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Lampiran 1 Data Tegangan dan Arus Saluran Transmisi Sistem Sulbagsel

N0	RUTE TRANSMISI	CC	TEG (KV)	PANJANG		KONDUKTOR	
				(kms)	(km)	JENIS	KHA (kA)
1	Tello - Tello lama	2	150	12.8	6.4	TACSR 330	1,129
2	Tello – Sungguminasa	2	150	21.86	10.93	ACSR 2x435	1,636
3	Sungguminasa-Tallasa	2	150	52.86	26.43	ACSR 2x435	1,636
4	Tello – Panakukang	2	150	8.4	4.2	BRUSSLES 415	1,152
5	Sungguminasa - Tanjung Bunga	2	150	23.8	11.9	ACSR 2x435	1,836
6	Sungguminasa-Bollangi	2	150	10.7	5.35	ACSR 2x435	1,836
7	Sungguminasa-Lanna	2	150	45.26	22.63	ACSR 2x250	1,200
8	Tello Lama - GIS Bontoala (SKTT)	2	150	9	4.5	XLPE/Cu 400	0,600
9	Tanjung Bunga - GIS Bontoala (SKTT)	2	150	22	11	N2XCK2Y 1x1000	1,023
10	Tello – Borongloe	1	70	12.4	6.2	ACSR 120	0,428
11	Tello Lama - Bontoala (SKTT)	2	70	8.4	4.2	XLPE/Cu 325	0,553
12	Pangkep - Bosowa	1	150	20.9	10.45	ACSR 240	0,638
13	Pangkep - Kima	1	150	36.6	18.3	ACSR 240	0,638
14	Kima – Tello	1	150	7.65	3.825	ACSR 240	0,638
15	Tello – Bosowa	1	150	20.9	10.45	ACSR 240	0,638
16	Pangkep - Tonasa III	2	70	7.4	3.7	ACSR 120	0,428
	Pangkep – Mandai	2	70	79.4	39.7	ACCC HELSINKI 160	0,792



N0	RUTE TRANSMISI	CC	TEG (KV)	PANJANG		KONDUKTOR	
				(kms)	(km)	JENIS	KHA (kA)
18	Mandai – Daya	1	70	5	2.5	ACCC HELSINKI 160	0,792
19	Daya – Tello	1	70	14.6	7.3	ACCC HELSINKI 160	0,792
20	Tello – Mandai	1	70	14	7	ACCC HELSINKI 160	0,792
21	Pangkep - Barru	2	150	20	10	ACSR 240	0,638
22	Kima - Daya Baru	2	150	32.62	16.31	UGC, XPLE 1000	0,800
23	Daya Baru – Bollangi	2	150	7.38	3.69	ACSR 450	1,836
24	Daya Baru – Maros	2	150	7.38	3.69	ACSR 450	1,836
25	Bakaru – Pinrang	1	150	58.65	29.325	ACSR 240	0,638
26	Bakaru – Polmas	1	150	50.02	25.01	ACSR 240	0,638
27	Pare Pare – Polmas	1	150	91.1	45.55	ACSR 240	0,638
28	Pinrang - Pare Pare	1	150	26.06	13.03	ACSR 240	0,638
29	Pare Pare - Suppa	2	150	15	7.5	ACSR 240	0,638
30	Pare Pare – Ballusu	2	150	89.68	44.84	ACSR 240	0,638
31	Ballusu – Pangkep	2	150	89.68	44.84	ACSR 240	0,638
32	Barru EXT - PLTB Sidrap	2	150	75	37.675	ACSR 240	0,638
33	Barru EXT – Maros	2	150	237.98	118.99	ACSR 240	0,638
	Pare Pare – Sidrap	2	150	35	17.5	ACSR 240	0,638
	Sidrap – Soppeng	2	150	106.16	53.08	ACSR 240	0,638



N0	RUTE TRANSMISI	CC	TEG (KV)	PANJANG		KONDUKTOR	
				(kms)	(km)	JENIS	KHA (kA)
36	Soppeng – Sengkang	2	150	71.16	35.58	ACSR 400	0,840
37	Siwa-Sengkang	2	150	132.17	66.085	HAWK 2x240	1,200
38	Sidrap - Makale	1	150	105.5	52.75	ACSR 433	0,918
39	Makale – Enrekang	1	150	53.44	26.72	ACSR 433	0,918
40	Sidrap – Enrekang	1	150	51.52	25.76	ACSR 433	0,918
41	Sengkang – Sidrap	2	150	124.66	62.33	ACSR 2x435	1,836
42	Sidrap - PLTB Sidrap	2	150	23.6	11.8	ACSR 2x435	1,836
43	Makale - Malea	2	150	-	-	ACSR 433	0,918
44	Makale – Rantepao	2	150	-	-	-	-
45	Bone – Bulukumba	1	150	137.2	68.6	ACSR 240	0,638
46	Bulukumba - Bantaeng Switching	2	150	7.3	3.65	ACSR 240	0,638
47	Jeneponto - Bantaeng New	1	150	23.4	11.7	ACSR 240	0,638
48	Punagaya – Jeneponto	2	150	62.14	31.07	ACSR 240	0,638
49	Tallasa – Punagaya	2	150	27	13.5	ACSR 2x435	1,836
50	Bulukumba – Tanete	1	150	-	-	ACSR 240	0,638
51	Sinjai - Tanete	1	150	-	-	ACSR 240	0,638
52	Punagaya - Tanjung Bunga	2	150	121.6	60.8	ACSR 2x450	1,836
	Punagaya - PLTU Jeneponto	2	150	1.28	0.64	ACSR 2x435	1,836



N0	RUTE TRANSMISI	CC	TEG (KV)	PANJANG		KONDUKTOR	
				(kms)	(km)	JENIS	KHA (kA)
54	Punagaya - PLTU Jeneponto Expansi	2	150	1.28	0.64	ACSR 2x435	1,836
55	Jeneponto - PLTB Tolo	2	150	-	-	ACSR 240	0,638
56	Bantaeng Switch - Bantaeng Smelter	2	150	-	-	ACSR 240	0,638
57	Jeneponto - Bantaeng Switch	1	150	38.69	19.345	ACSR 240	0,638
58	Bantaeng Switch - Bantaeng New	1	150	15.51	7.755	ACSR 240	0,638
59	Bone - Sinjai	1	150	74	37.004	ACSR 240	0,638
60	Soppeng - Bone	2	150	87	43.322	ACSR 240	0,638
61	Soppeng – Bengo	2	150	-	-	-	-
62	Majene – Polmas	2	150	100.32	50.16	ACSR 240	0,638
63	Majene – Mamuju	2	150	228.6	114.3	ACSR 240	0,638
64	Mamuju - Mamuju Baru	2	150	75.4	37.7	ACSR 2x240	1,200
65	Mamuju Baru - PLTU Mamuju	2	150	14.62	7.31	ACSR 2x240	1,200
66	Mamuju Baru – Topoyo	2	150	110.28	55.14	ACSR 2x240	1,200
67	Topoyo – Pasangkayu	2	150	1252.78	626.39	ACSR 240	0,638
68	Pasangkayu – Silae	2	150	175.92	87.96	ACSR 240	0,638
	Silae - Sidera	2	150	57.78	28.89	ACSR 240	0,638
	Sidera - Poso	2	150	285.14	142.57	HAWK 2x240	1,200
	Sidera - Tallise	2	150	-	-	ACSR 240	0,638



N0	RUTE TRANSMISI	CC	TEG (KV)	PANJANG		KONDUKTOR	
				(kms)	(km)	JENIS	KHA (kA)
72	Sidera 70 KV - Tallise 70 KV	1	70	40.4	20.2	ACSR 185	0,638
73	Tallise 70 KV - Parigi 70 KV	2	70	87.4	43.7	ACSR 185	0,638
74	Tallise 70 KV - PLTU PJPP	1	70	-	-	ACSR 185	0,638
75	PLTU PJPP - Parigi 70 KV	1	70	-	-	ACSR 185	0,638
76	Palopo - Latupa	2	150	-	-	ACSR 240	0,638
77	Palopo - Belopa	2	150	48.96	24.48	ACSR 240	0,638
78	Palopo – Makale	2	150	74.8	37.4	ACSR 240	0,638
79	Belopa - Siwa	2	150	40.67	20.335	ACSR 240	0,638
80	Nii tanasa - Powatu 70 KV	2	70	25.4	12.7	ACCC HELSINKI 160	0,775
81	Powatu 150 KV - Kendari New	2	150	28.36	14.18	ACSR 2x240	1,200
82	Unaha - Kendari New	2	150	101.82	50.91	ACSR 2x240	1,276
83	Unaha - Kolaka	2	150	147.75	73.875	ACSR 2x240	1,276
84	Latuppa 275 KV - Pamona 275 KV	1	275	418	209	2 x ACSR	1,200
85	Latuppa 275 KV - Wotu 275 KV	1	275	187.23	93.615	2 x ACSR	1,200
86	Wotu 275 KV - Pamona 275 KV	1	275	-	-	2 x ACSR	1,200
87	Wotu - Malili	2	150	93.09	46.545	ACSR 2x240	1,200
	Wotu – Masamba	2	150	-	-	-	-
	Malili - Lasusu	2	150	234.39	117.195	ACSR 2x240	1,200



N0	RUTE TRANSMISI	CC	TEG (KV)	PANJANG		KONDUKTOR	
				(kms)	(km)	JENIS	KHA (kA)
90	Pamona – Sulewana	2	275	-	-	2 x ACSR	1,200
91	Pamona - Poso	2	150	87.2	43.6	HAWK 2x240	1,200
92	Kolaka - Wolo	2	150			ACSR 2x240	1,276
93	Wolo - Lasusu	2	150	12.22	6.11	ACSR 2x250	1,200
94	Wolo - BMPT	2	150	-	-	-	-
95	Unaha – Konawe	2	150	-	-	-	-
96	Kendari – Andolo	2	150	-	-	ACSR 2x240	1,200
97	Andolo – Kasipute	2	150	-	-	ACSR 2x240	1,200
98	Kendari – Moramo	2	150	28.2	14.1	ACSR 2x240	1,200

Sumber: PT. PLN (Persero) UIKL Sulawesi (2022)

Lampiran 2 Data Impedansi Saluran Transmisi Sistem Sulbagsel

N0	RUTE TRANSMISI	IMPEDANSI TRANSMISI/KM			
		urutan positif/km		urutan nol/km	
		R/km	JX/km	R0/km	JX0/km
1	Tello - Tello lama	0,091	0,373	0,283	0,862
2	Tello – Sungguminasa	0,037	0,280	0,189	0,872
3	Sungguminasa – Tallasa	0,037	0,246	0,188	0,911
4	Tello – Panakukang	0,093	0,371	0,321	0,980
	Sungguminasa - Tanjung Bunga	0,68	0,398	0,238	0,909
	Sungguminasa – Bollangi	0,032	0,269	0,222	1,138
	Sungguminasa – Lanna	0,0336	0,2614	0,184	0,784
	Tello Lama - GIS Bontoala (SKTT)	-	-	-	-



Lanjutan Lampiran 2

N0	RUTE TRANSMISI	IMPEDANSI TRANSMISI/KM			
		urutan positif/km		urutan nol/km	
		R/km	JX/km	R0/km	JX0/km
9	Tanjung Bunga - GIS Bontoala (SKTT)	0,0298	0,1280	0,1777	0,3880
10	Tello – Borongloe	0,240	0,813	0,600	2,000
11	Tello Lama - Bontoala (SKTT)	0,240	0,813	0,600	2,000
12	Pangkep – Bosowa	0,122	0,396	0,245	0,833
13	Pangkep – Kima	0,122	0,396	0,244	0,833
14	Kima – Tello	0,125	0,415	0,403	0,993
15	Tello – Bosowa	0,182	0,651	1,25	1,91
16	Pangkep - Tonasa III	0,240	0,813	0,600	2,00
17	Pangkep – Mandai	0,232	0,394	0,418	1,143
18	Mandai – Daya	0,240	0,813	0,606	2,000
19	Daya – Tello	0,180	0,363	0,433	1,068
20	Tello – Mandai	-	-	-	-
21	Pangkep – Barru	0,122	0,396	0,245	0,833
22	Kima - Daya Baru	0,023	0,155	0,077	0,077
23	Daya Baru – Bollangi	0,037	0,260	0,169	0,672
24	Daya Baru – Maros	0,037	0,260	0,169	0,672
25	Bakaru – Pinrang	0,118	0,423	0,267	1,289
26	Bakaru – Polmas	0,118	0,425	0,266	1,274
27	Pare Pare – Polmas	0,118	0,424	0,814	1,243
28	Pinrang - Pare Pare	0,124	0,410	0,317	1,006
29	Pare Pare – Suppa	0,117	0,409	0,329	1,009
30	Pare Pare – Ballusu	0,120	0,40	0,295	0,967
31	Ballusu – Pangkep	0,119	0,402	0,297	0,990
32	Barru EXT - PLTB Sidrap	0,122	0,396	0,245	0,833
33	Barru EXT – Maros	0,122	0,396	0,245	0,833
34	Pare Pare – Sidrap	0,137	0,436	0,311	1,121
35	Sidrap – Soppeng	0,122	0,405	0,236	0,873
36	Soppeng – Sengkang	0,072	0,370	0,150	0,500
	Siwa-Sengkang	0,0336	0,2614	0,184	0,784
	Sidrap – Makale	0,073	0,390	0,189	0,931
	Makale – Enrekang	0,073	0,394	0,189	0,930
	Sidrap – Enrekang	0,073	0,394	0,189	0,931



Lanjutan Lampiran 2

N0	RUTE TRANSMISI	IMPEDANSI TRANSMISI/KM			
		urutan positif/km		urutan nol/km	
		R/km	JX/km	R0/km	JX0/km
41	Sengkang – Sidrap	0,035	0,288	0,237	1,218
42	Sidrap - PLTB Sidrap	0,039	0,308	0,215	0,917
43	Makale – Malea	0,073	0,390	0,189	0,931
44	Makale – Rantepao	-	-	-	-
45	Bone – Bulukumba	0,120	0,406	0,300	1,000
46	Bulukumba - Bantaeng Switching	0,120	0,406	0,300	1,000
47	Jeneponto - Bantaeng New	0,120	0,406	0,300	1,000
48	Punagaya – Jeneponto	0,117	0,396	0,293	0,975
49	Tallasa – Punagaya	0,033	0,274	0,226	1,161
50	Bulukumba – Tanete	0,120	0,406	0,300	1,000
51	Sinjai – Tanete	0,120	0,406	0,300	1,000
52	Punagaya - Tanjung Bunga	0,037	0,260	0,169	0,672
53	Punagaya - PLTU Jeneponto	0,037	0,260	0,169	0,672
54	Punagaya - PLTU Jeneponto Expansi	0,037	0,260	0,169	0,672
55	Jeneponto - PLTB Tolo	0,122	0,396	0,245	0,833
56	Bantaeng Switch - Bantaeng Smelter	0,122	0,396	0,245	0,833
57	Jeneponto - Bantaeng Switch	0,122	0,396	0,245	0,833
58	Bantaeng Switch - Bantaeng New	0,122	0,396	0,245	0,833
59	Bone – Sinjai	0,122	0,410	0,299	0,959
60	Soppeng – Bone	0,119	0,385	0,285	0,917
61	Soppeng – Bengo	-	-	-	-
62	Majene – Polmas	0,122	0,396	0,245	0,833
63	Majene – Mamuju	0,122	0,396	0,245	0,833
64	Mamuju - Mamuju Baru	0,0387	0,2807	0,1887	0,8421
65	Mamuju Baru - PLTU Mamuju	0,0387	0,2807	0,1887	0,8421
	Mamuju Baru – Topoyo	0,0387	0,2807	0,1887	0,8421
	Topoyo – Pasangkayu	0,122	0,396	0,245	0,833
	Pasangkayu – Silae	0,122	0,396	0,245	0,833
	Silae – Sidera	0,122	0,396	0,245	0,833
	Sidera – Poso	0,0336	0,2614	0,184	0,784



Lanjutan Lampiran 2

N0	RUTE TRANSMISI	IMPEDANSI TRANSMISI/KM			
		urutan positif/km		urutan nol/km	
		R/km	JX/km	R0/km	JX0/km
71	Sidera – Tallise	0,122	0,396	0,245	0,833
72	Sidera 70 KV - Tallise 70 KV	0,122	0,396	0,245	0,833
73	Tallise 70 KV - Parigi 70 KV	0,122	0,396	0,245	0,833
74	Tallise 70 KV - PLTU PJPP	0,122	0,396	0,245	0,833
75	PLTU PJPP - Parigi 70 KV	0,122	0,396	0,245	0,833
76	Palopo – Latupa	0,122	0,396	0,245	0,833
77	Palopo – Belopa	0,122	0,396	0,245	0,833
78	Palopo – Makale	0,122	0,396	0,245	0,833
79	Belopa – Siwa	0,122	0,396	0,245	0,833
80	Nii tanasa - Powatu 70 KV	0,200	0,411	0,389	0,955
81	Powatu 150 KV - Kendari New	0,061	0,283	0,346	0,954
82	Unaha - Kendari New	0,063	0,284	0,247	0,865
83	Unaha – Kolaka	0,064	0,282	0,233	0,856
84	Latuppa 275 KV - Pamona 275 KV	0,0336	0,2614	0,184	0,784
85	Latuppa 275 KV - Wotu 275 KV	0,0336	0,2614	0,184	0,784
86	Wotu 275 KV - Pamona 275 KV	0,0336	0,2614	0,184	0,784
87	Wotu – Malili	0,0387	0,2807	0,1887	0,8421
88	Wotu – Masamba	-	-	-	-
89	Malili – Lasusu	0,0387	0,2807	0,1887	0,8421
90	Pamona – Sulewana	0,0336	0,2614	0,184	0,784
91	Pamona – Poso	0,0336	0,2614	0,184	0,784
92	Kolaka – Wolo	0,064	0,282	0,233	0,856
93	Wolo – Lasusu	0,0336	0,2614	0,184	0,784
94	Wolo – BMPT	-	-	-	-
95	Unaha – Konawe	-	-	-	-
96	Kendari – Andolo	0,0387	0,2807	0,1887	0,8421
	Andolo – Kasipute	0,0387	0,2807	0,1887	0,8421
	Kendari – Moramo	0,0387	0,2807	0,1887	0,8421

Sumber: PT. PLN (Persero) UIKL Sulawesi (2022)



Lampiran 3 Data Pembangkit Sistem Sulbagsel

UNIT PEMBANGKIT	DAYA TERPASANG (MW)	DAYA MAMPU NETTO (MW)	DAYA MAMPU PASOK (MW)	KETERANGAN
PLTA Bakar #1	63	63	63	PEMBANGKIT PLN
PLTA Bakar #2	63	63	59	
PLTA Bili-bili #1	5.78	5.78	5.78	
PLTA Bili-bili #2	13.685	13.685	13.685	
PLTM Sawitto	1.62	1.44	0.48	
PLTU Barru #1	50	45.27	45	
PLTU Barru #2	50	45.5	45	
PLTU SULSEL BARRU 2	100	100	100	
PLTG GE #1	33.4	26	26	
PLTG GE #2	33.4	28	28	
PLTD Mitsubishi #1	12.6	8	8	
PLTD Mitsubishi #2	12.6	8	8	
PLTD SWD #1	12.396	8	8	
PLTD SWD #2	12.396	8	8	
PLTU Punagaya #1	125	100	100	
PLTU Punagaya #2	125	100	100	
PLTU Nii Tanassa #1	12	10	10	
PLTU Nii Tanassa #2	12	10	10	
PLTU Nii Tanassa #3	12	10.26	10	
PLTMG Kendari #1	9.78	9.78	9.78	
PLTMG Kendari #2	9.78	9.78	9.78	
PLTMG Kendari #3	9.78	9.78	9.78	
PLTMG Kendari #4	9.78	9.78	9.78	



Lanjutan Lampiran 2

UNIT PEMBANGKIT	DAYA TERPASANG (MW)	DAYA MAMPU NETTO (MW)	DAYA MAMPU PASOK (MW)	KETERANGAN
PLTMG Kendari #5	9.78	9.78	9.78	
PLTMG Kendari #6	9.78	9.78	9.78	
PLTD Silae #1	18	18	18	
PLTD Suppa #UNIT1	10.417	10.367	10.367	
PLTD Suppa #UNIT2	10.417	10.367	10.367	
PLTD Suppa #UNIT3	10.417	10.367	10.367	
PLTD Suppa #UNIT4	10.417	10.367	10.367	
PLTD Suppa #UNIT5	10.417	10.367	10.367	
PLTD Suppa #UNIT6	10.417	10.367	10.367	
PLTA Poso Dua #1	65	65	65	PEMBANGKIT IPP
PLTA Poso Dua #2	65	65	65	
PLTA Poso Dua #3	65	65	65	
PLTA Poso Dua Ext #1	50	50	30	
PLTA Poso Dua Ext #2	50	50	30	
PLTA Poso Dua Ext #3	50	50	30	
PLTA Poso Dua Ext #4	50	50	30	
PLTA Poso Satu #1	30	30	50	
PLTA Poso Satu #2	30	30	50	
PLTA Poso Satu #3	30	30	50	
PLTA Poso Satu #4	30	30	50	



Lanjutan Lampiran

UNIT PEMBANGKIT	DAYA TERPASANG (MW)	DAYA MAMPU NETTO (MW)	DAYA MAMPU PASOK (MW)	KETERANGAN
PLTU Jeneponto #1	125	100	100	
PLTU Jeneponto #2	125	100	100	
PLTU Jeneponto #3	135	125	125	
PLTU Jeneponto #4	135	125	125	
PLTU Mamuju #1	25	25	25	
PLTU Mamuju #2	25	25	25	
PLTU Moramo #1	50	50	50	
PLTU Moramo #2	50	50	50	
PLTA Malea Ekspansi #1	45	45	45	
PLTA Malea Ekspansi #2	45	45	45	
PLTB Sidrap (VRE)	78.75	77	77	
PLTB Tolo (VRE)	72	66	66	
Sengkang GT #11	42.5	42.5	42.5	
Sengkang GT #12	42.5	42.5	42.5	
Sengkang ST #18	50	50	50	
Sengkang GT #21	60	60	60	
Sengkang GT #22	60	60	60	
Sengkang ST #28	60	60	60	
PM Malea #1	6.7	6.7	6.7	
PM Malea #2	6.7	6.7	6.7	



Lanjutan Lampiran

UNIT PEMBANGKIT	DAYA TERPASANG (MW)	DAYA MAMPU NETTO (MW)	DAYA MAMPU PASOK (MW)	KETERANGAN
PLTA Tangka Manipi #1	10	10	10	
PLTA Tangka Manipi #2	10	10	10	
PLTA Tangka Manipi #3	10	10	10	
PLTM Simbuang	3	3	3	
PLTM Siteba	7.5	7.5	7.5	
PLTM Madong #1	10	10	10	

Sumber: PT. PLN (Persero) UP2B Makassar (2022)

Lampiran 4 Data Transformator Distribusi Sistem Sulbagsel

ULTG	GARDU INDUK	KAPASITAS			DATA INPUT BASE 100 MVA	
		UNIT	(MVA)	TEG (KV)	Xpos. (pu)	Xpos. (ohm)
MAROS	Tello	1	60	150/20	0,2083	46,88
		2	60	150/20	0,2208	49,69
	Daya	1	20	69/20	0,5810	28,47
		2	20	69/20	0,5950	29,16
	Kima	1	30	150/20	0,4167	93,75
		2	60	150/20	0,2083	46,88
	Mandai	1	20	69/20	0,5810	28,47
		2	20	69/20	0,5870	28,76
	Maros	1	30	150/20	0,4247	95,55
		2	30	150/20	0,4146	93,70
	Pangkep	4	20	150/20	0,6165	138,71
		5	30	150/20	0,4167	93,75
		6	30	150/20	0,4167	93,75
	Daya Baru	1	60	150/20	0,2083	46,88



Lanjutan Lampiran 4

ULTG	GARDU INDUK	KAPASITAS			DATA INPUT BASE 100 MVA	
		UNIT	(MVA)	TEG (KV)	X pos. (pu)	X pos. (ohm)
PANAKUKANG	Bontoala	1	20	69/20/7	0,6000	29,40
		2	20	69/20/7	0,6000	29,40
	GIS Bontoala	1	60	150/20	0,2083	46,88
		2	60	150/20	0,2013	45,29
	Panakkukang	1	60	150/20	0,4167	93,75
		2	60	150/20	0,2214	49,81
		3	60	150/20	0,2015	45,33
	Tallo lama	1	30	150/20	0,4243	95,48
		2	30	150/20	0,4243	95,48
		3	60	150/20	0,2083	46,88
	Tanjung Bunga	1	60	150/20	0,2214	49,81
		2	60	150/20	0,2083	46,88
		3	60	150/20	0,2021	45,48
	Sungguminasa	1	60	150/20	0,2200	49,50
		2	60	150/20	0,2015	45,33
	Borongloe	1	20	69/20	0,5950	29,16
	Bolangi	1	60	150/20	0,2083	46,88
		2	60	150/20	0,2083	46,88
	Lanna	1	60	150/20	0,2083	46,88
ULTG PAREPARE	Barru	1	20	150/20	0,6500	146,25
	Balusu	1	6.3	-	-	-
	Pare pare	1	30	150/20	0,3990	89,78
		2	16	150/20	0,6650	149,63
		3	30	150/20	0,3990	89,78
	Pinrang	1	30	150/20	0,4167	93,75
		2	16	150/20	0,6650	149,63
		3	30	150/20	0,6867	153,15
	Bakaru	1	20	150/20	0,6165	138,71
	JENEPONTO	Tallasa	1	30	150/20	0,4240
2			20	150/20	0,6250	140,63
3			60	150/20	0,2083	46,88
Jeneponto		1	20	150/20	0,6120	137,70
		2	30	150/20	0,4167	93,75



Lanjutan Lampiran 4

ULTG	GARDU INDUK	KAPASITAS			DATA INPUT BASE 100 MVA	
		UNIT	(MVA)	TEG (KV)	X pos. (pu)	X pos. (ohm)
	Bantaeng	1	30	150/20	0,4158	93,56
	Punagaya	1	30	150/20	0,4181	94,07
ULTG WATAMPONE	Bulukumba	1	20	150/20	0,6120	137,70
		2	30	150/20	0,4147	93,30
		3	60	150/20	0,2083	46,88
	Sinjai	1	20	150/20	0,6250	140,63
		2	30	150/20	0,4167	93,75
		3	30	150/20	0,4167	93,75
	Bone	1	30	150/20	0,4167	93,75
		2	20	150/20	0,6120	137,70
		3	30	150/20	0,4167	93,75
	Sopeng	2	30	150/20	0,4167	93,75
		3	60	150/20	0,2083	46,88
	Tanete	1	30	150/20	0,4167	93,75
ULTG SIDRAP	Sidrap	1	20	150/20	0,6165	138,71
		2	30	150/20	0,4100	92,25
		3	30	150/20	0,4100	92,25
	Sengkang	1	20	150/20	0,6120	137,70
		2	30	150/20	0,4113	92,55
		3	60	150/20	0,2083	46,88
	Enrekang	1	30	150/20	0,4167	93,75
	Makale	1	20	150/20	0,6165	138,71
		2	30	150/20	0,4167	93,75
ULTG PALOPO	Palopo	1	20	150/20	0,6165	138,71
		2	20	150/20	0,6165	138,71
		3	30	150/20	0,4167	93,75
		4	30	150/20	0,4148	93,33
	Siwa	1	30	150/20	0,4095	92,15
		2	60	150/20	0,2083	46,88
	Wotu	1	30	150/20	0,4167	93,75
	Malili	1	30	150/20	0,4167	93,75
	Belopa	1	60	150/20	0,2083	46,88
	Masamba	1	30	150/20	0,4167	93,75



Lanjutan Lampiran 4

ULTG	GARDU INDUK	KAPASITAS			DATA INPUT BASE 100 MVA	
		UNIT	(MVA)	TEG (KV)	X pos. (pu)	X pos. (ohm)
ULTG MAMUJU	Mamuju	1	20	150/20	0,5885	132,41
		2	30	150/20	0,4167	93,75
		3	60	150/20	0,6250	140,63
	Mamuju Baru	1	30	150/20	0,4167	93,75
	Majene	1	20	150/20	0,6165	138,71
		2	30	150/20	0,4167	93,75
	Polmas	1	20	150/20	0,6099	137,23
		2	30	150/20	0,6099	137,23
	Topoyo	1	30	150/20	0,4167	93,75
	Tanassa	1	10	70/20	0,4167	93,75
ULTG KENDARI	Puuwatu	1	20	70/20	0,6099	137,23
		2	30	70/20	0,4167	93,75
		3	30	70/20	0,4167	93,75
	Kendari	1	60	150/20	0,2083	46,88
		2	60	150/20	0,2083	46,88
	Unaaha	1	30	150/20	0,4167	93,75
	Kolaka	1	30	150/20	0,4167	93,75
	Lasusua	1	30	150/20	0,4167	93,75
	Moramo	1	60	150/20	0,2083	46,88
	Konawe	1	30	150/20	0,4167	93,75
		2	30	150/20	0,4167	93,75
	Kolaka Smelter	1	30	150/20	0,4167	93,75
	Andolo	1	30	150/20	0,4167	93,75
	Kasipute	1	30	150/20	0,4167	93,75
ULTG POSO	Pamona	1	10	150/20	0,4167	93,75
	Poso	1	30	150/20	0,4167	93,75
	Sidera	1	30	150/20	0,4167	93,75
		2	60	150/20	0,2083	46,88
	Silae	1	30	150/20	0,4167	93,75



Lanjutan Lampiran 4

ULT G	GARDU INDUK	KAPASITAS			DATA INPUT BASE 100 MVA	
		UNIT	(MVA)	TEG (KV)	X pos. (pu)	X pos. (ohm)
		2	60	150/20	0,2083	46,88
	Tallise 150 kV	4	60	150/20	0,2083	46,88
	Tallise 70 kV	2	30	150/20	0,4167	93,75
		3	30	150/20	0,4167	93,75
	Parigi	1	20	70/20	0,6099	137,23
		2	30	70/20	0,4167	93,75
	Pasangkayu	1	30	150/20	0,4167	93,75

Sumber: PT. PLN (Persero) UIKL Makassar (2022)

Lampiran 5 Data Transformator IBT Sistem Sulbagsel

TRAFO IBT	TEGANGAN (KV)	UNIT	DAYA (MW)
Tello	150/30	1	20
	150/70	3	31.5
	150/70	5	31.5
Pangkep	150/70	1	31.5
	150/70	2	60
	150/70	3	60
Tello Lama	150/70	1	31.5
	150/70	2	31.5
Wotu	275/150	1	90
	275/150	2	250
Latuppa	275/150	1	90
	275/150	2	90
	275/150	3	90
	275/150	4	90
Pamona	275/150	1	90
	275/150	2	90
Puuwatu	150/70	1	30
	150/70	2	30



Lanjutan Lampiran 5

TRAFO IBT	TEGANGAN (KV)	UNIT	DAYA (MW)
Talise	150/70	1	30
	150/70	2	30

Sumber: PT. PLN (Persero) UIKL Makassar (2022)

Lampiran 6 Data Daya Bangkitan Sistem Sulbagsel

JENIS PEMBANGKIT	PEMBANGKIT	BP MALAM (19.00)	
		MW	MVAR
PLTA	BAKARU #1	62.00	-0.20
	BAKARU #2	58.00	-0.80
PLTA	BILI-BILI #1	0.00	0.00
	BILI-BILI #2	8.00	-0.10
PLTM	SAWITTO	0.57	0.00
PLTU	BARRU #1	0.00	0.00
	BARRU #2	0.00	0.00
PLTU	PLTU SULSEL BARRU-2	35.88	21.04
PLTG	GE #1	25.00	9.20
	GE #2	28.00	8.40
PLTD	MITSUBISHI #1	8.00	0.00
	MITSUBISHI #2	8.00	0.00
PLTD	SWD #1	8.00	0.00
	SWD #2	8.00	0.00
PLTU	PUNAGAYA #1	91.98	43.20
	PUNAGAYA #2	89.63	41.72
PLTU	NII TANASSA #1	7.08	0
	NII TANASSA #2	3.90	0
	NII TANASSA #3	0.00	0
PLTMG	NII TANASSA #1	9.00	0
	NII TANASSA #2	0.00	0
	NII TANASSA #3	8.00	0
	NII TANASSA #4	8.80	0
	NII TANASSA #5	8.00	0
	NII TANASSA #6	8.00	0



Lanjutan Lampiran 6

JENIS PEMBANGKIT	PEMBANGKIT	BP MALAM (19.00)	
		MW	MVAR
PLTD	SILAE	10.25	0.00
PLTD	SUPPA #1	10.00	0.00
	SUPPA #2	10.00	0.00
	SUPPA #3	10.00	0.00
	SUPPA #4	0.00	0.00
	SUPPA #5	0.00	0.00
	SUPPA #6	0.00	0.00
PLTA POSO - 2A	Unit # 1	0.00	0.00
	Unit # 2	45.20	-1.22
	Unit # 3	47.30	-0.78
PLTA POSO - 2B	Unit # 1	40.40	1.02
	Unit # 2	47.70	1.50
	Unit # 3	40.10	2.66
	Unit # 4	40.20	2.63
PLTA POSO – 1	Unit # 1	0.00	0.00
	Unit # 2	26.70	2.04
	Unit # 3	30.00	1.93
	Unit # 4	29.34	2.24
PLTU	JENEPONTO #1	57.58	23.31
	JENEPONTO #2	65.73	26.27
PLTU	JENEPONTO EXP #3	98.28	57.42
	JENEPONTO EXP #4	89.24	56.62
PLTU	MAMUJU #1	25.01	4.56
	MAMUJU #2	23.03	4.99
PLTU	MORAMO #1	39.80	0.00
	MORAMO #2	35.80	0.00
PLTA	MALEA #1	35.39	12.04
	MALEA #2	35.50	10.12
PLTB	SIDRAP	19.51	-0.11
PLTB	TOLO	37.80	0.06
PLTG	SENGKANG GT #11	0.00	0.00
PLTG	SENGKANG GT #12	0.00	0.00
PLTGU	SENGKANG ST #18	0.00	0.00
PLTG	SENGKANG GT #21	0.00	0.00



Lanjutan Lampiran 6

JENIS PEMBANGKIT	PEMBANGKIT	BP MALAM (19.00)	
		MW	MVAR
PLTG	SENGKANG GT #22	0.00	0.00
PLTGU	SENGKANG ST #28	0.00	0.00
PLTM	MALEA #1	2.07	0.00
	MALEA #2	2.07	0.00
PLTA	TANGKA MANIPI #1	0.00	0.00
	TANGKA MANIPI #2	0.00	0.00
	TANGKA MANIPI #3	0.00	0.00
PLTM	SIMBUANG	0.00	0.00
PLTM	SITEBA	2.01	0.04
PLTM	MADONG #1	6.00	1.09

Sumber: PT. PLN (Persero) UP2B Makassar (2022)

Lampiran 7 Data Beban Sistem Sulbagsel

ULTG	GARDU INDUK	KAPASITAS		BP MALAM (19.00)	
		UNIT	DAYA	MW	MVAR
ULTG MAROS	Tello	1	60	45.8	8.9
		2	60	0	0
	Daya	1	20	0	0
		2	20	13	2.7
	Kima	1	30	12	3.3
		2	60	16.2	6
	Mandai	1	20	10.7	2.6
		2	20	12.7	2.8
	Maros	1	30	10	2
		2	30	15.4	2.6
	Pangkep	4	20	9.7	2
		5	30	13.3	2.5
		6	30	0	0
	Daya Baru	1	60	17.8	0



Lanjutan Lampiran 7

ULTG	GARDU INDUK	KAPASITAS		BP MALAM (19.00)	
		UNIT	DAYA	MW	MVAR
ULTG PANAKKUKANG	Bontoala	1	20	0	0
		2	20	0	0
	GIS Bontoala	1	60	26.6	7.3
		2	60	21.3	6.3
	Panakkukang	1	60	0	0
		2	60	34.7	7.8
		3	60	45.4	8.9
	Tallo lama	1	30	0	0
		2	60	14.9	4.2
		3	60	27.2	5.2
	Tanjung Bunga	1	60	20.1	5.7
		2	60	16.5	4.6
		3	60	14.8	2.7
	Sungguminasa	1	60	17.5	3.7
		2	60	29.2	5.5
	Borongloe	1	20	6.1	4.1
	Bolangi	1	60	26	5.3
		2	60	0	0
	Lanna	1	60	1.9	0
		2	0	0	0
ULTG PAREPARE	Baru	1	20	10	1.7
	Balusu	1	6.3	3.7	0.6
	Pare pare	1	30	16.9	3.8
		2	16	0	0
		3	30	5.5	1.1
	Pinrang	1	30	19.8	6.6
		2	16	0	0
		3	30	16.8	5.1
	Bakaru	1	20	0.1	0
ULTG JENEPONTO	Tallasa	1	30	8.6	2.4
		2	20	0	0
		3	60	17.5	4.7
	Jeneponto	1	20	11.3	2.2
		2	30	13.4	2.2



Lanjutan Lampiran 7

ULTG	GARDU INDUK	KAPASITAS		BP MALAM (19.00)	
		UNIT	DAYA	MW	MVAR
	Bantaeng	1	30	12.5	0.9
	Punagaya	1	30	4.71	0
ULTG WATAMPONE	Bulukumba	1	20	4.1	0.5
		2	30	15.2	3.9
		3	60	11.1	1.4
	Sinjai	1	20	12.75	0.5
		2	30	15.1	2.5
		3	30	0	0
	Bone	1	30	16.5	3.4
		2	20	0	0
		3	30	10.5	3.7
	Sopeng	2	30	6.8	1.1
		3	60	11.1	2.2
	Tanete	1	30	5.24	0.47
ULTG SIDRAP	Sidrap	1	20	12.3	3.1
		2	30	0	0
		3	30	11.2	0
	Sengkang	1	20	0	5.5
		2	30	16.5	3.3
		3	60	12.5	0
	Enrekang	1	30	13.9	1.7
	Makale	1	20	3.4	0.3
		2	30	2.5	-2.6
ULTG PALOPO	Palopo	1	20	11.9	3.1
		2	20	5.7	1
		3	30	0	0
		4	30	8.5	1.4
	Siwa	1	30	4.8	0.5
		2	60	0	0
	Wotu	1	30	8.89	1.48
	Malili	1	30	3.45	-0.27
	Belopa	1	60	12.5	3.6



Lanjutan Lampiran 7

ULTG	GARDU INDUK	KAPASITAS		BP MALAM (19.00)	
		UNIT	DAYA	MW	MVAR
	Masamba	1	30	8.74	0
ULTG MAMUJU	Mamuju	1	20	4.3	0.7
		2	30	4.8	0.3
		3	60	5.1	0.9
	Mamuju Baru	1	30	7.5	-0.14
	Majene	1	20	6.7	0.6
		2	30	9.3	0
	Polmas	1	20	9.6	2.1
		2	30	8.1	0.3
	Topoyo	1	30	8.3	0
ULTG KENDARI	Tanassa	1	10	1.84	0.32
	Puuwatu	1	20	8.7	3.5
		2	30	1.4	0.6
		3	30	10.7	3.8
	Kendari	1	60	15.61	6.07
		2	60	12.35	3.46
	Unaaha	1	30	16.24	4.61
	Kolaka	1	30	12.35	3.33
	Lasusua	1	30	7.65	1.45
	Moramo	1	60	9.6	1.86
	Konawe	1	30	0	1.25
	Kolaka Smelter	1	30	2.74	0
	Andolo	1	30	9.97	0
	Kasipute	1	30	7.05	0
ULTG PALU	Pamona	1	10	-1.13	2.15
	Poso	1	30	9.2	1.81
	Sidera	1	30	0	0
		2	60	16.5	2.2
	Silae	1	30	0	0
		2	60	22.5	6.7
	Tallise 150 kV	4	60	12.7	6.4
	Tallise 70 kV	2	30	14.1	2.3
		3	30	7.4	0
	Parigi	1	20	8.2	0



Lanjutan Lampiran 7

ULTG	GARDU INDUK	KAPASITAS		BP MALAM (19.00)	
		UNIT	DAYA	MW	MVAR
		2	30	10.1	3.3
	Pasangkayu	1	30	14.1	2.4
PELANGGAN	TONASA		90	86.7	
	BOSOWA		68	36.3	
	HUADI#1		40	19.6	
	HUADI#2 YATAI		150	20.2	
	HUADI#3 WUZHOU		90	23.3	
	TONASA 3&4			31.1	
	TONASA 5			31.6	

Sumber: PT. PLN (Persero) UP2B Makassar (2022)

Lampiran 8 Data Daya Bangkitan PLTB Sidrap

TANGGAL	DAYA (MW)	
	11.00 (BP SIANG)	19.00 (BP MALAM)
1-Agustus	63,66	19,36
2-Agustus	3,24	10,21
3-Agustus	0	20,24
4-Agustus	24,85	15,38
5-Agustus	20,25	16,34
6-Agustus	45,74	42,32
7-Agustus	45,53	66,77
8-Agustus	67,12	66,04
9-Agustus	45,13	37,26
10-Agustus	26,95	30,41
11-Agustus	29,61	16,82
12-Agustus	52,12	52,3
13-Agustus	57,07	60,74
14-Agustus	60,69	32,16
15-Agustus	40,93	2,15
16-Agustus	36,55	19,51
17-Agustus	32,93	0



Lanjutan Lampiran 7

TANGGAL	DAYA (MW)	
	11.00 (BP SIANG)	19.00 (BP MALAM)
18-Agustus	43,32	56,16
19-Agustus	72,75	57,55
20-Agustus	70,37	35,34
21-Agustus	57,94	9,26
22-Agustus	60,16	32,16
23-Agustus	33,81	1,5
24-Agustus	18,66	0
25-Agustus	11,97	0
26-Agustus	30,1	11,62
27-Agustus	72,02	0,59
28-Agustus	46,9	0
29-Agustus	12,67	0
30-Agustus	3,4	0
31-Agustus	16,22	5,44
Beban rata-rata	35,06	32,66
Beban minimum	0	0
Beban maksimum	72,75	66,77

Sumber: PT. PLN (Persero) UP2B Makassar (2018)

Lampiran 9 Data Tipikal Inersia Pembangkit

UNIT PEMBANGKIT	MOMEN INERSIA MW.Scc./MVA (H)
PLTU	5
PLTG	5.1
PLTA	2.97
PLTD	1.02
PLTGU	5.56

Sumber: PT. PLN (Persero) UIKL Makassar (2022)



Lampiran 10 Data Tipikal Governor pada Pembangkit

JENIS PEMBANGKIT	AVR	GOVERNOR
PLTD	SEXS	DEGOV
PLTU	IEEE1	TGOV1
PLTG	ESST1A	GAST
PLTA/PLTM	SCRX	HYGOV

Sumber: *Engineering Academy Powered by Anak Teknik Indonesia* (2022)

Lampiran 11 Data *Speed Droop* Governor tiap Pembangkit

NO.	UNIT PEMBANGKIT	DAYA TERPASANG (MW)	SPEED DROOP (PU)
1	PLTA Bakaru #1	63	0.1
2	PLTA Bakaru #2	63	0.1
3	PLTA Bili-bili #1	5.78	Off
4	PLTA Bili-bili #2	13.685	0.1
5	PLTM Sawitto	1.62	0.1
6	PLTU Barru #1	50	Off
7	PLTU Barru #2	50	Off
8	PLTU SULSELBARRU 2	100	0.05
9	PLTG GE #1	33.4	0.047
10	PLTG GE #2	33.4	0.047
11	PLTD Mitsubishi #1	12.6	0
12	PLTD Mitsubishi #2	12.6	0
13	PLTD SWD #1	12.396	0
14	PLTD SWD #2	12.396	0
15	PLTU Punagaya #1	125	0.05
16	PLTU Punagaya #2	125	0.05
17	PLTU Nii Tanassa #1	12	0.05
18	PLTU Nii Tanassa #2	12	0.05
19	PLTU Nii Tanassa #3	12	0.05
20	PLTMG Kendari #1	9.78	0.047
21	PLTMG Kendari #2	9.78	Off
22	PLTMG Kendari #3	9.78	0.047
23	PLTMG Kendari #4	9.78	0.047
24	PLTMG Kendari #5	9.78	0.047
25	PLTMG Kendari #6	9.78	0.047



Lanjutan Lampiran 11

NO.	UNIT PEMBANGKIT	DAYA TERPASANG (MW)	SPEED DROOP (PU)
26	PLTD Silae #1	18	0
27	PLTD Suppa #UNIT1	10.417	0
28	PLTD Suppa #UNIT2	10.417	0
29	PLTD Suppa #UNIT3	10.417	0
30	PLTD Suppa #UNIT4	10.417	0
31	PLTD Suppa #UNIT5	10.417	0
32	PLTD Suppa #UNIT6	10.417	Off
33	PLTA Poso Dua #1	65	Off
34	PLTA Poso Dua #2	65	0.1
35	PLTA Poso Dua #3	65	0.1
36	PLTA Poso Dua Ext #1	50	0.1
37	PLTA Poso Dua Ext #2	50	0.1
38	PLTA Poso Dua Ext #3	50	0.1
39	PLTA Poso Dua Ext #4	50	0.1
40	PLTA Poso Satu #1	30	Off
41	PLTA Poso Satu #2	30	0.1
42	PLTA Poso Satu #3	30	0.1
43	PLTA Poso Satu #4	30	0.1
44	PLTU Jeneponto #1	125	0.05
45	PLTU Jeneponto #2	125	0.05
46	PLTU Jeneponto #3	135	0.05
47	PLTU Jeneponto #4	135	0.05
48	PLTU Mamuju #1	25	0.05
49	PLTU Mamuju #2	25	0.05
50	PLTU Moramo #1	50	0.05
51	PLTU Moramo #2	50	0.05
52	PLTA Malea Ekspansi #1	45	0.1
53	PLTA Malea Ekspansi #2	45	0.1
54	PLTB Sidrap (VRE)	78.75	0
55	PLTB Tolo (VRE)	72	0
56	Sengkang GT #11	42.5	Off
57	Sengkang GT #12	42.5	Off
58	Sengkang ST #18	50	Off
	Sengkang GT #21	60	Off
	Sengkang GT #22	60	Off
	Sengkang ST #28	60	Off
	PLTM Malea #1	6.7	0.1
	PLTM Malea #2	6.7	0.1



Lanjutan Lampiran 11

NO.	UNIT PEMBANGKIT	DAYA TERPASANG (MW)	<i>SPEED DROOP</i> (PU)
64	PLTA Tangka Manipi #1	10	<i>Off</i>
65	PLTA Tangka Manipi #2	10	<i>Off</i>
66	PLTA Tangka Manipi #3	10	<i>Off</i>
67	PLTM Simbuang	3	<i>Off</i>
68	PLTM Siteba	7.5	0.1
69	PLTM Madong #1	10	0.1

