7							36.951	22.890
Bus114	500.000	1	99.5	1.7			0.000	125.000				
Bus116	500.000	1	99.5	1.7			0.000	125.000				
Bus118	33.000	1	93.5	-15.2								
Bus120	33.000	1	103.2	-11.3								
Bus123	11.000	1	95.1	-17.2								
Bus124	215.000	1	97.6	-14.4								
Bus133	33.000	1	95.4	-21.7							21.800	11.990
Bus134	11.000	1	94.8	-22.4								
Bus141	33.000	1	95.4	-21.7							46.870	18.530
Bus147	11.000	1	101.0	-18.3								
Bus148	11.000	1	101.0	-18.3								
Bus149	11.000	1	94.8	-22.4								
Bus152	33.000	1	85.7	-32.4							31.065	5.723
Bus153	11.000	1	83.9	-33.9							18.530	11.227
Bus155	110.000	1	91.8	-26.7								
Bus157	110.000	1	94.7	-23.6								
Bus158	115.000	1	99.5	1.7								
Bus160	33.000	1	104.6	-9.9							74.120	45.933
Bus162	33.000	1	104.0	-12.7							58.860	22.890
Bus165	11.000	1	99.5	1.7								
Bus167	110.000	1	99.5	1.7								
Bus186	110.000	1	95.7	-19.6								
Bus187	33.000	1	92.8	-22.4							43.600	22.890
Bus188	11.000	1	92.5	-22.7								
Dongola	220.000	1	100.0	0.0							23.980	13.080
Eid Babikir	220.000	1	96.4	-15.6								
Eid Babikir 110	110.000	1	100.0	0.0								

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					Constant kVA		Constant Z		Constant I		Generic	
ID	kV		%	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
EIDebba	220.000	1	100.0	0.0			0.000	20.000			13.898	8.611
El-Obeid	220.000	1	100.0	0.0			0.000	15.000			17.985	9.592
El Rank	220.000	1	100.0	0.0			0.000	30.000				
FAR 11	11.000	1	100.0	0.0							29.212	13.734
FAR 33	33.000	1	100.0	0.0							45.780	21.800
Farouk	110.000	1	100.0	0.0								
Free Zone	220.000	1	100.0	0.0							13.298	6.322
GAD 33	33.000	1	100.0	0.0							9.516	5.588
GAD 33S	33.000	1	100.0	0.0								
GAM 33	33.000	1	100.0	0.0							8.393	4.578
GAM 110	110.000	1	100.0	0.0								
Gamouia	220.000	1	100.0	0.0								
Garri	220.000	1	100.0	0.0			6.000	3.000				
Gebel Aulia	220.000	1	100.0	0.0								
Gebel Aulia 110	110.000	1	100.0	0.0								
Gedarif	220.000	1	100.0	0.0			0.000	15.000			20.710	10.900
Giad	220.000	1	100.0	0.0								
Giad110	110.000	1	100.0	0.0								
Girba	220.000	1	100.0	0.0			0.000	15.000			16.350	11.445
HagAbdalla	110.000	1	100.0	0.0							11.772	6.540
Hasahisa	110.000	1	100.0	0.0			0.000	-5.000				
Hawata	220.000	1	100.0	0.0							5.450	4.033
IBA 11	11.000	1	100.0	0.0								
IBA 33	33.000	1	100.0	0.0							38.150	29.975
IZBA	110.000	1	95.7	-16.7								
Izergab	110.000	1	100.0	0.0								
IZG 11	11.000	1	100.0	0.0			0.000	-5.000			3.052	2.180
IZG 33	33.000	1	100.0	0.0							9.047	1.635
JAS 33	33.000	1	100.0	0.0							24.634	13.298
Kabashi	500.000	1	105.0	0.0								
Kabashi 220	220.000	1	100.0	0.0								
Kassala	220.000	1	100.0	0.0			0.000	15.000			15.260	8.175
Khartoum North	110.000	1	100.0	0.0			14.000	8.000				
KHE 11	11.000	1	100.0	0.0							9.047	8.393
KHE 33	33.000	1	100.0	0.0			0.000	-10.000			152.818	73.030
KHE 110	110.000	1	100.0	0.0								

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					Constant kVA		Constant Z		Constant I		Generic	
ID	kV		%	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
Kilo X	220.000	1	100.0	0.0								
KLX 11	11.000	1	100.0	0.0							9.374	7.957
KLX 33	33.000	1	100.0	0.0							29.539	14.061
KUK 33	33.000	1	100.0	0.0							41.420	20.710
Kuku	110.000	1	100.0	0.0								
Local Market	110.000	1	100.0	0.0								
LOM 11	11.000	1	100.0	0.0							10.630	6.519
LOM 33	33.000	1	100.0	0.0							63.874	34.662
MAN 110	110.000	1	100.0	0.0							16.604	5.523
Mashkour	220.000	1	100.0	0.0							7.848	4.142
Meringan	220.000	1	100.0	0.0								
Merkhiat	500.000	1	99.8	-7.8								
Merkhiat 220	220.000	1	100.0	0.0								
Merowi220	220.000	1	100.0	0.0							21.800	10.900
Merowi Hvdro	500.000	1	105.5	-0.9								
MHD11	11.000	1	100.0	0.0			0.000	-5.000			6.758	4.360
MHD33	33.000	1	100.0	0.0							36.406	19.620
MHD 33	33.000	1	100.0	0.0							54.064	31.392
MHD110	110.000	1	100.0	0.0								
MHD 220	220.000	1	100.0	0.0								
MinaSharief	110.000	1	100.0	0.0							16.350	6.758
MUG11	11.000	1	100.0	0.0							20.492	9.810
MUG33	33.000	1	100.0	0.0							76.300	37.060
Mugran	110.000	1	100.0	0.0								
NEW HAS	220.000	1	105.0	-15.2								
N HAS	110.000	1	95.3	-19.4							48.287	27.359
NHLF	220.000	1	100.0	0.0			0.000	15.000				
O.RBK110	110.000	1	100.0	0.0								
OMD 11	11.000	1	100.0	0.0			0.000	-2.500			17.440	10.900
OMD 33	33.000	1	100.0	0.0							54.500	30.520
Omdurman	110.000	1	100.0	0.0								
Port Sudan	220.000	1	100.0	0.0								
Rabak	220.000	1	100.0	0.0			0.000	15.000			30.302	15.478
Roseires	220.000	1	100.0	0.0							8.175	5.123
Sennar110	110.000	1	100.0	0.0								
Sennar Jn	220.000	1	100.0	0.0								

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Bus					Load							
					Initial Voltage		Constant kVA		Constant Z		Constant I	
ID	kV	Sub-sy	%	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
Shagara	110.000	1	100.0	0.0								
Shendi 220	220.000	1	100.0	0.0							21.800	13.080
SHG 11	11.000	1	100.0	0.0							18.530	11.227
SHG 33	33.000	1	100.0	0.0							31.065	14.988
SHK	220.000	1	100.0	0.0			0.000	15.000				
Sinia	220.000	1	100.0	0.0			0.000	30.000			7.303	3.815
Tandalti	220.000	1	100.0	0.0			0.000	15.000				
Umroaba	220.000	1	108.7	-17.6			0.000	15.000			3.270	1.635
Line19~	118.011		100.0	0.0								
Line20~	118.011		100.0	0.0								
Line39~	118.011		100.0	0.0								
Line40~	118.011		100.0	0.0								
Total Number of Buses: 190					0.000	0.000	20.000	817.563	0.000	0.000	1581.334	841.060

Generation Bus				Voltage		Generation			Mvar Limits	
ID	kV	Type	Sub-sy	%	Angle	MW	Mvar	% PF	Max	Min
Bus1	13.800	Swing	1	102.2	0.0					
Bus4	13.800	Swing	1	102.2	0.0					
Bus7	13.800	Swing	1	102.2	0.0					
Bus8	13.800	Swing	1	102.2	0.0					
Bus9	13.800	Swing	1	102.2	0.0					
Bus10	13.800	Swing	1	102.2	0.0					
Bus11	13.800	Swing	1	102.2	0.0					
Bus12	13.800	Swing	1	102.2	0.0					
Bus13	13.800	Swing	1	102.2	0.0					
Bus14	13.800	Swing	1	102.2	0.0					
Bus15	11.000	Mvar/PF	1	100.0	0.0	20.000	0.000	100.0		
Bus16	11.000	Mvar/PF	1	100.0	0.0	30.000	0.000	100.0		
Bus17	11.000	Mvar/PF	1	100.0	0.0	30.000	0.000	100.0		
Bus18	11.000	Mvar/PF	1	100.0	0.0	30.000	0.000	100.0		
Bus19	11.000	Mvar/PF	1	100.0	0.0	30.000	0.000	100.0		
Bus20	11.000	Mvar/PF	1	100.0	0.0	30.000	0.000	100.0		
Bus50	11.000	Voltage	1	100.0	-12.6	30.000			18.592	-18.592
Bus52	11.000	Voltage	1	100.0	0.0	50.000			42.473	-49.827
Bus53	11.000	Voltage	1	100.0	0.0	50.000			42.473	-49.827

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	Generation Bus			Voltage		Generation			Mvar Limits	
	kV	Type	Sub-sy	%	Angle	MW	Mvar	% PF	Max	Min
Bus73	11.000	Mvar/PF	1	100.0	0.0	55.000	25.000	91.0		
Bus74	11.000	Mvar/PF	1	100.0	0.0	55.000	25.000	91.0		
Bus75	11.000	Voltage	1	100.0	0.0	30.000			24.378	-28.205
Bus77	10.500	Voltage	1	104.8	0.0	20.000			28.299	-37.273
Bus78	10.500	Voltage	1	104.8	0.0	20.000			28.299	-37.273
Bus79	10.500	Voltage	1	104.8	0.0	20.000			28.299	-37.273
Bus80	10.500	Voltage	1	104.8	0.0	30.000			24.378	-28.205
Bus81	10.500	Voltage	1	104.8	0.0	20.000			28.299	-37.273
Bus82	10.500	Voltage	1	104.8	0.0	30.000			24.378	-28.205
Bus83	11.000	Voltage	1	100.0	0.0	30.000			24.378	-28.205
Bus84	11.000	Voltage	1	100.0	0.0	30.000			24.378	-28.205
Bus85	11.000	Voltage	1	100.0	0.0	30.000			24.378	-28.205
Bus86	11.000	Voltage	1	100.0	0.0	30.000			24.378	-28.205
Bus87	11.000	Voltage	1	100.0	0.0	30.000			24.378	-28.205
Bus91	11.000	Voltage	1	100.0	-12.6	30.000			18.592	-18.592
						760.000	50.000			