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LAMPIRAN

Lampiran 1 Data Transformator

No.	Kode Trafo	Daya Trafo Terpasang (kVA)	Data Beban Trafo (kVA)
1	BCTEI1	100	75,28
2	BCTEI2	100	67,8
3	BCTEI	100	78,7
4	BCTEN	100	14,55
5	BCTEW	50	4,16
6	BCTEV	50	3,69
7	BCTEJ	100	80,02
8	BCTEJ1	100	70,58
9	BCTEK	25	20,6
10	BCTEH	25	19,7
11	BCTEC	25	15
12	BCTED	160	135,43
13	BCTER	100	83,65
14	BCTEB1	50	43,6
15	BCTEB	50	38,3
16	BCTEU	25	13,86
17	BCTEA2	50	34,94
18	BCTEA	50	42,1
19	BCTEA1	25	18,71
20	BCTET	100	76,4
21	BCTEA3	50	30,95
22	BCTEQ	100	86,33
23	BCTEX	50	38,6
24	BCTEY	50	40,39
25	BCTEE	100	80,8
26	BCTEF	100	65,12
27	BCTEG	160	130,56
28	BCTEM	25	18,3
29	BCTEG1	50	37,64
30	BCTEL	25	14,2
31	BCTEO	100	58,09
32	BCTEP	100	56,1

Lampiran 2 Data Panjang Saluran

No	SALURAN	PANJANG KAWAT (m)	JENIS KABEL
1	PLTD TOMIA - BCTEI1	10 m	AAAC 35mm ²
2	BCTEI1 - BRANCH 1	85 m	AAAC 35mm ²
3	BRANCH 1 - BCTEI2	100 m	AAAC 35mm ²
4	BCTEI2 - BCTEI	240 m	AAAC 35mm ²
5	BCTEI - FCO ONEMAY	50 m	AAAC 35mm ²
6	FCO ONEMAY - BCTEN	2810 m	AAAC 35mm ²
7	BCTEN - BUS UJUNG JARING	60 m	AAAC 35mm ²
8	FCO ONEMAY - FCO PATUA 2	770 m	AAAC 35mm ²
9	FCO PATUA 2 - BCTEW	1420 m	AAAC 35mm ²
10	BCTEW - BCTEV	2170 m	AAAC 35mm ²
11	BCTEV - BUS UJUNG JARING	2170 m	AAAC 35mm ²
12	BRANCH 1 - BCTEJ	200 m	AAAC 35mm ²
13	BCTEJ - BCTEJ1	395 m	AAAC 35mm ²
14	BCTEJ1 - BCTEK	80 m	AAAC 35mm ²
15	BCTEK - PLTS WAHA	185 m	AAAC 35mm ²
16	PLTS WAHA - NODE PLTS	24 m	AAAC 35mm ²
17	PLTS WAHA - BCTEH	108 m	AAAC 35mm ²
18	BCTEH - BCTEC	965 m	AAAC 35mm ²
19	BCTEC - BCTED	1905 m	AAAC 35mm ²
20	BCTED - FCO LAMANGGAU	1125 m	AAAC 35mm ²
21	FCO LAMANGGAU - BCTER	1160 m	AAAC 35mm ²
22	BCTER - WRD	1480 m	AAAC 35mm ²
23	FCO LAMANGGAU - BCTEB1	290 m	AAAC 35mm ²
24	BCTEB1 - BCTEB	300 m	AAAC 35mm ²
25	BCTEB - BCTEU	1020 m	AAAC 35mm ²
26	BCTEU - BCTEA 2	685 m	AAAC 35mm ²
27	BCTEA 2 - BCTEA	590 m	AAAC 35mm ²
28	BCTEA - BCTEA1	255 m	AAAC 35mm ²
29	BCTEA1 - LBS RENCANA	95 m	AAAC 35mm ²

30	LBC RENCANA - BRANCH 4	105 m	AAAC 35mm ²
31	BRANCH 4 - BCTET	50 m	AAAC 35mm ²
32	BCTET - BCTEA 3	300 m	AAAC 35mm ²
33	BCTEA 3 - FCO KAHYANGA	420 m	AAAC 35mm ²
34	FCO KAHYANGA - BCTEQ	2885 m	AAAC 35mm ²
35	BCTEQ - FCO WAWOTIMU	120 m	AAAC 35mm ²
36	FCO WAWOTIMU - BCTEX	1555 m	AAAC 35mm ²
37	BCTEX - BCTEY	550 m	AAAC 35mm ²
38	BRANCH 4 - BCTEE	795 m	AAAC 35mm ²
39	BCTEE - BCTEF	205 m	AAAC 35mm ²
40	BCTEE - BCTEG	660 m	AAAC 35mm ²
41	BCTEG - BCTEM	635 m	AAAC 35mm ²
42	BCTEM - BCTEG1	110 m	AAAC 35mm ²
43	BCTEG1 - FCO TAOAU	500 m	AAAC 35mm ²
44	FCO TAOAU - BCTEL	695 m	AAAC 35mm ²
45	BCTEL - BCTEO	1000 m	AAAC 35mm ²
46	BCTEO - BCTEP	2815 m	AAAC 35mm ²
47	BCTEP - UJUNG JARING KULATI	42 m	AAAC 35mm ²

No	Nama Kabel	Panjang Kabel (m)	Jenis Kabel
1	CBL 0,4 MITSUBISHI 1330 KW	10	XLPE 150 mm ²
2	CBL 0,4 CUMMINS1 600 KW	10	XLPE 150 mm ²
3	CBL 0,4 CUMMINS2 600 KW	10	XLPE 150 mm ²
4	CBL 0,4 PLTD 1	10	XLPE 150 mm ²
5	CBL 0,4 PLTD 2	10	XLPE 150 mm ²
6	CBL 20 PLTD 1	10	XLPE 150 mm ²
7	CBL 20 PLTD 2	10	XLPE 150 mm ²
8	CBL 20 PLTD	10	XLPE 150 mm ²
9	CBL 20	10	XLPE 150 mm ²

Lampiran 3 Data Pembangkit

DATA PEMBANGKIT KONDISI EKSISTING			
No	Jenis Pembangkit	Nama Pembangkit	Kapasitas Daya (kW)
1	PLTD	PLTD MITSUBISHI	1300
		PLTD CUMMINS 1	600
		PLTD CUMMINS 2	600
2	PLTS	PLTS WAHA	75

SPESIFIKASI PLTS			
No.	NAMA PLTS	KAPASITAS DAYA (kW)	TRAFO DAYA (kW)
1	PLTS WAHA	75	100
2	PLTS WDR	235	250
3	PLTS KAHYANGA	320	400
4	PLTS DETE	120	160
5	PLTS KULATI	150	160

Lampiran 4 Pehitungan *Power Loss Index*

No.	KODE TRAFO	kW Flow	kVAr Flow	kW Losses	PLI
1	BCTEI1	68,51	34,09	1,38	0,01227
2	BCTEI	71,65	35,71	1,51	0,01342
3	BCTEI2.	61,67	30,56	1,11	0,00987
4	BCTEN	13,19	6,36	0,0504	0,00045
5	BCTEW	3,77	1,81	082	0,00007
6	BCTEV	3,34	1,61	065	0,00006
7	BCTEJ	72,87	36,33	1,56	0,01387
8	BCTEJ1	64,25	31,86	1,22	0,01084
9	BCTEK	18,77	9,37	0,417	0,00371
10	BCTEH	17,95	8,94	0,382	0,00340
11	BCTEC	13,66	6,72	0,222	0,00197
12	BCTED	123,7	61,54	2,9	0,02578
13	BCTER	76,41	37,9	1,79	0,01591
14	BCTEB1	39,87	19,86	0,976	0,00868
15	BCTEB	34,99	17,33	0,751	0,00668
16	BCTEU	12,64	6,18	0,196	0,00174
17	BCTEA2	31,91	15,73	0,629	0,00559
18	BCTEA	38,52	19,14	0,922	0,00820
19	BCTEA1	17,1	8,45	0,363	0,00323
20	BCTET	69,84	34,55	1,52	0,01351
21	BCTEA3	28,25	13,87	0,495	0,00440
22	BCTEQ	79,02	39,29	1,95	0,01733
23	BCTEX	35,29	17,46	0,778	0,00692
24	BCTEY	36,95	18,32	0,854	0,00759
25	BCTEE	73,9	36,63	1,7	0,01511
26	BCTEF	77,9	38,72	1,9	0,01689
27	BCTEG	119,4	59,2	2,78	0,02471
28	BCTEM	16,73	8,26	0,349	0,00310
29	BCTEG1	34,41	17,01	0,74	0,00658
30	BCTEL	12,96	6,34	0,209	0,00186
31	BCTEO	53	25,92	0,875	0,00778
32	BCTEP	51,19	25,03	0,817	0,00726

Lampiran 5 Perhitungan Rugi-Rugi Daya dan Jatuh Tegangan Kondisi Eksisting

Branch Losses Summary Report

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	
BCTEA - BCTEA1	0.646	0.306	-0.646	-0.306	0.4	-0.1	94.3	94.3	0.06
BCTEA 2 - BCTEA	-0.681	-0.324	0.682	0.324	1.1	-0.3	94.3	94.5	0.14
BCTEA 3 - FCO KAHYANGA	0.139	0.064	-0.139	-0.064	0.0	-0.4	94.2	94.2	0.02
BCTEA1 - LBS RENCANA	0.634	0.301	-0.633	-0.301	0.2	-0.1	94.3	94.3	0.02
BCTEB - BCTEU	0.730	0.346	-0.728	-0.346	2.1	-0.4	94.9	94.7	0.26
BCTEB1 - BCTEB	-0.759	-0.361	0.760	0.360	0.7	-0.1	94.9	95.0	0.08
BCTEC - BCTED	1.207	0.574	-1.196	-0.572	10.5	1.5	96.3	95.5	0.80
BCTED - FCO LAMANGGAU	1.076	0.510	-1.071	-0.509	5.0	0.5	95.5	95.1	0.42
BCTEE - BCTEF	-0.059	-0.028	0.059	0.028	0.0	-0.2	94.1	94.1	0.00
BCTEE - BCTEG	-0.266	-0.126	0.266	0.125	0.2	-0.6	94.1	94.1	0.06
BCTEG - BCTEM	0.149	0.067	-0.149	-0.068	0.1	-0.7	94.1	94.0	0.03
BCTEG1 - FCO TAOAU	0.108	0.048	-0.108	-0.048	0.0	-0.5	94.0	94.0	0.02
BCTEH - BCTEC	-1.217	-0.580	1.222	0.581	5.4	0.8	96.3	96.7	0.41
BCTEI - FCO ONEMAY	0.021	0.002	-0.021	-0.002	0.0	-0.1	97.1	97.1	0.00
BCTEI1 - BRANCH 1	1.486	0.733	-1.486	-0.733	0.7	0.1	97.2	97.1	0.04
BCTEI2 - BCTEI	-0.087	-0.035	0.087	0.035	0.0	-0.3	97.1	97.1	0.01
BCTEJ - BCTEJ1	1.264	0.631	-1.262	-0.630	2.4	0.4	97.0	96.9	0.17
BCTEJ1 - BCTEK	1.202	0.601	-1.201	-0.601	0.4	0.1	96.9	96.8	0.03
BCTEK - PLTS WAHA	1.181	0.589	-1.180	-0.589	1.0	0.1	96.8	96.7	0.08
BCTEL - BCTEO	0.100	0.045	-0.100	-0.046	0.0	-1.1	94.0	93.9	0.04
BCTEM - BCTEG1	-0.127	-0.056	0.127	0.056	0.0	-0.1	94.0	94.0	0.00
BCTEN - BUS UJUNG JARING	0.001	0.000	-0.001	0.000	0.0	-0.1	97.1	97.1	0.00
BCTEO - BCTEP	0.045	0.019	-0.045	-0.022	0.0	-3.0	93.9	93.9	0.04
BCTEP - UJUNG JARING KULA	0.009	0.005	-0.009	-0.005	0.0	0.0	93.9	93.9	0.00
BCTEQ - FCO WAWOTIMU	0.071	0.033	-0.071	-0.033	0.0	-0.1	94.1	94.1	0.00
BCTER - WDR	-0.202	-0.096	0.202	0.095	0.2	-1.2	94.8	94.9	0.08
BCTET - BCTEA 3	-0.165	-0.076	0.165	0.076	0.0	-0.3	94.2	94.2	0.02
BCTEU - BCTEA 2	-0.712	-0.339	0.713	0.338	1.4	-0.3	94.5	94.7	0.17
BCTEV - BUS UJUNG JARING	0.000	0.000	0.000	0.000	0.0	-0.5	97.1	97.1	0.00
BCTEW - BCTEV	-0.003	-0.001	0.003	-0.001	0.0	-2.5	97.1	97.1	0.00
BCTEX - BCTEY	-0.031	-0.015	0.031	0.014	0.0	-0.6	94.0	94.0	0.01
BRANCH 1 - BCTEI2	-0.147	-0.064	0.147	0.064	0.0	-0.1	97.1	97.1	0.00
BRANCH 1 - BCTEJ	-1.335	-0.667	1.336	0.667	1.4	0.2	97.0	97.1	0.09
BRANCH 4 - BCTEE	0.405	0.193	-0.405	-0.194	0.5	-0.7	94.2	94.1	0.11
BRANCH 4 - BCTET	-0.229	-0.108	0.229	0.108	0.0	-0.1	94.2	94.2	0.00

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	
CBL 0.4 CUMMINS 1 600KW	-0.315	-0.096	0.316	0.096	1.0	0.5	99.7	100.0	0.34
CBL 0.4 CUMMINS 2 600KW	-0.315	-0.096	0.316	0.096	1.0	0.5	99.7	100.0	0.34
CBL 0.4 MISTUBISHI 1330KW	-0.951	-0.620	0.963	0.625	12.0	5.6	101.3	102.5	1.17
CBL 0.4 PLTD 1	0.944	0.624	-0.932	-0.619	11.9	5.5	101.3	100.2	1.16
CBL 0.4 PLTD 2	0.630	0.193	-0.626	-0.191	4.2	1.9	99.7	99.0	0.69
CBL 20	1.547	0.777	-1.547	-0.778	0.0	-0.3	97.2	97.2	0.00
CBL 20 PLTD	1.542	0.775	-1.542	-0.775	0.0	-0.3	97.2	97.2	0.00
CBL 20 PLTD 1	-0.931	-0.583	0.931	0.583	0.0	-0.3	97.2	97.2	0.00
CBL 20 PLTD 2	-0.611	-0.192	0.611	0.192	0.0	-0.3	97.2	97.2	0.00
FCO KAHYANGA - BCTEQ	-0.138	-0.067	0.139	0.064	0.2	-3.0	94.1	94.2	0.14
FCO LAMANGGAU - BCTEB1	-0.777	-0.367	0.778	0.367	0.7	-0.1	95.0	95.1	0.08
FCO LAMANGGAU - BCTER	-0.282	-0.136	0.283	0.135	0.5	-1.5	94.9	95.1	0.15
FCO ONEMAY - BCTEN	-0.013	-0.006	0.013	0.003	0.0	-3.2	97.1	97.1	0.01
FCO ONEMAY - FCO PATUA 2	0.007	-0.002	-0.007	0.001	0.0	-0.9	97.1	97.1	0.00
FCO PATUA 2 - BCTEW	-0.007	0.000	0.007	-0.001	0.0	-1.6	97.1	97.1	0.00
FCO TAOAU - BCTEL	-0.107	-0.049	0.107	0.048	0.0	-0.7	94.0	94.0	0.03
FCO WAWOTIMU - BCTEX	-0.066	-0.032	0.066	0.031	0.0	-1.7	94.0	94.1	0.04
LBC RENCANA - BRANCH 4	-0.629	-0.298	0.629	0.298	0.2	-0.1	94.2	94.3	0.02
PLTD TOMIA - BCTEH	-1.551	-0.766	1.551	0.766	0.1	0.0	97.2	97.2	0.01
PLTS WAHA - BCTEH	-1.239	-0.590	1.240	0.590	0.6	0.1	96.7	96.7	0.05
PLTS WAHA - BUS FCO PLTSW	0.062	0.002	-0.062	-0.003	0.0	0.0	96.7	96.7	0.00
TRAFO BCTEA	0.039	0.019	-0.038	-0.018	0.9	1.4	94.3	91.2	3.14
TRAFO BCTEA1	0.017	0.008	-0.017	-0.008	0.4	0.5	94.3	91.5	2.79
TRAFO BCTEA2	0.032	0.016	-0.031	-0.015	0.6	0.9	94.5	91.9	2.59
TRAFO BCTEA3	0.028	0.014	-0.028	-0.013	0.5	0.7	94.2	91.9	2.30
TRAFO BCTEB	0.035	0.017	-0.034	-0.016	0.8	1.1	94.9	92.1	2.84
TRAFO BCTEB1	0.040	0.020	-0.039	-0.018	1.0	1.5	95.0	91.8	3.24
TRAFO BCTEC	0.014	0.007	-0.013	-0.006	0.2	0.3	96.3	94.1	2.18
TRAFO BCTED	0.124	0.062	-0.121	-0.057	2.9	4.4	95.5	92.4	3.12
TRAFO BCTEE	0.074	0.037	-0.072	-0.034	1.7	2.6	94.1	91.1	3.02
TRAFO BCTEF	0.078	0.039	-0.076	-0.036	1.9	2.8	94.1	90.9	3.19
TRAFO BCTEG	0.119	0.059	-0.117	-0.055	2.8	4.2	94.1	91.0	3.05
TRAFO BCTEG1	0.034	0.017	-0.034	-0.016	0.7	1.1	94.0	91.2	2.81
TRAFO BCTEH	0.018	0.009	-0.018	-0.008	0.4	0.6	96.7	93.8	2.86
TRAFO BCTEI	0.072	0.036	-0.070	-0.033	1.5	2.3	97.1	94.3	2.85
TRAFO BCTEI1	0.069	0.034	-0.067	-0.032	1.4	2.1	97.2	94.4	2.72
TRAFO BCTEI2	0.062	0.031	-0.061	-0.029	1.1	1.7	97.1	94.7	2.45

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	
TRAF0 BCTEJ	0.073	0.036	-0.071	-0.034	1.6	2.3	97.0	94.1	2.90
TRAF0 BCTEJ1	0.064	0.032	-0.063	-0.030	1.2	1.8	96.9	94.3	2.55
TRAF0 BCTEK	0.019	0.009	-0.018	-0.009	0.4	0.6	96.8	93.8	2.99
TRAF0 BCTEL	0.013	0.006	-0.013	-0.006	0.2	0.3	94.0	91.9	2.11
TRAF0 BCTEM	0.017	0.008	-0.016	-0.008	0.3	0.5	94.0	91.3	2.73
TRAF0 BCTEN	0.013	0.006	-0.013	-0.006	0.1	0.1	97.1	96.6	0.52
TRAF0 BCTEO	0.053	0.026	-0.052	-0.025	0.9	1.3	93.9	91.8	2.16
TRAF0 BCTEP	0.051	0.025	-0.050	-0.024	0.8	1.2	93.9	91.8	2.09
TRAF0 BCTEQ	0.079	0.039	-0.077	-0.036	2.0	2.9	94.1	90.8	3.24
TRAF0 BCTER	0.076	0.038	-0.075	-0.035	1.8	2.7	94.9	91.8	3.10
TRAF0 BCTET	0.070	0.035	-0.068	-0.032	1.5	2.3	94.2	91.4	2.85
TRAF0 BCTEU	0.013	0.006	-0.012	-0.006	0.2	0.3	94.7	92.6	2.05
TRAF0 BCTEV	0.003	0.002	-0.003	-0.002	0.0	0.0	97.1	96.8	0.26
TRAF0 BCTEW	0.004	0.002	-0.004	-0.002	0.0	0.0	97.1	96.8	0.30
TRAF0 BCTEX	0.035	0.017	-0.035	-0.016	0.8	1.2	94.0	91.1	2.89
TRAF0 BCTEY	0.037	0.018	-0.036	-0.017	0.9	1.3	94.0	91.0	3.02
TRAF0 DAYA PLTD 1	-0.921	-0.589	0.929	0.638	8.1	48.8	97.2	100.2	3.00
TRAF0 DAYA PLTD 2	-0.607	-0.182	0.613	0.202	5.8	20.4	97.2	99.0	1.79
TRAF0 DAYA PLTS WAHA	-0.061	0.001	0.062	0.000	0.9	1.3	96.7	98.1	1.36
					112.5	107.1			

* This Transmission Line includes Series Capacitor.

Lampiran 6 Perhitungan Rugi-Rugi Daya dan Jatuh Tegangan Kondisi Penambahan PLTS

Branch Losses Summary Report

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	
BCTEA - BCTEA1	0.217	0.318	-0.217	-0.318	0.1	-0.2	96.4	96.4	0.02
BCTEA 2 - BCTEA	-0.253	-0.336	0.253	0.336	0.3	-0.6	96.4	96.5	0.06
BCTEA 3 - FCO KAHYANGA	-0.101	0.067	0.101	-0.068	0.0	-0.5	96.4	96.4	0.01
BCTEA1 - LBS RENCANA	0.203	0.311	-0.203	-0.312	0.0	-0.1	96.4	96.4	0.01
BCTEB - BCTEU	0.298	0.357	-0.297	-0.358	0.7	-1.0	96.7	96.6	0.13
BCTEB1 - BCTEB	-0.329	-0.373	0.329	0.372	0.2	-0.3	96.7	96.7	0.04
BCTEC - BCTED	0.594	0.589	-0.590	-0.590	4.0	-0.8	97.4	97.0	0.45
BCTED - FCO LAMANGGAU	0.467	0.526	-0.466	-0.526	1.7	-0.7	97.0	96.8	0.22
BCTEE - BCTEF	-0.066	-0.032	0.066	0.032	0.0	-0.2	96.3	96.3	0.00
BCTEE - BCTEG	-0.068	-0.130	0.068	0.129	0.0	-0.7	96.3	96.3	0.02
BCTEG - BCTEM	-0.049	0.071	0.049	-0.071	0.0	-0.7	96.3	96.3	0.00
BCTEG1 - FCO TAOAU	-0.094	0.049	0.094	-0.050	0.0	-0.6	96.3	96.3	0.01
BCTEH - BCTEC	-0.603	-0.597	0.606	0.596	2.1	-0.4	97.4	97.7	0.23
BCTEI - FCO ONEMAY	0.020	0.001	-0.020	-0.001	0.0	-0.1	97.9	97.9	0.00
BCTEI1 - BRANCH 1	0.887	0.759	-0.887	-0.759	0.3	0.0	97.9	97.9	0.03
BCTEI2 - BCTEI	-0.088	-0.035	0.088	0.035	0.0	-0.3	97.9	97.9	0.01
BCTEJ - BCTEJ1	0.665	0.657	-0.664	-0.657	1.0	-0.1	97.9	97.8	0.10
BCTEJ1 - BCTEK	0.583	0.616	-0.583	-0.616	0.2	0.0	97.8	97.7	0.02
BCTEK - PLTS WAHA	0.563	0.605	-0.563	-0.605	0.4	-0.1	97.7	97.7	0.04
BCTEL - BCTEO	-0.106	0.045	0.106	-0.046	0.0	-1.1	96.3	96.4	0.03
BCTEM - BCTEG1	0.069	-0.061	-0.069	0.061	0.0	-0.1	96.3	96.3	0.00
BCTEN - BUS UJUNG JARING	0.001	0.000	-0.001	0.000	0.0	-0.1	97.9	97.9	0.00
BCTEO - NODE PLTS	-0.159	0.020	0.159	-0.020	0.0	-0.4	96.4	96.4	0.02
BCTEP - UJUNG JARING KULA	0.117	0.002	-0.117	-0.002	0.0	0.0	96.4	96.4	0.00
BCTEQ - FCO WAWOTIMU	0.071	0.033	-0.071	-0.033	0.0	-0.1	96.4	96.4	0.00
BCTER - WDR	-0.212	-0.102	0.212	0.101	0.2	-1.2	96.6	96.7	0.09
BCTET - BCTEA 3	0.074	-0.080	-0.074	0.080	0.0	-0.3	96.4	96.4	0.00
BCTEU - BCTEA 2	-0.283	-0.351	0.284	0.350	0.4	-0.6	96.5	96.6	0.08
BCTEV - BUS UJUNG JARING	0.000	0.000	0.000	0.000	0.0	-0.5	97.9	97.9	0.00
BCTEW - BCTEV	-0.003	-0.001	0.003	-0.001	0.0	-2.5	97.9	97.9	0.00
BCTEX - BCTEY	-0.033	-0.016	0.033	0.016	0.0	-0.6	96.4	96.4	0.01
BRANCH 1 - BCTED	-0.148	-0.065	0.148	0.065	0.0	-0.1	97.9	97.9	0.00
BRANCH 1 - BCTEJ	-0.736	-0.693	0.737	0.693	0.6	0.0	97.9	97.9	0.06
BRANCH 4 - BCTEE	0.211	0.199	-0.211	-0.200	0.2	-0.8	96.4	96.3	0.07
BRANCH 4 - BCTET	0.008	-0.113	-0.008	0.113	0.0	-0.1	96.4	96.4	0.00

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	
CBL 0.4 CUMMINS1 600KW	-0.172	-0.099	0.172	0.099	0.4	0.2	99.8	100.0	0.21
CBL 0.4 CUMMINS2 600KW	-0.172	-0.099	0.172	0.099	0.4	0.2	99.8	100.0	0.21
CBL 0.4 MISTUBISHI 1330KW	-0.620	-0.636	0.627	0.640	7.3	3.4	101.6	102.5	0.86
CBL 0.4 PLTD 1	0.617	0.638	-0.610	-0.634	7.3	3.4	101.6	100.8	0.86
CBL 0.4 PLTD 2	0.344	0.197	-0.342	-0.197	1.5	0.7	99.8	99.4	0.42
CBL 20	0.953	0.799	-0.953	-0.799	0.0	-0.3	98.0	97.9	0.00
CBL 20 PLTD	0.949	0.797	-0.949	-0.797	0.0	-0.3	98.0	98.0	0.00
CBL 20 PLTD 1	-0.612	-0.602	0.612	0.602	0.0	-0.3	98.0	98.0	0.00
CBL 20 PLTD 2	-0.337	-0.195	0.337	0.194	0.0	-0.3	98.0	98.0	0.00
FCO KAHYANGA - PLTS KAHY	-0.101	0.067	0.101	-0.070	0.1	-2.3	96.4	96.4	0.05
FCO LAMANGGAU - BCTEB1	-0.363	-0.389	0.363	0.389	0.3	-0.2	96.7	96.8	0.04
FCO LAMANGGAU - NODE PL	0.102	0.136	-0.102	-0.137	0.1	-1.0	96.8	96.7	0.04
FCO ONEMAY - BCTEN	-0.013	-0.006	0.013	0.003	0.0	-3.3	97.9	97.9	0.01
FCO ONEMAY - FCO BATUA 2	0.007	-0.002	-0.007	0.001	0.0	-0.9	97.9	97.9	0.00
FCO PATUA 2 - BCTEW	-0.007	0.000	0.007	-0.001	0.0	-1.6	97.9	97.9	0.00
FCO TAOAU - BCTEL	0.094	-0.050	-0.094	0.050	0.0	-0.8	96.3	96.3	0.02
FCO WAWOTIMU - BCTEX	-0.068	-0.033	0.068	0.032	0.0	-1.7	96.4	96.4	0.04
LBC RENCANA - BRANCH 4	-0.200	-0.310	0.200	0.310	0.0	-0.1	96.4	96.4	0.01
NODE PLTS - BCTEP	0.065	-0.023	-0.065	0.021	0.0	-2.7	96.4	96.4	0.04
NODE PLTS - BCTER	-0.290	-0.141	0.291	0.140	0.2	-0.6	96.7	96.7	0.06
PLTD TOMIA - BCTEII	-0.953	-0.792	0.953	0.792	0.0	0.0	97.9	97.9	0.00
PLTS DETE - NODE PLTS	0.095	0.001	-0.095	-0.001	0.0	-0.1	96.4	96.4	0.00
PLTS KAHYANGA - BCTEQ	-0.143	-0.069	0.143	0.068	0.1	-0.9	96.4	96.4	0.04
PLTS KAHYANGA - NODE PLT	0.245	-0.001	-0.245	0.001	0.0	0.0	96.4	96.4	0.00
PLTS KULATI - BUS UJUNG	0.113	-0.001	-0.113	0.000	0.1	-1.6	96.5	96.4	0.05
PLTS WAHA - BCTEH	-0.623	-0.606	0.623	0.606	0.2	0.0	97.7	97.7	0.03
PLTS WAHA - NODE PLTS	0.062	0.002	-0.062	-0.002	0.0	0.0	97.7	97.7	0.00
PLTS WDR - NODE PLTS	0.196	0.008	-0.196	-0.008	0.0	-0.1	96.7	96.7	0.01
TRAFO BCTEA	0.038	0.019	-0.038	-0.018	0.9	1.3	96.4	93.4	3.07
TRAFO BCTEA1	0.017	0.008	-0.017	-0.008	0.3	0.5	96.4	93.7	2.73
TRAFO BCTEA2	0.032	0.016	-0.031	-0.015	0.6	0.9	96.5	94.0	2.54
TRAFO BCTEA3	0.028	0.014	-0.028	-0.013	0.5	0.7	96.4	94.1	2.25
TRAFO BCTEB	0.035	0.017	-0.034	-0.016	0.7	1.1	96.7	93.9	2.78
TRAFO BCTEB1	0.040	0.020	-0.039	-0.018	0.9	1.4	96.7	93.6	3.17
TRAFO BCTEC	0.014	0.007	-0.013	-0.006	0.2	0.3	97.4	95.3	2.15
TRAFO BCTED	0.123	0.062	-0.121	-0.057	2.8	4.2	97.0	93.9	3.07
TRAFO BCTEE	0.074	0.037	-0.072	-0.034	1.0	2.4	96.3	93.4	2.95

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	
TRAFO BCTEF	0.078	0.039	-0.076	-0.036	1.8	2.7	96.3	93.2	3.11
TRAFO BCTEG	0.119	0.059	-0.116	-0.055	2.6	4.0	96.3	93.3	2.98
TRAFO BCTEG1	0.034	0.017	-0.034	-0.016	0.7	1.1	96.3	93.6	2.75
TRAFO BCTEH	0.018	0.009	-0.018	-0.008	0.4	0.6	97.7	94.8	2.83
TRAFO BCTEI	0.072	0.036	-0.070	-0.034	1.5	2.2	97.9	95.1	2.82
TRAFO BCTEII	0.068	0.034	-0.067	-0.032	1.4	2.0	97.9	95.3	2.70
TRAFO BCTEIL	0.062	0.031	-0.060	-0.029	1.1	1.6	97.9	95.5	2.42
TRAFO BCTEJ	0.073	0.036	-0.071	-0.034	1.5	2.3	97.9	95.0	2.87
TRAFO BCTEJ1	0.085	0.043	-0.083	-0.039	2.1	3.1	97.8	94.4	3.35
TRAFO BCTEK	0.019	0.009	-0.018	-0.009	0.4	0.6	97.7	94.8	2.96
TRAFO BCTEL	0.013	0.006	-0.013	-0.006	0.2	0.3	96.3	94.3	2.06
TRAFO BCTEM	0.017	0.008	-0.016	-0.008	0.3	0.5	96.3	93.6	2.67
TRAFO BCTEN	0.013	0.006	-0.013	-0.006	0.0	0.1	97.9	97.4	0.51
TRAFO BCTEO	0.053	0.026	-0.052	-0.025	0.8	1.2	96.4	94.2	2.11
TRAFO BCTEP	0.051	0.025	-0.050	-0.024	0.8	1.2	96.4	94.4	2.03
TRAFO BCTEQ	0.079	0.039	-0.077	-0.037	1.9	2.8	96.4	93.2	3.15
TRAFO BCTER	0.076	0.038	-0.075	-0.035	1.7	2.6	96.7	93.6	3.04
TRAFO BCTET	0.070	0.035	-0.068	-0.032	1.4	2.2	96.4	93.6	2.78
TRAFO BCTEU	0.013	0.006	-0.012	-0.006	0.2	0.3	96.6	94.6	2.01
TRAFO BCTEV	0.003	0.002	-0.003	-0.002	0.0	0.0	97.9	97.6	0.26
TRAFO BCTEW	0.004	0.002	-0.004	-0.002	0.0	0.0	97.9	97.6	0.29
TRAFO BCTEX	0.035	0.017	-0.034	-0.016	0.7	1.1	96.4	93.5	2.81
TRAFO BCTEY	0.037	0.018	-0.036	-0.017	0.8	1.2	96.4	93.4	2.95
TRAFO DAYA PLTD 1	-0.609	-0.614	0.614	0.644	5.0	30.0	98.0	100.8	2.83
TRAFO DAYA PLTD 2	-0.335	-0.192	0.337	0.200	2.1	7.5	98.0	99.4	1.42
TRAFO DAYA PLTS DETE	-0.098	0.002	0.099	0.000	1.4	2.1	96.4	97.8	1.38
TRAFO DAYA PLTS KAHYANG	-0.260	0.007	0.264	-0.001	4.0	6.1	96.4	97.9	1.46
TRAFO DAYA PLTS KULATI	-0.121	0.004	0.123	0.000	2.2	3.3	96.5	98.2	1.70
TRAFO DAYA PLTS WAHA	-0.060	0.001	0.061	0.000	0.8	1.3	97.7	99.0	1.35
TRAFO DAYA PLTS WDR	-0.191	0.006	0.194	0.000	3.4	5.2	96.7	98.5	1.71
					80.9	71.6			

* This Transmission Line includes Series Capacitor.

Lampiran 7 Perhitungan Rugi-Rugi Daya dan Jatuh Tegangan Kondisi Penempatan PLTS
Metode PLI

Branch Losses Summary Report

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	
BCTEA - BCTEA1	0.281	0.317	-0.280	-0.317	0.1	-0.2	96.2	96.2	0.03
BCTEA 2 - BCTEA	-0.317	-0.335	0.317	0.334	0.4	-0.5	96.2	96.3	0.08
BCTEA 3 - FCO KAHYANGA	0.030	0.065	-0.030	-0.065	0.0	-0.5	96.2	96.1	0.01
BCTEA1 - LBS RENCANA	0.267	0.310	-0.267	-0.310	0.0	-0.1	96.2	96.2	0.01
BCTEB - BCTEU	0.362	0.356	-0.361	-0.357	0.8	-0.9	96.5	96.4	0.15
BCTEB1 - BCTEB	-0.393	-0.372	0.393	0.371	0.3	-0.2	96.5	96.6	0.05
BCTEC - BCTED	0.590	0.587	-0.586	-0.588	4.0	-0.8	97.4	96.9	0.44
BCTED - FCO LAMANGGAU	0.718	0.526	-0.715	-0.527	2.7	-0.3	96.9	96.6	0.30
BCTEE - BCTEF	0.023	-0.034	-0.023	0.034	0.0	-0.2	96.1	96.1	0.00
BCTEE - BCTEG	-0.091	-0.129	0.091	0.128	0.1	-0.7	96.1	96.1	0.03
BCTEG - BCTEM	0.158	0.072	-0.158	-0.072	0.1	-0.7	96.1	96.1	0.03
BCTEG1 - FCO TAOAU	0.110	0.049	-0.110	-0.050	0.0	-0.6	96.0	96.0	0.02
BCTEH - BCTEC	-0.602	-0.596	0.604	0.595	2.1	-0.4	97.4	97.6	0.23
BCTEI - FCO ONEMAY	0.020	0.001	-0.020	-0.001	0.0	-0.1	97.8	97.8	0.00
BCTEI1 - BRANCH 1	0.866	0.748	-0.866	-0.748	0.3	0.0	97.9	97.8	0.03
BCTEI2 - BCTEI	-0.088	-0.035	0.088	0.035	0.0	-0.3	97.8	97.8	0.01
BCTEJ - BCTEJ1	0.644	0.645	-0.643	-0.646	1.0	-0.1	97.8	97.7	0.10
BCTEJ1 - BCTEK	0.582	0.615	-0.582	-0.615	0.2	0.0	97.7	97.7	0.02
BCTEK - PLTS WAHA	0.562	0.604	-0.562	-0.605	0.4	-0.1	97.7	97.6	0.04
BCTEL - BCTEO	0.101	0.046	-0.101	-0.047	0.0	-1.1	96.0	96.0	0.03
BCTEM - BCTEG1	-0.139	-0.063	0.139	0.063	0.0	-0.1	96.0	96.1	0.01
BCTEN - BUS UJUNG JARING	0.001	0.000	-0.001	0.000	0.0	-0.1	97.8	97.8	0.00
BCTEO - BCTEP	0.047	0.020	-0.047	-0.023	0.0	-3.1	96.0	95.9	0.05
BCTEP - UJUNG JARING KULA	0.006	0.003	-0.006	-0.003	0.0	0.0	95.9	95.9	0.00
BCTEQ - FCO WAWOTIMU	0.071	0.033	-0.071	-0.033	0.0	-0.1	96.1	96.1	0.00
BCTER - WDR	-0.207	-0.099	0.207	0.098	0.2	-1.2	96.4	96.5	0.08
BCTET - BCTEA 3	-0.056	-0.078	0.056	0.078	0.0	-0.3	96.2	96.2	0.01
BCTEU - BCTEA 2	-0.347	-0.350	0.347	0.349	0.5	-0.6	96.3	96.4	0.10
BCTEV - BUS UJUNG JARING	0.000	0.000	0.000	0.000	0.0	-0.5	97.8	97.8	0.00
BCTEW - BCTEV	-0.003	-0.001	0.003	-0.001	0.0	-2.5	97.8	97.8	0.00
BCTEX - BCTEY	-0.033	-0.016	0.033	0.015	0.0	-0.6	96.1	96.1	0.01
BRANCH 1 - BCTEI2	-0.148	-0.065	0.148	0.064	0.0	-0.1	97.8	97.8	0.00
BRANCH 1 - BCTEJ	-0.715	-0.682	0.716	0.682	0.6	0.0	97.8	97.8	0.06
BRANCH 4 - BCTEE	0.145	0.200	-0.145	-0.201	0.2	-0.8	96.2	96.1	0.05
BRANCH 4 - BCTEI1	-0.122	-0.110	0.122	0.110	0.0	-0.1	96.2	96.2	0.00

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	
CBL 0.4 CUMMINS1 600KW	-0.161	-0.085	0.162	0.085	0.8	0.4	99.5	100.0	0.48
CBL 0.4 CUMMINS2 600KW	-0.161	-0.085	0.162	0.085	0.8	0.4	99.5	100.0	0.48
CBL 0.4 MISTUBISHI 1330KW	-0.619	-0.654	0.626	0.657	7.5	3.5	101.6	102.5	0.87
CBL 0.4 PLTD 1	0.617	0.655	-0.609	-0.651	7.5	3.5	101.6	100.8	0.86
CBL 0.4 PLTD 2	0.323	0.169	-0.321	-0.168	1.3	0.6	99.5	99.1	0.38
CBL 20	0.932	0.787	-0.932	-0.788	0.0	-0.3	97.9	97.9	0.00
CBL 20 PLTD	0.928	0.786	-0.928	-0.786	0.0	-0.3	97.9	97.9	0.00
CBL 20 PLTD 1	-0.611	-0.618	0.611	0.618	0.0	-0.3	97.9	97.9	0.00
CBL 20 PLTD 2	-0.317	-0.168	0.317	0.167	0.0	-0.8	97.9	97.9	0.00
FCO KAHYANGA - BCTEQ	-0.029	-0.068	0.029	0.065	0.0	-3.2	96.1	96.1	0.04
FCO LAMANGGAU - BCTEB1	-0.422	-0.386	0.423	0.385	0.3	-0.2	96.6	96.6	0.05
FCO LAMANGGAU - BCTER	-0.287	-0.139	0.287	0.137	0.5	-1.5	96.5	96.6	0.15
FCO ONEMAY - BCTEN	-0.013	-0.006	0.013	0.003	0.0	-3.3	97.8	97.8	0.01
FCO ONEMAY - FCO PATUA 2	0.007	-0.002	-0.007	0.001	0.0	-0.9	97.8	97.8	0.00
FCO PATUA 2 - BCTEW	-0.007	0.000	0.007	-0.001	0.0	-1.6	97.8	97.8	0.00
FCO TAOAU - BCTEL	-0.110	-0.050	0.110	0.049	0.0	-0.8	96.0	96.0	0.03
FCO WAWOTIMU - BCTEX	-0.068	-0.033	0.068	0.032	0.0	-1.7	96.1	96.1	0.04
LBC RENCANA - BRANCH 4	-0.264	-0.309	0.264	0.309	0.1	-0.1	96.2	96.2	0.01
PLTD TOMIA - BCTEH	-0.931	-0.781	0.932	0.781	0.0	0.0	97.9	97.9	0.00
PLTS DETE - NODE BCTEF	0.095	0.002	-0.095	-0.002	0.0	-0.1	96.1	96.1	0.00
PLTS KAHYANGA - NODE BCT	0.253	0.002	-0.253	-0.002	0.0	0.0	96.9	96.9	0.00
PLTS KULATI - NODE BCTEQ	0.113	-0.001	-0.113	-0.001	0.1	-1.6	96.2	96.1	0.05
PLTS WAHA - BCTEH	-0.621	-0.605	0.622	0.605	0.2	0.0	97.6	97.6	0.03
PLTS WAHA - NODE PLTS	0.061	0.002	-0.061	-0.002	0.0	0.0	97.6	97.6	0.00
PLTS WDR - NODE BCTEG	0.185	0.002	-0.185	-0.002	0.0	-0.1	96.1	96.1	0.01
TRAFO BCTEA	0.038	0.019	-0.038	-0.018	0.9	1.3	96.2	93.1	3.08
TRAFO BCTEA1	0.017	0.008	-0.017	-0.008	0.3	0.5	96.2	93.5	2.73
TRAFO BCTEA2	0.032	0.016	-0.031	-0.015	0.6	0.9	96.3	93.7	2.54
TRAFO BCTEA3	0.028	0.014	-0.028	-0.013	0.5	0.7	96.2	93.9	2.25
TRAFO BCTEB	0.035	0.017	-0.034	-0.016	0.7	1.1	96.5	93.7	2.79
TRAFO BCTEB1	0.040	0.020	-0.039	-0.018	0.9	1.4	96.6	93.4	3.18
TRAFO BCTEC	0.014	0.007	-0.013	-0.006	0.2	0.3	97.4	95.2	2.15
TRAFO BCTED	0.123	0.062	-0.121	-0.057	2.8	4.2	96.9	93.9	3.07
TRAFO BCTEE	0.074	0.037	-0.072	-0.034	1.6	2.4	96.1	93.2	2.96
TRAFO BCTEF	0.078	0.039	-0.076	-0.036	1.8	2.7	96.1	93.0	3.12
TRAFO BCTEG	0.119	0.059	-0.116	-0.055	2.7	4.0	96.1	93.1	2.99
TRAFO BCTEG1	0.034	0.017	-0.034	-0.016	0.7	1.1	96.0	93.3	2.75

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	
TRAF0 BCTEH	0.018	0.009	-0.018	-0.008	0.4	0.6	97.6	94.8	2.83
TRAF0 BCTEI	0.072	0.036	-0.070	-0.034	1.5	2.2	97.8	95.0	2.82
TRAF0 BCTEI1	0.068	0.034	-0.067	-0.032	1.4	2.0	97.9	95.2	2.70
TRAF0 BCTEI2	0.062	0.031	-0.060	-0.029	1.1	1.6	97.8	95.4	2.43
TRAF0 BCTEJ	0.073	0.036	-0.071	-0.034	1.5	2.3	97.8	94.9	2.87
TRAF0 BCTEJ1	0.064	0.032	-0.063	-0.030	1.2	1.8	97.7	95.2	2.53
TRAF0 BCTEK	0.019	0.009	-0.018	-0.009	0.4	0.6	97.7	94.7	2.96
TRAF0 BCTEL	0.013	0.006	-0.013	-0.006	0.2	0.3	96.0	93.9	2.07
TRAF0 BCTEM	0.017	0.008	-0.016	-0.008	0.3	0.5	96.1	93.4	2.67
TRAF0 BCTEN	0.013	0.006	-0.013	-0.006	0.0	0.1	97.8	97.3	0.51
TRAF0 BCTEO	0.053	0.026	-0.052	-0.025	0.8	1.3	96.0	93.9	2.12
TRAF0 BCTEP	0.051	0.025	-0.050	-0.024	0.8	1.2	95.9	93.9	2.04
TRAF0 BCTEQ	0.079	0.039	-0.077	-0.037	1.9	2.8	96.1	92.9	3.16
TRAF0 BCTER	0.076	0.038	-0.075	-0.035	1.7	2.6	96.5	93.4	3.05
TRAF0 BCTET	0.070	0.035	-0.068	-0.032	1.5	2.2	96.2	93.4	2.79
TRAF0 BCTEU	0.013	0.006	-0.012	-0.006	0.2	0.3	96.4	94.4	2.01
TRAF0 BCTEV	0.003	0.002	-0.003	-0.002	0.0	0.0	97.8	97.6	0.26
TRAF0 BCTEW	0.004	0.002	-0.004	-0.002	0.0	0.0	97.8	97.5	0.29
TRAF0 BCTEX	0.035	0.017	-0.034	-0.016	0.7	1.1	96.1	93.2	2.82
TRAF0 BCTEY	0.037	0.018	-0.036	-0.017	0.8	1.2	96.1	93.1	2.96
TRAF0 DAYA PLTD 1	-0.607	-0.630	0.612	0.661	5.1	30.8	97.9	100.8	2.90
TRAF0 DAYA PLTD 2	-0.315	-0.165	0.317	0.172	1.8	6.3	97.9	99.1	1.26
TRAF0 DAYA PLTS DETE	-0.098	0.002	0.099	0.000	1.4	2.2	96.1	97.5	1.38
TRAF0 DAYA PLTS KAHYANG	-0.260	0.007	0.264	-0.001	4.0	6.0	96.9	98.4	1.46
TRAF0 DAYA PLTS KULATI	-0.121	0.004	0.123	0.000	2.2	3.3	96.2	97.9	1.70
TRAF0 DAYA PLTS WAHA	-0.060	0.001	0.061	0.000	0.8	1.3	97.6	99.0	1.35
TRAF0 DAYA PLTS WDR	-0.191	0.006	0.195	0.000	3.5	5.3	96.1	97.8	1.72
					82.3	73.7			

* This Transmission Line includes Series Capacitor.

Lampiran 8 Perhitungan Rugi-Rugi Daya dan Jatuh Tegangan Penambahan Beban 5%

Branch Losses Summary Report

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	
BCTEA - BCTEA1	0.038	0.321	-0.038	-0.321	0.1	-0.3	96.6	96.6	0.01
BCTEA 2 - BCTEA	-0.074	-0.339	0.074	0.338	0.2	-0.6	96.6	96.6	0.03
BCTEA 3 - FCO KAHYANGA	0.143	0.065	-0.143	-0.066	0.0	-0.5	96.5	96.5	0.02
BCTEA1 - LBS RENCANA	0.024	0.314	-0.024	-0.314	0.0	-0.1	96.6	96.6	0.00
BCTEB - BCTEU	0.119	0.359	-0.118	-0.360	0.4	-1.0	96.7	96.7	0.07
BCTEB1 - BCTEB	-0.150	-0.375	0.150	0.375	0.1	-0.3	96.7	96.8	0.02
BCTEC - BCTED	0.594	0.589	-0.590	-0.590	4.0	-0.8	97.4	97.0	0.45
BCTED - FCO LAMANGGAU	0.468	0.526	-0.466	-0.526	1.7	-0.7	97.0	96.8	0.22
BCTEE - BCTEF	0.175	-0.036	-0.175	0.036	0.0	-0.2	96.6	96.6	0.01
BCTEE - BCTEG	0.113	-0.131	-0.113	0.130	0.1	-0.7	96.6	96.6	0.01
BCTEG - BCTEM	-0.047	0.072	0.047	-0.073	0.0	-0.7	96.6	96.6	0.00
BCTEG1 - FCO TAOAU	-0.094	0.050	0.094	-0.050	0.0	-0.6	96.6	96.6	0.01
BCTEH - BCTEC	-0.604	-0.597	0.606	0.596	2.1	-0.4	97.4	97.7	0.23
BCTEI - FCO ONEMAY	0.020	0.001	-0.020	-0.001	0.0	-0.1	97.9	97.9	0.00
BCTEI1 - BRANCH 1	0.888	0.759	-0.888	-0.759	0.3	0.0	97.9	97.9	0.03
BCTEI2 - BCTEI	-0.088	-0.035	0.088	0.035	0.0	-0.3	97.9	97.9	0.01
BCTEJ - BCTEJ1	0.666	0.657	-0.665	-0.657	1.0	-0.1	97.9	97.8	0.10
BCTEJ1 - BCTEK	0.584	0.616	-0.584	-0.616	0.2	0.0	97.8	97.7	0.02
BCTEK - PLTS WAHA	0.563	0.605	-0.563	-0.605	0.4	-0.1	97.7	97.7	0.04
BCTEL - BCTEO	-0.106	0.045	0.106	-0.046	0.0	-1.1	96.6	96.7	0.03
BCTEM - BCTEG1	0.065	-0.064	-0.065	0.064	0.0	-0.1	96.6	96.6	0.00
BCTEN - BUS UJUNG JARING	0.001	0.000	-0.001	0.000	0.0	-0.1	97.9	97.9	0.00
BCTEO - NODE PLTS	-0.159	0.020	0.159	-0.020	0.0	-0.4	96.7	96.7	0.02
BCTEP - UJUNG JARING KULA	0.117	0.002	-0.117	-0.002	0.0	0.0	96.7	96.7	0.00
BCTEQ - FCO WAWOTIMU	0.071	0.033	-0.071	-0.033	0.0	-0.1	96.4	96.4	0.00
BCTER - WDR	-0.212	-0.102	0.212	0.101	0.2	-1.2	96.5	96.6	0.09
BCTET - BCTEA 3	-0.170	-0.079	0.170	0.078	0.0	-0.3	96.5	96.6	0.02
BCTEU - BCTEA 2	-0.105	-0.354	0.105	0.353	0.3	-0.7	96.6	96.7	0.05
BCTEV - BUS UJUNG JARING	0.000	0.000	0.000	0.000	0.0	-0.5	97.9	97.9	0.00
BCTEW - BCTEV	-0.003	-0.001	0.003	-0.001	0.0	-2.5	97.9	97.9	0.00
BCTEX - BCTEY	-0.033	-0.016	0.033	0.016	0.0	-0.6	96.3	96.3	0.01
BRANCH 1 - BCTEI2	-0.148	-0.065	0.148	0.065	0.0	-0.1	97.9	97.9	0.00
BRANCH 1 - BCTEJ	-0.737	-0.693	0.737	0.693	0.6	0.0	97.9	97.9	0.06
BRANCH 4 - BCTEE	-0.212	0.203	0.212	-0.204	0.2	-0.8	96.6	96.6	0.03
BRANCH 4 - BCTET	-0.236	-0.111	0.236	0.111	0.0	-0.1	96.6	96.6	0.00

Branch Losses Summary Report

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	
BCTEA - BCTEA1	0.234	0.326	-0.234	-0.327	0.1	-0.2	96.3	96.3	0.03
BCTEA 2 - BCTEA	-0.270	-0.345	0.270	0.344	0.3	-0.5	96.3	96.4	0.07
BCTEA 3 - FCO KAHYANGA	-0.101	0.067	0.101	-0.067	0.0	-0.5	96.3	96.3	0.01
BCTEA1 - LBS RENCANA	0.220	0.320	-0.220	-0.320	0.0	-0.1	96.3	96.3	0.01
BCTEB - BCTEU	0.315	0.365	-0.314	-0.366	0.7	-0.9	96.6	96.5	0.13
BCTEB1 - BCTEB	-0.346	-0.381	0.347	0.381	0.2	-0.3	96.6	96.6	0.04
BCTEC - BCTED	0.611	0.598	-0.607	-0.598	4.2	-0.7	97.3	96.9	0.46
BCTED - FCO LAMANGGAU	0.485	0.534	-0.483	-0.535	1.8	-0.7	96.9	96.7	0.22
BCTEE - BCTEF	-0.059	-0.028	0.059	0.028	0.0	-0.2	96.2	96.2	0.00
BCTEE - BCTEG	-0.091	-0.141	0.091	0.140	0.1	-0.7	96.2	96.2	0.03
BCTEG - BCTEM	-0.028	0.081	0.028	-0.082	0.0	-0.7	96.2	96.2	0.00
BCTEG1 - FCO TAOAU	-0.072	0.060	0.072	-0.061	0.0	-0.6	96.2	96.2	0.01
BCTEH - BCTEC	-0.621	-0.605	0.623	0.605	2.2	-0.4	97.3	97.6	0.24
BCTEI - FCO ONEMAY	0.036	0.009	-0.036	-0.009	0.0	-0.1	97.8	97.8	0.00
BCTEI1 - BRANCH 1	0.915	0.773	-0.915	-0.773	0.4	0.0	97.9	97.8	0.03
BCTEI2 - BCTEI	-0.104	-0.043	0.104	0.043	0.0	-0.3	97.8	97.8	0.01
BCTEJ - BCTEJ1	0.669	0.658	-0.668	-0.658	1.0	-0.1	97.8	97.7	0.10
BCTEJ1 - BCTEK	0.601	0.624	-0.601	-0.624	0.2	0.0	97.7	97.7	0.02
BCTEK - PLTS WAHA	0.580	0.614	-0.580	-0.614	0.4	-0.1	97.7	97.6	0.04
BCTEL - BCTEO	-0.084	0.056	0.084	-0.057	0.0	-1.1	96.2	96.2	0.02
BCTEM - BCTEG1	0.048	-0.071	-0.048	0.071	0.0	-0.1	96.2	96.2	0.00
BCTEN - BUS UJUNG JARING	0.001	0.000	-0.001	0.000	0.0	-0.1	97.8	97.8	0.00
BCTEO - NODE PLTS	-0.149	0.024	0.149	-0.024	0.0	-0.4	96.2	96.2	0.02
BCTEP - UJUNG JARING KULA	0.117	0.003	-0.117	-0.003	0.0	0.0	96.2	96.2	0.00
BCTEQ - FCO WAWOTIMU	0.071	0.033	-0.071	-0.033	0.0	-0.1	96.3	96.3	0.00
BCTER - WDR	-0.212	-0.102	0.212	0.101	0.2	-1.2	96.5	96.6	0.09
BCTET - BCTEA 3	0.072	-0.081	-0.072	0.081	0.0	-0.3	96.3	96.2	0.00
BCTEU - BCTEA 2	-0.301	-0.359	0.301	0.359	0.5	-0.6	96.4	96.5	0.09
BCTEV - BUS UJUNG JARING	0.000	0.000	0.000	-0.001	0.0	-0.5	97.8	97.8	0.00
BCTEW - BCTEV	-0.006	-0.002	0.006	0.000	0.0	-2.5	97.8	97.8	0.00
BCTEX - BCTEY	-0.033	-0.016	0.033	0.016	0.0	-0.6	96.2	96.2	0.01
BRANCH 1 - BCTEI2	-0.172	-0.077	0.172	0.076	0.0	-0.1	97.8	97.8	0.01
BRANCH 1 - BCTEJ	-0.740	-0.694	0.740	0.694	0.6	0.0	97.8	97.8	0.06
BRANCH 4 - BCTEE	0.227	0.207	-0.227	-0.208	0.2	-0.8	96.3	96.2	0.07
BRANCH 4 - BCTET	0.006	-0.114	-0.006	0.114	0.0	-0.1	96.2	96.3	0.00

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	
CBL 0.4 CUMMINS1 600KW	-0.179	-0.103	0.179	0.103	0.4	0.2	99.8	100.0	0.22
CBL 0.4 CUMMINS2 600KW	-0.179	-0.103	0.179	0.103	0.4	0.2	99.8	100.0	0.22
CBL 0.4 MISTUBISHI 1330KW	-0.636	-0.645	0.644	0.648	7.6	3.5	101.6	102.5	0.88
CBL 0.4 PLTD 1	0.634	0.646	-0.626	-0.643	7.6	3.5	101.6	100.7	0.88
CBL 0.4 PLTD 2	0.358	0.205	-0.356	-0.204	1.6	0.8	99.8	99.4	0.43
CBL 20	0.983	0.813	-0.983	-0.814	0.0	-0.3	97.9	97.9	0.00
CBL 20 PLTD	0.979	0.812	-0.979	-0.812	0.0	-0.3	97.9	97.9	0.00
CBL 20 PLTD 1	-0.628	-0.610	0.628	0.609	0.0	-0.3	97.9	97.9	0.00
CBL 20 PLTD 2	-0.351	-0.202	0.351	0.202	0.0	-0.3	97.9	97.9	0.00
FCO KAHYANGA - PLTS KAHY	-0.101	0.067	0.101	-0.070	0.1	-2.3	96.3	96.3	0.05
FCO LAMANGGAU - BCTEB1	-0.380	-0.398	0.380	0.397	0.3	-0.2	96.6	96.7	0.04
FCO LAMANGGAU - NODE PL	0.102	0.135	-0.102	-0.136	0.1	-1.0	96.7	96.6	0.04
FCO ONEMAY - BCTEN	-0.018	-0.009	0.018	0.006	0.0	-3.3	97.8	97.8	0.02
FCO ONEMAY - FCO PATUA 2	0.017	0.003	-0.017	-0.004	0.0	-0.9	97.8	97.8	0.00
FCO PATUA 2 - BCTEW	-0.017	-0.006	0.017	0.004	0.0	-1.6	97.8	97.8	0.01
FCO TAOAU - BCTEL	0.073	-0.061	-0.073	0.060	0.0	-0.8	96.2	96.2	0.01
FCO WAWOTIMU - BCTEX	-0.068	-0.033	0.068	0.032	0.0	-1.7	96.2	96.3	0.04
LBC RENCANA - BRANCH 4	-0.218	-0.318	0.218	0.318	0.0	-0.1	96.3	96.3	0.01
NODE PLTS - BCTEP	0.055	-0.028	-0.055	0.025	0.0	-2.7	96.2	96.2	0.03
NODE PLTS - BCTER	-0.290	-0.141	0.290	0.140	0.2	-0.6	96.6	96.6	0.06
PLTD TOMIA - BCTEH	-0.983	-0.807	0.983	0.807	0.0	0.0	97.9	97.9	0.00
PLTS DETE - NODE PLTS	0.096	0.002	-0.096	-0.002	0.0	-0.1	96.2	96.2	0.00
PLTS KAHYANGA - BCTEQ	-0.143	-0.069	0.143	0.068	0.1	-0.9	96.3	96.3	0.04
PLTS KAHYANGA - NODE PLT	0.245	-0.001	-0.245	0.001	0.0	0.0	96.3	96.3	0.00
PLTS KULATI - BUS UJUNG	0.113	-0.001	-0.113	0.000	0.1	-1.6	96.3	96.2	0.05
PLTS WAHA - BCTEH	-0.640	-0.614	0.640	0.614	0.3	0.0	97.6	97.6	0.03
PLTS WAHA - NODE PLTS	0.062	0.002	-0.062	-0.002	0.0	0.0	97.6	97.6	0.00
PLTS WDR - NODE PLTS	0.196	0.008	-0.196	-0.008	0.0	-0.1	96.6	96.6	0.01
TRAFO BCTEA	0.038	0.019	-0.038	-0.018	0.9	1.3	96.3	93.2	3.08
TRAFO BCTEA1	0.017	0.008	-0.017	-0.008	0.3	0.5	96.3	93.5	2.73
TRAFO BCTEA2	0.032	0.016	-0.031	-0.015	0.6	0.9	96.4	93.8	2.54
TRAFO BCTEA3	0.030	0.015	-0.029	-0.014	0.5	0.8	96.3	93.9	2.38
TRAFO BCTEB	0.035	0.017	-0.034	-0.016	0.7	1.1	96.6	93.8	2.79
TRAFO BCTEB1	0.040	0.020	-0.039	-0.018	0.9	1.4	96.6	93.4	3.18
TRAFO BCTEC	0.014	0.007	-0.013	-0.006	0.2	0.3	97.3	95.2	2.15
TRAFO BCTED	0.123	0.062	-0.121	-0.057	2.8	4.2	96.9	93.8	3.07
TRAFO BCTEE	0.074	0.037	-0.072	-0.034	1.6	2.4	96.2	93.2	2.95

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	
TRAF0 BCTEF	0.071	0.035	-0.069	-0.033	1.5	2.3	96.2	93.3	2.84
TRAF0 BCTEG	0.120	0.060	-0.118	-0.056	2.7	4.1	96.2	93.1	3.01
TRAF0 BCTEG1	0.034	0.017	-0.034	-0.016	0.7	1.1	96.2	93.4	2.75
TRAF0 BCTEH	0.018	0.009	-0.018	-0.008	0.4	0.6	97.6	94.7	2.84
TRAF0 BCTEI	0.072	0.036	-0.070	-0.034	1.5	2.2	97.8	95.0	2.82
TRAF0 BCTEI1	0.071	0.035	-0.069	-0.033	1.4	2.2	97.9	95.1	2.79
TRAF0 BCTEI2	0.070	0.035	-0.068	-0.033	1.4	2.1	97.8	95.1	2.76
TRAF0 BCTEJ	0.073	0.036	-0.071	-0.034	1.5	2.3	97.8	94.9	2.87
TRAF0 BCTEJ1	0.071	0.035	-0.069	-0.033	1.5	2.2	97.7	94.9	2.79
TRAF0 BCTEK	0.019	0.009	-0.018	-0.009	0.4	0.6	97.7	94.7	2.96
TRAF0 BCTEL	0.013	0.006	-0.013	-0.006	0.2	0.3	96.2	94.1	2.06
TRAF0 BCTEM	0.017	0.008	-0.016	-0.008	0.3	0.5	96.2	93.5	2.67
TRAF0 BCTEN	0.019	0.009	-0.019	-0.009	0.1	0.2	97.8	97.1	0.75
TRAF0 BCTEO	0.066	0.032	-0.064	-0.031	1.3	1.9	96.2	93.6	2.62
TRAF0 BCTEP	0.061	0.030	-0.060	-0.029	1.1	1.7	96.2	93.8	2.44
TRAF0 BCTEQ	0.079	0.039	-0.077	-0.037	1.9	2.8	96.3	93.1	3.16
TRAF0 BCTER	0.076	0.038	-0.075	-0.035	1.7	2.6	96.6	93.5	3.05
TRAF0 BCTET	0.070	0.035	-0.069	-0.033	1.5	2.2	96.2	93.4	2.80
TRAF0 BCTEU	0.013	0.006	-0.012	-0.006	0.2	0.3	96.5	94.4	2.01
TRAF0 BCTEV	0.006	0.003	-0.006	-0.003	0.0	0.0	97.8	97.3	0.49
TRAF0 BCTEW	0.011	0.006	-0.011	-0.005	0.1	0.1	97.8	96.9	0.90
TRAF0 BCTEX	0.035	0.017	-0.034	-0.016	0.7	1.1	96.2	93.4	2.82
TRAF0 BCTEY	0.037	0.018	-0.036	-0.017	0.8	1.2	96.2	93.3	2.95
TRAF0 DAYA PLTD 1	-0.624	-0.621	0.629	0.652	5.2	31.2	97.9	100.7	2.88
TRAF0 DAYA PLTD 2	-0.349	-0.200	0.351	0.208	2.3	8.1	97.9	99.4	1.48
TRAF0 DAYA PLT'S DETE	-0.098	0.002	0.099	0.000	1.4	2.2	96.2	97.6	1.38
TRAF0 DAYA PLT'S KAHYANG	-0.260	0.007	0.264	-0.001	4.1	6.1	96.3	97.8	1.47
TRAF0 DAYA PLT'S KULATI	-0.121	0.004	0.123	0.000	2.2	3.3	96.3	98.0	1.70
TRAF0 DAYA PLT'S WAHA	-0.060	0.001	0.061	0.000	0.9	1.3	97.6	99.0	1.35
TRAF0 DAYA PLT'S WDR	-0.191	0.006	0.194	0.000	3.5	5.2	96.6	98.3	1.71
					83.3	77.9			

* This Transmission Line includes Series Capacitor.

Lampiran 9 Perhitungan Rugi-Rugi Daya dan Jatuh Tegangan Penambahan Beban 10%

Branch Losses Summary Report

Branch ID	From-To Bus Flow		To-From Bus Flow		Losses		% Bus Voltage		Vd % Drop
	MW	Mvar	MW	Mvar	kW	kvar	From	To	in Vmag
BCTEA - BCTEA1	0.253	0.335	-0.253	-0.336	0.1	-0.2	96.0	96.0	0.03
BCTEA 2 - BCTEA	-0.289	-0.353	0.290	0.353	0.4	-0.5	96.0	96.1	0.07
BCTEA 3 - FCO KAHYANGA	-0.100	0.067	0.100	-0.067	0.0	-0.5	96.0	96.0	0.01
BCTEA1 - LBS RENCANA	0.240	0.329	-0.240	-0.329	0.0	-0.1	96.0	96.0	0.01
BCTEB - BCTEU	0.335	0.374	-0.334	-0.375	0.8	-0.9	96.3	96.2	0.14
BCTEB1 - BCTEB	-0.366	-0.390	0.366	0.390	0.3	-0.2	96.3	96.4	0.04
BCTEC - BCTED	0.630	0.606	-0.626	-0.607	4.4	-0.7	97.1	96.7	0.47
BCTED - FCO LAMANGGAU	0.503	0.542	-0.501	-0.543	1.9	-0.6	96.7	96.4	0.23
BCTEE - BCTEF	-0.060	-0.029	0.060	0.029	0.0	-0.2	95.9	95.9	0.00
BCTEE - BCTEG	-0.103	-0.147	0.103	0.146	0.1	-0.7	95.9	95.9	0.03
BCTEG - BCTEM	-0.017	0.086	0.017	-0.087	0.0	-0.7	95.9	95.9	0.00
BCTEG1 - FCO TAOAU	-0.061	0.065	0.061	-0.066	0.0	-0.6	95.9	95.9	0.01
BCTEH - BCTEC	-0.639	-0.614	0.642	0.613	2.3	-0.3	97.1	97.4	0.24
BCTEI - FCO ONEMAY	0.078	0.030	-0.078	-0.030	0.0	-0.1	97.6	97.6	0.00
BCTEI1 - BRANCH 1	0.982	0.805	-0.982	-0.805	0.4	0.0	97.7	97.6	0.03
BCTEI2 - BCTEI	-0.147	-0.064	0.147	0.064	0.0	-0.3	97.6	97.6	0.01
BCTEJ - BCTEJ1	0.690	0.668	-0.689	-0.668	1.1	-0.1	97.6	97.5	0.11
BCTEJ1 - BCTEK	0.620	0.633	-0.620	-0.633	0.2	0.0	97.5	97.5	0.02
BCTEK - PLTS WAHA	0.599	0.622	-0.599	-0.622	0.4	-0.1	97.5	97.4	0.04
BCTEL - BCTEO	-0.073	0.061	0.073	-0.062	0.0	-1.1	95.9	95.9	0.02
BCTEM - BCTEG1	0.037	-0.076	-0.037	0.076	0.0	-0.1	95.9	95.9	0.00
BCTEN - BUS UJUNG JARING	0.002	0.001	-0.002	-0.001	0.0	-0.1	97.6	97.6	0.00
BCTEO - NODE PLTS	-0.143	0.027	0.143	-0.027	0.0	-0.4	95.9	95.9	0.01
BCTEP - UJUNG JARING KULA	0.118	0.003	-0.118	-0.004	0.0	0.0	96.0	96.0	0.00
BCTEQ - FCO WAWOTIMU	0.071	0.033	-0.071	-0.033	0.0	-0.1	96.0	96.0	0.00
BCTER - WDR	-0.211	-0.102	0.212	0.101	0.2	-1.2	96.3	96.3	0.09
BCTET - BCTEA 3	0.070	-0.082	-0.070	0.081	0.0	-0.3	96.0	96.0	0.00
BCTEU - BCTEA 2	-0.520	-0.569	0.520	0.568	0.5	-0.6	96.1	96.2	0.09
BCTEV - BUS UJUNG JARING	0.001	0.000	-0.001	-0.001	0.0	-0.5	97.6	97.6	0.00
BCTEW - BCTEV	-0.014	-0.007	0.014	0.004	0.0	-2.5	97.6	97.6	0.01
BCTEX - BCTEY	-0.033	-0.016	0.033	0.015	0.0	-0.6	96.0	96.0	0.01
BRANCH 1 - BCTEI2	-0.218	-0.099	0.218	0.099	0.0	-0.1	97.6	97.6	0.01
BRANCH 1 - BCTEJ	-0.761	-0.704	0.761	0.704	0.6	0.0	97.6	97.6	0.06
BRANCH 4 - BCTEE	0.242	0.214	-0.241	-0.214	0.3	-0.8	96.0	95.9	0.07
BRANCH 4 - BCTET	0.001	-0.116	-0.001	0.116	0.0	-0.1	96.0	96.0	0.00

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	
CBL 0.4 CUMMINS1 600KW	-0.196	-0.112	0.196	0.112	0.5	0.2	99.8	100.0	0.24
CBL 0.4 CUMMINS2 600KW	-0.196	-0.112	0.196	0.112	0.5	0.2	99.8	100.0	0.24
CBL 0.4 MISTUBISHI 1330KW	-0.675	-0.665	0.683	0.669	8.3	3.9	101.6	102.5	0.92
CBL 0.4 PLTD 1	0.672	0.666	-0.664	-0.662	8.3	3.8	101.6	100.7	0.92
CBL 0.4 PLTD 2.	0.391	0.223	-0.389	-0.222	1.9	0.9	99.8	99.3	0.47
CBL 20	1.052	0.848	-1.052	-0.849	0.0	-0.3	97.7	97.7	0.00
CBL 20 PLTD	1.047	0.846	-1.047	-0.847	0.0	-0.3	97.7	97.7	0.00
CBL 20 PLTD 1	-0.665	-0.627	0.665	0.626	0.0	-0.3	97.7	97.7	0.00
CBL 20 PLTD 2	-0.382	-0.220	0.382	0.219	0.0	-0.3	97.7	97.7	0.00
FCO KAHYANGA - PLTS KAHY	-0.101	0.067	0.101	-0.069	0.1	-2.3	96.0	96.1	0.05
FCO LAMANGGAU - BCTEB1	-0.399	-0.407	0.399	0.406	0.3	-0.2	96.4	96.4	0.05
FCO LAMANGGAU - NODE PL	0.101	0.135	-0.101	-0.136	0.1	-1.0	96.4	96.4	0.04
FCO ONEMAY - BCTEN	-0.039	-0.019	0.039	0.016	0.0	-3.2	97.6	97.6	0.04
FCO ONEMAY - FCO PATUA 2	0.039	0.014	-0.039	-0.015	0.0	-0.9	97.6	97.6	0.01
FCO PATUA 2 - BCTEW	-0.039	-0.016	0.039	0.015	0.0	-1.6	97.6	97.6	0.02
FCO TAOAU - BCTEL	0.062	-0.066	-0.062	0.066	0.0	-0.8	95.9	95.9	0.01
FCO WAWOTIMU - BCTEX	-0.068	-0.033	0.068	0.031	0.0	-1.7	96.0	96.0	0.04
LBC RENCANA - BRANCH 4	-0.237	-0.327	0.237	0.327	0.1	-0.1	96.0	96.0	0.01
NODE PLTS - BCTEP	0.049	-0.031	-0.049	0.029	0.0	-2.7	96.0	95.9	0.03
NODE PLTS - BCTER	-0.290	-0.141	0.290	0.140	0.2	-0.6	96.3	96.4	0.06
PLTD TOMIA - BCTE11	-1.052	-0.840	1.052	0.840	0.1	0.0	97.7	97.7	0.00
PLTS DETE - NODE PLTS	0.096	0.002	-0.096	-0.002	0.0	-0.1	95.9	95.9	0.00
PLTS KAHYANGA - BCTEQ	-0.143	-0.069	0.143	0.068	0.1	-0.9	96.0	96.1	0.04
PLTS KAHYANGA - NODE PLT	0.244	-0.001	-0.244	0.001	0.0	0.0	96.1	96.1	0.00
PLTS KULATI - BUS UJUNG	0.113	-0.001	-0.113	-0.001	0.1	-1.6	96.0	96.0	0.05
PLTS WAHA - BCTEH	-0.659	-0.623	0.659	0.623	0.3	0.0	97.4	97.4	0.03
PLTS WAHA - NODE PLTS	0.062	0.002	-0.062	-0.002	0.0	0.0	97.4	97.4	0.00
PLTS WDR - NODE PLTS	0.197	0.009	-0.197	-0.009	0.0	-0.1	96.4	96.4	0.01
TRAFO BCTEA	0.038	0.019	-0.038	-0.018	0.9	1.3	96.0	93.0	3.09
TRAFO BCTEA1	0.017	0.008	-0.017	-0.008	0.3	0.5	96.0	93.3	2.74
TRAFO BCTEA2	0.032	0.016	-0.032	-0.015	0.6	0.9	96.1	93.5	2.57
TRAFO BCTEA3	0.032	0.016	-0.032	-0.015	0.6	0.9	96.0	93.4	2.58
TRAFO BCTEB	0.035	0.017	-0.034	-0.016	0.7	1.1	96.3	93.6	2.79
TRAFO BCTEB1	0.040	0.020	-0.039	-0.018	0.9	1.4	96.4	93.2	3.19
TRAFO BCTEC	0.014	0.007	-0.013	-0.006	0.2	0.3	97.1	95.0	2.16
TRAFO BCTED	0.123	0.062	-0.121	-0.057	2.8	4.2	96.7	93.6	3.08
TRAFO BCTEE	0.074	0.037	-0.072	-0.034	1.6	2.5	95.9	93.0	2.96

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	
TRAF0BCTEF	0.073	0.036	-0.072	-0.034	1.6	2.4	95.9	93.0	2.94
TRAF0BCTEG	0.123	0.061	-0.120	-0.057	2.8	4.2	95.9	92.8	3.08
TRAF0BCTEG1	0.034	0.017	-0.034	-0.016	0.7	1.1	95.9	93.1	2.76
TRAF0BCTEH	0.018	0.009	-0.018	-0.008	0.4	0.6	97.4	94.5	2.84
TRAF0BCTEI	0.073	0.036	-0.071	-0.034	1.5	2.3	97.6	94.7	2.89
TRAF0BCTEI1	0.073	0.036	-0.071	-0.034	1.5	2.3	97.7	94.8	2.89
TRAF0BCTEI2	0.073	0.036	-0.071	-0.034	1.5	2.3	97.6	94.7	2.89
TRAF0BCTEJ	0.073	0.036	-0.071	-0.034	1.6	2.3	97.6	94.7	2.89
TRAF0BCTEJ1	0.073	0.036	-0.071	-0.034	1.6	2.3	97.5	94.6	2.89
TRAF0BCTEK	0.019	0.009	-0.018	-0.009	0.4	0.6	97.5	94.5	2.97
TRAF0BCTEL	0.013	0.006	-0.013	-0.006	0.2	0.3	95.9	93.8	2.07
TRAF0BCTEM	0.017	0.008	-0.016	-0.008	0.3	0.5	95.9	93.2	2.68
TRAF0BCTEN	0.040	0.020	-0.040	-0.019	0.5	0.7	97.6	96.0	1.58
TRAF0BCTEO	0.070	0.035	-0.069	-0.033	1.5	2.2	95.9	93.1	2.82
TRAF0BCTEP	0.068	0.034	-0.067	-0.032	1.4	2.1	96.0	93.2	2.73
TRAF0BCTEQ	0.079	0.039	-0.077	-0.037	1.9	2.8	96.0	92.8	3.17
TRAF0BCTER	0.076	0.038	-0.075	-0.035	1.7	2.6	96.3	93.3	3.05
TRAF0BCTET	0.073	0.036	-0.072	-0.034	1.6	2.4	96.0	93.1	2.94
TRAF0BCTEU	0.013	0.006	-0.012	-0.006	0.2	0.3	96.2	94.2	2.01
TRAF0BCTEV	0.015	0.007	-0.015	-0.007	0.1	0.2	97.6	96.4	1.20
TRAF0BCTEW	0.025	0.012	-0.024	-0.012	0.4	0.5	97.6	95.6	1.95
TRAF0BCTEX	0.035	0.017	-0.034	-0.016	0.7	1.1	96.0	93.2	2.83
TRAF0BCTEY	0.037	0.018	-0.036	-0.017	0.8	1.2	96.0	93.0	2.96
TRAF0DAYA PLTD 1	-0.660	-0.639	0.666	0.673	5.7	34.1	97.7	100.7	2.98
TRAF0DAYA PLTD 2	-0.380	-0.217	0.383	0.227	2.8	9.7	97.7	99.3	1.61
TRAF0DAYA PLTS DETE	-0.098	0.002	0.100	0.000	1.5	2.2	95.9	97.3	1.39
TRAF0DAYA PLTS KAHYANG	-0.261	0.007	0.265	-0.001	4.1	6.1	96.1	97.5	1.47
TRAF0DAYA PLTS KULATI	-0.121	0.004	0.123	0.000	2.2	3.3	96.0	97.7	1.71
TRAF0DAYA PLTS WAHA	-0.060	0.001	0.061	0.000	0.9	1.3	97.4	98.8	1.35
TRAF0DAYA PLTS WDR	-0.191	0.006	0.194	0.000	3.5	5.2	96.4	98.1	1.72
					89.3	87.2			

* This Transmission Line includes Series Capacitor.

Lampiran 10 Perhitungan Rugi-Rugi Daya dan Jatuh Tegangan Penambahan Beban 15%

Branch Losses Summary Report

Branch ID	From-To Bus Flow		To-From Bus Flow		Losses		% Bus Voltage		Vd
	MW	Mvar	MW	Mvar	kW	kvar	From	To	% Drop in Vmag
BCTEA - BCTEA1	0.276	0.346	-0.276	-0.346	0.2	-0.2	95.8	95.8	0.03
BCTEA 2 - BCTEA	-0.311	-0.364	0.312	0.363	0.4	-0.5	95.8	95.9	0.08
BCTEA 3 - FCO KAHYANGA	-0.100	0.066	0.100	-0.067	0.0	-0.5	95.7	95.7	0.01
BCTEA1 - LBS RENCANA	0.262	0.340	-0.262	-0.340	0.1	-0.1	95.8	95.7	0.01
BCTEB - BCTEU	0.360	0.387	-0.359	-0.388	0.9	-0.9	96.1	96.0	0.15
BCTEB1 - BCTEB	-0.391	-0.402	0.391	0.402	0.3	-0.2	96.1	96.2	0.05
BCTEC - BCTED	0.656	0.619	-0.651	-0.619	4.7	-0.5	96.9	96.4	0.49
BCTED - FCO LAMANGGAU	0.528	0.554	-0.526	-0.554	2.0	-0.6	96.4	96.2	0.24
BCTEE - BCTEF	-0.061	-0.029	0.061	0.029	0.0	-0.2	95.6	95.6	0.00
BCTEE - BCTEG	-0.118	-0.154	0.118	0.153	0.1	-0.7	95.6	95.6	0.03
BCTEG - BCTEM	-0.004	0.092	0.004	-0.093	0.0	-0.7	95.6	95.6	0.01
BCTEG1 - FCO TAOAU	-0.048	0.072	0.048	-0.072	0.0	-0.5	95.6	95.6	0.00
BCTEH - BCTEC	-0.666	-0.626	0.668	0.626	2.5	-0.3	96.9	97.2	0.25
BCTEI - FCO ONEMAY	0.109	0.045	-0.109	-0.045	0.0	-0.1	97.4	97.4	0.00
BCTEI1 - BRANCH 1	1.047	0.838	-1.047	-0.838	0.5	0.1	97.5	97.4	0.03
BCTEI2 - BCTEI	-0.179	-0.080	0.179	0.080	0.0	-0.3	97.4	97.4	0.01
BCTEJ - BCTEJ1	0.718	0.681	-0.717	-0.681	1.2	-0.1	97.4	97.3	0.11
BCTEJ1 - BCTEK	0.646	0.646	-0.646	-0.646	0.2	0.0	97.3	97.3	0.02
BCTEK - PLTS WAHA	0.625	0.635	-0.625	-0.635	0.4	-0.1	97.3	97.2	0.05
BCTEL - BCTEO	-0.060	0.067	0.060	-0.068	0.0	-1.1	95.6	95.6	0.01
BCTEM - BCTEG1	0.025	-0.082	-0.025	0.082	0.0	-0.1	95.6	95.6	0.00
BCTEN - BUS UJUNG JARING	0.003	0.002	-0.003	-0.002	0.0	-0.1	97.4	97.4	0.00
BCTEO - NODE PLTS	-0.136	0.030	0.136	-0.031	0.0	-0.4	95.6	95.6	0.01
BCTEP - UJUNG JARING KULA	0.118	0.004	-0.118	-0.004	0.0	0.0	95.7	95.7	0.00
BCTEQ - FCO WAWOTIMU	0.071	0.033	-0.071	-0.033	0.0	-0.1	95.7	95.7	0.00
BCTER - WDR	-0.211	-0.102	0.211	0.100	0.2	-1.2	96.0	96.1	0.09
BCTET - BCTEA 3	0.068	-0.082	-0.068	0.082	0.0	-0.3	95.7	95.7	0.00
BCTEU - BCTEA 2	-0.344	-0.380	0.345	0.379	0.6	-0.6	95.9	96.0	0.10
BCTEV - BUS UJUNG JARING	0.001	0.001	-0.001	-0.001	0.0	-0.5	97.4	97.4	0.00
BCTEW - BCTEV	-0.030	-0.014	0.030	0.012	0.0	-2.5	97.4	97.4	0.02
BCTEX - BCTEY	-0.032	-0.016	0.032	0.015	0.0	-0.6	95.7	95.7	0.01
BRANCH 1 - BCTEI2	-0.252	-0.117	0.252	0.117	0.0	-0.1	97.4	97.4	0.01
BRANCH 1 - BCTEJ	-0.791	-0.719	0.792	0.719	0.7	0.0	97.4	97.4	0.06
BRANCH 4 - BCTEE	0.260	0.223	-0.259	-0.223	0.3	-0.8	95.7	95.6	0.08
BRANCH 4 - BCTET	-0.003	-0.117	0.003	0.117	0.0	-0.1	95.7	95.7	0.00

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	
CBL 0.4 CUMMINS1 600KW	-0.212	-0.121	0.212	0.121	0.6	0.3	99.7	100.0	0.26
CBL 0.4 CUMMINS2 600KW	-0.212	-0.121	0.212	0.121	0.6	0.3	99.7	100.0	0.26
CBL 0.4 MISTUBISHI 1330KW	-0.715	-0.685	0.722	0.689	9.0	4.2	101.5	102.5	0.97
CBL 0.4 PLTD 1	0.709	0.686	-0.700	-0.682	9.0	4.2	101.5	100.6	0.96
CBL 0.4 PLTD 2	0.424	0.241	-0.421	-0.240	2.3	1.1	99.7	99.2	0.51
CBL 20	1.118	0.883	-1.118	-0.883	0.0	-0.3	97.5	97.5	0.00
CBL 20 PLTD	1.114	0.881	-1.114	-0.881	0.0	-0.3	97.5	97.5	0.00
CBL 20 PLTD 1	-0.701	-0.644	0.701	0.643	0.0	-0.3	97.5	97.5	0.00
CBL 20 PLTD 2	-0.413	-0.237	0.413	0.237	0.0	-0.3	97.5	97.5	0.00
FCO KAHYANGA - PLTS KAHY	-0.101	0.066	0.101	-0.069	0.1	-2.2	95.7	95.8	0.05
FCO LAMANGGAU - BCTEB1	-0.424	-0.419	0.424	0.418	0.3	-0.2	96.2	96.2	0.05
FCO LAMANGGAU - NODE PL	0.101	0.134	-0.101	-0.135	0.1	-1.0	96.2	96.2	0.04
FCO ONEMAY - BCTEN	-0.050	-0.025	0.050	0.022	0.0	-3.2	97.4	97.4	0.05
FCO ONEMAY - FCO BATUA 2	0.058	0.024	-0.058	-0.024	0.0	-0.9	97.4	97.4	0.02
FCO BATUA 2 - BCTEW	-0.057	-0.026	0.057	0.024	0.0	-1.6	97.4	97.4	0.03
FCO TAOAU - BCTEL	0.049	-0.073	-0.049	0.072	0.0	-0.8	95.6	95.6	0.01
FCO WAWOTIMU - BCTEX	-0.068	-0.033	0.068	0.031	0.0	-1.7	95.7	95.7	0.04
LBC RENCANA - BRANCH 4	-0.259	-0.338	0.259	0.338	0.1	-0.1	95.7	95.7	0.01
NODE PLTS - BCTEP	0.042	-0.035	-0.042	0.032	0.0	-2.7	95.7	95.6	0.02
NODE PLTS - BCTER	-0.290	-0.140	0.290	0.140	0.2	-0.6	96.1	96.2	0.06
PLTD TOMIA - BCTE11	-1.119	-0.874	1.119	0.874	0.1	0.0	97.5	97.5	0.00
PLTS DETE - NODE PLTS	0.096	0.003	-0.096	-0.003	0.0	-0.1	95.6	95.6	0.00
PLTS KAHYANGA - BCTEQ	-0.142	-0.069	0.142	0.068	0.1	-0.9	95.7	95.8	0.04
PLTS KAHYANGA - NODE PLT	0.244	-0.001	-0.244	0.001	0.0	0.0	95.8	95.8	0.00
PLTS KULATI - BUS UJUNG	0.112	-0.001	-0.112	-0.001	0.1	-1.6	95.7	95.7	0.05
PLTS WAHA - BCTEH	-0.685	-0.636	0.685	0.636	0.3	0.0	97.2	97.2	0.03
PLTS WAHA - NODE PLTS	0.062	0.002	-0.062	-0.002	0.0	0.0	97.2	97.2	0.00
PLTS WDR - NODE PLTS	0.197	0.010	-0.197	-0.010	0.0	-0.1	96.2	96.2	0.01
TRAFO BCTEA	0.038	0.019	-0.038	-0.018	0.9	1.3	95.8	92.7	3.09
TRAFO BCTEA1	0.017	0.008	-0.017	-0.008	0.4	0.5	95.8	93.0	2.75
TRAFO BCTEA2	0.034	0.017	-0.034	-0.016	0.7	1.1	95.9	93.1	2.77
TRAFO BCTEA3	0.034	0.017	-0.034	-0.016	0.7	1.1	95.7	93.0	2.77
TRAFO BCTEB	0.035	0.017	-0.034	-0.016	0.7	1.1	96.1	93.3	2.80
TRAFO BCTEB1	0.040	0.020	-0.039	-0.018	0.9	1.4	96.2	93.0	3.19
TRAFO BCTEC	0.014	0.007	-0.014	-0.007	0.2	0.3	96.9	94.7	2.20
TRAFO BCTED	0.125	0.062	-0.122	-0.058	2.9	4.3	96.4	93.3	3.12
TRAFO BCTEE	0.076	0.038	-0.074	-0.035	1.7	2.6	95.6	92.6	3.04

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	
TRAF0 BCTEF	0.076	0.038	-0.074	-0.035	1.7	2.6	95.6	92.6	3.04
TRAF0 BCTEG	0.125	0.062	-0.122	-0.058	2.9	4.4	95.6	92.5	3.15
TRAF0 BCTEG1	0.034	0.017	-0.034	-0.016	0.7	1.1	95.6	92.8	2.77
TRAF0 BCTEH	0.018	0.009	-0.018	-0.008	0.4	0.6	97.2	94.3	2.85
TRAF0 BCTEI	0.075	0.038	-0.074	-0.035	1.7	2.5	97.4	94.4	2.99
TRAF0 BCTEII	0.075	0.038	-0.074	-0.035	1.7	2.5	97.5	94.5	2.98
TRAF0 BCTEIL	0.075	0.038	-0.074	-0.035	1.7	2.5	97.4	94.5	2.98
TRAF0 BCTEJ	0.075	0.038	-0.074	-0.035	1.7	2.5	97.4	94.4	2.99
TRAF0 BCTEJ1	0.075	0.038	-0.074	-0.035	1.7	2.5	97.3	94.3	2.99
TRAF0 BCTEK	0.019	0.009	-0.018	-0.009	0.4	0.6	97.3	94.3	2.98
TRAF0 BCTEL	0.014	0.007	-0.014	-0.006	0.2	0.3	95.6	93.4	2.23
TRAF0 BCTEM	0.017	0.008	-0.016	-0.008	0.3	0.5	95.6	92.9	2.69
TRAF0 BCTEN	0.052	0.026	-0.052	-0.025	0.8	1.2	97.4	95.3	2.07
TRAF0 BCTEO	0.076	0.038	-0.074	-0.035	1.7	2.6	95.6	92.6	3.04
TRAF0 BCTEP	0.076	0.038	-0.074	-0.035	1.7	2.6	95.7	92.6	3.04
TRAF0 BCTEQ	0.079	0.039	-0.077	-0.037	1.9	2.8	95.7	92.6	3.18
TRAF0 BCTER	0.076	0.038	-0.075	-0.035	1.7	2.6	96.1	93.0	3.06
TRAF0 BCTET	0.076	0.038	-0.074	-0.035	1.7	2.6	95.7	92.7	3.04
TRAF0 BCTEU	0.014	0.007	-0.014	-0.006	0.2	0.3	96.0	93.7	2.22
TRAF0 BCTEV	0.032	0.016	-0.031	-0.015	0.6	0.9	97.4	94.9	2.50
TRAF0 BCTEW	0.028	0.014	-0.027	-0.013	0.5	0.7	97.4	95.2	2.20
TRAF0 BCTEX	0.035	0.017	-0.034	-0.016	0.7	1.1	95.7	92.9	2.83
TRAF0 BCTEY	0.037	0.018	-0.036	-0.017	0.8	1.2	95.7	92.7	2.97
TRAF0 DAYA PLTD 1	-0.695	-0.657	0.701	0.694	6.2	37.1	97.5	100.6	3.08
TRAF0 DAYA PLTD 2	-0.411	-0.234	0.414	0.245	3.2	11.3	97.5	99.2	1.75
TRAF0 DAYA PLTS DETE	-0.098	0.003	0.100	0.000	1.5	2.2	95.6	97.0	1.39
TRAF0 DAYA PLTS KAHYANG	-0.261	0.007	0.265	-0.001	4.1	6.2	95.8	97.3	1.48
TRAF0 DAYA PLTS KULATI	-0.121	0.004	0.123	0.000	2.2	3.3	95.7	97.4	1.71
TRAF0 DAYA PLTS WAHA	-0.061	0.001	0.061	0.000	0.9	1.3	97.2	98.6	1.36
TRAF0 DAYA PLTS WDR	-0.191	0.006	0.195	0.000	3.5	5.3	96.2	97.9	1.72
					96.4	97.8			

* This Transmission Line includes Series Capacitor.

Lampiran 11 Perhitungan Rugi-Rugi Daya dan Jatuh Tegangan Penambahan Beban 20%

Branch Losses Summary Report

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	
BCTEA - BCTEA1	0.295	0.355	-0.295	-0.355	0.2	-0.2	95.5	95.5	0.03
BCTEA 2 - BCTEA	-0.331	-0.373	0.331	0.372	0.5	-0.5	95.5	95.6	0.08
BCTEA 3 - FCO KAHYANGA	-0.098	0.067	0.098	-0.067	0.0	-0.5	95.5	95.5	0.01
BCTEA1 - LBS RENCANA	0.282	0.349	-0.282	-0.349	0.1	-0.1	95.5	95.5	0.01
BCTEB - BCTEU	0.384	0.398	-0.383	-0.399	1.0	-0.8	95.9	95.7	0.16
BCTEB1 - BCTEB	-0.416	-0.415	0.416	0.414	0.3	-0.2	95.9	95.9	0.05
BCTEC - BCTED	0.685	0.632	-0.680	-0.633	5.1	-0.4	96.7	96.2	0.51
BCTED - FCO LAMANGGAU	0.554	0.566	-0.552	-0.567	2.2	-0.5	96.2	96.0	0.25
BCTEE - BCTEF	-0.062	-0.030	0.062	0.030	0.0	-0.2	95.4	95.4	0.00
BCTEE - BCTEG	-0.129	-0.159	0.129	0.158	0.1	-0.7	95.3	95.4	0.04
BCTEG - BCTEM	0.004	0.096	-0.004	-0.097	0.0	-0.7	95.3	95.3	0.01
BCTEG1 - FCO TAOAU	-0.041	0.075	0.041	-0.075	0.0	-0.5	95.3	95.3	0.00
BCTEH - BCTEC	-0.696	-0.641	0.699	0.641	2.6	-0.2	96.7	97.0	0.26
BCTEI - FCO ONEMAY	0.135	0.059	-0.135	-0.059	0.0	-0.1	97.2	97.2	0.00
BCTEI1 - BRANCH 1	1.113	0.870	-1.112	-0.870	0.5	0.1	97.3	97.3	0.04
BCTEI2 - BCTEI	-0.207	-0.095	0.207	0.094	0.0	-0.3	97.2	97.2	0.02
BCTEJ - BCTEJ1	0.751	0.697	-0.750	-0.697	1.3	0.0	97.2	97.1	0.12
BCTEJ1 - BCTEK	0.677	0.661	-0.677	-0.661	0.2	0.0	97.1	97.1	0.02
BCTEK - PLTS WAHA	0.656	0.649	-0.656	-0.649	0.5	0.0	97.1	97.0	0.05
BCTEL - BCTEO	-0.056	0.069	0.056	-0.070	0.0	-1.1	95.3	95.3	0.01
BCTEM - BCTEG1	0.017	-0.086	-0.017	0.085	0.0	-0.1	95.3	95.3	0.00
BCTEN - BUS UJUNG JARING	0.004	0.002	-0.004	-0.002	0.0	-0.1	97.2	97.2	0.00
BCTEO - NODE PLTS	-0.133	0.031	0.133	-0.031	0.0	-0.4	95.3	95.4	0.01
BCTEP - UJUNG JARING KULA	0.119	0.005	-0.119	-0.005	0.0	0.0	95.4	95.4	0.00
BCTEQ - FCO WAWOTIMU	0.072	0.034	-0.072	-0.034	0.0	-0.1	95.5	95.5	0.00
BCTER - WDR	-0.211	-0.101	0.211	0.100	0.2	-1.2	95.8	95.9	0.09
BCTET - BCTEA 3	0.064	-0.084	-0.064	0.084	0.0	-0.3	95.5	95.5	0.00
BCTEU - BCTEA 2	-0.365	-0.390	0.366	0.389	0.6	-0.5	95.6	95.7	0.10
BCTEV - BUS UJUNG JARING	0.002	0.001	-0.002	-0.001	0.0	-0.5	97.1	97.1	0.00
BCTEW - BCTEV	-0.034	-0.017	0.034	0.014	0.0	-2.5	97.1	97.2	0.03
BCTEX - BCTEY	-0.032	-0.016	0.032	0.015	0.0	-0.6	95.4	95.4	0.01
BRANCH 1 - BCTEI2	-0.282	-0.132	0.282	0.132	0.0	-0.1	97.2	97.3	0.01
BRANCH 1 - BCTEJ	-0.826	-0.736	0.827	0.736	0.7	0.0	97.2	97.3	0.06
BRANCH 4 - BCTEE	0.274	0.230	-0.274	-0.230	0.3	-0.8	95.5	95.4	0.08
BRANCH 4 - BCTET	-0.009	-0.120	0.009	0.120	0.0	-0.1	95.5	95.5	0.00

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	
CBL 0.4 CUMMINS1 600KW	-0.228	-0.130	0.229	0.130	0.7	0.3	99.7	100.0	0.28
CBL 0.4 CUMMINS2 600KW	-0.228	-0.130	0.229	0.130	0.7	0.3	99.7	100.0	0.28
CBL 0.4 MISTUBISHI 1330KW	-0.750	-0.705	0.760	0.709	9.8	4.6	101.5	102.5	1.01
CBL 0.4 PLTD 1	0.746	0.706	-0.736	-0.702	9.8	4.5	101.5	100.5	1.01
CBL 0.4 PLTD 2	0.456	0.259	-0.453	-0.258	2.6	1.2	99.7	99.2	0.55
CBL 20	1.185	0.918	-1.185	-0.918	0.0	-0.3	97.3	97.3	0.00
CBL 20 PLTD	1.180	0.915	-1.180	-0.916	0.0	-0.3	97.3	97.3	0.00
CBL 20 PLTD 1	-0.736	-0.661	0.736	0.661	0.0	-0.3	97.3	97.3	0.00
CBL 20 PLTD 2	-0.444	-0.254	0.444	0.254	0.0	-0.3	97.3	97.3	0.00
FCO KAHYANGA - PLTS KAHY	-0.099	0.067	0.099	-0.069	0.1	-2.2	95.5	95.5	0.05
FCO LAMANGGAU - BCTEB1	-0.448	-0.430	0.449	0.430	0.3	-0.2	95.9	96.0	0.05
FCO LAMANGGAU - NODE PL	0.102	0.134	-0.102	-0.135	0.1	-1.0	96.0	95.9	0.04
FCO ONEMAY - BCTEN	-0.063	-0.031	0.063	0.028	0.0	-3.2	97.2	97.2	0.06
FCO ONEMAY - FCO PATUA 2	0.072	0.031	-0.072	-0.031	0.0	-0.9	97.2	97.2	0.02
FCO PATUA 2 - BCTEW	-0.071	-0.033	0.071	0.031	0.0	-1.6	97.2	97.2	0.03
FCO TAOAU - BCTEL	0.042	-0.076	-0.042	0.075	0.0	-0.8	95.3	95.3	0.00
FCO WAWOTIMU - BCTEX	-0.069	-0.034	0.069	0.032	0.0	-1.7	95.4	95.5	0.04
LBC RENCANA - BRANCH 4	-0.279	-0.347	0.279	0.347	0.1	-0.1	95.5	95.5	0.01
NODE PLTS - BCTEP	0.039	-0.036	-0.039	0.033	0.0	-2.7	95.4	95.4	0.02
NODE PLTS - BCTER	-0.291	-0.141	0.291	0.140	0.2	-0.6	95.9	95.9	0.06
PLTD TOMIA - BCTE11	-1.186	-0.908	1.186	0.908	0.1	0.0	97.3	97.3	0.00
PLTS DETE - NODE PLTS	0.097	0.003	-0.097	-0.003	0.0	-0.1	95.4	95.4	0.00
PLTS KAHYANGA - BCTEQ	-0.143	-0.069	0.143	0.068	0.1	-0.9	95.5	95.5	0.04
PLTS KAHYANGA - NODE PLT	0.243	-0.001	-0.243	0.001	0.0	0.0	95.5	95.5	0.00
PLTS KULATI - BUS UJUNG	0.112	-0.001	-0.112	-0.001	0.1	-1.6	95.4	95.4	0.05
PLTS WAHA - BCTEH	-0.716	-0.650	0.716	0.650	0.3	0.0	97.0	97.0	0.03
PLTS WAHA - NODE PLTS	0.062	0.003	-0.062	-0.003	0.0	0.0	97.0	97.0	0.00
PLTS WDR - NODE PLTS	0.198	0.011	-0.198	-0.011	0.0	-0.1	95.9	95.9	0.01
TRAFO BCTEA	0.038	0.019	-0.038	-0.018	0.9	1.3	95.5	92.4	3.10
TRAFO BCTEA1	0.017	0.008	-0.017	-0.008	0.4	0.5	95.5	92.7	2.75
TRAFO BCTEA2	0.037	0.018	-0.036	-0.017	0.8	1.2	95.6	92.6	2.96
TRAFO BCTEA3	0.037	0.018	-0.036	-0.017	0.8	1.2	95.5	92.5	2.96
TRAFO BCTEB	0.037	0.018	-0.036	-0.017	0.8	1.2	95.9	92.9	2.95
TRAFO BCTEB1	0.040	0.020	-0.039	-0.018	1.0	1.4	95.9	92.7	3.20
TRAFO BCTEC	0.016	0.008	-0.016	-0.008	0.3	0.5	96.7	94.1	2.57
TRAFO BCTED	0.127	0.063	-0.124	-0.059	3.0	4.5	96.2	93.0	3.18
TRAFO BCTEE	0.078	0.039	-0.076	-0.036	1.8	2.8	95.4	92.2	3.15

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	
TRAF0 BCTEF	0.078	0.039	-0.076	-0.036	1.8	2.8	95.4	92.2	3.15
TRAF0 BCTEG	0.127	0.063	-0.124	-0.059	3.1	4.6	95.3	92.1	3.22
TRAF0 BCTEG1	0.037	0.018	-0.036	-0.017	0.8	1.2	95.3	92.4	2.97
TRAF0 BCTEH	0.018	0.009	-0.018	-0.008	0.4	0.6	97.0	94.1	2.85
TRAF0 BCTEI	0.078	0.039	-0.076	-0.036	1.8	2.7	97.2	94.1	3.08
TRAF0 BCTEI1	0.078	0.039	-0.076	-0.036	1.8	2.6	97.3	94.2	3.08
TRAF0 BCTEI2	0.078	0.039	-0.076	-0.036	1.8	2.7	97.2	94.2	3.08
TRAF0 BCTEJ	0.078	0.039	-0.076	-0.036	1.8	2.7	97.2	94.1	3.08
TRAF0 BCTEJ1	0.078	0.039	-0.076	-0.036	1.8	2.7	97.1	94.0	3.09
TRAF0 BCTEK	0.019	0.009	-0.018	-0.009	0.4	0.6	97.1	94.1	2.98
TRAF0 BCTEL	0.016	0.008	-0.016	-0.008	0.3	0.5	95.3	92.7	2.61
TRAF0 BCTEM	0.017	0.008	-0.016	-0.008	0.3	0.5	95.3	92.6	2.70
TRAF0 BCTEN	0.066	0.033	-0.065	-0.031	1.3	1.9	97.2	94.6	2.61
TRAF0 BCTEO	0.078	0.039	-0.076	-0.036	1.8	2.8	95.3	92.2	3.15
TRAF0 BCTEP	0.078	0.039	-0.076	-0.036	1.8	2.8	95.4	92.2	3.15
TRAF0 BCTEQ	0.079	0.039	-0.077	-0.036	1.9	2.8	95.5	92.3	3.19
TRAF0 BCTER	0.078	0.039	-0.076	-0.036	1.8	2.7	95.9	92.7	3.13
TRAF0 BCTET	0.078	0.039	-0.076	-0.036	1.8	2.8	95.5	92.3	3.14
TRAF0 BCTEU	0.016	0.008	-0.016	-0.008	0.3	0.5	95.7	93.1	2.60
TRAF0 BCTEV	0.037	0.018	-0.036	-0.017	0.8	1.2	97.1	94.2	2.91
TRAF0 BCTEW	0.037	0.018	-0.036	-0.017	0.8	1.2	97.2	94.3	2.91
TRAF0 BCTEX	0.037	0.018	-0.036	-0.017	0.8	1.2	95.4	92.5	2.97
TRAF0 BCTEY	0.037	0.018	-0.036	-0.017	0.8	1.2	95.4	92.4	2.98
TRAF0 DAYA PLTD 1	-0.730	-0.675	0.737	0.715	6.7	40.2	97.3	100.5	3.18
TRAF0 DAYA PLTD 2	-0.441	-0.251	0.445	0.264	3.7	13.1	97.3	99.2	1.88
TRAF0 DAYA PLTS DETE	-0.098	0.003	0.100	0.000	1.5	2.2	95.4	96.8	1.40
TRAF0 DAYA PLTS KAHYANG	-0.261	0.007	0.265	-0.001	4.2	6.2	95.5	97.0	1.48
TRAF0 DAYA PLTS KULATI	-0.121	0.004	0.124	0.000	2.2	3.4	95.4	97.1	1.72
TRAF0 DAYA PLTS WAHA	-0.061	0.001	0.061	0.000	0.9	1.3	97.0	98.4	1.36
TRAF0 DAYA PLTS WDR	-0.191	0.006	0.195	0.000	3.5	5.3	95.9	97.6	1.73
					104.2	109.3			

* This Transmission Line includes Series Capacitor.

Lampiran 12 Perhitungan Rugi-Rugi Daya dan Jatuh Tegangan Penambahan Beban 25%

Branch Losses Summary Report

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	
BCTEA - BCTEA1	0.338	0.376	-0.338	-0.376	0.2	-0.2	95.1	95.1	0.04
BCTEA2 - BCTEA	-0.373	-0.394	0.374	0.393	0.5	-0.5	95.1	95.2	0.09
BCTEA3 - FCO KAHYANGA	-0.093	0.069	0.093	-0.069	0.0	-0.5	95.1	95.1	0.01
BCTEA1 - LBS RENCANA	0.324	0.369	-0.324	-0.369	0.1	-0.1	95.1	95.1	0.01
BCTEB - BCTEU	0.432	0.422	-0.431	-0.423	1.2	-0.8	95.5	95.3	0.18
BCTEB1 - BCTEB	-0.465	-0.439	0.466	0.439	0.4	-0.2	95.5	95.6	0.06
BCTEC - BCTED	0.738	0.659	-0.733	-0.659	5.8	-0.2	96.4	95.9	0.55
BCTED - FCO LAMANGGAU	0.605	0.591	-0.602	-0.591	2.5	-0.4	95.9	95.6	0.27
BCTEE - BCTEF	-0.080	-0.039	0.080	0.039	0.0	-0.2	95.0	95.0	0.01
BCTEE - BCTEG	-0.141	-0.164	0.141	0.164	0.1	-0.7	94.9	95.0	0.04
BCTEG - BCTEM	0.014	0.100	-0.014	-0.101	0.0	-0.7	94.9	94.9	0.01
BCTEG1 - FCO TAOAU	-0.035	0.077	0.035	-0.078	0.0	-0.5	94.9	94.9	0.00
BCTEH - BCTEC	-0.752	-0.669	0.755	0.669	3.0	-0.1	96.4	96.7	0.28
BCTEI - FCO ONEMAY	0.152	0.068	-0.152	-0.068	0.0	-0.1	97.0	97.0	0.00
BCTEI1 - BRANCH 1	1.189	0.910	-1.189	-0.909	0.6	0.1	97.1	97.0	0.04
BCTEI2 - BCTEI	-0.226	-0.105	0.226	0.104	0.0	-0.3	97.0	97.0	0.02
BCTEJ - BCTEJ1	0.809	0.727	-0.808	-0.727	1.4	0.0	97.0	96.8	0.12
BCTEJ1 - BCTEK	0.733	0.689	-0.733	-0.689	0.2	0.0	96.8	96.8	0.02
BCTEK - PLTS WAHA	0.712	0.678	-0.712	-0.678	0.5	0.0	96.8	96.8	0.05
BCTEL - BCTEO	-0.051	0.071	0.051	-0.072	0.0	-1.1	94.9	94.9	0.01
BCTEM - BCTEG1	0.010	-0.089	-0.010	0.089	0.0	-0.1	94.9	94.9	0.00
BCTEN - BUS UJUNG JARING	0.005	0.003	-0.005	-0.003	0.0	-0.1	96.9	96.9	0.00
BCTEO - NODE PLTS	-0.131	0.031	0.131	-0.032	0.0	-0.4	94.9	95.0	0.01
BCTEP - UJUNG JARING KULA	0.119	0.005	-0.119	-0.005	0.0	0.0	95.0	95.0	0.00
BCTEQ - FCO WAWOTIMU	0.076	0.036	-0.076	-0.036	0.0	-0.1	95.1	95.1	0.00
BCTER - WDR	-0.210	-0.101	0.210	0.100	0.2	-1.2	95.4	95.5	0.09
BCTET - BCTEA3	0.056	-0.087	-0.056	0.087	0.0	-0.3	95.1	95.1	0.00
BCTEU - BCTEA2	-0.410	-0.412	0.411	0.412	0.7	-0.5	95.2	95.3	0.11
BCTEV - BUS UJUNG JARING	0.002	0.001	-0.002	-0.002	0.0	-0.5	96.9	96.9	0.00
BCTEW - BCTEV	-0.036	-0.018	0.036	0.015	0.0	-2.5	96.9	96.9	0.03
BCTEX - BCTEY	-0.033	-0.016	0.033	0.016	0.0	-0.6	95.0	95.0	0.01
BRANCH 1 - BCTEI2	-0.303	-0.143	0.304	0.143	0.0	-0.1	97.0	97.0	0.01
BRANCH 1 - BCTEJ	-0.881	-0.764	0.882	0.764	0.8	0.1	97.0	97.0	0.07
BRANCH 4 - BCTEE	0.306	0.246	-0.306	-0.246	0.4	-0.7	95.1	95.0	0.09
BRANCH 4 - BCTET	-0.018	-0.124	0.018	0.124	0.0	-0.1	95.1	95.1	0.00

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	
CBL 0.4 CUMMINS1 600KW	-0.247	-0.141	0.247	0.141	0.8	0.4	99.7	100.0	0.30
CBL 0.4 CUMMINS2 600KW	-0.247	-0.141	0.247	0.141	0.8	0.4	99.7	100.0	0.30
CBL 0.4 MISTUBISHI 1330KW	-0.794	-0.729	0.805	0.734	10.8	5.0	101.4	102.5	1.07
CBL 0.4 PLTD 1	0.789	0.730	-0.779	-0.725	10.7	5.0	101.4	100.4	1.06
CBL 0.4 PLTD 2	0.494	0.281	-0.490	-0.279	3.1	1.4	99.7	99.1	0.60
CBL 20	1.263	0.959	-1.263	-0.959	0.0	-0.3	97.1	97.1	0.00
CBL 20 PLTD	1.257	0.956	-1.257	-0.957	0.0	-0.3	97.1	97.1	0.00
CBL 20 PLTD 1	-0.777	-0.681	0.777	0.681	0.0	-0.3	97.1	97.1	0.00
CBL 20 PLTD 2	-0.480	-0.275	0.480	0.275	0.0	-0.3	97.1	97.1	0.00
FCO KAHYANGA - PLTS KAHY	-0.093	0.069	0.093	-0.071	0.1	-2.2	95.1	95.1	0.04
FCO LAMANGGAU - BCTEB1	-0.497	-0.454	0.497	0.454	0.4	-0.2	95.6	95.6	0.06
FCO LAMANGGAU - NODE PL	0.103	0.134	-0.103	-0.135	0.1	-1.0	95.6	95.6	0.04
FCO ONEMAY - BCTEN	-0.076	-0.038	0.076	0.035	0.1	-3.2	96.9	97.0	0.07
FCO ONEMAY - FCO PATUA 2	0.076	0.033	-0.076	-0.034	0.0	-0.9	97.0	97.0	0.02
FCO PATUA 2 - BCTEW	-0.075	-0.035	0.075	0.033	0.0	-1.6	96.9	97.0	0.04
FCO TAOAU - BCTEL	0.036	-0.078	-0.036	0.078	0.0	-0.8	94.9	94.9	0.00
FCO WAWOTIMU - BCTEX	-0.073	-0.036	0.073	0.034	0.0	-1.7	95.0	95.1	0.04
LBC RENCANA - BRANCH 4	-0.320	-0.367	0.320	0.367	0.1	-0.1	95.1	95.1	0.01
NODE PLTS - BCTEP	0.037	-0.036	-0.037	0.034	0.0	-2.7	95.0	95.0	0.02
NODE PLTS - BCTER	-0.293	-0.142	0.293	0.141	0.2	-0.5	95.5	95.6	0.06
PLTD TOMIA - BCTEII	-1.263	-0.947	1.264	0.947	0.1	0.0	97.1	97.1	0.00
PLTS DETE - NODE PLTS	0.097	0.004	-0.097	-0.004	0.0	-0.1	95.0	95.0	0.00
PLTS KAHYANGA - BCTEQ	-0.148	-0.072	0.148	0.071	0.1	-0.9	95.1	95.1	0.04
PLTS KAHYANGA - NODE PLT	0.242	0.000	-0.242	0.000	0.0	0.0	95.1	95.1	0.00
PLTS KULATI - BUS UJUNG	0.111	-0.001	-0.111	-0.001	0.1	-1.6	95.0	95.0	0.05
PLTS WAHA - BCTEH	-0.112	-0.019	0.112	0.019	0.1	0.0	96.1	96.8	0.05
PLTS WAHA - NODE PLTS	0.063	0.003	-0.063	-0.003	0.0	0.0	96.8	96.8	0.00
PLTS WDR - NODE PLTS	0.199	0.012	-0.199	-0.012	0.0	-0.1	95.6	95.6	0.01
TRAFO BCTEA	0.039	0.019	-0.038	-0.018	0.9	1.4	95.1	92.0	3.16
TRAFO BCTEA1	0.018	0.009	-0.018	-0.009	0.4	0.6	95.1	92.1	2.99
TRAFO BCTEA2	0.039	0.019	-0.038	-0.018	0.9	1.4	95.2	92.1	3.16
TRAFO BCTEA3	0.039	0.019	-0.038	-0.018	0.9	1.4	95.1	91.9	3.17
TRAFO BCTEB	0.039	0.019	-0.038	-0.018	0.9	1.4	95.5	92.4	3.15
TRAFO BCTEB1	0.040	0.020	-0.039	-0.018	1.0	1.4	95.6	92.4	3.21
TRAFO BCTEC	0.018	0.009	-0.018	-0.009	0.4	0.6	96.4	93.5	2.95
TRAFO BCTED	0.129	0.065	-0.126	-0.060	3.2	4.7	95.9	92.6	3.25
TRAFO BCTEE	0.080	0.040	-0.078	-0.037	2.0	3.0	95.0	91.7	3.26

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	
TRAF0 BCTEF	0.098	0.049	-0.095	-0.045	3.0	4.5	95.0	91.0	4.00
TRAF0 BCTEG	0.130	0.065	-0.126	-0.060	3.2	4.8	94.9	91.7	3.29
TRAF0 BCTEG1	0.039	0.019	-0.038	-0.018	0.9	1.4	94.9	91.8	3.17
TRAF0 BCTEH	0.018	0.009	-0.018	-0.009	0.4	0.6	96.7	93.8	2.94
TRAF0 BCTEI	0.080	0.040	-0.078	-0.037	1.9	2.8	97.0	93.8	3.18
TRAF0 BCTEI1	0.079	0.039	-0.077	-0.037	1.8	2.7	97.1	93.9	3.13
TRAF0 BCTEI2	0.080	0.040	-0.078	-0.037	1.9	2.8	97.0	93.8	3.18
TRAF0 BCTEJ	0.074	0.037	-0.073	-0.035	1.6	2.5	97.0	94.0	2.96
TRAF0 BCTEJ1	0.080	0.040	-0.078	-0.037	1.9	2.8	96.8	93.6	3.19
TRAF0 BCTEK	0.019	0.009	-0.018	-0.009	0.4	0.6	96.8	93.8	2.99
TRAF0 BCTEL	0.018	0.009	-0.018	-0.009	0.4	0.6	94.9	91.9	3.00
TRAF0 BCTEM	0.018	0.009	-0.018	-0.009	0.4	0.6	94.9	91.9	3.00
TRAF0 BCTEN	0.080	0.040	-0.078	-0.037	1.9	2.8	96.9	93.7	3.19
TRAF0 BCTEO	0.080	0.040	-0.078	-0.037	2.0	3.0	94.9	91.7	3.26
TRAF0 BCTEP	0.080	0.040	-0.078	-0.037	2.0	3.0	95.0	91.7	3.26
TRAF0 BCTEQ	0.080	0.040	-0.078	-0.037	2.0	3.0	95.1	91.8	3.25
TRAF0 BCTER	0.080	0.040	-0.078	-0.037	1.9	2.9	95.5	92.3	3.23
TRAF0 BCTET	0.080	0.040	-0.078	-0.037	2.0	3.0	95.1	91.8	3.25
TRAF0 BCTEU	0.018	0.009	-0.018	-0.009	0.4	0.6	95.3	92.4	2.98
TRAF0 BCTEV	0.039	0.019	-0.038	-0.018	0.9	1.3	96.9	93.8	3.10
TRAF0 BCTEW	0.039	0.019	-0.038	-0.018	0.9	1.3	96.9	93.8	3.10
TRAF0 BCTEX	0.039	0.019	-0.038	-0.018	0.9	1.4	95.0	91.9	3.17
TRAF0 BCTEY	0.039	0.019	-0.038	-0.018	0.9	1.4	95.0	91.9	3.17
TRAF0 DAYA PLTD 1	-0.770	-0.696	0.778	0.740	7.3	44.0	97.1	100.4	3.30
TRAF0 DAYA PLTD 2	-0.476	-0.271	0.480	0.286	4.4	15.3	97.1	99.1	2.03
TRAF0 DAYA PLTS DETE	-0.098	0.003	0.100	0.000	1.5	2.2	95.0	96.4	1.41
TRAF0 DAYA PLTS KAHYANG	-0.262	0.007	0.266	-0.001	4.2	6.3	95.1	96.6	1.49
TRAF0 DAYA PLTS KULATI	-0.121	0.004	0.124	0.000	2.3	3.4	95.0	96.8	1.73
TRAF0 DAYA PLTS WAHA	-0.061	0.001	0.062	0.000	0.9	1.3	96.8	98.1	1.36
TRAF0 DAYA PLTS WDR	-0.192	0.006	0.195	0.000	3.6	5.3	95.6	97.3	1.74
					115.2	124.5			

* This Transmission Line includes Series Capacitor.

Lampiran 13 Gambar Sistem Kelistrikan Pulau Tomia

