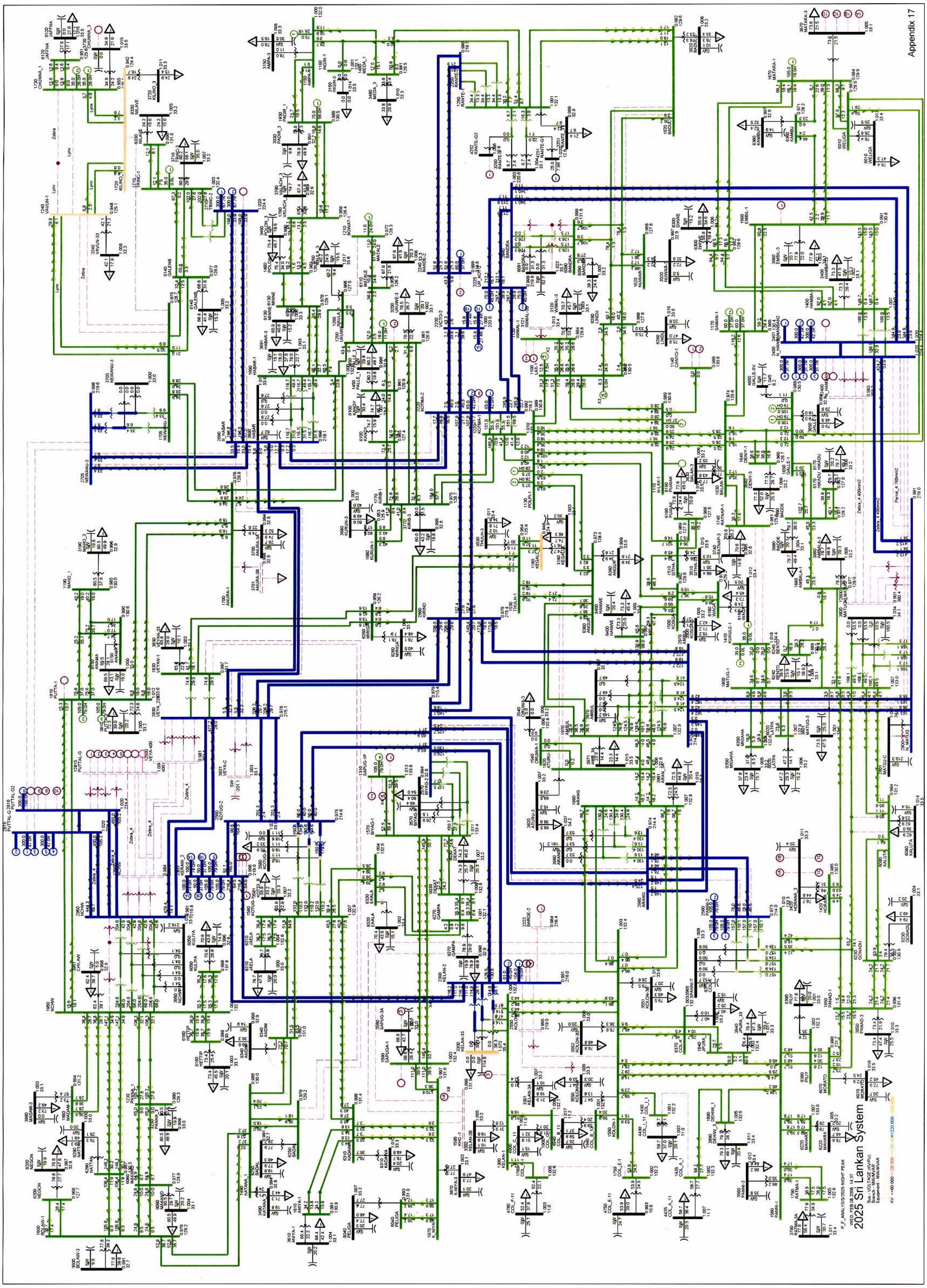
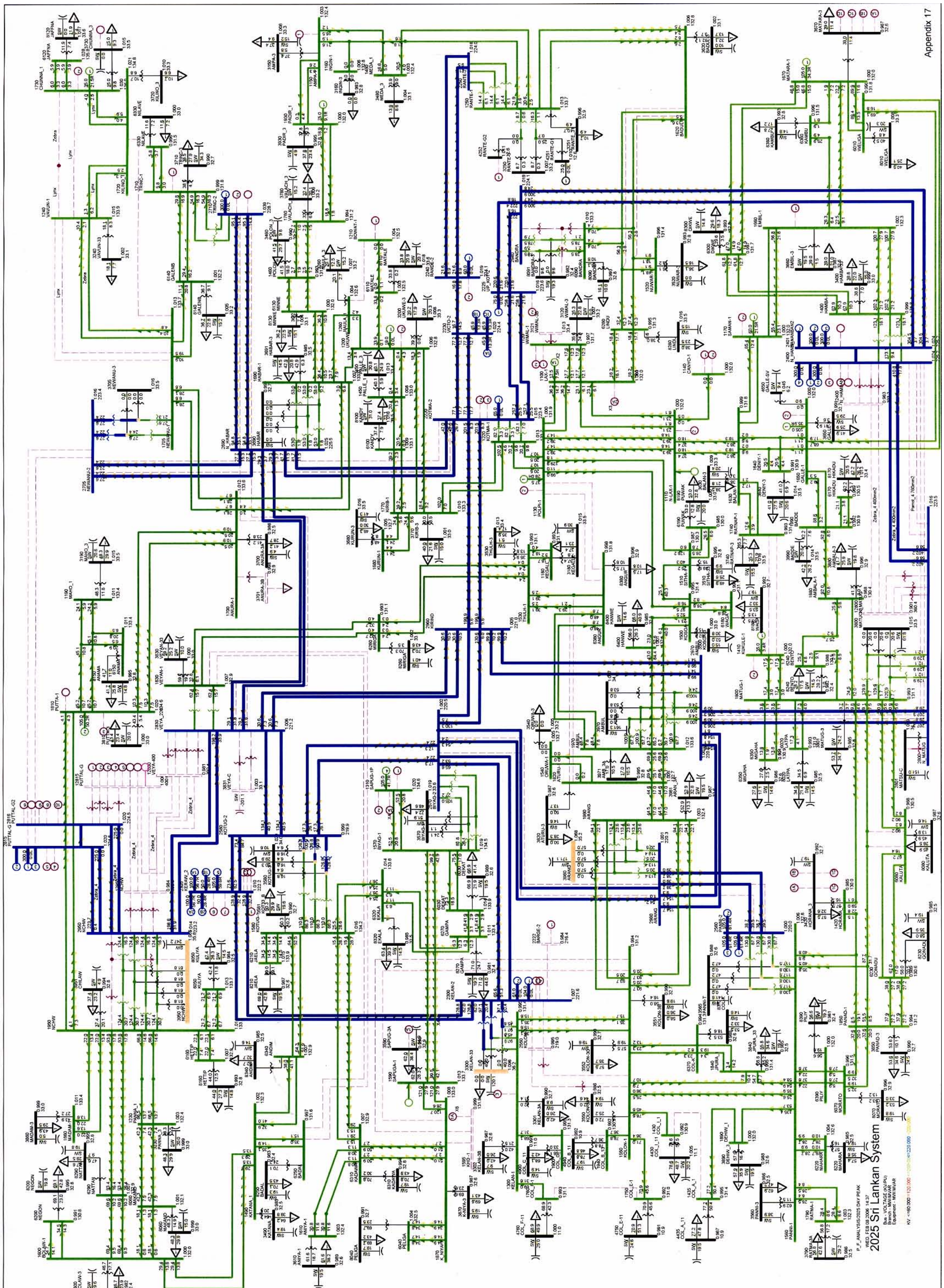
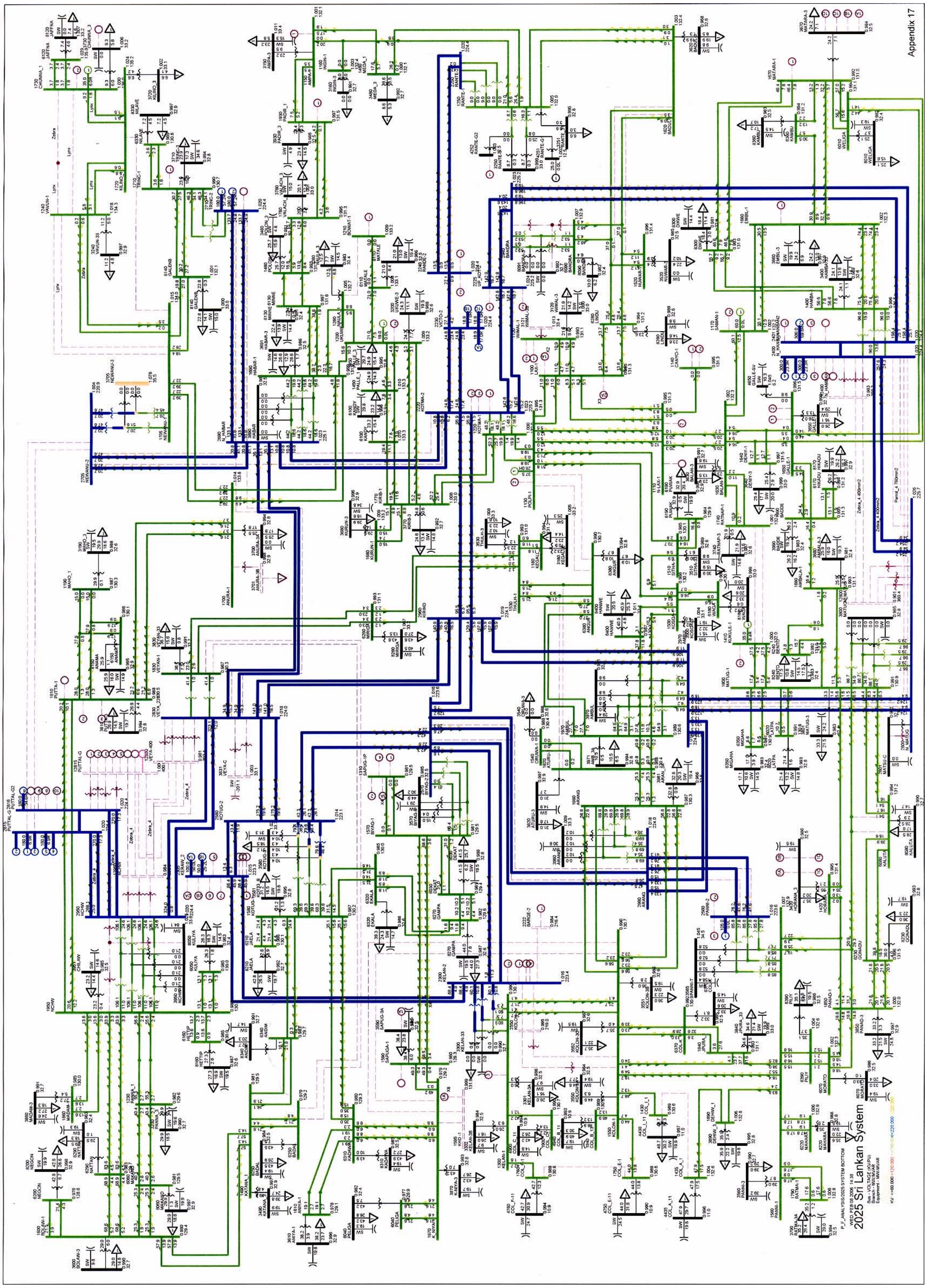

Appendix 17
2025 Sri Lankan System

Appendix 17




Appendix 17
2025 Sri Lankan System

Appendix 17

N-1 Checking based on 2025_Night_Peak

1. Branches and Tie Lines

Monitored Elements	Base Flow	Maximum Flow	Impact	Rate	%	Contingency	Countermeasures
1570 BIYAG-1 132.00 1590 SAPUGA-1 132.00 1	155.03	284.2	285.39	225	126.8%	OPEN LINE FROM BUS 1570 [BIYAG-1 132.00] TO BUS 1590 [SAPUGA-1 132.00] CKT 2	switching off lines: Biyagama - Sapugaukanda
1570 BIYAG-1 132.00 1590 SAPUGA-1 132.00 2	155.03	284.2	285.39	225	126.8%	OPEN LINE FROM BUS 1570 [BIYAG-1 132.00] TO BUS 1590 [SAPUGA-1 132.00] CKT 1	switching off lines: Biyagama - Sapugaukanda
1950 NCHW 132.00 6290 NATTAN 132.00 1	149.16	244.26	250.33	225	111.3%	OPEN LINE FROM BUS 1950 [NCHW 132.00] TO BUS 6290 [NATTAN 132.00] CKT 2	switching off lines: N_Chilaw - Nattandiya
1950 NCHW 132.00 6290 NATTAN 132.00 2	149.16	244.26	250.33	225	111.3%	OPEN LINE FROM BUS 1950 [NCHW 132.00] TO BUS 6290 [NATTAN 132.00] CKT 1	switching off lines: N_Chilaw - Nattandiya
1640 DENIY-1 132.00 5641 DENIY-T1 132.00 1	42.16	82.32	87.59	80	109.5%	OPEN LINE FROM BUS 1640 [DENIY-1 132.00] TO BUS 5642 [DENIY-T2 132.00] CKT 2	switching over is effective
1640 DENIY-1 132.00 5642 DENIY-T2 132.00 2	42.16	82.32	87.59	80	109.5%	OPEN LINE FROM BUS 1640 [DENIY-1 132.00] TO BUS 5641 [DENIY-T1 132.00] CKT 1	switching over is effective
1710 TRINC-1 132.00 6140 GALENB 132.00 1	65.84	103.83	107.76	100	107.8%	OPEN LINE FROM BUS 1710 [TRINC-1 132.00] TO BUS 6140 [GALENB 132.00] CKT 2	switching over is effective
1710 TRINC-1 132.00 6140 GALENB 132.00 2	65.84	103.83	107.76	100	107.8%	OPEN LINE FROM BUS 1710 [TRINC-1 132.00] TO BUS 6140 [GALENB 132.00] CKT 1	switching over is effective
2580 KOTUG-2 220.00 5581 KOTU-DU1 220.00 1	201.53		265.12	250	106.0%	OPEN Transformer Unit1	switching over is effective
2580 KOTUG-2 220.00 5582 KOTU-DU2 220.00 1	201.53		265.12	250	106.0%	OPEN Transformer Unit2	switching over is effective
2580 KOTUG-2 220.00 5583 KOTU-DU3 220.00 1	201.53		265.12	250	106.0%	OPEN Transformer Unit3	switching over is effective
1130 POLPI-1 132.00 6380 ANGUR 132.00 1	63.49	92.87	93.85	100	93.9%	OPEN LINE FROM BUS 1130 [POLPI-1 132.00] TO BUS 6380 [ANGUR 132.00] CKT 2	-
1130 POLPI-1 132.00 6380 ANGUR 132.00 2	63.49	92.87	93.85	100	93.9%	OPEN LINE FROM BUS 1130 [POLPI-1 132.00] TO BUS 6380 [ANGUR 132.00] CKT 1	-
1100 LAX-1 132.00 1120 WIMAL-1 132.00 1	44.23	88.24	90.19	100	90.2%	OPEN LINE FROM BUS 1100 [LAX-1 132.00] TO BUS 1120 [WIMAL-1 132.00] CKT 2	-
1100 LAX-1 132.00 1120 WIMAL-1 132.00 2	44.23	88.24	90.19	100	90.2%	OPEN LINE FROM BUS 1100 [LAX-1 132.00] TO BUS 1120 [WIMAL-1 132.00] CKT 1	-
1680 KURUN-1 132.00 1770 KIRIB-1 132.00 1	41.19	82.64	89.39	100	89.4%	OPEN LINE FROM BUS 1680 [KURUN-1 132.00] TO BUS 1770 [KIRIB-1 132.00] CKT 2	-
1680 KURUN-1 132.00 1770 KIRIB-1 132.00 2	41.19	82.64	89.39	100	89.4%	OPEN LINE FROM BUS 1680 [KURUN-1 132.00] TO BUS 1770 [KIRIB-1 132.00] CKT 1	-

2. Voltage

220kV

Bus	Voltage	Contingency	Countermeasures
Nothing			

132kV

Bus	Voltage	Contingency	Countermeasures
Nothing			

N-1 Checking based on 2025_Day_Peak

3. Branches and Tie Lines

Monitored Elements	Base Flow	Maximum Flow	Impact	Rate	%	Contingency	Countermeasures
1590 SAPUGA-1 132.00 1870 K_NIYA-1 132.00 1	123.61	224.22	223.35	165	135.4%	OPEN LINE FROM BUS 1590 [SAPUGA-1 132.00] TO BUS 1870 [K_NIYA-1 132.00] CKT 2	switching off lines: Sapugaskanda – Kelaniya
1590 SAPUGA-1 132.00 1870 K_NIYA-1 132.00 2	123.61	224.22	223.35	165	135.4%	OPEN LINE FROM BUS 1590 [SAPUGA-1 132.00] TO BUS 1870 [K_NIYA-1 132.00] CKT 1	switching off lines: Sapugaskanda – Kelaniya
1110 N-LAX-1 132.00 1130 POLPI-1 132.00 1	41.98	56.05	56.05	45	124.6%	OPEN LINE FROM BUS 1110 [N-LAX-1 132.00] TO BUS 1130 [POLPI-1 132.00] CKT 2	switching off lines: Laxapana – N_Laxapana
1110 N-LAX-1 132.00 1130 POLPI-1 132.00 2	41.98	56.05	56.05	45	124.6%	OPEN LINE FROM BUS 1110 [N-LAX-1 132.00] TO BUS 1130 [POLPI-1 132.00] CKT 1	switching off lines: Laxapana – N_Laxapana
1710 TRINC-1 132.00 6140 GALENB 132.00 1	34.28	53.99	54.27	45	120.6%	OPEN LINE FROM BUS 1710 [TRINC-1 132.00] TO BUS 6140 [GALENB 132.00] CKT 2	switching off lines: Trincomalee – Galenbindunnuwewa
1710 TRINC-1 132.00 6140 GALENB 132.00 2	34.28	53.99	54.27	45	120.6%	OPEN LINE FROM BUS 1710 [TRINC-1 132.00] TO BUS 6140 [GALENB 132.00] CKT 1	switching off lines: Trincomalee – Galenbindunnuwewa
1570 BIYAG-1 132.00 1590 SAPUGA-1 132.00 1	108.05	197.46	195.86	165	118.7%	OPEN LINE FROM BUS 1570 [BIYAG-1 132.00] TO BUS 1590 [SAPUGA-1 132.00] CKT 2	switching off lines: Sapugaskanda – Biyagama
1570 BIYAG-1 132.00 1590 SAPUGA-1 132.00 2	108.05	197.46	195.86	165	118.7%	OPEN LINE FROM BUS 1570 [BIYAG-1 132.00] TO BUS 1590 [SAPUGA-1 132.00] CKT 1	switching off lines: Sapugaskanda – Biyagama
1680 KURUN-1 132.00 1770 KIRIB-1 132.00 1	25	49.77	49.34	45	109.6%	OPEN LINE FROM BUS 1680 [KURUN-1 132.00] TO BUS 1770 [KIRIB-1 132.00] CKT 2	switching over is effective
1680 KURUN-1 132.00 1770 KIRIB-1 132.00 2	25	49.77	49.34	45	109.6%	OPEN LINE FROM BUS 1680 [KURUN-1 132.00] TO BUS 1770 [KIRIB-1 132.00] CKT 1	switching over is effective
1640 DENIY-1 132.00 5641 DENIY-T1 132.00 1	20.96	42.02	42.81	40	107.0%	OPEN LINE FROM BUS 1640 [DENIY-1 132.00] TO BUS 5642 [DENIY-T2 132.00] CKT 2	switching over is effective
1640 DENIY-1 132.00 5642 DENIY-T2 132.00 2	20.96	42.02	42.81	40	107.0%	OPEN LINE FROM BUS 1640 [DENIY-1 132.00] TO BUS 5641 [DENIY-T1 132.00] CKT 1	switching over is effective
2580 KOTUG-2 220.00 5581 KOTU-DU1 220.00	180.48	266.43	266.43	250	106.6%	OPEN LINE FROM BUS 1580 [KOTUG-1 132.00] TO BUS 5582 [KOTU-DU2 220.00] CKT 1	switching over is effective
2580 KOTUG-2 220.00 5582 KOTU-DU2 220.00	180.48	266.43	266.43	250	106.6%	OPEN LINE FROM BUS 1580 [KOTUG-1 132.00] TO BUS 5581 [KOTU-DU1 220.00] CKT 1	switching over is effective
2580 KOTUG-2 220.00 5583 KOTU-DU3 220.00	180.48	266.43	266.43	250	106.6%	OPEN LINE FROM BUS 1580 [KOTUG-1 132.00] TO BUS 5581 [KOTU-DU1 220.00] CKT 1	switching over is effective
1130 POLPI-1 132.00 1510 SITHA-1 132.00 1	129.94	175.23	175.23	165	106.2%	OPEN LINE FROM BUS 1130 [POLPI-1 132.00] TO BUS 5502 [KOSG-1T2 132.00] CKT 1	switching over is effective
1670 MATARA-1 132.00 6010 WELIGA 132.00 1	90.67	165.69	165.69	165	100.4%	OPEN LINE FROM BUS 1670 [MATARA-1 132.00] TO BUS 6010 [WELIGA 132.00] CKT 2	switching over is effective
1670 MATARA-1 132.00 6010 WELIGA 132.00 2	90.67	165.69	165.69	165	100.4%	OPEN LINE FROM BUS 1670 [MATARA-1 132.00] TO BUS 6010 [WELIGA 132.00] CKT 1	switching over is effective
1650 GALLE-1 132.00 1990 BADDE 132.00 1	88.69	161.63	164.01	165	99.4%	–	–

4. Voltage

220kV

Bus	Voltage	Contingency	Countermeasures
Nothing			

132kV

Bus	Voltage	Contingency	Countermeasures
Nothing			

Grid Substation Demand Forecast as of 2010, 2015, 2020 and 2025

Region	Name of Grid Station	Development Schedule New Grid Station, Augment, Size	Adj rate(%) Night P <> Day P	2010						2015						2020						2025					
				Night Peak		Day Peak		Off Peak		Night Peak		Day Peak		Off Peak		Night Peak		Day Peak		Off Peak		Night Peak		Day Peak		Off Peak	
			Power Factor	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q
Colombo City			76%																								
	Col-E(Kollupitiya)	30x3	0.81	31.0	22.4	40.8	29.5	25.3	18.3	40.0	29.0	52.7	38.1	32.7	23.6	50.1	36.2	65.9	47.7	40.8	29.6	53.9	39.0	70.9	51.3	43.9	31.8
	Col-F(Fort)	30x3	0.81	38.3	27.7	50.4	36.5	31.2	22.6	49.5	35.8	65.1	47.1	40.4	29.2	47.1	34.1	61.9	44.8	38.4	27.8	52.4	37.9	68.9	49.9	42.7	30.9
	Kelanitissa	60x2	0.85	50.5	31.3	66.4	41.2	41.2	25.5	49.2	30.5	64.7	40.1	40.1	24.9	59.7	37.0	78.6	48.7	48.7	30.2	63.8	39.6	84.0	52.1	52.1	32.3
	Kolonnawa-Col	31.5x3	0.85	51.4	31.8	67.6	41.9	41.9	26.0	50.4	31.2	66.3	41.1	41.1	25.5	58.2	36.1	76.6	47.5	47.5	29.4	54.7	33.9	72.0	44.6	44.6	27.7
	Col-A(Havelock Town)	31.5x2(2006)→3(2009)	0.85	27.1	16.8	35.7	22.1	22.1	13.7	35.1	21.8	46.2	28.6	28.6	17.8	45.4	28.1	59.7	37.0	37.0	22.9	58.7	36.4	77.2	47.8	47.9	29.7
	Col-I(Maradana)	31.5x2(2006)→3(2009)	0.85	31.4	19.5	41.3	25.6	25.6	15.9	40.6	25.2	53.4	33.1	33.1	20.5	52.5	32.5	69.1	42.8	42.8	26.6	59.7	37.0	78.6	48.7	48.7	30.2
	Col-C(Kotahena)	31.5x2(2008)(2014)→3(2024)	0.85							16.0	9.9	21.1	13.1	13.1	8.1	24.5	15.2	32.3	20.0	20.0	12.4	51.8	32.1	68.1	42.2	42.2	26.2
	Col-B	31.5x2(2012)(2014)→3(2022)	0.85							16.0	9.9	21.1	13.1	13.1	8.1	20.7	12.9	27.3	16.9	16.9	10.5	59.9	37.1	78.8	48.8	48.9	30.3
	Col-K	31.5x2(2013)(2018)→3(2024)	0.85													25.3	15.7	33.3	20.6	20.6	12.8	40.7	25.2	53.5	33.2	33.2	20.6
	Subtotal			229.6	149.5	302.2	196.8	187.3	122.0	296.9	193.3	390.6	254.4	242.2	157.7	383.6	247.8	504.7	326.1	312.9	202.2	495.5	318.1	651.9	418.6	404.2	259.5
Western South			73%																								
	Ratmalana	31.5x3	0.80	71.8	53.8	52.4	39.3	32.5	24.4	54.2	40.6	39.6	29.7	24.5	18.4	71.1	53.3	51.9	38.9	32.2	24.1	77.8	58.4	56.8	42.6	35.2	26.4
	Matugama	31.5x3	0.84	55.9	36.1	40.8	26.3	25.3	16.3	60.7	39.2	44.3	28.6	27.5	17.7	62.7	40.5	45.8	29.6	28.4	18.3	73.5	47.5	53.7	34.7	33.3	21.5
	Panadura	31.5x2→3(2010)	0.84	60.9	39.3	44.4	28.7	27.5	17.8	60.0	38.8	43.8	28.3	27.2	17.5	74.8	48.3	54.6	35.3	33.8	21.9	73.4	47.4	53.6	34.6	33.2	21.5
	Dehiwala	31.5x2(2006)→3(2015)	0.85	30.7	19.0	22.4	13.9	13.9	8.6	66.9	41.5	48.8	30.3	30.3	18.8	74.7	46.3	54.5	33.8	33.8	21.0	79.3	49.1	57.9	35.9	35.9	22.2
	Pannipitiya	30x2, 31.5x1 →+31.5x1(2011)	0.80	55.0	41.2	40.1	30.1	24.9	18.7	72.0	54.0	52.5	39.4	32.6	24.4	81.6	61.2	59.5	44.7	36.9	27.7	86.2	64.6	62.9	47.2	39.0	29.2
	Kolonnawa New	31.5x2→3(2010)	0.85	49.8	30.8	36.3	22.5	22.5	14.0	66.6	41.3	48.6	30.1	30.1	18.7	65.4	40.5	47.8	29.6	29.6	18.3	79.5	49.3	58.0	36.0	36.0	22.3
	Kosgama	31.5x2→3(2010)	0.86	56.6	33.6	41.3	24.5	25.6	15.2	67.2	39.9	49.0	29.1	30.4	18.0	59.4	35.3	43.4	25.7	26.9	16.0	71.2	42.2	52.0	30.8	32.2	19.1
	Sithawakapura	31.5x2→3(2014)	0.89	32.6	16.7	23.8	12.2	14.8	7.6	64.2	32.9	46.9	24.0	29.1	14.9	57.5	29.5	42.0	21.5	26.0	13.3	68.4	35.1	49.9	25.6	31.0	15.9
	Athurugiriya	31.5x2(2004)→3(2010)	0.87	45.5	25.8	33.2	18.8	20.6	11.7	67.0	37.9	48.9	27.7	30.3	17.2	73.1	41.4	53.4	30.2	33.1	18.7	68.5	38.8	50.0	28.3	31.0	17.6
	Sri Ja'pura	31.5x2(2006)→3(2011)(2014)	0.85	27.2	16.9	19.9	12.3	12.3	7.6	46.9	29.1	34.2	21.2	21.2	13.2	58.4	36.2	42.6	26.4	26.4	16.4	76.4	47.3	55.8	34.6	34.6	21.4
	Horana	31.5x2(2005)→3(2013)	0.87	29.4	16.7	21.5	12.2	13.3	7.5	47.3	26.8	34.5	19.6	21.4	12.1	53.4	30.3	39.0	22.1	24.2	13.7	78.7	44.6	57.5	32.6	35.6	20.2
	Around Kalutara	31.5x2(2012)→3(2019)	0.85							37.8	23.4	27.6	17.1	17.1	10.6	59.2	36.7	43.2	26.8	26.8	16.6	62.9	39.0	45.9	28.5	28.5	17.6
	Around Latpandura	31.5x2(2014)→3(2019)	0.85							21.6	13.4	15.8	9.8	9.8	6.1	53.4	33.1	39.0	24.2	24.2	15.0	47.2	29.3	34.5	21.4	21.4	13.2
	Around Moratuwa	31.5x2(2014)→3(2021)	0.85							27.0	16.7	19.7	12.2	12.2	7.6	39.8	24.7	29.1	18.0	18.0	11.2	72.9	45.2	53.2	33.0	33.0	20.4
	Around Gonaduwa	31.5x2(2016)→3(2021)	0.85													38.1	23.6	27.8	17.2	17.2	10.7	79.4	49.2	58.0	35.9	35.9	22.3
	Around Bentota	31.5x2(2017)	0.85													17.6	10.9	12.8	8.0	8.0	4.9	38.6	23.9	28.2	17.5	17.5	10.8
	Around Piliyandula	31.5x2(2021)→3(2024)	0.85																			77.6	48.1	56.6	35.1	35.1	21.8
	Around Migahatenna	31.5x2(2022)	0.85																			37.8	23.4	27.6	17.1	17.1	10.6
	Around Puwakpitiya	31.5x2(2018)→3(2022)	0.85													38.2	23.7	27.9	17.3	17.3	10.7	72.6	45.0	53.0	32.8	32.9	20.4
	Around Waga	31.5x2(2018)→3(2022)	0.85													38.5	23.9	28.1	17.4	17.4	10.8	73.3	45.4	53.5	33.2	33.2	20.6
	Around Arangala	31.5x2(2019)→3(2023)	0.85													27.0	16.7	19.7	12.2	12.2	7.6	72.5	44.9	52.9	32.8	32.8	20.3
	Around Maharagama	31.5x2(2019)→3(2022)	0.85													32.4	20.1	23.7	14.7	14.7	9.1	78.6	48.7	57.4	35.6	35.6	22.0
	Around Ambulgama	31.5x2(2023)	0.85																			23.3	14.4	17.0	10.5	10.5	6.5
	Kolonnawa New 2	31.5x2(2018)→3(2021)	0.85													42.0	26.0	30.7	19.0	19.0	11.8	78.8	48.8	57.5	35.7	35.7	22.1
	Subtotal			515.3	330.0	376.2	240.9	233.2	149.3	759.3	475.4	554.3	347.1	343.7	215.2	1118.3	702.1	816.3	512.5	506.1	317.8	1648.4	1029.7	1203.3	751.7	746.0	466.1
Southern			53%																								
	Galle	30x2→31.5x3(2007)	0.85	66.4	41.2	35.2	21.8	21.8	13.5	77.5	48.1	41.1	25.5	25.5	15.8	63.4	39.3	33.6	20.8	20.8	12.9	79.0	48.9	41.9	25.9	26.0	16.1
	Deniyaya	10x3→31.5x2(2007)→3(2014)	0.83	33.4	22.4	17.7	11.9	11.0	7.4	49.0	32.9	26.0	17.5	16.1	10.8	72.1	48.4	38.2	25.7	23.7	15.9	77.3	52.0	41.0	27.5	25.4	17.1
	Matara	31.5x2→3(2012)	0.96	40.8	11.9	21.6	6.3	13.4	3.9	60.0	17.5	31.8	9.3	19.7	5.8	66.0	19.3	35.0	10.2	21.7	6.3	73.6	21.5	39.0	11.4	24.2	7.1
	Hambantota	16x2→31.5x2(2012)→3(2021)	0.87	18.4	10.4	9.8	5.5	6.1	3.4	27.0	15.3	14.3	8.1	8.9	5.0	39.7	22.5	21.0	11.9	13.0	7.4	73.3	41.5	38.8	22.0	24.1	13.6
	Ambalangoda	31.5x2(2007)→3(2016)	0.85	28.8	17.8	15.3	9.5	9.5	5.9	42.3	26.2	22.4	13.9	13.9	8.6	62.3	38.6	33.0	20.5	20.5	12.7	78.7	48.8	41.7	25.9	25.9	16.0
	Around Udugama		0.85																								
	Around Baddegama	31.5x2(2010)→3(2016)	0.85	25.0	15.5	13.3	8.2	8.2	5.1	43.1	26.7	22.8	14.2	14.2	8.8	70.6	43.8	37.4	23.2	23.2	14.4	79.7	49.4	42.2	26.2	26.2	16.2
	Around Dikwella	31.5x2(2019)→3(2024)	0.85													27.0	16.7	14.3	8.9	8.9	5.5	55.8	34.6	29.6	18.3	18.3	11.4
	Around Kamburupitiya	31.5x2(2021)→3(2024)	0.85																			52.4	32.5	27.8	17.2	17.2	10.7
	Around Weligama	31.5x2(2010)→3(2017)	0.85	16.0	9.9	8.5	5.3	5.3	3.3	37.5	23.2	19.9	12.3	12.3	7.6	63.9	39.6	33.9	21.0	21.0	13.0	76.4	47.3	40.5	25.1	25.1	15.6
	Around Hikaduwa	31.5x2(2019)→3(2023)	0.85													29.2	18.1	15.5	9.6	9.6	5.9	79.7	49.4	42.2	26.2	26.2	16.2
	Subtotal			228.9	129.2	121.3	68.5	75.2	42.5	336.4	190.0	178.3	100.7	110.6	62.4	494.1	286.2	261.9	151.7	162.4	94.1	725.9	425.9	384.7	225.7	238.5	139.9
Sabaragamuwa			50%																								
	Balangoda	31.5x2→3(2020)	0.87	28.5	16.2	14.3	8.1	8.8	5.0	31.9	18.1	15.9	9.0	9.9	5.6	64.5	36.5	32.2	18.3	20.0	11.3	77.0	43.6	38.5	21.8	23.9	13.5
	Embilipitiya	31.5x2→3(2015)	0.88	33.1	17.8	16.5	8.9	10.2	5.5	54.2	29.3	27.1	14.6	16.8	9.1	55.8	30.1	27.9	15.1	17.3	9.3	77.9	42.1	39.0	21.0	24.2	13.0
	Ratnapura	31.5x2 (2004)→3(2021)	0.85	21.0	13.0	10.5	6.5	6.5	4.0	29.5	18.3	14.8	9.1	9.1	5.7	41.2	25.5	20.6	12.8	12.8	7.9	70.6	43.8	35.3	21.9	21.9	13.6
	Thulhiriya	31.5x3	0.90	52.1	25.2	26.0	12.6	16.1	7.8	72.4	35.1	36.2	17.5	22.4	10.9	51.8	25.1	25.9	12.5	16.1	7.8	71.8	34.8	35.9	17.4	22.2	10.8
	Kegalle	31.5x1(2010)→2(2010)→3(2019)	0.85	15.0	9.3	7.5	4.6	4.7	2.9	21.0	13.0	10.5	6.5	6.5	4.0	53.5	33.2	26.8	16.6	16.6	10.3	74.7	46.3	37.4	23.1	23.2	14.4
	Around Anguruwella	31.5x2(2020)	0.85													25.0	15.5	12.5	7.7	7.8	4.8	34.9	21.6	17.5	10.8	10.8	6.7
	Subtotal			149.6	81.5	74.8	40.8	46.4	25.3	208.9	113.7	104.5	56.8	64.8	35.2	291.7	165.9	145.9	83.0	90.4	51.4	406.9	232.1	203.4	116.1	126.1	72.0
Western North			90%																								
	Kotugoda-33	60x2→+31.5x2(2008)	0.86	101.2	60.1	91.1	54.1	56.5	33.5	114.9	68.2	103.4	61.3	64.1	38.0	107.6	63.8	96.8	57.5	60.0	35.6	111.8	66.3	100.6	59.7	62.4	37.0
	Sapugaskanda	30x3	0.85	72.6	45.0	65.3	40.5	40.5	25.1	72.8	45.1	65.5	40.6	40.6	25.2	66.9	41.5	60.3	37.3	37.4	23.2	68.8	42.7	62.0	38.4	38.4	23.8
	Biyagama-33	60x2	0.83	77.3	51.9	69.5	46.7	43.1	29.0	70.3	47.3	63.3	42.5	39.2	26.4	71.2	47.9	64.1	43.1	39.7	26.7	80.4	54.0	72.4	48.6	44.9	30.2
	Veyangoda	31.5x2→3(2009)	0.92	67.0	28.5	60.3	25.7	37.4	15.9	73.4	31.3	66.0	28.1	41.0	17.4	74.9	31.9	67.4	28.7	41.8	17.8	65.8	28.0	59.2	25.2	36.7	15.6
	Aniyakanda	31.5x2(2007)→3(2012)	0.85	35.3	21.9	31.8	19.7	19.7	12.2	77.4	48.0	69.7	43.2	43.2	26.8	63.9	39.6	57.5	35.6	35.7	22.1	68.4	42.4	61.6	38.2	38.2	23.7
	Katana	31.5x2(2008)→3(2012)	0.85	35.0	21.7	31.5	19.5	19.5	12.1	76.7	47.5	69.0	42.8	42.8	26.5	64.3	39.8	57.9	35.9	35.9	22.2	71.3	44.2	64.2	39.8	39.8	24.7
	Kelaniya	31.5x1→2(2010)→3(2014)	0.85	39.6	24.6	35.7	22.1	22.1	13.7	76.5	47.4	68.9	42.7	42.7	26.5	78.4	48.6	70.6	43.7	43.8	27.1	77.3	47.9	69.6	43.1	43.1	26.7
	Around Gampaha	31.5x2 (2016)→3(2022)	0.85													40.8	25.3	36.7	22.8	22.8	14.1	78.9	48.9	71.0	44.0	44.0	27.3
	Around Negombo	31.5x2 (2016)→3(2019)	0.85													69.3	42.9	62.4	38.7	38.7	24.0	76.8	47.6	69.1	42.8	42.9	26.6
	Around Dekatana	31.5x2 (2011)→3(2018)	0.85							27.2	16.9	24.5	15.2	15.2	9.4	76.4	47.3	68.8	42.6	42.6	26.4	74.3	46.0	66.9	41.4	41.5	25.7
	Around Peliyagoda	31.5x2 (2011)→3(2016)	0.85							40.8	25.3	36.7	22.8	22.8	14.1	75.7	46.9	68.1	42.2	42.2	26.2	77.4	48.0	69.7	43.2	43.2	26.8
	Around Mirigama	31.5x2 (2016)→3(2021)	0.85													39.0	24.2	35.1	21.8	21.8	13.5	78.1	48.4	70.3	43.6	43.6	27.0
	Around Badalgama	31.5x2 (2018)→3(2023)	0.85													29.2	18.1	26.3	16.3	16.3	10.1	77.9	48.3	70.1	43.5	43.5	26.9
	Around Ja-Ela	31.5x2 (2018)→3(2022)	0.85													35.0	21.7	31.5	19.5	19.5	12.1	76.7	47.5	69.0	42.8	42.8	26.5
	Around Kadawatta	31.5x2 (2018)→3(2021)	0.85													35.0	21.7	31.5	19.5	19.5	12.1	78.7	48.8	70.8	43.9	43.9	27.2
	Around Hanwella	31.5x2 (2021)→3(2024)	0.85																			73.3	45.4	66.0	40.9	40.9	25.3
	Around Ekala	31.5x2 (2021)→3(2024)	0.85																			70.4	43.6	63.4	39.3	39.3	24.3
	Around Andimbalama	31.5x2 (2021)→3(2024)	0.85																			58.6	36.3	52.7	32.7	32.7	20.3
	Subtotal			428.0	253.6	385.2	228.3	238.8	141.5	630.0	376.8	567.0	339.2	351.5	210.3	927.7	561.3	834.9	505.2	517.6	313.2	1364.9	834.4	1228.4	751.0	761.6	465.6

Grid Substation Demand Forecast as of 2010, 2015, 2020 and 2025

Region	Name of Grid Station	Development Schedule New Grid Station, Augment, Size	Adj rate(%) Night P <> Day P	2010						2015						2020						2025					
				Night Peak		Day Peak		Off Peak		Night Peak		Day Peak		Off Peak		Night Peak		Day Peak		Off Peak		Night Peak		Day Peak		Off Peak	
			Power Factor	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q	P	Q
North Western			60%																								
	Kurunegala	31.5x2→3 (2008)	0.85	59.9	37.1	35.9	22.3	22.3	13.8	74.3	46.1	44.6	27.6	27.7	17.1	73.4	45.5	44.0	27.3	27.3	16.9	80.6	49.9	48.3	30.0	30.0	18.6
	Puttalam	31.5x2→3(2010)	0.88	44.7	24.1	26.8	14.5	16.6	9.0	65.7	35.5	39.4	21.3	24.4	13.2	65.1	35.1	39.1	21.1	24.2	13.1	72.3	39.0	43.4	23.4	26.9	14.5
	Bolawatte	31.5x3	0.89	73.0	37.4	43.8	22.4	27.2	13.9	69.9	35.8	41.9	21.5	26.0	13.3	70.1	35.9	42.1	21.5	26.1	13.4	77.8	39.8	46.7	23.9	28.9	14.8
	Madampe	31.5x2→3 (2006)	0.83	64.9	43.6	38.9	26.2	24.1	16.2	58.1	39.0	34.9	23.4	21.6	14.5	75.8	50.9	45.5	30.5	28.2	18.9	73.2	49.2	43.9	29.5	27.2	18.3
	Pannala	31.5x2 (2007)→3 (2013)(2011)	0.85	24.3	15.1	14.6	9.0	9.0	5.6	57.9	35.9	34.7	21.5	21.5	13.3	54.8	34.0	32.9	20.4	20.4	12.6	80.5	49.9	48.3	29.9	29.9	18.6
	Maho	31.5x1 (2007)→2 (2012)(2013)→3 (2020)	0.85	17.7	11.0	10.6	6.6	6.6	4.1	25.9	16.1	15.5	9.6	9.6	6.0	54.8	34.0	32.9	20.4	20.4	12.6	80.5	49.9	48.3	29.9	29.9	18.6
	Around Nattandiya	31.5x2 (2016)→3(2022)	0.85													32.6	20.2	19.6	12.1	12.1	7.5	79.3	49.1	47.6	29.5	29.5	18.3
	Around Makandura	31.5x2 (2015)→3(2019)	0.85							25.0	15.5	15.0	9.3	9.3	5.8	59.1	36.6	35.5	22.0	22.0	13.6	80.5	49.9	48.3	29.9	29.9	18.6
	Around Kuliyapitiya	31.5x2 (2011)→3(2020)	0.85							40.8	25.3	24.5	15.2	15.2	9.4	64.6	40.0	38.8	24.0	24.0	14.9	70.6	43.8	42.4	26.3	26.3	16.3
	Around Hettipola	31.5x2 (2017)→3(2021)	0.85													31.5	19.5	18.9	11.7	11.7	7.3	73.4	45.5	44.0	27.3	27.3	16.9
	Around Anamaduwa	31.5x2 (2017)→3(2023)	0.85													31.5	19.5	18.9	11.7	11.7	7.3	69.5	43.1	41.7	25.8	25.9	16.0
	Around Chilaw	31.5x2 (2021)→3(2024)	0.85																			62.4	38.7	37.4	23.2	23.2	14.4
	Subtotal			284.4	168.3	170.7	101.0	105.8	62.6	417.6	249.1	250.5	149.4	155.3	92.7	613.2	371.3	367.9	222.8	228.1	138.1	900.5	547.8	540.3	328.7	335.0	203.8
Northern			43%																								
	Chunnakam	31.5x2(2007)	0.85	27.9	17.3	12.0	7.4	7.4	4.6	36.5	22.6	15.7	9.7	9.7	6.0	26.5	16.4	11.4	7.1	7.1	4.4	34.9	21.6	15.0	9.3	9.3	5.8
	Kilinochchi	31.5x1(2007)→x2(2023)	0.85	11.2	6.9	4.8	3.0	3.0	1.8	14.5	9.0	6.2	3.9	3.9	2.4	19.0	11.8	8.2	5.1	5.1	3.1	24.9	15.4	10.7	6.6	6.6	4.1
	Vavunia	10x2 →31.5x2(2009)	0.92	18.7	8.0	8.1	3.4	5.0	2.1	24.6	10.5	10.6	4.5	6.6	2.8	32.2	13.7	13.8	5.9	8.6	3.7	42.1	17.9	18.1	7.7	11.2	4.8
	Around Jaffna	31.5x2(2019)	0.85													21.1	13.1	9.1	5.6	5.6	3.5	27.6	17.1	11.9	7.4	7.4	4.6
	Around Kankasantural		0.85																								
	Subtotal			57.8	32.2	24.8	13.8	15.4	8.6	75.6	42.1	32.5	18.1	20.2	11.2	98.9	55.0	42.5	23.7	26.4	14.7	129.4	72.0	55.6	31.0	34.5	19.2
North Central			55%																								
	Anuradhapura	31.5x1, 10x2→-10x2,31.5x2(2010)→3(2012)	0.82	40.4	28.2	22.2	15.5	13.8	9.6	65.6	45.8	36.1	25.2	22.4	15.6	71.3	49.7	39.2	27.4	24.3	17.0	74.9	52.3	41.2	28.7	25.5	17.8
	Habarana	31.5x2→3(2010)	0.90	63.9	31.0	35.2	17.0	21.8	10.6	61.8	29.9	34.0	16.5	21.1	10.2	64.4	31.2	35.4	17.1	21.9	10.6	78.0	37.8	42.9	20.8	26.6	12.9
	Polonnaruwa	31.5x1 (2007)→2(2014)→3(2020)	0.85	18.9	11.7	10.4	6.4	6.4	4.0	39.9	24.7	21.9	13.6	13.6	8.4	62.7	38.9	34.5	21.4	21.4	13.3	75.4	46.7	41.5	25.7	25.7	15.9
	Around Galenbindunnuwew	31.5x2(2017)→3(2024)	0.85													25.2	15.6	13.9	8.6	8.6	5.3	66.8	41.4	36.7	22.8	22.8	14.1
	Around Minneriya	31.5x2(2016)→3(2024)	0.85													22.2	13.8	12.2	7.6	7.6	4.7	65.9	40.8	36.2	22.5	22.5	13.9
	Subtotal			123.2	70.9	67.8	39.0	42.0	24.2	167.3	100.4	92.0	55.2	57.0	34.3	245.7	149.1	135.1	82.0	83.8	50.9	361.0	219.0	198.5	120.5	123.1	74.7
Eastern			48%																								
	Ampara	31.5x2→3(2005)	0.97	44.3	11.1	21.3	5.3	13.2	3.3	61.1	15.3	29.3	7.4	18.2	4.6	73.9	18.5	35.5	8.9	22.0	5.5	78.0	19.5	37.4	9.4	23.2	5.8
	Valachchanai	10x2→31.5x2(2011)→3(2019)	0.85	6.8	4.2	3.3	2.0	2.0	1.3	35.3	21.9	16.9	10.5	10.5	6.5	48.7	30.2	23.4	14.5	14.5	9.0	67.4	41.8	32.4	20.1	20.1	12.4
	Paddirippu	31.5x2(2009)→3(2022)	0.85	24.5	15.2	11.8	7.3	7.3	4.5	20.9	13.0	10.0	6.2	6.2	3.9	39.6	24.5	19.0	11.8	11.8	7.3	78.8	48.8	37.8	23.4	23.5	14.5
	Trincomalee	31.5x2→3(2014)	0.81	33.0	23.9	15.8	11.5	9.8	7.1	48.4	35.1	23.2	16.8	14.4	10.4	71.1	51.5	34.1	24.7	21.2	15.3	80.2	58.1	38.5	27.9	23.9	17.3
	Around Nilaveli	31.5x2(2022)	0.85																			24.2	15.0	11.6	7.2	7.2	4.5
	Around Batticaloa		0.85																								
	Subtotal			108.6	54.4	52.1	26.1	32.3	16.2	165.7	85.2	79.6	40.9	49.3	25.4	233.4	124.8	112.0	59.9	69.5	37.1	328.6	183.2	157.8	88.0	97.8	54.5
Central			50%																								
	Kiribathkumbura	31.5x3	0.88	73.3	39.6	36.6	19.8	22.7	12.3	62.3	33.6	31.2	16.8	19.3	10.4	75.3	40.7	37.7	20.3	23.4	12.6	80.0	43.2	40.0	21.6	24.8	13.4
	Ukuwela	31.5x2→3(2012)	0.91	41.5	18.9	20.8	9.5	12.9	5.9	58.0	26.4	29.0	13.2	18.0	8.2	69.3	31.6	34.7	15.8	21.5	9.8	78.5	35.7	39.2	17.9	24.3	11.1
	Rantembe	31.5x1→2(2008)	0.91	9.6	4.4	4.8	2.2	3.0	1.4	13.4	6.1	6.7	3.1	4.2	1.9	18.7	8.5	9.3	4.3	5.8	2.6	21.4	9.7	10.7	4.9	6.6	3.0
	Nuwara Eliya	31.5x2→3(2012)(2015)	0.91	36.6	16.7	18.3	8.3	11.4	5.2	55.9	25.5	27.9	12.7	17.3	7.9	63.4	28.9	31.7	14.5	19.7	9.0	72.2	32.9	36.1	16.5	22.4	10.2
	Pallekele	31.5x2(2008)→3(2018)	0.85	22.9	14.2	11.5	7.1	7.1	4.4	31.9	19.8	16.0	9.9	9.9	6.1	67.2	41.6	33.6	20.8	20.8	12.9	80.2	49.7	40.1	24.9	24.9	15.4
	Naula	31.5x1(2008)→2(2013)	0.85	18.3	11.3	9.2	5.7	5.7	3.5	25.4	15.7	12.7	7.9	7.9	4.9	35.4	21.9	17.7	11.0	11.0	6.8	40.2	24.9	20.1	12.5	12.5	7.7
	Wimalasurendra	15x1, 31.5x1→31.5x3,-15x1(2010)	0.84	50.7	32.7	25.3	16.4	15.7	10.1	66.4	42.9	33.2	21.4	20.6	13.3	69.8	45.1	34.9	22.5	21.6	14.0	70.7	45.7	35.3	22.8	21.9	14.2
	Around Kandy	31.5x2(2014)→3(2021)	0.85							21.4	13.3	10.7	6.6	6.6	4.1	29.9	18.5	15.0	9.3	9.3	5.7	74.7	46.3	37.4	23.1	23.2	14.4
	Around Matale	31.5x2(2014)→3(2023)	0.85							18.2	11.3	9.1	5.6	5.6	3.5	25.2	15.6	12.6	7.8	7.8	4.8	67.6	41.9	33.8	20.9	21.0	13.0
	Around Lindula	31.5x2(2018)→3(2023)	0.85													22.9	14.2	11.5	7.1	7.1	4.4	75.9	47.0	38.0	23.5	23.5	14.6
	Subtotal			253.0	137.8	126.5	68.9	78.4	42.7	352.9	194.6	176.4	97.3	109.4	60.3	477.1	266.7	238.6	133.3	147.9	82.7	661.4	377.1	330.7	188.6	205.0	116.9
Uva			41%																								
	Badulla	31.5x2→3(2013)	0.92	34.5	14.7	14.1	6.0	8.8	3.7	48.3	20.6	19.8	8.4	12.3	5.2	52.6	22.4	21.6	9.2	13.4	5.7	78.3	33.3	32.1	13.7	19.9	8.5
	Medagama	31.5x1(2007)→2(2019)	0.85	12.2	7.6	5.0	3.1	3.1	1.9	17.1	10.6	7.0	4.3	4.3	2.7	24.1	14.9	9.9	6.1	6.1	3.8	33.8	20.9	13.9	8.6	8.6	5.3
	Around Bandarawela	31.5x2(2020)	0.85													28.0	17.4	11.5	7.1	7.1	4.4	39.3	24.4	16.1	10.0	10.0	6.2
	Around Wellawaya		0.85																								
	Around Namunukula		0.85																								
	Subtotal			46.7	22.2	19.1	9.1	11.9	5.7	65.4	31.2	26.8		16.6	7.9	104.7	54.7	42.9	22.4	26.6	13.9	151.4	78.6	62.1	32.2	38.5	20.0
	Total			2425.1	1429.7	1720.7	1033.1	1066.8	640.5	3476.0	2051.7	2452.5	1459.0	1520.6	912.5	4988.5	2984.9	3502.9	2122.6	2171.8	1316.0	7173.8	4318.1	5016.8	3051.9	3110.4	1892.2

Note

Adj rate(%)
Night P <> Day P : Created by using latest monthly report data(2003,2004)
Night Peak data of Colombo is compressed by adj rate
Day Peak data in other areas is compressed by adj rate.
Power Factor is based on actual past three years data. Worst value is selected.
Off peak data is 62% of day peak data (Daily load curve as of Sep in 2004)

Appendix 18

Generation Dispatch Schedule

Site	2010			2015			2020			2025			Year COM	Retirement Year
	NP	DP	OP	NP	DP	OP	NP	DP	OP	NP	DP	OP		
Old Laxapana	50	25	25	50	25	0	50	25	0	50	25	0		
New Laxapana	100	50	50	100	50	0	100	50	0	100	50	0		
Wimalasurendra	25	0	0	25	25	0	25	25	0	0	0	0		
Polpitiya	75	37.5	37.5	75	37.5	0	75	37.5	0	75	37.5	37.5		
Canyon	0	0	0	30	0	0	30	0	0	0	0	0		
Ampara	75	0	0	75	75	0	75	0	0	75	0	0		
Samanalawewa	120	60	60	120	60	60	120	60	60	120	60	60		
Ukuwela	19	0	0	19	19	19	19	19	19	19	19	19		
Bowatenna	0	0	0	11	0	0	11	0	0	11	0	0		
Kelanitissa_GT7	115	115	0	0	0	0	0	0	0	0	0	0		
Sapugaskanda Diesel_1-4	72	72	72											2013
Sapugaskanda Diesel_5-12	36	36	0	36	36	0	0	0	0					2023
Sapugaskanda Diesel_GT										105	105	0	2024	
Kukule	70	35	35	70	35	35	70	35	35	70	35	35		
Lakdhanavi CEB										0	105	0	2024	
Lakdhanavi IPP	22.5	0	0											2013
Asia Power (KHD)	51	0	0	51	0	0	0	0	0	0	0	0		2018
Galle	105	105	0	105	0	0	105	105	0	210	105	0	2009(105MW), 2021(105MW)	
ACE Embilipitiya	100	0	0											2015
CEB Matara										105	105	0	2024	
Trincomalee_GT	35	35	35	35	0	0	0	0	0	35	0	0	2009	
Chunnakam	35	35	35	35	35	0	70	70	0	70	35	35	2010(105MW), 2020(105MW)	
Heladanavi IPP	100	100	0											2015
Heladanavi CEB							105	0	0	210	105	0	2020(105MW), 2022(105MW)	
Paddirippu	75	75	0	75	0	0	75	75	0	75	75	0	2010	
Kotmale	130	65	65	130	65	65	130	65	65	130	65	0		
Colombo Power (Barge)	60	0	0	0	0	0	0	0	0	0	0	0		2015
Upper Kotmale				150	75	0	150	75	0	150	75	0	2011	
Victoria	34.1	48	91.2	83.4	89	28.5	114.2	32.4	53.6	47.4	138	56.7		
Randenigala	60	60	60	60	60	60	60	60	0	60	60	0		
CEB Kelanitissa_CCGT	165	165	165	165	165	0	165	0	0	165	165	0		
AES Kelanitissa	163	163	0	0	0	0	0	0	0					2024
Kerawalapitiya_CCGT	300	300	300	300	300	150	300	300	150	300	300	150	2008(200MW), 2009(100MW)	
Kerawalapitiya_GT	210	105	0	210	105	0	210	105	0	315	105	0	2009(105MW), 2010(105MW), 2022(105MW)	
Pannipitiya										315	315	105	2023(210MW), 2024(100MW)	
ACE Horana	20	20	20											2013
ACE Matara	0	0	0											2012
Chuuakam CEB	0	0	0	0	0	0	0	0	0	0	0	0	2010(35MW), 2020(35MW)	
Rantembe	25	25	25	25	25	25	25	25	25	25	25	25		
Puttalam_Coal				600	600	550	1200	900	720	1800	900	1080	2011(600MW), 2012/2020/2021/2022/2023(300MW)	
Trincomalee_Coal				0	0	0	600	600	360	600	300	360	2017/2018/2019(300MW)	
Hambantota_Coal				900	600	550	1200	900	720	2100	1800	1200	2013/2014/2015/2016/2024(300MW), 2011(600MW)	

Reexamination of Construction Costs at New Hydro Power Project Sites

The projected construction costs at Moragolla, one of the candidate sites for a new hydro power project for the 2005-2019 long-term generation expansion plan (LTGEP), were reexamined in Chapter 6. Among the other candidate sites for development, Gin Ganga and Uma Oya are at the same pre-F/S survey stage as Moragolla. Although there is some need to reexamine the projected construction costs for these two sites in our survey, on the basis of the latest data, we have not discussed such reexaminations in this text, because we have chosen rather to emphasize the importance of changes in the development plan.

The CEB may, however conduct a comparative examination of construction costs in its internal review of and any resulting alterations to the Master Plan. We are therefore including as a reference the results of our reexamination of the projected construction costs for these two sites conducted as part of this survey.

(1) Method of Reexamination of Construction Costs

Our reexamination of the projected construction costs for the two sites used the construction cost estimates for the Broadlands site, made by JICA in its Hydro Power Optimization Study (Feb. 2004), in considering construction cost estimates for the two sites in the CEB's 1989 Master Plan survey. Both sites represent larger-scale developments than at the Broadlands site, and basic factors in calculating construction costs (construction methods, unit costs) may therefore differ, but we have not given this any special consideration.

(2) Results of Reexamination of Construction Costs

Our reexamination of costs found that construction costs for both projects will increase, but less than the escalation of costs in the 1992 calculations. This indicates that the increase in prices factored into the 1992 calculations was exaggerated relative to the real price base. In addition, local costs are affected by exchange rate fluctuations, and increases are therefore higher than foreign cost increases.

Construction cost for Ginganga Site (Basic Cost) Units: million US$

Year costs were calculated	Foreign	Local	Total
1992	76.38	16.47	92.85
2003	83.21	24.43	107.64
Difference (%)	6.83(+8.4%)	7.96（+48.3%）	14.79（+15.9%）

Note: "Local" represents the cost of the project multiplied by 0.9.

Construction cost for Uma Oya site (Basic Cost) Units: million US$

Year costs were calculated	Foreign	Local	Total
1992	233.94	53.61	287.55
2003	244.66	82.11	326.77
Difference (%)	10.72(+4.6%)	28.5（+53.2%）	39.22（+13.6%）

Note: "Local" represents the cost of the project multiplied by 0.9.

The costs of the LTGEP hydro power projects at the candidate sites are shown in the table below. In all cases the basic costs, including interest during the construction period, are lower than the previous estimates.

Plant	Source	Capacity (MW)	Construction Cost (mnUS$)		Cost Basis	Exchange Rate (Rs/US$)	New Exchange Rate (Rs/US$)
			Foreign	Local			
Gin Ganga	[1]	49	83.21	24.43	Sep.2003	96	99.64
Broadlands	[2]	35	68.19	19.04	Sep.2003	96	99.64
Uma Oya	[3]	150	246.66	82.11	Sep.2003	96	99.64
Moragolla	[4]	27	58.69	15.89	Sep.2003	96	99.64

Source of information:
[1]** Masterplan project repot GING074
[2] Hydro Power Optimization Study,February 2004
[3]** CECE Pre-feasibility Study July 1991
[4]** Masterplan project MAHW263
* updated in June 1992,Refer Page 10-2 of Kukule Feasibility Study Report(Vol-1)
** updated in this study, Refer Hydro Power Opomization Study,February 2004

Plant	Pure Capital Cost **(US$/kW)			Constr. Period	IDC@10% (% of pure costs)	Cost Input WASP IV **(US$/kW) Incl.IDC		Total Cost **(US$/kW) Incl.IDC
	Foreign	Local	Total			Foreign	Local	
Gin Ganga	1905.4	570.2	2475.7	5	23.78	2358.5	705.8	3064.4
Broadlands	2027.0	576.7	2603.7	4	18.53	2402.6	683.6	3086.2
Uma Oya	1761.1	597.5	2358.6	5	23.78	2179.9	739.6	2919.5
Moragolla	2438.9	673.2	3112.1	4	18.53	2890.8	797.9	3688.7

Uma Oya Cost Sheet(1/2)

September.2003
1US$=96Rs.

Description		Unit	Quantity	Orice (US$)		Amount
				Foreign	Local	(US$)
A	**Preparatory Work**					
1	Access Road				14,010,000	14,010,000
2	Brige across the river	L.S	1	9,649,000	3,217,000	12,866,000
3	Power Supply	L.S	1	668,000	222,000	890,000
4	Construction Camp	L.S	1		2,080,000	2,080,000
	Total Prepartoty Work			**10,317,000**	**19,529,000**	**29,846,000**
B	**Environmental Mitigation** 3% of Civil Works			3,737,000	1,246,000	4,983,000
	Total Environmental Mitigation			**3,737,000**	**1,246,000**	**4,983,000**
C	**Civil Works**			**124,562,000**	**41,522,000**	**166,084,000**
1	**Care of River**					
	Total			**1,161,000**	**387,000**	**1,548,000**
2	**Dam**					
	Total			**85,679,000**	**28,560,000**	**114,239,000**
3	**Intake**					
	Total			**2,410,000**	**803,000**	**3,213,000**
4	**Headrace Tunnel**					
4.1	**Intake Tunnel**					
	Sub Total			193,000	64,000	257,000
4.2	**Main Tunnnel**					
	Sub Total			23,479,000	7,826,000	31,305,000
	Total			**23,672,000**	**7,890,000**	**31,562,000**
5	**Surge Chamber**					
	Total			**1,951,000**	**651,000**	**2,602,000**
6	**Penstock**					
6.1	**Tunnel**					
	Sub Total			2,068,000	690,000	2,758,000
6.2	**Open**					
	Sub Total			1,343,000	448,000	1,791,000
	Total			**3,411,000**	**1,138,000**	**4,549,000**
7	**Powerhouse**					
	Total			**5,173,000**	**1,725,000**	**6,898,000**
8	**Acess tunnel**					
	Total			**1,105,000**	**368,000**	**1,473,000**

Uma Oya Cost Sheet(2/2)

D	Hydro-Mechanical Works			5,691,200	633,000	6,324,000
1	Intake Structure(sum)					
	Total			1,546,000	172,000	1,718,000
2	Penstock					
	Total			3,956,200	440,000	4,396,000
3	Draft Equipment					
	Total			189,000	21,000	210,000
E	Electro-Mechanical Work			58,148,000	6,461,000	64,609,000
F	132kV Transmission Line	km	10.0	1,018,000	255,000	1,273,000
	Grand Total (A to F)			203,473,200	69,646,000	273,119,000
	Adminstration	2% of Direct Cost			5,463,000	5,463,000
	Engineering Service	13% of Direct Cost		26,452,000	9,054,000	35,506,000
	Contingency	10%:Prep.Env.Civil 5% H		16,731,000	6,971,000	23,702,000
	Land Acquisition				100,000	100,000
	Grand Total			246,657,000	91,233,000	337,890,000

Ginganga Cost Sheet (1/2)

September.2003
1US$=96Rs.

Description		Unit	Quantity	Orice (US$) Foreign	Local	Amount (US$)
A	**Preparatory Work**					
1	Access Road				1,716,000	1,716,000
2	Brige across the river	L.S	1	1,042,000	348,000	1,390,000
3	Power Supply	L.S	1	668,000	222,000	890,000
4	Construction Camp	L.S	1		2,080,000	2,080,000
	Total Prepartoty Work			**1,710,000**	**4,366,000**	**6,076,000**
B	**Environmental Mitigation**					
	3% of Civil Works			1,106,000	368,000	1,474,000
	Total Environmental Mitigation			**1,106,000**	**368,000**	**1,474,000**
C	**Civil Works**			**36,837,000**	**12,277,000**	**49,114,000**
1	**Care of River**					
	Total			**844,000**	**281,000**	**1,125,000**
2	**Dam**					
	Total			**15,345,000**	**5,115,000**	**20,460,000**
3	**Intake**					
	Total			**621,000**	**207,000**	**828,000**
4	**Headrace Tunnel**					
4.1	**Intake Tunnel**					
	Sub Total			278,000	92,000	370,000
4.2	**Main Tunnnel**					
	Sub Total			13,955,000	4,652,000	18,607,000
	Total			**14,233,000**	**4,744,000**	**18,977,000**
5	**Surge Chamber**					
	Total			**1,400,000**	**467,000**	**1,867,000**
6	**Penstock**					
6.1	**Tunnel**					
	Sub Total			211,000	70,000	281,000
6.2	**Open**					
	Sub Total			142,000	47,000	189,000
	Total			**353,000**	**117,000**	**470,000**
7	**Powerhouse**					
	Total			**1,918,000**	**639,000**	**2,557,000**
8	**Tailrace**					
	Total			**2,123,000**	**707,000**	**2,830,000**

Ginganga Cost Sheet (2/2)

D	**Hydro-Mechanical Works**			**4,866,000**	**541,000**	**5,407,000**
1	**Spillway Equipment** **Total**			**2,629,000**	**292,000**	**2,921,000**
2	**Intake Structure(sum)** **Total**			**1,060,000**	**118,000**	**1,178,000**
3	**Penstock** **Total**			**988,000**	**110,000**	**1,098,000**
4	**Draft Equipment** **Total**			**189,000**	**21,000**	**210,000**
E	**Electro-Mechanical Work**			**22,073,000**	**2,453,000**	**24,526,000**
F	**132kV Transmission Line**	**km**	**23.0**	**2,342,000**	**586,000**	**2,928,000**
	Grand Total (A to F)			**68,934,000**	**20,591,000**	**89,525,000**
	Adminstration	**2% of Direct Cost**			**1,791,000**	**1,791,000**
	Engineering Service	**13% of Direct Cost**		**8,961,000**	**2,677,000**	**11,638,000**
	Contingency	**10%:Prep.Env.Civil 5% H**		**5,319,000**	**1,990,000**	**7,309,000**
	Land Acquisition				**100,000**	**100,000**
	Grand Total			**83,214,000**	**27,149,000**	**110,363,000**