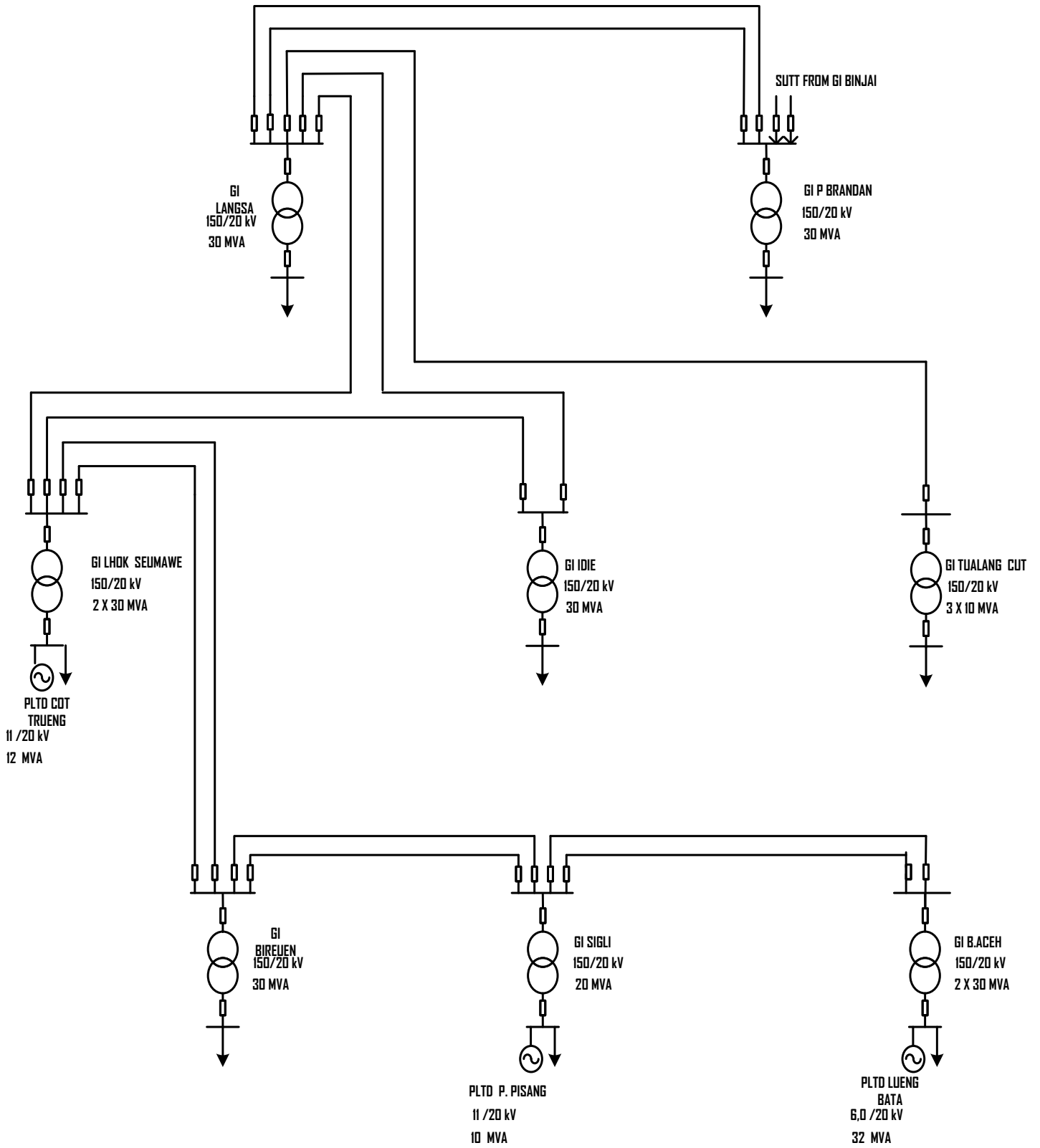


LAMPIRAN

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- Lampiran-01** Gambar Diagram Satu Garis Subsistem Sumbagut 150 kV Provinsi Aceh
- Lampiran-02** Data Bus/Rel pada Subsistem Sumbagut 150 kV Provinsi Aceh
- Lampiran-03** Data Pembangkit, Impedansi Generator dan Impedansi Transformator Pembangkit pada Subsistem Sumbagut 150 kV Provinsi Aceh
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- Lampiran-05** Gambar Diagram Satu Garis untuk Simulasi ETAP
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- Lampiran-07** Data *Input* pada Bus untuk Simulasi ETAP
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- Lampiran-10** Tabel Hasil Simulasi Aliran Daya pada Pembebanan 100%
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- Lampiran-12** Tabel Hasil Simulasi Aliran Daya pada Pembebanan 30% Setelah Pengaturan OLTC/ *Tap* yang Dipilih
- Lampiran-13** Data *Input* Kapasitor SVC untuk Perbaikan Tegangan pada Pembebanan 100%
- Lampiran-14** Tabel Aliran Daya Hasil Simulasi pada Pembebanan 100% Setelah Pemasangan SVC dan Pengaturan OLTC
- Lampiran-15** Data *Input* Kapasitor dan Reaktor SVC untuk Perbaikan Tegangan pada Pembebanan 30%
- Lampiran-16** Tabel Aliran Daya Hasil Simulasi pada Pembebanan 30% Setelah Pemasangan SVC dan Pengaturan OLTC



Tabel Data Bus/Rel Subsistem Sumbagut 150 kV Provinsi Aceh

Nama Gardu Induk	Base kV	Area Number/ Name	Zone Number/ Name
GI P. Brandan	150	7 SUMUT	1 UPT MEDAN
GI Langsa	150	9 NAD	3 UPT B ACEH
GI Idie	150	9 NAD	3 UPT B ACEH
GI Lhokseumawe	150	9 NAD	3 UPT B ACEH
GI Tualang Cut	150	9 NAD	3 UPT B ACEH
GI Bireun	150	9 NAD	3 UPT B ACEH
GI Sigli	150	9 NAD	3 UPT B ACEH
GI Banda Aceh	150	9 NAD	3 UPT B ACEH
GH Banda Aceh A	20	9 NAD	3 UPT B ACEH
GH Banda Aceh B	20	9 NAD	3 UPT B ACEH
GH Ajun	20	9 NAD	3 UPT B ACEH
PLTD Lueng Bata A	20	9 NAD	7 SKTR L.BATA
PLTD Lueng Bata B	20	9 NAD	7 SKTR L.BATA
PLTD Lueng Bata	6	9 NAD	7 SKTR L.BATA
PLTD Sewa Lueng Bata	6	9 NAD	7 SKTR L.BATA
GH Mertuaduati A	20	9 NAD	9 WILNAD
GH Mertuaduati B	20	9 NAD	9 WILNAD
GH Lueng Bata A	20	9 NAD	9 WILNAD
GH Lueng Bata B	20	9 NAD	9 WILNAD
GH Karang Cut	20	9 NAD	9 WILNAD
GH Lambaro A	20	9 NAD	9 WILNAD
GH Lambaro B	20	9 NAD	9 WILNAD
PLTD Cot Troeng	20	9 NAD	7 SKTR L.BATA
PLTD Pisang	20	9 NAD	7 SKTR L.BATA
PLTD Pisang II	11	9 NAD	7 SKTR L.BATA
GI Lhokseumawe II	20	9 NAD	3 UPT BACEH

Tabel Pembangkit Subsistem Sumbagut 150 kV Provinsi Aceh

Lokasi	Merek	Kapasitas (MVA)	Tegangan (kV)	P Generator	P Max	P Min	Q Generator	Q Max	Q Min
PLTD Leung Bata	Sulzer	17	6	13	13	6	6	6	-2
PLTD Sewa Leung Bata	Sulzer	15	6	12	12	5	5	5	-4
PLTD P.Pisang	Sulzer	10	11	2	2	1	0.5	0.5	-0.5
PLTD Ctrueng 1	Sulzer	6	11	4	4	1	2	2	-1
PLTD Ctrueng 2	Sulzer	6	11	4	4	1	2	2	-1

Tabel Impedansi Generator Subsistem Sumbagut 150 kV Provinsi Aceh

Lokasi	Merek	Impedansi (pu)				
		X	X'	X''	X ₂	X ₀
PLTD Leung Bata	Sulzer	2.35	0.05	0.03	0.03	0.02
PLTD Sewa Leung Bata	Sulzer	2.67	0.05	0.03	0.03	0.02
PLTD P.Pisang	Sulzer	4	0.08	0.05	0.05	0.03
PLTD Ctrueng 1	Sulzer	6.67	0.14	0.08	0.08	0.04
PLTD Ctrueng 2	Sulzer	6.67	0.14	0.08	0.08	0.04

Tabel Impedansi Transformator Pembangkit Subsistem Sumbagut 150 kV Provinsi Aceh

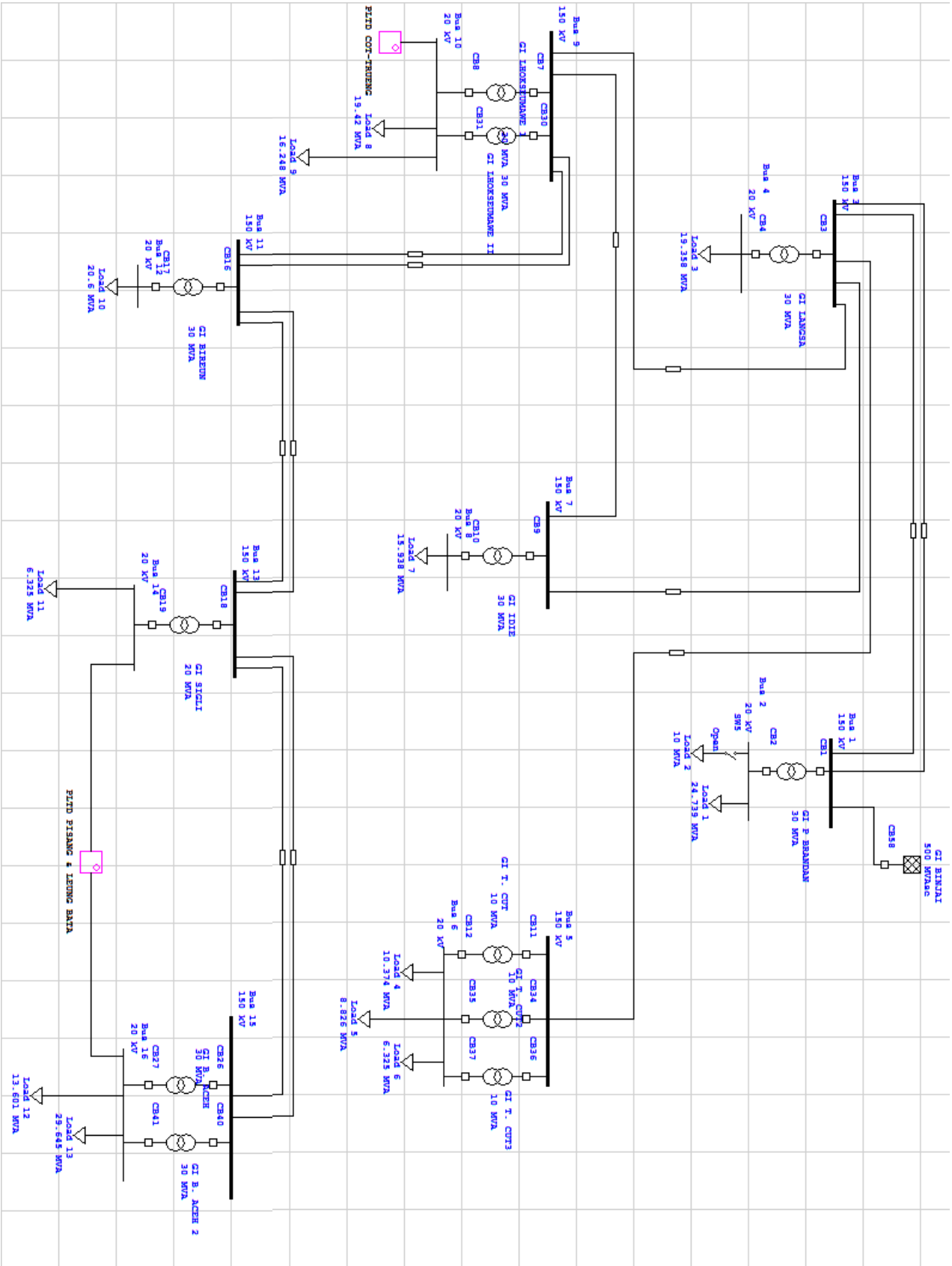
Lokasi	Merek	Kapasitas (MVA)	Vector Group	Impedansi (%)	Tegangan (kV)	Impedansi (Ω)	Impedansi Dasar	Impedansi (pu)
PLTD Sewa Leung Bata	Sulzer	15	YNd1	9	20 / 6	2.4	225	0.01067
PLTD Leung Bata	Sulzer	17	YNd1	9	20 / 6	2.12	225	0.00941
PLTD P.Pisang	Sulzer	10	YNd5	8	20 / 11	3.2	225	0.01422
PLTD Ctrueng 1	Sulzer	6	YNd5	8.6	20 / 11	3.2	225	0.02548
PLTD Ctrueng 2	Sulzer	6	YNd5	8.6	20 / 11	5.73	225	0.02548

Tabel Beban Subsistem Sumbagut 150 kV Provinsi Aceh

Lokasi	Unit	Merek	Kapasitas (MVA)	Impedansi (pu)	Impedansi Nol (pu)	Imp. Sisi Sekunder (pu)	Beban Aktif (MW)	Beban Reaktif (MVar)
P. Brandan	1	PAUWEL	30	0.411	0.411	1	24	8
	2	UNINDO	10	1.233	1.233	1	STAND BY	
Langsa	1	UNINDO	30	0.41	0.41	1	18.55	5.7
Tualang Cut	1	TAKAOKA	10	1.23	1.23	1	9.9	3.1
	2	TAKAOKA	10	1.23	1.23	1	8.3	3
	3	TAKAOKA	10	1.23	1.23	4	6	2
Idie	1	ENERGOINVEST	30	0.41037	1.2311	4	15.1	5.1
Lhokseumawe	1	PAUWEL	30	0.369	1.369	4	18.3	6.5
	2	PAUWEL	30	0.36667	1.36667	4	15.1	6
Bireun	1	PAUWEL	30	0.41133	1.234	4	20.3	3.5
Sigli	1	XIAN	20	0.6195	0.6195	1	6	2
Banda Aceh	1	PAUWEL	30	0.36033	0.36033	1	13	4
	2	PAUWEL	30	0.36533	0.36533	1	28.4	8.5

Tabel Penghantar Subsistem Sumbagut 150 kV Provinsi Aceh

Gardu Induk		Jumlah Penghantar	Arus Nominal (A)	Panjang (km)	Tipe Konduktor	Impedansi (pu)		
Pengirim	Tujuan					R	X	Y
P BRANDAN	LANGSA	2	500	78.3	HAWK 1x240	0.0514147	0.1477738	0.0033945
LANGSA	TL CUT	1	400	24.1	HAWK 1x240	0.0158442	0.0455386	0.0010461
LANGSA	G IDIE	1	500	46.3	HAWK 1x240	0.030414	0.0874144	0.002008
LANGSA	LHOKSEUMAWE	1	500	186	HAWK 1x240	0.1221813	0.351168	0.0080666
G IDIE	LHOKSEUMAWE	1	500	140	HAWK 1x240	0.0919644	0.26432	0.0060716
LHOKSEUMAWE	BIRUEN	2	500	61.4	ACSR 1x240	0.0403951	0.1205307	0.0025087
BIRUEN	SIGLI	2	500	99.2	ACSR 1x240	0.0652693	0.1947502	0.0040534
SIGLI	B ACEH	2	500	90.3	ACSR 1x240	0.0594375	0.1773492	0.0036912



ID Bus dan Beban dalam Diagram Satu Garis ETAP

Bus		Beban	
ID	Keterangan	ID	Keterangan
Bus 1	GI P. Brandan HV 150 kV	Load 1	P Brandan 1
Bus 2	GI P. Brandan LV 20 kV	Load 2	P Brandan 2
Bus 3	GI Langsa HV 150 kV	Load 3	Langsa
Bus 4	GI Langsa LV 20 kV	Load 4	T Cut 1
Bus 5	GI Tualang Cut HV 150 kV	Load 5	T Cut 2
Bus 6	GI Tualang Cut LV 20 kV	Load 6	T Cut 3
Bus 7	GI Idie HV 150 kV	Load 7	G Idie
Bus 8	GI Idie LV 20 kV	Load 8	Lhokseumawe 1
Bus 9	GI Lhokseumawe HV 150 kV	Load 9	Lhokseumawe 2
Bus 10	GI Lhokseumawe LV 20 kV	Load 10	Bireun
Bus 11	GI Bireun HV 150 kV	Load 11	Sigli
Bus 12	GI Bireun LV 20 kV	Load 12	B Aceh 1
Bus 13	GI Sigli HV 150 kV	Load 13	B Aceh 2
Bus 14	GI Sigli LV 20 kV		
Bus 15	GI Banda Aceh HV 150 kV		
Bus 16	GI Banda Aceh LV 20 kV		
Bus 17 DG	PLTD Cot Troeng HV 20 kV		
Bus 18 DG	PLTD Cot Troeng LV 11 kV		
Bus 19 DG	PLTD Pisang HV 20 kV		
Bus 20 DG	PLTD Pisang LV 11 kV		
Bus 21 DG	PLTD Lueng Bata MAIN 20 kV		
Bus 22 DG	PLTD Lueng Bata HV 20 kV		
Bus 23 DG	PLTD Lueng Bata LV 6 kV		
Bus 24 DG	PLTD Sewa Lueng Bata HV 20 kV		
Bus 25 DG	PLTD Sewa Lueng Bata LV 6 kV		

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Bus Input Data

Bus			Initial Voltage		Load									
ID	kV	Sub-sys	% Mag.	Ang.	Constant kVA		Constant Z		Constant I		Generic			
					MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar		
Bus 1	150.000	1	100.0	0.0										
Bus 2	20.000	1	100.0	0.0			23.999	6.004						
Bus 3	150.000	1	100.0	0.0										
Bus 4	20.000	1	100.0	0.0			18.500	5.698						
Bus 5	150.000	1	100.0	0.0										
Bus 6	20.000	1	100.0	0.0			24.201	8.099						
Bus 7	150.000	1	100.0	0.0										
Bus 8	20.000	1	100.0	0.0			15.100	5.101						
Bus 9	150.000	1	100.0	0.0										
Bus 10	20.000	1	100.0	0.0			33.399	12.502						
Bus 11	150.000	1	100.0	0.0										
Bus 12	20.000	1	100.0	0.0			20.301	3.495						
Bus 13	150.000	1	100.0	0.0										
Bus 14	20.000	1	100.0	0.0			6.001	2.000						
Bus 15	150.000	1	100.0	0.0										
Bus 16	20.000	1	100.0	0.0			41.400	12.500						
Bus 17 DG	20.000	1	100.0	0.0										
Bus 18 DG	11.000	1	100.0	0.0										
Bus 19 DG	20.000	1	100.0	0.0										
Bus 20 DG	11.000	1	100.0	0.0										
Bus 21 DG	20.000	1	100.0	0.0										
Bus 22 DG	20.000	1	100.0	0.0										
Bus 23 DG	6.000	1	100.0	0.0										
Bus 24 DG	20.000	1	100.0	0.0										
Bus 25 DG	6.000	1	100.0	0.0										
Total Number of Buses: 25							0.000	0.000	182.901	55.400	0.000	0.000	0.000	0.000

Generation Bus				Voltage		Generation			Mvar Limits	
ID	kV	Type	Sub-sys	% Mag.	Angle	MW	Mvar	% PF	Max	Min
Bus 1	150.000	Swing	1	100.0	0.0					
Bus 18 DG	11.000	Voltage Control	1	100.0	0.0	0.000			0.000	0.000
Bus 20 DG	11.000	Voltage Control	1	100.0	0.0	0.000			0.000	0.000

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Generation Bus				Voltage		Generation			Mvar Limits	
ID	kV	Type	Sub-sys	% Mag.	Angle	MW	Mvar	% PF	Max	Min
Bus 23 DG	6.000	Voltage Control	1	100.0	0.0	0.000			0.000	0.000
Bus 25 DG	6.000	Voltage Control	1	100.0	0.0	0.000			0.000	0.000
						0.000	0.000			

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Line/Cable Input Data

Ohms or Siemens/1000 m per Conductor (Cable) or per Phase (Line)

Line/Cable ID	Library	Size	Length		#/Phase	T (°C)	R	X	Y
			Adj. (m)	% Tol.					
BIREUN-SIGLI 1			99200.0	0.0	1	75	0.148040	0.441720	0.0000000
BIREUN-SIGLI 2			99200.0	0.0	1	75	0.148040	0.441720	0.0000000
LANGSA-BRANDAN 1			78300.0	0.0	1	75	0.147740	0.424630	0.0000000
LANGSA-BRANDAN 2			78300.0	0.0	1	75	0.147740	0.424630	0.0000000
LANGSA-IDIE			46300.0	0.0	1	75	0.147800	0.424800	0.0000000
LANGSA-LHOKSEUMAWE			186000.0	0.0	1	75	0.147800	0.424800	0.0000000
LANGSA-TUALANG CUT			24100.0	0.0	1	75	0.147920	0.425150	0.0000000
LHOKSEUMAWE-BIREUN 1			61400.0	0.0	1	75	0.148020	0.441680	0.0000000
LHOKSEUMAWE-BIREUN 2			61400.0	0.0	1	75	0.148020	0.441680	0.0000000
LHOKSEUMAWE-IDIE			140000.0	0.0	1	75	0.091960	0.264320	0.0000000
SIGLI-B.ACEH 1			90300.0	0.0	1	75	0.148100	0.441900	0.0000000
SIGLI-B.ACEH 2			90300.0	0.0	1	75	0.148100	0.441900	0.0000000

Line / Cable resistances are listed at the specified temperatures.

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2-Winding Transformer Input Data

Transformer		Rating					Z Variation			% Tap Setting		Adjusted	Phase Shift	
ID	Phase	MVA	Prim. kV	Sec. kV	% Z1	X1/R1	+ 5%	- 5%	% Tol.	Prim.	Sec.	% Z	Type	Angle
GI B. ACEH	3-Phase	30.000	150.000	20.000	12.50	45.00	0	0	0	0	0	12.5000	Dyn	0.000
GI B. ACEH 2	3-Phase	30.000	150.000	20.000	12.50	45.00	0	0	0	0	0	12.5000	Dyn	0.000
GI BIREUN	3-Phase	30.000	150.000	20.000	12.50	45.00	0	0	0	0	0	12.5000	Dyn	0.000
GI IDIE	3-Phase	30.000	150.000	20.000	12.50	45.00	0	0	0	0	0	12.5000	Dyn	0.000
GI LANGSA	3-Phase	30.000	150.000	20.000	12.50	45.00	0	0	0	0	0	12.5000	Dyn	0.000
GI LHOKSEUMAWE I	3-Phase	30.000	150.000	20.000	12.50	45.00	0	0	0	0	0	12.5000	Dyn	0.000
GI LHOKSEUMAWE II	3-Phase	30.000	150.000	20.000	12.50	45.00	0	0	0	0	0	12.5000	Dyn	0.000
GI P BRANDAN	3-Phase	30.000	150.000	20.000	12.50	45.00	0	0	0	0	0	12.5000	Dyn	0.000
GI SIGLI	3-Phase	20.000	150.000	20.000	10.00	20.00	0	0	0	0	0	10.0000	Dyn	0.000
GI T. CUT	3-Phase	10.000	150.000	20.000	8.35	13.00	0	0	0	0	0	8.3500	Dyn	0.000
GI T. CUT2	3-Phase	10.000	150.000	20.000	8.35	13.00	0	0	0	0	0	8.3500	Dyn	0.000
GI T. CUT3	3-Phase	10.000	150.000	20.000	8.35	13.00	0	0	0	0	0	8.3500	Dyn	0.000
T LEUNG BATA	3-Phase	17.000	6.000	20.000	9.00	20.00	0	0	0	0	0	9.0000	Dyn	0.000
T PISANG	3-Phase	10.000	11.000	20.000	8.00	13.00	0	0	0	0	0	8.0000	Dyn	0.000
T SEWA LEUNG BATA	3-Phase	15.000	6.000	20.000	9.00	20.00	0	0	0	0	0	9.0000	Dyn	0.000
T1	3-Phase	6.000	11.000	20.000	8.60	8.50	0	0	0	0	0	8.6000	Dyn	0.000
T4	3-Phase	6.000	11.000	20.000	8.60	8.50	0	0	0	0	0	8.6000	Dyn	0.000

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LOAD FLOW REPORT

Bus		Voltage		Generation		Load		Load Flow					XFMR	
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap	
* Bus 1	150.000	100.000	0.0	137.838	77.727	0	0	Bus 3	57.626	34.848	259.2	85.6		
								Bus 3	57.626	34.848	259.2	85.6		
								Bus 2	22.586	8.031	92.3	94.2		
Bus 2	20.000	96.896	-5.5	0	0	22.533	5.637	Bus 1	-22.533	-5.637	692.0	97.0		
Bus 3	150.000	92.132	-4.2	0	0	0	0	Bus 1	-55.294	-28.162	259.2	89.1		
								Bus 1	-55.294	-28.162	259.2	89.1		
								Bus 7	47.652	26.161	227.1	87.7		
								Bus 9	28.796	16.298	138.2	87.0		
								Bus 5	19.261	8.035	87.2	92.3		
								Bus 4	14.879	5.827	66.8	93.1		
Bus 4	20.000	89.596	-8.5	0	0	14.851	4.574	Bus 3	-14.851	-4.574	500.7	95.6		
Bus 5	150.000	91.407	-4.7	0	0	0	0	Bus 3	-19.180	-7.806	87.2	92.6		
								Bus 6	6.393	2.602	29.1	92.6		
								Bus 6	6.393	2.602	29.1	92.6		
								Bus 6	6.393	2.602	29.1	92.6		
Bus 6	20.000	88.769	-8.3	0	0	19.070	6.382	Bus 5	-6.357	-2.127	218.0	94.8		
								Bus 5	-6.357	-2.127	218.0	94.8		
								Bus 5	-6.357	-2.127	218.0	94.8		
Bus 7	150.000	88.152	-6.6	0	0	0	0	Bus 3	-46.593	-23.126	227.1	89.6		
								Bus 9	35.398	18.566	174.5	88.6		
								Bus 8	11.196	4.560	52.8	92.6		
Bus 8	20.000	86.040	-10.1	0	0	11.178	3.776	Bus 7	-11.178	-3.776	395.9	94.7		
Bus 9	150.000	82.566	-10.3	0	0	0	0	Bus 3	-27.220	-11.798	138.3	91.8		
								Bus 11	19.969	8.629	101.4	91.8		
								Bus 11	19.969	8.629	101.4	91.8		
								Bus 7	-34.221	-15.198	174.6	91.4		
								Bus 10	10.752	4.869	55.0	91.1		
								Bus 10	10.752	4.869	55.0	91.1		
Bus 10	20.000	80.169	-14.2	0	0	21.466	8.035	Bus 9	-10.733	-4.018	412.7	93.7		
								Bus 9	-10.733	-4.018	412.7	93.7		
								Bus 17 DG	0.000	0.000	0.0	-75.6		
Bus 11	150.000	80.368	-12.1	0	0	0	0	Bus 13	13.374	6.166	70.5	90.8		
								Bus 13	13.374	6.166	70.5	90.8		
								Bus 9	-19.688	-7.800	101.4	93.0		
								Bus 9	-19.688	-7.800	101.4	93.0		
								Bus 12	12.630	3.268	62.5	96.8		

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Bus		Voltage		Generation		Load		Load Flow					XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
Bus 12	20.000	78.798	-16.8	0	0	12.605	2.170	Bus 11	-12.605	-2.170	468.6	98.6	
Bus 13	150.000	77.834	-14.1	0	0	0	0	Bus 11	-13.155	-5.525	70.6	92.2	
								Bus 11	-13.155	-5.525	70.6	92.2	
								Bus 15	11.377	4.874	61.2	91.9	
								Bus 15	11.377	4.874	61.2	91.9	
								Bus 14	3.556	1.301	18.7	93.9	
Bus 14	20.000	76.917	-15.8	0	0	3.550	1.183	Bus 13	-3.550	-1.183	140.4	94.9	
								Bus 19 DG	0.000	0.000	0.0	-70.4	
Bus 15	150.000	75.886	-15.8	0	0	0	0	Bus 13	-11.226	-4.437	61.2	93.0	
								Bus 13	-11.226	-4.437	61.2	93.0	
								Bus 16	11.226	4.437	61.2	93.0	
								Bus 16	11.226	4.437	61.2	93.0	
Bus 16	20.000	73.567	-20.5	0	0	22.406	6.765	Bus 15	-11.203	-3.383	459.2	95.7	
								Bus 15	-11.203	-3.383	459.2	95.7	
								Bus 21 DG	0.000	0.000	0.0	-50.4	
Bus 17 DG	20.000	80.169	-14.2	0	0	0	0	Bus 18 DG	0.000	0.000	0.0	-75.9	
								Bus 18 DG	0.000	0.000	0.0	-75.9	
								Bus 10	0.000	0.000	0.0	-75.6	
Bus 18 DG	11.000	80.169	-14.2	0	0	0	0	Bus 17 DG	0.000	0.000	0.0	-75.9	
								Bus 17 DG	0.000	0.000	0.0	-75.9	
Bus 19 DG	20.000	76.917	-15.8	0	0	0	0	Bus 20 DG	0.000	0.000	0.0	-79.0	
								Bus 14	0.000	0.000	0.0	-70.4	
Bus 20 DG	11.000	76.917	-15.8	0	0	0	0	Bus 19 DG	0.000	0.000	0.0	-79.0	
Bus 21 DG	20.000	73.567	-20.5	0	0	0	0	Bus 22 DG	0.000	0.000	0.0	-82.3	
								Bus 24 DG	0.000	0.000	0.0	-82.3	
								Bus 16	0.000	0.000	0.0	-50.4	
Bus 22 DG	20.000	73.567	-20.5	0	0	0	0	Bus 23 DG	0.000	0.000	0.0	-82.3	
								Bus 21 DG	0.000	0.000	0.0	-82.3	
Bus 23 DG	6.000	73.567	-20.5	0	0	0	0	Bus 22 DG	0.000	0.000	0.0	-82.3	
Bus 24 DG	20.000	73.567	-20.5	0	0	0	0	Bus 25 DG	0.000	0.000	0.0	-82.3	
								Bus 21 DG	0.000	0.000	0.0	-82.3	
Bus 25 DG	6.000	73.567	-20.5	0	0	0	0	Bus 24 DG	0.000	0.000	0.0	-82.3	

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Bus		Voltage		Generation		Load		Load Flow					XFMR	
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap	
* Bus 1	150.000	100.000	0.0	50.576	19.575	0	0	Bus 3	21.747	8.789	90.3	92.7		
								Bus 3	21.747	8.789	90.3	92.7		
								Bus 2	7.082	1.996	28.3	96.2		
Bus 2	20.000	99.146	-1.7	0	0	7.077	1.771	Bus 1	-7.077	-1.771	212.4	97.0		
Bus 3	150.000	97.621	-1.6	0	0	0.001	0.000	Bus 1	-21.464	-7.993	90.3	93.7		
								Bus 1	-21.464	-7.993	90.3	93.7		
								Bus 7	19.149	7.313	80.8	93.4		
								Bus 9	11.776	4.499	49.7	93.4		
								Bus 5	6.792	2.438	28.5	94.1		
								Bus 4	5.210	1.735	21.6	94.9		
Bus 4	20.000	96.856	-2.9	0	0	5.207	1.604	Bus 3	-5.207	-1.604	162.4	95.6		
Bus 5	150.000	97.397	-1.8	0	0	0	0	Bus 3	-6.783	-2.418	28.5	94.2		
								Bus 6	2.261	0.806	9.5	94.2		
								Bus 6	2.261	0.806	9.5	94.2		
								Bus 6	2.261	0.806	9.5	94.2		
Bus 6	20.000	96.578	-2.9	0	0	6.772	2.266	Bus 5	-2.257	-0.755	71.1	94.8		
								Bus 5	-2.257	-0.755	71.1	94.8		
								Bus 5	-2.257	-0.755	71.1	94.8		
Bus 7	150.000	96.380	-2.5	0	0	0	0	Bus 3	-19.015	-6.937	80.8	93.9		
								Bus 9	14.863	5.448	63.2	93.9		
								Bus 8	4.152	1.489	17.6	94.1		
Bus 8	20.000	95.714	-3.6	0	0	4.150	1.402	Bus 7	-4.150	-1.402	132.1	94.7		
Bus 9	150.000	94.593	-3.8	0	0	0.001	0.000	Bus 3	-11.572	-3.951	49.8	94.6		
								Bus 11	8.730	2.731	37.2	95.4		
								Bus 11	8.730	2.731	37.2	95.4		
								Bus 7	-14.708	-5.022	63.2	94.6		
								Bus 10	4.410	1.755	19.3	92.9		
								Bus 10	4.410	1.755	19.3	92.9		
Bus 10	20.000	93.797	-5.0	0	0	8.815	3.300	Bus 9	-4.407	-1.650	144.8	93.7		
								Bus 9	-4.407	-1.650	144.8	93.7		
								Bus 17 DG	0.000	0.000	0.0	94.0		
Bus 11	150.000	93.876	-4.5	0	0	0	0	Bus 13	6.035	2.103	26.2	94.4		
								Bus 13	6.035	2.103	26.2	94.4		
								Bus 9	-8.692	-2.630	37.2	95.7		
								Bus 9	-8.692	-2.630	37.2	95.7		
								Bus 12	5.314	1.053	22.2	98.1		

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Bus		Voltage		Generation		Load		Load Flow					XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
Bus 12	20.000	93.386	-5.9	0	0	5.311	0.914	Bus 11	-5.311	-0.914	166.6	98.6	
Bus 13	150.000	93.025	-5.1	0	0	0	0	Bus 11	-6.004	-2.031	26.2	94.7	
								Bus 11	-6.004	-2.031	26.2	94.7	
								Bus 15	5.230	1.765	22.8	94.7	
								Bus 15	5.230	1.765	22.8	94.7	
								Bus 14	1.548	0.531	6.8	94.6	
Bus 14	20.000	92.702	-5.6	0	0	1.547	0.516	Bus 13	-1.547	-0.516	50.8	94.9	
								Bus 19 DG	0.000	0.000	0.0	95.1	
Bus 15	150.000	92.357	-5.7	0	0	0	0	Bus 13	-5.209	-1.719	22.9	95.0	
								Bus 13	-5.209	-1.719	22.9	95.0	
								Bus 16	5.209	1.719	22.9	95.0	
								Bus 16	5.209	1.719	22.9	95.0	
Bus 16	20.000	91.560	-7.1	0	0	10.412	3.144	Bus 15	-5.206	-1.572	171.5	95.7	
								Bus 15	-5.206	-1.572	171.5	95.7	
								Bus 21 DG	0.000	0.000	0.0	96.6	
Bus 17 DG	20.000	93.797	-5.0	0	0	0	0	Bus 18 DG	0.000	0.000	0.0	96.6	
								Bus 18 DG	0.000	0.000	0.0	96.6	
								Bus 10	0.000	0.000	0.0	94.0	
Bus 18 DG	11.000	93.797	-5.0	0	0	0	0	Bus 17 DG	0.000	0.000	0.0	96.6	
								Bus 17 DG	0.000	0.000	0.0	96.6	
Bus 19 DG	20.000	92.702	-5.6	0	0	0	0	Bus 20 DG	0.000	0.000	0.0	95.1	
								Bus 14	0.000	0.000	0.0	95.1	
Bus 20 DG	11.000	92.702	-5.6	0	0	0	0	Bus 19 DG	0.000	0.000	0.0	95.1	
Bus 21 DG	20.000	91.560	-7.1	0	0	0	0	Bus 22 DG	0.000	0.000	0.0	93.6	
								Bus 24 DG	0.000	0.000	0.0	93.6	
								Bus 16	0.000	0.000	0.0	96.6	
Bus 22 DG	20.000	91.560	-7.1	0	0	0	0	Bus 23 DG	0.000	0.000	0.0	93.6	
								Bus 21 DG	0.000	0.000	0.0	93.6	
Bus 23 DG	6.000	91.560	-7.1	0	0	0	0	Bus 22 DG	0.000	0.000	0.0	93.6	
Bus 24 DG	20.000	91.560	-7.1	0	0	0	0	Bus 25 DG	0.000	0.000	0.0	93.6	
								Bus 21 DG	0.000	0.000	0.0	93.6	
Bus 25 DG	6.000	91.560	-7.1					Bus 24 DG	0.000	0.000	0.0	93.6	

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ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap	
* Bus 1	150.000	100.000	0.0	53.252	20.941	0	0	Bus 3	23.085	9.473	96.0	92.5		
								Bus 3	23.085	9.473	96.0	92.5		
								Bus 2	7.082	1.996	28.3	96.2		
Bus 2	20.000	99.146	-1.7	0	0	7.077	1.771	Bus 1	-7.077	-1.771	212.4	97.0		
Bus 3	150.000	97.456	-1.7	0	0	0.001	0.000	Bus 1	-22.765	-8.569	96.1	93.6		
								Bus 1	-22.765	-8.569	96.1	93.6		
								Bus 7	20.380	7.888	86.3	93.3		
								Bus 9	12.567	4.874	53.2	93.2		
								Bus 5	7.120	2.557	29.9	94.1		
								Bus 4	5.462	1.819	22.7	94.9	-2.500	
Bus 4	20.000	99.172	-3.0	0	0	5.459	1.681	Bus 3	-5.459	-1.681	166.3	95.6		
Bus 5	150.000	97.221	-1.9	0	0	0	0	Bus 3	-7.110	-2.534	29.9	94.2		
								Bus 6	2.370	0.845	10.0	94.2	-2.500	
								Bus 6	2.370	0.845	10.0	94.2	-2.500	
								Bus 6	2.370	0.845	10.0	94.2	-2.500	
Bus 6	20.000	98.875	-3.0	0	0	7.098	2.375	Bus 5	-2.366	-0.792	72.8	94.8		
								Bus 5	-2.366	-0.792	72.8	94.8		
								Bus 5	-2.366	-0.792	72.8	94.8		
Bus 7	150.000	96.125	-2.7	0	0	0	0	Bus 3	-20.227	-7.458	86.3	93.8		
								Bus 9	15.882	5.899	67.8	93.7		
								Bus 8	4.344	1.558	18.5	94.1	-2.500	
Bus 8	20.000	97.908	-3.7	0	0	4.342	1.467	Bus 7	-4.342	-1.467	135.1	94.7		
Bus 9	150.000	94.199	-4.1	0	0	0.001	0.000	Bus 3	-12.333	-4.239	53.3	94.6		
								Bus 11	9.418	2.992	40.4	95.3		
								Bus 11	9.418	2.992	40.4	95.3		
								Bus 7	-15.704	-5.405	67.9	94.6		
								Bus 10	4.600	1.830	20.2	92.9	-2.500	
								Bus 10	4.600	1.830	20.2	92.9	-2.500	
Bus 10	20.000	95.801	-5.3	0	0	9.196	3.442	Bus 9	-4.598	-1.721	147.9	93.7		
								Bus 9	-4.598	-1.721	147.9	93.7		
								Bus 17 DG	0.000	0.000	0.0	95.9		
Bus 11	150.000	93.417	-4.8	0	0	0	0	Bus 13	6.605	2.322	28.8	94.3		
								Bus 13	6.605	2.322	28.8	94.3		
								Bus 9	-9.373	-2.870	40.4	95.6		
								Bus 9	-9.373	-2.870	40.4	95.6		
								Bus 12	5.536	1.097	23.3	98.1	-2.500	

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Bus		Voltage		Generation		Load		Load Flow					XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
Bus 12	20.000	95.312	-6.2	0	0	5.533	0.953	Bus 11	-5.533	-0.953	170.0	98.6	
Bus 13	150.000	92.478	-5.5	0	0	0	0	Bus 11	-6.568	-2.230	28.9	94.7	
								Bus 11	-6.568	-2.230	28.9	94.7	
								Bus 15	5.721	1.939	25.1	94.7	
								Bus 15	5.721	1.939	25.1	94.7	
								Bus 14	1.695	0.581	7.5	94.6	-5.000
Bus 14	20.000	97.007	-6.0	0	0	1.694	0.565	Bus 13	-1.694	-0.565	53.1	94.9	
								Bus 19 DG	0.000	0.000	0.0	96.9	
Bus 15	150.000	91.742	-6.1	0	0	0	0	Bus 13	-5.695	-1.879	25.2	95.0	
								Bus 13	-5.695	-1.879	25.2	95.0	
								Bus 16	5.695	1.879	25.2	95.0	-5.000
								Bus 16	5.695	1.879	25.2	95.0	-5.000
Bus 16	20.000	95.736	-7.6	0	0	11.383	3.437	Bus 15	-5.692	-1.719	179.3	95.7	
								Bus 15	-5.692	-1.719	179.3	95.7	
								Bus 21 DG	0.000	0.000	0.0	98.1	
Bus 17 DG	20.000	95.801	-5.3	0	0	0	0	Bus 18 DG	0.000	0.000	0.0	98.0	
								Bus 18 DG	0.000	0.000	0.0	98.0	
								Bus 10	0.000	0.000	0.0	95.9	
Bus 18 DG	11.000	95.801	-5.3	0	0	0	0	Bus 17 DG	0.000	0.000	0.0	98.0	
								Bus 17 DG	0.000	0.000	0.0	98.0	
Bus 19 DG	20.000	97.007	-6.0	0	0	0	0	Bus 20 DG	0.000	0.000	0.0	96.8	
								Bus 14	0.000	0.000	0.0	96.9	
Bus 20 DG	11.000	97.007	-6.0	0	0	0	0	Bus 19 DG	0.000	0.000	0.0	96.8	
Bus 21 DG	20.000	95.736	-7.6	0	0	0	0	Bus 22 DG	0.000	0.000	0.0	95.6	
								Bus 24 DG	0.000	0.000	0.0	95.6	
								Bus 16	0.000	0.000	0.0	98.1	
Bus 22 DG	20.000	95.736	-7.6	0	0	0	0	Bus 23 DG	0.000	0.000	0.0	95.6	
								Bus 21 DG	0.000	0.000	0.0	95.6	
Bus 23 DG	6.000	95.736	-7.6	0	0	0	0	Bus 22 DG	0.000	0.000	0.0	95.6	
Bus 24 DG	20.000	95.736	-7.6	0	0	0	0	Bus 25 DG	0.000	0.000	0.0	95.6	
								Bus 21 DG	0.000	0.000	0.0	95.6	
Bus 25 DG	6.000	95.736	-7.6	0	0	0	0	Bus 24 DG	0.000	0.000	0.0	95.6	

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Static Var Compensator Input Data

SVC	Voltage Rating				Inductive Rating						Capacitive Rating					
	ID	kV	Vmax %	Vmin %	Vref %	QL Mvar	QLmax Mvar	IL Amps	ILmax Amps	BL Siemens	SLL %	Qc Mvar	Qcmax Mvar	Ic Amps	Icmax Amps	Bc Siemens
SVC4	150.000	130.00	70.00	100.00	0.000	0.000	0.0	0.0	0.000	0.00	55.000	55.000	211.7	302.4	0.005	21.00
SVC5	150.000	130.00	70.00	100.00	0.000	0.000	0.0	0.0	0.000	0.00	40.000	40.000	154.0	219.9	0.004	21.00

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Bus		Voltage		Generation		Load		Load Flow					XFMR	
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap	
* Bus 1	150.000	100.000	0.0	184.487	15.617	0	0	Bus 3	80.951	3.793	311.9	99.9		
								Bus 3	80.951	3.793	311.9	99.9		
								Bus 2	22.586	8.031	92.3	94.2		
Bus 2	20.000	96.896	-5.5	0	0	22.533	5.637	Bus 1	-22.533	-5.637	692.0	97.0		
Bus 3	150.000	96.000	-7.0	0	0	0	0	Bus 1	-77.574	5.895	311.9	-99.7		
								Bus 1	-77.574	5.895	311.9	-99.7		
								Bus 7	71.143	-14.418	291.0	-98.0		
								Bus 9	44.743	-13.461	187.3	-95.8		
								Bus 5	22.269	9.434	97.0	92.1		
								Bus 4	16.994	6.655	73.2	93.1	-2.500	
Bus 4	20.000	95.752	-11.3	0	0	16.962	5.224	Bus 3	-16.962	-5.224	535.1	95.6		
Bus 5	150.000	95.189	-7.6	0	0	0	0	Bus 3	-22.169	-9.149	97.0	92.4		
								Bus 6	7.255	2.084	30.5	96.1		
								Bus 6	7.659	4.982	36.9	83.8	-2.500	
								Bus 6	7.255	2.084	30.5	96.1		
Bus 6	20.000	95.413	-11.4	0	0	22.032	7.373	Bus 5	-7.214	-1.560	223.3	97.7	2.500	
								Bus 5	-7.603	-4.253	263.6	87.3	2.500	
								Bus 5	-7.214	-1.560	223.3	97.7	2.500	
Bus 7	150.000	95.311	-11.2	0	0	0	0	Bus 3	-69.404	19.406	291.0	-96.3		
								Bus 9	55.637	-25.013	246.3	-91.2		
								Bus 8	13.768	5.607	60.0	92.6	-2.500	
Bus 8	20.000	95.413	-14.7	0	0	13.746	4.644	Bus 7	-13.746	-4.644	439.0	94.7		
Bus 9	150.000	96.924	-17.8	0	0	-0.001	-57.514	Bus 3	-41.849	21.740	187.3	-88.7		
								Bus 11	32.414	-4.906	130.2	-98.9		
								Bus 11	32.414	-4.906	130.2	-98.9		
								Bus 7	-53.293	31.731	246.3	-85.9		
								Bus 10	15.032	9.625	70.9	84.2		
								Bus 10	15.283	4.230	63.0	96.4		
Bus 10	20.000	95.184	-21.7	0	0	30.259	11.327	Bus 9	-15.001	-8.212	518.7	87.7	2.500	
								Bus 9	-15.258	-3.115	472.3	98.0		
								Bus 17 DG	0.000	0.000	0.0	56.1		
Bus 11	150.000	96.275	-20.3	0	0	0	0	Bus 13	22.452	-8.773	96.4	-93.1		
								Bus 13	22.452	-8.773	96.4	-93.1		
								Bus 9	-31.952	6.273	130.2	-98.1		
								Bus 9	-31.952	6.273	130.2	-98.1		
								Bus 12	18.999	4.999	78.5	96.7		

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Bus		Voltage		Generation		Load		Load Flow					XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
Bus 12	20.000	96.642	-25.3	0	0	18.961	3.265	Bus 11	-18.961	-3.265	574.7	98.5	2.500
Bus 13	150.000	96.662	-23.4	0	0	0	0	Bus 11	-22.043	9.974	96.3	-91.1	
								Bus 11	-22.043	9.974	96.3	-91.1	
								Bus 15	19.301	-10.978	88.4	-86.9	
								Bus 15	19.301	-10.978	88.4	-86.9	
								Bus 14	5.485	2.007	23.3	93.9	
Bus 14	20.000	95.524	-25.0	0	0	5.475	1.825	Bus 13	-5.475	-1.825	174.4	94.9	
								Bus 19 DG	0.000	0.000	0.0	98.2	
Bus 15	150.000	97.579	-25.8	0	0	0.000	-38.958	Bus 13	-18.988	11.896	88.4	-84.7	
								Bus 13	-18.988	11.896	88.4	-84.7	
								Bus 16	18.816	10.309	84.6	87.7	
								Bus 16	19.160	4.855	78.0	96.9	
Bus 16	20.000	95.671	-30.7	0	0	37.893	11.441	Bus 15	-18.771	-8.295	619.2	91.5	2.500
								Bus 15	-19.122	-3.146	584.7	98.7	
								Bus 21 DG	0.000	0.000	0.0	72.3	
Bus 17 DG	20.000	95.184	-21.7	0	0	0	0	Bus 18 DG	0.000	0.000	0.0	83.6	
								Bus 18 DG	0.000	0.000	0.0	83.6	
								Bus 10	0.000	0.000	0.0	56.1	
Bus 18 DG	11.000	95.184	-21.7	0	0	0	0	Bus 17 DG	0.000	0.000	0.0	83.6	
								Bus 17 DG	0.000	0.000	0.0	83.6	
Bus 19 DG	20.000	95.524	-25.0	0	0	0	0	Bus 20 DG	0.000	0.000	0.0	92.8	
								Bus 14	0.000	0.000	0.0	98.2	
Bus 20 DG	11.000	95.524	-25.0	0	0	0	0	Bus 19 DG	0.000	0.000	0.0	92.8	
Bus 21 DG	20.000	95.671	-30.7	0	0	0	0	Bus 22 DG	0.000	0.000	0.0	-99.9	
								Bus 24 DG	0.000	0.000	0.0	-99.9	
								Bus 16	0.000	0.000	0.0	72.3	
Bus 22 DG	20.000	95.671	-30.7	0	0	0	0	Bus 23 DG	0.000	0.000	0.0	-99.9	
								Bus 21 DG	0.000	0.000	0.0	-99.9	
Bus 23 DG	6.000	95.671	-30.7	0	0	0	0	Bus 22 DG	0.000	0.000	0.0	-99.9	
Bus 24 DG	20.000	95.671	-30.7	0	0	0	0	Bus 25 DG	0.000	0.000	0.0	-99.9	
								Bus 21 DG	0.000	0.000	0.0	-99.9	
Bus 25 DG	6.000	95.671	-30.7	0	0	0	0	Bus 24 DG	0.000	0.000	0.0	-99.9	

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Static Var Compensator Input Data

SVC ID	Voltage Rating				Inductive Rating						Capacitive Rating					
	kV	Vmax %	Vmin %	Vref %	QL Mvar	QLmax Mvar	IL Amps	ILmax Amps	BL Siemens	SLL %	Qc Mvar	Qcmax Mvar	Ic Amps	Icmax Amps	Bc Siemens	SLC %
SVC9	150.000	130.00	70.00	100.00	30.000	30.000	115.5	88.8	0.001	39.00	55.000	55.000	211.7	302.4	0.005	21.00
SVC15	150.000	130.00	70.00	100.00	30.000	30.000	115.5	88.8	0.001	39.00	40.000	40.000	154.0	219.9	0.004	21.00

Project:
 Location:
 Contract:
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 Filename: 30% SVC+TAP FINAL

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LOAD FLOW REPORT

Bus		Voltage		Generation		Load		Load Flow					XFMR	
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap	
* Bus 1	150.000	100.000	0.0	57.271	-22.981	0	0	Bus 3	25.095	-12.488	107.9	-89.5		
								Bus 3	25.095	-12.488	107.9	-89.5		
								Bus 2	7.082	1.996	28.3	96.2		
Bus 2	20.000	99.146	-1.7	0	0	7.077	1.771	Bus 1	-7.077	-1.771	212.4	97.0		
Bus 3	150.000	100.648	-2.5	0	0	0.001	0.000	Bus 1	-24.691	13.632	107.9	-87.5		
								Bus 1	-24.691	13.632	107.9	-87.5		
								Bus 7	22.561	-17.976	110.3	-78.2		
								Bus 9	14.062	-13.723	75.1	-71.6		
								Bus 5	7.220	2.591	29.3	94.1		
								Bus 4	5.538	1.845	22.3	94.9		
Bus 4	20.000	99.860	-3.8	0	0	5.535	1.705	Bus 3	-5.535	-1.705	167.4	95.6		
Bus 5	150.000	100.417	-2.6	0	0	0	0	Bus 3	-7.211	-2.570	29.3	94.2		
								Bus 6	2.404	0.857	9.8	94.2		
								Bus 6	2.404	0.857	9.8	94.2		
								Bus 6	2.404	0.857	9.8	94.2		
Bus 6	20.000	99.573	-3.8	0	0	7.198	2.409	Bus 5	-2.399	-0.803	73.4	94.8		
								Bus 5	-2.399	-0.803	73.4	94.8		
								Bus 5	-2.399	-0.803	73.4	94.8		
Bus 7	150.000	101.558	-3.9	0	0	0	0	Bus 3	-22.311	18.684	110.3	-76.7		
								Bus 9	17.701	-20.336	102.2	-65.7		
								Bus 8	4.610	1.653	18.6	94.1		
Bus 8	20.000	100.855	-5.0	0	0	4.608	1.557	Bus 7	-4.608	-1.557	139.2	94.7		
Bus 9	150.000	103.930	-6.1	0	0	0.001	-47.027	Bus 3	-13.597	15.017	75.0	-67.1		
								Bus 11	10.382	3.258	40.3	95.4		
								Bus 11	10.382	3.258	40.3	95.4		
								Bus 7	-17.298	21.475	102.1	-62.7		
								Bus 10	5.065	2.009	20.2	93.0		
								Bus 10	5.065	2.009	20.2	93.0		
Bus 10	20.000	100.521	-7.2	0	0	10.124	3.790	Bus 9	-5.062	-1.895	155.2	93.7	-2.500	
								Bus 9	-5.062	-1.895	155.2	93.7	-2.500	
								Bus 17 DG	0.000	0.000	0.0	-67.3		
Bus 11	150.000	103.153	-6.7	0	0	0	0	Bus 13	7.286	2.539	28.8	94.4		
								Bus 13	7.286	2.539	28.8	94.4		
								Bus 9	-10.338	-3.140	40.3	95.7		
								Bus 9	-10.338	-3.140	40.3	95.7		
								Bus 12	6.103	1.202	23.2	98.1		

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Bus		Voltage		Generation		Load		Load Flow				XFMR	
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
Bus 12	20.000	100.076	-8.1	0	0	6.100	1.050	Bus 11	-6.100	-1.050	178.5	98.5	-2.500
Bus 13	150.000	102.218	-7.4	0	0	0	0	Bus 11	-7.250	-2.452	28.8	94.7	
								Bus 11	-7.250	-2.452	28.8	94.7	
								Bus 15	6.315	2.131	25.1	94.7	
								Bus 15	6.315	2.131	25.1	94.7	
								Bus 14	1.869	0.641	7.4	94.6	
Bus 14	20.000	101.863	-7.9	0	0	1.868	0.623	Bus 13	-1.868	-0.623	55.8	94.9	
								Bus 19 DG	0.000	0.000	0.0	99.3	
Bus 15	150.000	101.484	-7.9	0	0	0	0	Bus 13	-6.290	-2.075	25.1	95.0	
								Bus 13	-6.290	-2.075	25.1	95.0	
								Bus 16	6.290	2.075	25.1	95.0	
								Bus 16	6.290	2.075	25.1	95.0	
Bus 16	20.000	100.607	-9.4	0	0	12.571	3.796	Bus 15	-6.286	-1.898	188.4	95.7	
								Bus 15	-6.286	-1.898	188.4	95.7	
								Bus 21 DG	0.000	0.000	0.0	97.1	
Bus 17 DG	20.000	100.521	-7.2	0	0	0	0	Bus 18 DG	0.000	0.000	0.0	-51.2	
								Bus 18 DG	0.000	0.000	0.0	-51.2	
								Bus 10	0.000	0.000	0.0	-67.3	
Bus 18 DG	11.000	100.521	-7.2	0	0	0	0	Bus 17 DG	0.000	0.000	0.0	-51.2	
								Bus 17 DG	0.000	0.000	0.0	-51.2	
Bus 19 DG	20.000	101.863	-7.9	0	0	0	0	Bus 20 DG	0.000	0.000	0.0	-73.3	
								Bus 14	0.000	0.000	0.0	99.3	
Bus 20 DG	11.000	101.863	-7.9	0	0	0	0	Bus 19 DG	0.000	0.000	0.0	-73.3	
Bus 21 DG	20.000	100.607	-9.4	0	0	0	0	Bus 22 DG	0.000	0.000	0.0	-80.7	
								Bus 24 DG	0.000	0.000	0.0	-80.7	
								Bus 16	0.000	0.000	0.0	97.1	
Bus 22 DG	20.000	100.607	-9.4	0	0	0	0	Bus 23 DG	0.000	0.000	0.0	-80.7	
								Bus 21 DG	0.000	0.000	0.0	-80.7	
Bus 23 DG	6.000	100.607	-9.4	0	0	0	0	Bus 22 DG	0.000	0.000	0.0	-80.7	
Bus 24 DG	20.000	100.607	-9.4	0	0	0	0	Bus 25 DG	0.000	0.000	0.0	-80.7	
								Bus 21 DG	0.000	0.000	0.0	-80.7	
Bus 25 DG	6.000	100.607	-9.4	0	0	0	0	Bus 24 DG	0.000	0.000	0.0	-80.7	

* 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