

APPENDICIES

Appendix 3.7 NPC Wholesale rate formula

Charges and Adjustment

1. Basic Charges

Demand charge: kW + Energy charge: kWh

2. Charge Adjustment Condition

1) Cost Adjustment

a) Fuel & Purchase Power Cost Adjustment (FPCA)

b) Foreign exchange adjustment

2) Other Adjustment Items

a) Power Factor Adjustment (PFA)

Power Factor less than 85%

Power Factor 90% and above, 95% and below

Power Factor 95% and above

$$\text{PFA} = \text{Total Basic Demand Charge} \times \frac{\text{S.P.F.}}{\text{P.F.}} - 1$$

The ratio $\frac{\text{P.F.}}{\text{S.P.F.}}$ shall be rounded to four(4) decimal places.

S.P.F.: Standard Power Factor: as adopted by NPC, 85% for penalty and 90% for bonus

P.F. : Actual Power Factor

$$\text{P.F.} = \frac{\text{kWh}^2}{\sqrt{(\text{kWh})^2 + (\text{kVARh})^2}} = \frac{1}{\sqrt{\frac{1 + (\text{kVARh})^2}{(\text{kWh})^2}}}$$

kVARh: kVARh figure is meter reading value in kWh meter for billing period

b) Fuel & Purchase power cost adjustment

$$\text{FPCA} = \Sigma \left[\frac{(P_1 - P_0)}{1,000,000} \times \text{AHR} \times \text{Gf}_1 \right] + (S_1 - S_0) \times G_s + (Pp_1 - Pp_0) \times \text{GPP}$$

Where:

P_1 : The actual price per million BTU of fuel, diesel, coal and other types of fuel used by NPC to generate electricity in the grid during the billing period.

P_0 : The base price per million BTU of fuel oil, diesel, coal and other types of fuel used by NPC in the design of the basic rate per grid.

AHR : The average heat rate of the plants in the grid using fuel, oil, diesel, coal and other types

of fuel in BTU per kWh established during the last rate review adjusted to account for transmission losses and company used pegged at 6%.

Gf_1 : share in the total kWh input to the grid of fuel oil, diesel, coal and other types of fuel used by NPC during the billing period.

$S_1 - S_0$: the change in cost of steam actually billed to NPC by independent power producers/generators in P/kWh during the billing period.

G_s : share in the total kWh input to the grid of purchased steam during the billing period.

$Pp_1 - Pp_0$: the change in cost of purchased power actually billed to NPC by independent power producers or private generators in P/kWh less cost of fuel supplied/delivered by NPC during the billing period.

GPp : share in the total kWh input the grid of purchased power/energy during the billing period.

c) FOREX1+ FOREX2

$$A \text{ FOREX 1} = \frac{(A_1-B_1) \times C + (A_2-B_2) \times D}{S},$$

$$A \text{ FOREX 2} = \frac{(A_1-B_1) \times E + (A_2-B_2) \times F}{S},$$

A1: Simple average actual peso to US Dollar exchange rate of BSP for the billing period.

A2: Simple average actual peso to Japanese Yen exchange rate of BSP for the billing period.

B1: Base Peso to US Dollar exchange rate of P27.40/US\$1 – equivalent exchange rate considered in NPC's latest rate application.

B2 :Base Peso to Japanese Yen exchange rate of P0.2329/JY1 – equivalent exchange rate considered in NPC's latest rate application.

C :Estimated debt service payments (principal only) for the period in US Dollar

D :Estimated debt service payments (principal only) for the period in Japanese Yen

E :Estimated foreign related operating expenses excluding those already recovered thru the FPCA for the period in US Dollar

F :Estimated foreign related operating expenses excluding those already recovered thru the FPCA for the period in Japanese Yen

S :Estimated energy sales for the year, kWh divided by 12

d) PVD: Primary Voltage Drop

Supply of Voltage	Discount(%)
less than 69 kV	-
69 kV and above	2.5
115/138 kV	3
230 kV and above	3.5

Appendix 3.9 Evaluation method for categorization

When NEA evaluate ECs' financial result in each fiscal year, NEA does it based upon the following manner shown in the Table A.3.9 Categorization in Region VIII, 1996. The assessment items are shown below;

1 Amortization Payment

Amortization payment is classified into major and incentive

(1) Major	regular	with moratorium	restructured
Current to date	25pts.	23pts.	20pts.
Up to 1 qrt. overdue	20pts.	18pts.	15pts.
Up to 2 qrts. overdue	15pts.	12pts.	10pts.
Up to 3 qrts. overdue	8pts.	5pts.	0pts.
More than 3 qrts. overdue	0pts.	- 3pts.	-10pts.

(2) Incentive

As an incentive, ECs which are able to pay advanced amortization to NEA are given one(1) point for every quarter advanced payment but not to exceed five(5) points.

2 System Loss

System Loss	score	System Loss	score
11% and below	25 pts.	19%	11 pts.
12	24	20	10
13	21	21	9
14	19	22	8
15	17	23	7
16	15	24	6
17	13	25	5
18	12	26 and above	0

3 Collection efficiency

Collection Eff.	score	Collection Eff.	score
95% and above	20 pts.	84%	9 pts.
94	19	83	8
93	18	82	7
92	17	81	6
91	16	80	5
90	15	79	4
89	14	78	3
88	13	77	2
87	12	76	1
86	11	75 and below	0
85	10		

4 Payment to Power Supplier

The ECs buy power from NAPOCOR which they retail in turn to their consumers. This is the biggest single expense that the coop has to promptly settle on time so as not to incur additional surcharges and other penalties and ultimately, disconnection.

	Regular		Relenting	
	without	with	without	with
Current	10 pts.	8 pts.	8 pts.	5 pts.
1 month overdue	8	5	5	0
2 month overdue	5	0	0	-5
3 month and more	0	-5	-5	-10

5 Non-Power Cost

In order to encourage the ECs to confine their non-power expenditures within the limits set by the NEA-approved budget in relation to actual collections, appropriate points are added from the over-all rating of ECs depending on how these expenditures match with the approved budget level.

Within approved budget	15 pts.
Above approved budget by 1%	14
2	13
3	12
4	11
5	10
6	9
7	8
8	7
9	6
10	5
11	4
12	3
13	2
14	1
15 & above	0

6 Demerit Points

- (1) Cash Advances to Officers & Employees; one(1) point is deducted for every P 50,000
- (2) No AB (No Approved Budget): - 1 pts.
- (3) No CF (No Cash Flow) : - 1 pts.
- (4) No SF for Rein.(Non Provision of Sinking Fund for 5% Reinvestment): - 1 pts.

7 Total

The general rule of rounding off figures will be followed except for cash advances.

Table A.3.9 Categorization in Region VIII, 1996

EC	Amortization Payment		System	Collection	payment	Non-	Demerit Points			1996		
	Major	Incentive					Loss	Efficiency	to PS		Power Cost	Cash ADV.
DORELCO	C	Adv.3	22	91	C	Within	32	-	-	-	77	A
	25	3	8	16	10	15	0	-	-	-	-	-
LEYECO II	C	Adv.4	18	97	C	Within	41	-	-	-	86	A
	25	4	12	20	10	15	0	-	-	-	-	-
LEYECO III	7	-	17	99	C	-5	58	-	-	-	-	-
	0	-	13	20	10	10	1	-	-	-	52	D
LEYECO IV	C	Adv.3	16	100	C	Within	43	-	-	-	-	-
	25	3	15	20	10	15	0	-	-	-	88	A
LEYECO V	C	Adv.1	13	84	C	Within	82	-	-	-	-	-
	25	1	22	9	10	15	1	-	-	-	81	A
SOLECO	C	-	19	94	C	Within	0	-	-	-	-	-
	25	-	11	19	10	15	0	-	-	-	80	A
BILECO	R-C	-	22	96	C	Within	32	-	-	-	-	-
	20	-	8	20	10	15	0	-	-	-	73	B
SAMELCO I	R1	-	10	98	C	-4	48	-	-	-	-	-
	15	-	25	20	10	11	0	-	-	-	81	A
SAMELCO II	C	-	16	100	C	Within	32	-	-	-	-	-
	25	-	15	20	10	15	0	-	-	-	85	A
NORSAMELCO	21	-	20	83	1	-1	48	-	-	-	-	-
	0	-	10	8	8	14	0	-	-	-	40	D
ESAMELCO	11	-	17	98	C	Within	126	-	-	-	-	-
	0	-	13	20	10	15	2	-	-	-	56	C

Source: NEA Head Quarter office

: The report of JICA Preparatory & Preliminary Mission

Appendix 3.10 Power Demand Forecast in Reasion VIII prepared by NEA

- Base Sales Forecast; Demand forecast by existing customer in electrified Barangay
- Add-on Sales Forecast; Demand forecast by future customer in electrified Barangay
- Expansion Sales Forecast; Demand forecast by the future customer in the future electrified Barangay

REC NAME DON ORESTES ROMUALDEZ ELECTRIC COOPERATIVE 07/29/97
 REC Acronym DORELCO 03:55 PM
 REC Code HO1 filename:HO1L.WK1
 YEAR OF FORECAST 1997
 1st Year of Historical Data 1992
 (1992 or later year)

HISTORICAL SYSTEM PERFORMANCE	1992-1996					
	1992	1993	1994	1995	1996	Average %
RESIDENTIAL (MWh)	6542	7145	7992	8457	10093	11.4%
Customers	17960	18919	19691	18492	20730	3.7%
Avg kWh/month	30	31	34	38	41	7.5%
* Resid. Minimum Bill (MWh)	341	580	600	620	650	17.5%
Customers	4511	4660	5000	5400	5600	5.6%
Avg kWh/month	6	10	10	10	10	11.3%
* Other Resid. (MWh)	5670	5926	6653	7257	8751	11.5%
Customers	11569	11849	12250	12290	13259	3.5%
Avg kWh/month	41	42	45	49	55	7.7%
* BAPA (MWh)	531	639	739	580	692	6.6%
End-Use Customers	1850	2410	2431	802	1872	-0.1%
Avg kWh/month	24	22	25	60	31	7.0%
SMALL COMMERCIAL (MWh)	697	736	759	925	1125	13.1%
Customers	373	366	369	414	424	3.3%
Avg kWh/month	153	168	172	186	221	9.5%
LARGE COMMERCIAL (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
INDUSTRIAL (MWh)	904	838	1140	781	1112	5.3%
Customers	1	1	1	2	3	31.6%
Avg kWh/month	75333	74000	95000	32542	30887	-20.0%
LARGE LOADS (MWh)	642	71	825	1008	61	-44.5%
Customers	1	1	1	1	1	0.0%
Avg kWh/month	53500	5917	68750	84000	5083	-44.5%
PUBLIC BUILDINGS (MWh)	144	156	198	220	234	12.9%
Customers	61	59	59	54	57	-1.7%
Avg kWh/month	197	220	280	340	342	14.8%
IRRIGATION (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
STREET LIGHTS (MWh)	146	152	138	118	121	-4.5%
Installed Units (estimated)	497	496	468	390	435	-3.3%
Avg kWh/month	24	26	25	25	23	-1.3%
TOTAL SALES (MWh)	9065	9148	11052	11509	12745	8.9%
- REC INTERNAL USE (MWh)	50	52	57	36	95	17.3%
TOTAL CONSUMPTION (MWh)	9115	9200	11109	11545	12840	8.9%
ENERGY LOSSES (MWh)	2905	3681	3281	2695	3579	5.4%
ENERGY LOSSES (%)	24%	29%	23%	19%	22%	
ENERGY GEN/PURCHASED (MWh)	12020	12881	14390	14240	16419	8.1%
LOAD FACTOR (%)	34%	37%	41%	41%	47%	
MAXIMUM DEMAND (MW)	4	4	4	4	4	0.0%

SYSTEM SALES FORECAST	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
RESIDENTIAL (MWh)	10093	11309	12799	14905	17648	21065	24960	29529	34919	41227	48629	57271
Customers	20730	21559	22443	23732	24926	26514	27614	28665	29757	30832	32072	33300
Avg kWh/month	41	44	48	52	59	66	75	85	93	111	126	143
SMALL COMMERCIAL (MWh)	925	978	1054	1157	1293	1446	1630	1840	2077	2345	2648	2939
Customers	414	418	422	427	431	435	439	444	448	453	457	462
Avg kWh/month	186	195	208	226	250	277	309	345	386	432	482	539
LARGE COMMERCIAL (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL (MWh)	781	804	827	844	861	878	896	914	932	951	970	989
Customers	2	2	2	2	2	2	2	2	2	2	2	2
Avg kWh/month	32542	33160	33790	34455	35155	35858	36581	37317	38067	38835	39617	40414
LARGE LOADS (MWh)	1008	1368	1967	1976	1986	1996	2005	2005	2006	2006	2006	2006
PUBLIC BUILDINGS (MWh)	220	234	250	269	289	310	337	369	405	444	487	535
Customers	54	56	57	59	61	63	64	66	68	70	73	75
Avg kWh/month	340	350	364	380	395	413	435	463	493	525	560	595
IRRIGATION (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
STREET LIGHTS (MWh)	118	122	127	140	152	169	181	191	202	213	226	239
Installed Units	390	394	399	423	443	475	483	497	492	495	500	504
Avg kWh/month	25	26	27	28	29	30	31	33	34	36	38	39
TOTAL SALES (MWh)	13145	14835	17025	19290	22249	25865	30010	34849	40539	47187	54965	64029
REC INTERNAL USE (MWh)	36	45	46	47	48	49	50	51	52	53	54	55
TOTAL CONSUMPTION (MWh)	11545	14880	17071	19337	22297	25914	30060	34900	40591	47240	55019	64084
ENERGY LOSSES (%)	19	22.0%	21.0%	20.0%	18.0%	17.0%	17.0%	16.0%	16.0%	14.0%	14.0%	14.0%
ENERGY GEN/PURCHASED (MWh)	14240	19077	21608	24172	27191	31222	36216	41548	48323	54930	63976	74517
LOAD FACTOR (%)	41%	49.0%	49.0%	50.0%	50.0%	50.0%	51.0%	51.0%	52.0%	52.0%	53.0%	53.0%
MAXIMUM DEMAND (MW)	4.0	4.4	5.0	5.5	6.2	7.1	8.1	9.3	10.6	12.1	13.8	16.0
Annual growth rate %		11.1%	13.3%	9.6%	12.5%	14.8%	13.7%	14.7%	14.1%	13.7%	14.3%	16.5%

REC NAME LEVELCO II ELECTRIC COOPERATIVE 07/30/97
 REC Acronym LEVELCO II 01:30 PM
 REC Code R02 filename:R02L.V01
 YEAR OF FORECAST 1997
 1st Year of Historical Data - 1992
 (1992 or later year)

HISTORICAL SYSTEM PERFORMANCE	1992-1996					Average %
	1992	1993	1994	1995	1996	
RESIDENTIAL (MWh)	13759	15717	17270	18338	23839	14.7%
Customers	17739	18379	19618	20892	22452	6.1%
Avg kWh/month	65	69	73	73	88	8.2%
* Resid. Minimum Bill (MWh)	248	234	216	244	216	-3.4%
Customers	2225	1949	2397	2197	1392	-5.2%
Avg kWh/month	9	10	10	10	10	1.9%
* Other Resid. (MWh)	13459	14917	16986	18086	23436	14.9%
Customers	13496	14412	16003	18415	20634	7.4%
Avg kWh/month	72	76	79	77	95	6.9%
* BAPL (MWh)	52	66	69	109	187	37.7%
End-Use Customers	18	18	18	29	21	5.9%
Avg kWh/month	291	306	315	459	742	31.5%
SMALL COMMERCIAL (MWh)	99	95	85	80	109	0.3%
Customers	448	356	353	330	342	-6.5%
Avg kWh/month	18	26	20	20	24	7.3%
LARGE COMMERCIAL (MWh)	10465	10761	11638	11614	11359	2.1%
Customers	3107	3171	3178	3198	3198	0.7%
Avg kWh/month	281	283	305	363	296	1.3%
INDUSTRIAL (MWh)	13187	14397	16588	17856	21350	17.2%
Customers	258	259	275	318	363	9.8%
Avg kWh/month	436	479	508	459	489	2.7%
LARGE LOADS (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
PUBLIC BUILDINGS (MWh)	112	137	168	176	229	19.6%
Customers	58	35	38	47	68	21.7%
Avg kWh/month	361	376	368	273	261	-1.7%
IRRIGATION (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
STREET LIGHTS (MWh)	1998	1978	1425	1835	1642	0.7%
Installed Units (estimated)	4956	4952	5350	5500	5500	7.9%
Avg kWh/month	25	22	22	28	25	0.3%
TOTAL SALES (MWh)	28820	41878	47274	49829	58499	10.8%
DEC INTERNAL USE (MWh)	157	215	216	195	184	4.8%
TOTAL CONSUMPTION (MWh)	28977	41893	47390	50022	58683	10.8%
ENERGY LOSSES (MWh)	18161	17268	15153	15965	18776	0.8%
ENERGY LOSSES (%)	328	282	291	298	218	
ENERGY GEN/PURCHASED (MWh)	54745	61046	68333	66487	77459	8.3%

LOAD FACTOR (%) 508 518 548 548 638
 MAXIMUM DEMAND (MW) 18 13 14 14 14 6.2%

SYSTEM SALES FORECAST	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
RESIDENTIAL (MWh)	23839	26190	28954	32144	36105	40933	47700	54972	64068	75058	88904	103950
Customers	22452	23961	25518	27360	29384	31583	33916	36448	39197	42178	45411	48912
Avg kWh/month	88	91	95	98	105	109	116	125	135	146	160	173
SMALL COMMERCIAL (MWh)	100	111	125	142	159	178	199	224	250	279	311	346
Customers	142	165	188	209	237	266	294	322	351	381	411	436
Avg kWh/month	24	27	29	32	35	38	42	46	51	55	61	66
LARGE COMMERCIAL (MWh)	11359	12918	14880	17173	19998	23326	27248	31585	36707	42460	48917	55172
Customers	3198	3262	3327	3400	3499	3743	3892	4048	4210	4378	4554	4736
Avg kWh/month	296	308	323	341	361	386	412	440	470	502	538	578
INDUSTRIAL (MWh)	21330	23559	26033	29067	32468	36458	40952	46014	51714	58155	65367	73513
Customers	363	403	447	496	551	612	679	754	837	929	1031	1144
Avg kWh/month	4392	4832	5351	5879	6510	7217	7976	8868	9852	10947	12156	13493
LARGE LOADS (MWh)	0	0	35049	35590	35744	36102	36463	36863	36463	36863	36463	36463
PUBLIC BUILDINGS (MWh)	229	236	243	250	258	267	276	286	296	306	317	328
Customers	68	69	69	70	71	71	72	73	74	74	75	76
Avg kWh/month	281	286	292	298	304	311	319	327	335	343	352	360
IRRIGATION (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
STREET LIGHTS (MWh)	1642	1824	2058	2320	2615	2947	3368	3848	4396	5022	5736	6553
Installed Units	5500	6050	6723	7470	8295	9210	10316	11556	12943	14496	16235	18181
Avg kWh/month	25	25	26	26	26	27	27	28	28	29	29	30
TOTAL SALES (MWh)	58459	63958	70533	78507	87945	99211	113707	130291	148394	168663	191116	216165
REC INTERNAL USE (MWh)	184	193	193	193	193	193	193	193	193	193	193	193
TOTAL CONSUMPTION (MWh)	58683	64151	70726	78699	88138	100404	115900	132484	150587	170856	193309	218358
ENERGY LOSSES (%)	24.28	20.01	18.01	16.01	15.01	14.01	12.01	10.01	10.01	10.01	10.01	10.01
ENERGY GEN/PURCHASED (MWh)	37459	40189	42630	46557	51488	57283	64068	71649	80763	91396	103676	118447
LOAD FACTOR (%)	83	81.01	80.01	80.01	80.01	80.01	80.01	80.01	80.01	80.01	80.01	80.01
MAXIMUM DEMAND (MW)	14.0	15.0	14.5	15.0	17.0	19.7	22.0	24.6	28.4	32.9	38.3	44.2
Annual growth rate %	7.11	7.21	6.21	5.21	7.01	7.91	7.51	8.11	11.11	11.71	12.51	12.51

REC NAME LEVIE TR ELECTRIC COOPERATIVE, INC. 07/30/97
 REC Agency LEVECO 011 01:07 PM
 REC Code MOJ Release:MOJL.VRI
 YEAR OF FORECAST 1997
 1st Year of Historical Data 1992
 (1992 or later year)

HISTORICAL SYSTEM PERFORMANCE	1992	1993	1994	1995	1996	1997-1998
RESIDENTIAL (MWh)	3486	3831	4472	4510	5656	17.93
Customers	10837	11278	11733	11963	12393	3.22
Avg kWh/month	27	28	31	31	33	3.22
* Resid. Minimum Bill (MWh)	256	260	270	255	170	-9.28
Customers	2165	2238	2272	2128	1399	-10.31
Avg kWh/month	10	10	10	10	10	1.31
* Other Resid. (MWh)	2824	3095	3595	3674	4706	13.61
Customers	6857	7073	7351	7111	8751	6.31
Avg kWh/month	34	36	41	40	45	6.31
* BAPA (MWh)	412	476	557	581	780	17.31
End-Use Customers	1010	1012	2030	2124	2153	4.41
Avg kWh/month	19	21	22	23	30	17.31
SMALL COMMERCIAL (MWh)	359	415	515	515	643	15.71
Customers	388	399	414	446	457	4.28
Avg kWh/month	77	91	104	96	117	11.01
LARGE COMMERCIAL (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
INDUSTRIAL (MWh)	327	329	280	222	414	6.11
Customers	63	63	56	56	57	-2.58
Avg kWh/month	433	435	411	330	605	8.61
LARGE LOADS (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
PUBLIC BUILDINGS (MWh)	98	136	160	135	221	22.51
Customers	124	136	154	185	177	9.31
Avg kWh/month	66	83	87	87	104	17.11
IRRIGATION (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
STREET LIGHTS (MWh)	131	136	153	159	243	17.31
Installed Units (estimated)	509	510	612	640	680	8.01
Avg kWh/month	27	21	21	21	30	8.61
TOTAL SALES (MWh)	4401	4867	5530	5519	7102	13.01
REC INTERNAL USE (MWh)	11	13	14	18	20	16.11
TOTAL CONSUMPTION (MWh)	4412	4880	5544	5537	7202	13.01
ENERGY LOSSES (MWh)	1531	1591	1609	1863	1525	0.71
ENERGY LOSSES (%)	261	251	228	258	181	
ENERGY GEN/PURCHASED (MWh)	5943	6471	7153	7460	8727	10.21

LOAD FACTOR (%) 341 378 411 438 501
 MAXIMUM DEMAND (MW) 2 2 2 2 2 0.01

SYSTEM SALES FORECAST	1995	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
RESIDENTIAL (MWh)	5555	6520	7574	8025	10245	11565	13978	16129	18546	21277	24395	27971
Customers	12393	13041	13949	15026	16128	17325	18573	19727	20932	22072	23319	24641
Avg kWh/month	39	47	45	49	53	58	63	68	74	80	87	95
SMALL COMMERCIAL (MWh)	645	699	760	826	898	976	1052	1155	1256	1365	1488	1617
Customers	457	452	466	471	476	480	485	490	495	500	505	510
Avg kWh/month	117	126	156	146	157	167	182	195	212	228	245	264
LARGE COMMERCIAL (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL (MWh)	414	449	488	529	575	624	677	735	798	866	941	1021
Customers	57	58	59	59	59	60	61	61	62	62	63	64
Avg kWh/month	605	650	699	751	807	868	933	1007	1077	1150	1245	1338
LARGE LOADS (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
PUBLIC BUILDINGS (MWh)	221	235	250	265	282	299	318	338	360	382	405	432
Customers	177	180	182	185	188	191	194	196	199	202	205	208
Avg kWh/month	104	107	114	119	125	131	137	144	150	157	165	173
IRRIGATION (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
STREET LIGHTS (MWh)-	248	265	291	327	365	409	457	495	531	566	602	640
Installed Units	490	494	728	788	835	894	953	986	1007	1027	1043	1060
Avg kWh/month	30	32	33	35	36	38	40	42	44	45	48	50
TOTAL SALES (MWh)	7182	8168	9364	10773	12365	14273	16492	18953	21491	24458	27830	31681
REG INTERNAL USE (MWh)	20	21	22	22	23	23	24	24	24	25	25	26
TOTAL CONSUMPTION (MWh)	7202	8189	9386	10795	12408	14296	16516	18977	21515	24483	27855	31707
ENERGY LOSSES (%)	17.0%	16.0%	14.0%	13.0%	13.0%	13.0%	13.0%	12.0%	12.0%	12.0%	12.0%	12.0%
ENERGY BEH/PURCHASED (MWh)	8727	9749	10916	12403	14262	15435	18284	21451	24449	27822	31654	36031
LOAD FACTOR (%)	50%	45.0%	45.0%	47.0%	47.0%	47.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
MAXIMUM DEMAND (MW)	2.0	2.5	2.8	3.0	3.5	4.0	4.3	4.9	5.6	6.4	7.2	8.2
Annual growth rate %		23.7%	12.0%	8.9%	14.9%	15.2%	8.6%	15.0%	14.0%	13.0%	13.0%	13.0%

REC NAME LEYTE IV ELECTRIC COOPERATIVE, INC. 07/29/97
 REC Acronyms LEVECO IV 02:39 PM
 REC Code HOA filename:HOAL.WXL
 YEAR OF FORECAST 1997
 1st Year of Historical Data 1992
 (1992 or later year)

HISTORICAL SYSTEM PERFORMANCE	1992-1996					1996 Average %
	1992	1993	1994	1995	1996	
RESIDENTIAL (MWh)	3865	4581	5251	6098	7671	18.5%
Customers	12288	13518	15441	16253	18944	11.4%
Avg kWh/month	26	28	28	31	34	6.3%
• Resid. Minimum Bill (MWh)	222	261	383	373	312	8.9%
Customers	3130	3439	3909	4827	3714	4.4%
Avg kWh/month	6	6	8	6	7	4.3%
• Other Resid. (MWh)	3475	4954	4571	5468	7018	19.2%
Customers	8461	9258	10469	10448	14268	14.6%
Avg kWh/month	34	37	36	44	41	4.6%
• BAPA (MWh)	169	226	297	257	291	14.5%
End-Use Customers	697	881	1064	978	962	8.4%
Avg kWh/month	20	21	23	22	25	5.7%
SMALL COMMERCIAL (MWh)	1615	1782	1939	2173	2539	12.0%
Customers	2140	2142	2180	2190	2302	1.8%
Avg kWh/month	63	69	74	83	92	9.9%
LARGE COMMERCIAL (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
INDUSTRIAL (MWh)	338	462	535	371	350	-0.5%
Customers	135	142	158	152	166	5.3%
Avg kWh/month	239	271	282	293	191	-5.5%
LARGE LOADS (MWh)	1705	1609	1617	1561	1536	-2.6%
Customers	1	1	1	1	1	0.0%
Avg kWh/month	142068	134095	134750	130093	127978	-2.6%
PUBLIC BUILDINGS (MWh)	353	396	424	503	628	15.5%
Customers	327	367	424	452	552	14.8%
Avg kWh/month	90	90	83	93	95	1.3%
IRRIGATION (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
STREET LIGHTS (MWh)	136	133	114	120	110	-5.1%
Installed Units (estimated)	191	858	770	741	733	1.1%
Avg kWh/month	16	13	12	13	13	-6.2%
TOTAL SALES (MWh)	8063	8764	9650	10826	12813	12.3%
REC INTERNAL USE (MWh)	32	67	63	73	77	24.1%
TOTAL CONSUMPTION (MWh)	8095	9031	9943	10899	12890	12.3%
ENERGY LOSSES (MWh)	1778	1819	1639	2586	2608	10.0%
ENERGY LOSSES (%)	18%	17%	14%	19%	17%	-1.7%
ENERGY GEN/PURCHASED (MWh)	5873	10850	11592	13485	15498	11.9%

LOAD FACTOR (%) 44% 44% 40% 47% 49% 2.6%
 MAXIMUM DEMAND (MW) 3 3 3 3 4 9.1%

SYSTEM SALES FORECAST	1976	1977	1978	1979	2000	2001	2002	2003	2004	2005	2006	2007
RESIDENTIAL (MWh)	7621	7963	8406	8891	9430	10047	10703	11391	12104	12843	13623	14443
Customers	18944	20176	21601	22958	24346	25655	26828	27980	29138	29568	30416	31270
Avg kWh/month	34	33	32	32	32	33	33	34	35	36	37	38
SMALL COMMERCIAL (MWh)	2539	2732	2963	3213	3499	3816	4161	4535	4947	5398	5897	6420
Customers	2302	2371	2473	2560	2655	2746	2830	2912	2997	3085	3175	3268
Avg kWh/month	92	96	100	105	110	116	123	130	138	146	155	164
LARGE COMMERCIAL (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL (MWh)	380	410	444	482	525	573	626	687	754	831	914	1007
Customers	166	181	197	215	234	255	278	303	331	361	393	428
Avg kWh/month	191	189	188	187	187	187	187	189	190	192	194	196
LARGE LOADS (MWh)	1609	1609	1617	1625	1633	1641	1650	1559	1666	1675	1683	1691
PUBLIC BUILDINGS (MWh)	417	467	529	601	686	786	898	1026	1177	1355	1564	1809
Customers	367	433	512	602	700	811	930	1060	1207	1371	1554	1760
Avg kWh/month	95	93	86	83	82	81	80	81	81	82	84	86
IRRIGATION (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
STREET LIGHTS (MWh)	129	129	135	140	145	150	155	159	160	160	161	161
Installed Units	858	862	897	929	965	1001	1029	1051	1062	1067	1071	1075
Avg kWh/month	13	13	13	13	13	13	13	13	13	13	13	13
TOTAL SALES (MWh)	12695	13311	14093	14952	15918	17014	18193	19455	20808	22262	23832	25532
REC INTERNAL USE (MWh)	77	68	69	70	71	72	73	74	75	76	77	78
TOTAL CONSUMPTION (MWh)	12890	13379	14162	15022	15989	17086	18266	19529	20883	22338	23909	25610
ENERGY LOSSES (%)	16.8%	16.0%	15.0%	14.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%
ENERGY GEN/PURCHASED (MWh)	15493	15927	16661	17467	18378	19639	20995	22447	24004	25676	27482	29435
LOAD FACTOR (%)	49%	45.0%	46.0%	47.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
MAXIMUM DEMAND (MW)	3.6	4.0	4.1	4.2	4.2	4.5	4.8	5.1	5.5	5.9	6.3	6.7
Annual growth rate %		12.2%	2.3%	2.6%	-1.1%	6.9%	6.9%	6.9%	6.9%	7.0%	7.0%	7.1%

REC NAME LEVIE V ELECTRIC COOPERATIVE, INC. 07/30/91
 REC Acronym LEVICO Y 01:13 PM
 REC Code NOS filename:MSGL.VM1
 YEAR OF FORECAST 1997
 1st Year of Historical Data 1992
 (1992 or later year)

HISTORICAL SYSTEM PERFORMANCE	1992-1996					Average 1
	1992	1993	1994	1995	1996	
RESIDENTIAL (MVA)	14240	14012	13319	20603	25329	15.92
Customers	24458	27147	29825	32302	33568	8.21
Avg kWh/month	49	49	51	53	63	7.11
* Resid. Minimum Bill (MVA)	726	834	914	1038	1300	15.71
Customers	6950	6700	7328	7959	8100	7.67
Avg kWh/month	10	10	14	11	13	7.52
* Other Resid. (MVA)	12497	11394	14399	18460	22552	15.91
Customers	17661	17416	19303	20944	21872	8.53
Avg kWh/month	59	63	71	75	86	9.98
* BAFM (MVA)	817	824	997	1169	1477	16.01
End-Use Customers	145	2021	3194	3379	3596	48.23
Avg kWh/month	51	24	26	29	34	-21.81
SMALL COMMERCIAL (MVA)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
LARGE COMMERCIAL (MVA)	2167	2412	2686	2936	3127	9.42
Customers	284	1037	1074	1104	988	8.12
Avg kWh/month	185	174	288	272	264	9.22
INDUSTRIAL (MVA)	15933	14895	15274	17468	14778	1.88
Customers	269	289	352	539	561	20.28
Avg kWh/month	4316	4295	3616	3649	2225	-15.34
LARGE LOADS (MVA)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
PUBLIC BUILDINGS (MVA)	474	588	675	685	747	12.08
Customers	151	177	189	207	213	9.01
Avg kWh/month	242	272	298	274	292	2.83
TRANSMISSION (MVA)	-	-	-	-	5431	NA
Customers	-	-	-	-	16	NA
Avg kWh/month	0	0	0	0	28286	NA
STREET LIGHTS (MVA)	108	660	470	930	1843	27.82
Installed Units (estimated)	320	880	122	155	193	-39.24
Avg kWh/month	61	63	458	527	296	59.24
TOTAL SALES (MVA)	31342	34587	37637	42672	51455	13.28
REC INTERNAL USE (MVA)	132	206	235	273	243	27.14
TOTAL CONSUMPTION (MVA)	31474	34793	37872	42945	51703	13.28
ENERGY LOSSES (MVA)	5815	5576	5058	3318	7820	7.71
ENERGY LOSSES (k)	663	142	121	151	131	
ENERGY BCS/PURCHASED (MVA)	37269	40349	42910	50263	59581	12.41

LOAD FACTOR (%)	471	512	451	522	628	
MAXIMUM DEMAND (MW)	9	9	11	11	11	5.11

SYSTEM SALES FORECAST	1976	1987	1978	1979	2000	2001	2002	2003	2004	2005	2006	2007
RESIDENTIAL (MWh)	25329	28365	31852	36115	41220	47327	54476	62720	72032	82676	94575	108085
Customers	33563	35861	38310	41381	44720	48600	52613	56588	60547	64551	68777	73184
Avg kWh/month	63	66	69	73	77	81	86	92	99	107	115	123
SMALL COMMERCIAL (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
LARGE COMMERCIAL (MWh)	3127	3223	3330	3444	3567	3699	3840	3991	4152	4324	4505	4689
Customers	903	937	1007	1017	1027	1037	1048	1058	1069	1079	1090	1101
Avg kWh/month	264	269	276	282	289	297	305	314	324	334	344	355
INDUSTRIAL (MWh)	14978	15545	16172	16825	17503	18209	18944	19708	20503	21329	22190	23085
Customers	561	578	595	613	631	650	670	690	711	732	754	777
Avg kWh/month	2225	2242	2264	2297	2310	2333	2357	2360	2404	2428	2455	2477
LARGE LOADS (MWh)	0	10507	12423	12658	12915	13166	13422	13422	13422	13422	13422	13422
PUBLIC BUILDINGS (MWh)	743	766	786	809	838	875	919	972	1026	1077	1125	1170
Customers	213	217	222	227	233	241	250	261	271	279	287	294
Avg kWh/month	292	294	295	297	299	302	306	311	316	321	327	332
IRRIGATION (MWh)	5431	5431	5431	5431	5431	5431	5431	5431	5431	5431	5431	5431
Customers	16	16	16	16	16	16	16	16	16	16	16	16
Avg kWh/month	28286	28286	28286	28286	28286	28286	28286	28286	28286	28286	28286	28286
STREET LIGHTS (MWh)	1843	1973	2164	2502	3117	3935	4674	5294	5765	6185	6455	6742
Installed Units	193	205	222	247	314	389	451	517	558	592	612	633
Avg kWh/month	156	604	812	820	828	836	845	853	862	870	879	888
TOTAL SALES (MWh)	51455	66111	72162	77875	84591	92613	101706	111538	122331	134444	147701	162623
REC INTERNAL USE (MWh)	248	257	265	273	281	290	298	307	316	325	335	345
TOTAL CONSUMPTION (MWh)	51703	66368	72427	78148	84872	92903	102004	111845	122647	134769	148036	162958
ENERGY LOSSES (%)	13.28	12.01	12.01	12.01	12.01	12.01	12.01	12.01	12.01	12.01	12.01	12.01
ENERGY GEN/PURCHASED (MWh)	59541	75418	82368	88801	96445	105571	115914	127076	139371	153146	168222	185179
LOAD FACTOR (%)	628	62.01	62.01	62.01	63.01	63.01	63.01	64.01	64.01	65.01	65.01	65.01
MAXIMUM DEMAND (MW)	31.0	33.9	35.2	36.4	37.5	39.1	41.0	42.7	44.9	46.9	49.5	52.5
Annual growth rate %		26.22	9.13	7.52	6.92	9.52	9.02	7.92	9.22	8.22	9.02	10.32

REC NAME SOUTHERN LEYBE ELECTRIC COOPERATIVE, INC. 07/30/97
 REC Acronym SOLLECO 01:19 PM
 REC Code HCB File Name: HCOL.VOL
 YEAR OF FORECAST 1997
 1st Year of Historical Data 1992
 (1992 or later year)

HISTORICAL SYSTEM PERFORMANCE	1992-1996					Average %
	1992	1993	1994	1995	1996	
RESIDENTIAL (MWh)	6638	7099	6336	7091	10492	11.93
Customers	18716	20096	21623	23158	24497	7.01
Avg kWh/month	30	29	24	29	35	4.63
* Resid. Minimum Bill (MWh)	610	753	831	679	559	-2.53
Customers	5154	6274	6928	6980	4961	-0.93
Avg kWh/month	10	10	10	0	0	-1.51
* Other Resid. (MWh)	6028	6346	5499	7512	9843	13.18
Customers	13560	13820	14695	16178	19535	9.01
Avg kWh/month	37	38	31	38	42	3.21
* BAPA (MWh)	-	-	-	-	-	NA
End-Use Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
SMALL COMMERCIAL (MWh)	1319	1485	1444	1623	1908	9.72
Customers	476	540	567	594	649	3.01
Avg kWh/month	227	229	212	227	245	2.53
LARGE COMMERCIAL (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
INDUSTRIAL (MWh)	156	38	259	356	346	24.33
Customers	3	5	6	5	5	33.61
Avg kWh/month	3728	833	3597	5833	5767	11.28
LARGE LOADS (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
PUBLIC BUILDINGS (MWh)	625	698	282	715	918	10.11
Customers	450	501	571	670	752	13.71
Avg kWh/month	116	115	45	89	102	-3.11
IRRIGATION (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
STREET LIGHTS (MWh)	97	105	81	84	100	0.81
Installed Units (estimated)	172	186	250	170	46	-20.11
Avg kWh/month	47	47	27	39	181	49.11
TOTAL SALES (MWh)	8815	9417	8696	10769	13475	11.67
REC INTERNAL USE (MWh)	86	77	79	82	91	1.41
TOTAL CONSUMPTION (MWh)	8901	9494	8775	10851	13566	11.51
ENERGY LOSSES (MWh)	2308	2330	1715	2580	3337	9.71
ENERGY LOSSES (%)	213	261	163	191	201	
ENERGY GEN/PURCHASED (MWh)	11294	11832	10490	13431	17103	14.28

LOAD FACTOR (%)	431	451	381	381	491	
MAXIMUM DEMAND (MW)	3	3	4	4	6	2.51

SYSTEM SALES FORECAST	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
RESIDENTIAL (MWh)	10407	11119	11935	13007	14149	15399	16745	18161	19641	21169	22756	24436
Customers	24497	26457	28546	30999	33821	36905	39231	42042	44842	47593	50333	53181
Avg kWh/month	35	35	35	35	35	35	36	36	36	37	38	38
SMALL COMMERCIAL (MWh)	1500	2079	2292	2520	2788	3074	3390	3739	4123	4544	5014	5529
Customers	649	681	716	751	787	828	870	913	959	1007	1057	1110
Avg kWh/month	245	254	267	280	294	309	325	341	358	376	395	415
LARGE COMMERCIAL (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL (MWh)	346	353	360	408	417	507	518	529	540	552	619	693
Customers	5	5	5	6	6	7	7	7	7	7	7	8
Avg kWh/month	5767	5862	6000	6065	6200	6285	6425	6564	6703	6843	6973	7107
LARGE LOADS (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
PUBLIC BUILDINGS (MWh)	919	1023	1261	1306	1448	1651	1839	2043	2284	2516	2776	3062
Customers	352	432	477	499	1004	1075	1139	1207	1280	1344	1411	1482
Avg kWh/month	102	105	110	116	122	128	135	141	149	156	164	172
IRRIGATION (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
STREET LIGHTS (MWh)	100	105	110	116	122	128	134	141	148	155	163	171
Installed Units	48	48	51	53	56	59	62	65	68	71	75	79
Avg kWh/month	181	181	181	181	181	181	181	181	181	181	181	181
TOTAL SALES (MWh)	13875	14479	15858	17384	18943	20759	22627	24617	26733	28939	31327	33892
REC INTERNAL USE (MWh)	91	87	89	91	93	95	97	99	101	103	105	105
TOTAL CONSUMPTION (MWh)	13766	14736	15947	17455	19036	20854	22724	24716	26834	29042	31432	33997
ENERGY LOSSES (%)	19.51	17.01	16.02	15.02	14.01	14.02	13.51	13.54	13.01	13.01	12.02	12.01
ENERGY GEN/PURCHASED (MWh)	17103	17730	18985	20555	22135	24249	26271	28574	30344	33182	35719	38632
LOAD FACTOR (%)	49.2	43.01	44.01	45.01	46.01	48.01	49.01	50.01	50.01	50.01	50.01	50.01
MAXIMUM DEMAND (MW)	4.0	4.7	4.9	5.2	5.5	5.8	6.1	6.5	7.0	7.6	8.2	8.8
Annual growth rate %		18.11	4.31	5.01	5.41	5.01	6.11	6.61	7.91	8.21	7.01	6.71

REC NAME BILTRAM ELECTRIC COOPERATIVE, INC. 07/30/97
 REC Acronym BILECO 03:19 PM
 REC Code 807 filename:R07L.WK1
 YEAR OF FORECAST 1997
 1st Year of Historical Data 1992
 (1992 or later year)

HISTORICAL SYSTEM PERFORMANCE	1992-1996					
	1992	1993	1994	1995	1996 Average	%
RESIDENTIAL (MWh)	2317	2498	2875	3370	3945	14.2%
Customers	7253	7065	7837	8705	9524	4.7%
Avg kWh/month	25	29	31	32	35	9.1%
* Resid. Minioux Bill (MWh)	119	192	222	160	186	11.6%
Customers	1854	1596	1854	1279	1556	-4.3%
Avg kWh/month	5	10	10	10	10	16.8%
* Other Resid. (MWh)	2198	2306	2652	3197	3749	14.3%
Customers	5899	5469	5941	7342	7684	6.8%
Avg kWh/month	31	35	37	38	41	7.0%
* BAPA (MWh)	-	-	1	13	10	NA
End-Use Customers	-	-	42	84	84	NA
Avg kWh/month	0	0	2	13	10	NA
SMALL COMMERCIAL (MWh)	550	598	573	710	752	8.1%
Customers	430	454	501	555	546	4.2%
Avg kWh/month	107	107	112	141	145	1.9%
LARGE COMMERCIAL (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
INDUSTRIAL (MWh)	-	-	32	6	30	NA
Customers	-	-	3	1	1	NA
Avg kWh/month	0	0	589	500	2500	NA
LARGE LOADS (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
PUBLIC BUILDINGS (MWh)	186	185	267	331	417	22.4%
Customers	115	125	144	173	182	12.2%
Avg kWh/month	135	124	155	159	191	9.1%
IRRIGATION (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
STREET LIGHTS (MWh)	45	45	50	71	83	16.5%
Installed Units (estimated)	343	341	365	495	576	13.8%
Avg kWh/month	11	11	11	12	12	2.4%
TOTAL SALES (MWh)	3098	3327	3997	4488	5227	14.0%
REC INTERNAL USE (MWh)	13	16	12	11	14	1.9%
TOTAL CONSUMPTION (MWh)	3111	3343	3989	4499	5241	13.9%
ENERGY LOSSES (MWh)	875	1466	1175	1171	1462	13.7%
ENERGY LOSSES (%)	22%	30%	23%	21%	22%	
ENERGY GEN/PURCHASED (MWh)	3986	4809	5084	5670	6703	13.7%
LOAD FACTOR (%)	46%	55%	58%	55%	38%	
MAXIMUM DEMAND (MW)	1	1	1	2	2.60	18.9%

SYSTEM SALES FORECAST	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
RESIDENTIAL (MWh)	3745	4259	4661	5159	5785	6556	7573	8732	10111	11839	14005	16738
Customers	9324	10303	11499	12881	14503	16342	18663	20742	23446	26330	29660	33517
Avg kWh/month	35	34	34	33	33	33	34	35	36	37	39	42
SMALL COMMERCIAL (MWh)	752	807	879	962	1063	1175	1329	1484	1666	1860	2132	2434
Customers	546	590	645	703	768	834	922	999	1084	1177	1279	1392
Avg kWh/month	115	114	114	114	115	117	120	124	128	133	139	146
LARGE COMMERCIAL (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL (MWh)	30	30	30	30	30	30	30	30	30	30	30	30
Customers	1	1	1	1	1	1	1	1	1	1	1	1
Avg kWh/month	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
LARGE LOADS (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
PUBLIC BUILDINGS (MWh)	417	441	487	533	583	639	702	763	828	902	983	1073
Customers	182	205	239	275	315	358	408	456	511	574	646	727
Avg kWh/month	191	180	170	162	156	147	144	139	135	131	127	123
IRRIGATION (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
STREET LIGHTS (MWh)	83	84	87	90	94	98	107	111	113	115	118	120
Installed Units	576	578	592	609	634	660	714	734	746	758	772	788
Avg kWh/month	12	12	12	12	12	12	13	13	13	13	13	13
TOTAL SALES (MWh)	5227	5621	6143	6774	7560	8490	9742	11120	12749	14766	17268	20396
REC INTERNAL USE (MWh)	14	11	11	11	11	11	11	11	11	11	11	11
TOTAL CONSUMPTION (MWh)	5241	5632	6154	6785	7571	8501	9753	11131	12760	14777	17279	20407
ENERGY LOSSES (%)	21.8%	20.0%	19.0%	18.0%	17.0%	16.0%	15.0%	14.0%	14.0%	14.0%	14.0%	14.0%
ENERGY GEN/PURCHASED (MWh)	6783	7040	7597	8274	9121	10121	11474	12943	14837	17163	20092	23729
LOAD FACTOR (%)	38%	42.0%	42.0%	43.0%	43.0%	43.0%	44.0%	44.0%	45.0%	45.0%	45.0%	45.0%
MAXIMUM DEMAND (MW)	2.0	1.9	2.1	2.2	2.4	2.7	3.0	3.4	3.8	4.4	5.0	5.9
Annual growth rate %		-4.3%	7.9%	6.4%	10.2%	11.0%	10.8%	12.8%	12.1%	15.8%	14.4%	18.1%

REC NAME SAMAR I ELECTRIC COOPERATIVE, INC. 07/29/97
 REC Acronym SAMELCO I 01:48 PM
 REC Code HD9 filename:HD9L.NKI
 YEAR OF FORECAST 1997
 1st Year of Historical Data 1992
 (1992 or later year)

HISTORICAL SYSTEM PERFORMANCE	1992-1996					1992-1996 Average %
	1992	1993	1994	1995	1996	
RESIDENTIAL (MWh)	3742	3464	4952	5301	7068	17.2%
Customers	11904	13337	13902	13730	15424	6.7%
Avg kWh/month	26	22	30	32	38	9.3%
* Resid. Minimum Bill (MWh)	119	189	150	213	250	20.4%
Customers	569	1570	1228	1228	2016	19.5%
Avg kWh/month	10	10	10	14	10	0.8%
* Other Resid. (MWh)	3495	3002	3360	4102	5465	11.8%
Customers	6535	9099	8695	8199	8798	0.8%
Avg kWh/month	34	27	37	42	52	11.0%
* BAPA (MWh)	128	274	942	986	1353	80.3%
End-Use Customers	2380	2868	3979	4304	4610	18.0%
Avg kWh/month	4	9	20	19	24	52.8%
SMALL COMMERCIAL (MWh)	1414	1474	1549	1608	2226	12.6%
Customers	585	678	700	617	640	2.3%
Avg kWh/month	201	181	184	217	290	9.5%
LARGE COMMERCIAL (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
INDUSTRIAL (MWh)	998	964	911	1960	2835	27.5%
Customers	2	2	2	3	3	10.3%
Avg kWh/month	41533	49167	37958	58444	73194	15.2%
LARGE LOADS (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
PUBLIC BUILDINGS (MWh)	268	429	524	520	688	26.6%
Customers	132	139	149	158	158	4.6%
Avg kWh/month	169	257	293	274	363	21.0%
IRRIGATION (MWh)	-	873	308	-	-	NA
Customers (Sale for Resale)	-	1	-	-	-	NA
Avg kWh/month	0	22750	0	0	0	NA
STREET LIGHTS (MWh)	819	1095	1160	1235	1326	12.8%
Installed Units (estimated)	2125	2313	2935	3272	3497	13.2%
Avg kWh/month	32	39	33	31	32	-0.3%
TOTAL SALES (MWh)	7241	8299	9401	10624	13943	17.8%
REC INTERNAL USE (MWh)	119	93	117	93	98	-4.7%
TOTAL CONSUMPTION (MWh)	7360	8392	9518	10717	14041	17.5%
ENERGY LOSSES (MWh)	1063	1073	1112	1249	1533	9.6%
ENERGY LOSSES (%)	13%	11%	10%	10%	10%	
ENERGY GEN/PURCHASED (MWh)	8423	9465	10630	11966	15574	16.6%
LOAD FACTOR (%)	32%	36%	40%	46%	51%	
MAXIMUM DEMAND (KW)	3	3	3	3	4	3.9%

SYSTEM SALES FORECAST	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
RESIDENTIAL (MWh)	7068	7781	8602	9729	10614	11657	12509	13984	15235	16683	18200	19833
Customers	15424	16272	17312	18093	20119	21343	22698	23896	25147	26427	27721	29039
Avg kWh/month	38	40	41	42	44	46	47	49	51	53	55	57
SMALL COMMERCIAL (MWh)	2226	2741	3359	3971	4588	5382	6412	7425	8593	9959	11530	13333
Customers	640	768	916	999	1070	1159	1263	1330	1401	1475	1555	1639
Avg kWh/month	290	297	309	331	357	397	423	465	511	562	618	678
LARGE COMMERCIAL (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL (MWh)	2635	4117	6433	8245	12163	16724	22995	31618	41499	54467	71488	93828
Customers	3	4	5	5	6	6	7	6	8	8	9	9
Avg kWh/month	73194	91493	114366	142958	178697	223372	279215	349018	436273	545341	681676	852095
LARGE LOADS (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
PUBLIC BUILDINGS (MWh)	688	755	828	914	1012	1126	1263	1423	1603	1804	2031	2285
Customers	158	178	197	219	241	265	291	321	353	388	427	469
Avg kWh/month	363	354	350	348	350	354	361	370	379	383	397	406
IRRIGATION (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
STREET LIGHTS (MWh)	1326	1542	1806	2069	2376	2735	3036	3365	3729	4146	4605	5149
Installed Units	3487	4191	5042	5855	6757	7802	8629	9490	10436	11459	12597	13830
Avg kWh/month	32	31	30	29	29	29	29	30	30	30	30	31
TOTAL SALES (MWh)	13943	16935	21069	25529	30753	37623	46515	57815	70698	87060	107853	134434
REC INTERNAL USE (MWh)	98	100	100	110	110	110	120	120	120	120	130	130
TOTAL CONSUMPTION (MWh)	14041	17035	21169	25639	30863	37733	46635	57935	70818	87180	107983	134564
ENERGY LOSSES (%)	9.8%	11.5%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%
ENERGY GEN/PURCHASED (MWh)	15574	19250	24055	29135	35072	42879	52934	65835	80475	99068	122708	152914
LOAD FACTOR (%)	51%	45.0%	50.0%	55.0%	55.0%	60.0%	60.0%	65.0%	65.0%	65.0%	65.0%	65.0%
MAXIMUM DEMAND (MW)	3.5	4.9	5.5	6.0	7.3	8.2	10.1	11.6	14.1	17.4	21.6	26.9
Annual growth rate %		39.5%	12.5%	10.1%	20.4%	12.1%	23.6%	14.7%	22.2%	23.1%	23.9%	24.6%

REC NAME SARLCO II ELECTRIC COOPERATIVE, INC. 07/30/97
 REC Acronym SARLCO II 01:02 PM
 REC Code N10 filename:W10L.W11
 YEAR OF FORECAST 1997
 1st Year of Historical Data (1997 or later year) 1992

HISTORICAL SYSTEM PERFORMANCE	1992-1996					1997-1998 Average %
	1992	1993	1994	1995	1996	
RESIDENTIAL (MWh)	5129	6003	6801	8107	10924	17.18
Customers	12277	13472	15230	16635	17963	10.08
Avg kWh/month	56	57	57	61	67	6.58
* Resid. Minimum Bill (MWh)	210	193	230	173	130	-11.38
Customers	2716	2352	2398	1346	1247	-13.01
Avg kWh/month	7	8	7	6	9	5.81
* Other Resid. (MWh)	4878	5451	6559	7211	9594	15.98
Customers	9171	9773	10365	12013	12926	9.08
Avg kWh/month	68	66	69	59	57	6.48
* BADA (MWh)	241	359	512	773	1090	45.08
Customers	892	1197	2487	3284	3788	43.48
Avg kWh/month	23	23	17	20	24	6.78
SMALL COMMERCIAL (MWh)	251	246	262	293	300	0.68
Customers	442	440	442	521	525	4.48
Avg kWh/month	47	47	49	47	49	0.28
LARGE COMMERCIAL (MWh)	1515	1714	1876	1958	2404	10.88
Customers	380	392	394	461	501	7.28
Avg kWh/month	350	364	386	354	400	3.18
INDUSTRIAL (MWh)	435	970	430	868	850	-0.28
Customers	2	2	2	2	2	0.08
Avg kWh/month	34792	45437	26250	36883	34583	-0.28
LARGE LOADS (MWh)	236	231	272	401	402	18.28
Customers	11	12	12	19	14	6.28
Avg kWh/month	1788	1694	1889	1759	2393	7.08
PUBLIC BUILDINGS (MWh)	1049	1291	1343	1530	1846	15.28
Customers	218	243	271	292	324	9.28
Avg kWh/month	393	434	484	437	475	5.58
IRRIGATION (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
STREET LIGHTS (MWh)	340	319	330	386	477	8.88
Installed Units (estimated)	1243	1433	1754	2084	2408	17.58
Avg kWh/month	22	19	16	16	17	-7.48
TOTAL SALES (MWh)	9834	10774	11464	13541	16283	14.08
REC INTERNAL USE (MWh)	142	355	367	402	235	15.48
TOTAL CONSUMPTION (MWh)	9776	11129	11831	13943	16519	14.08
ENERGY LOSSES (MWh)	2667	2782	2952	3225	2516	-3.28
ENERGY LOSSES (%)	231	202	208	192	134	
ENERGY GEN/PURCHASED (MWh)	12643	13911	14783	17160	19034	18.58
LOAD FACTOR (%)	462	538	423	491	542	
MAXIMUM DEMAND	3	3	4	4	4	7.58

SYSTEM SALES FORECAST	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
RESIDENTIAL (MWh)	16074	16946	17695	18582	19472	17456	19756	22256	24916	27929	31177	34161
Customers	17965	19469	20873	22724	24727	26613	28613	30417	32256	34167	35970	37846
Avg kWh/month	47	47	48	50	52	55	58	61	64	69	72	76
SMALL COMMERCIAL (MWh)	300	318	327	346	372	398	424	444	464	485	507	530
Customers	525	543	566	589	611	671	695	709	725	742	759	776
Avg kWh/month	48	48	48	48	48	49	51	52	53	54	56	57
LARGE COMMERCIAL (MWh)	2404	2531	2669	2815	2975	3144	3322	3525	3739	3967	4207	4465
Customers	501	516	532	547	564	581	598	616	635	654	673	694
Avg kWh/month	400	409	410	429	440	451	463	477	491	506	521	537
INDUSTRIAL (MWh)	830	830	830	830	830	830	830	830	830	830	830	830
Customers	2	2	2	2	2	2	2	2	2	2	2	2
Avg kWh/month	34583	34583	34583	34583	34583	34583	34583	34583	34583	34583	34583	34583
LARGE LOADS (MWh)	402	406	410	414	418	423	427	431	435	440	444	448
PUBLIC BUILDINGS (MWh)	1844	1975	2131	2324	2544	2783	2991	3187	3394	3583	3784	3992
Customers	324	347	377	419	463	500	535	564	597	630	664	701
Avg kWh/month	475	475	471	465	458	464	466	471	474	474	475	475
IRRIGATION (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
STREET LIGHTS (MWh)	477	487	501	529	560	586	612	632	649	665	679	692
Installed Units	2408	2432	2491	2592	2715	2813	2912	2974	3074	3069	3163	3132
Avg kWh/month	17	17	17	17	17	17	18	18	18	18	18	18
TOTAL SALES (MWh)	16283	17486	18963	20843	23152	25819	28367	31255	34429	37899	41630	45659
REC INTERNAL USE (MWh)	235	235	259	260	261	261	261	261	261	261	261	261
TOTAL CONSUMPTION (MWh)	16518	17721	19222	21103	23393	25880	28628	31516	34690	38160	41891	45920
ENERGY LOSSES (%)	13.21	13.01	13.01	13.01	13.01	13.01	13.01	13.01	13.01	13.01	13.01	13.01
ENERGY GEN/PURCHASED (MWh)	15034	20359	22094	24256	26838	29747	32900	36225	39876	43662	48151	52782
LOAD FACTOR (%)	541	47.01	47.01	48.01	48.01	48.01	48.01	49.01	49.01	49.01	49.01	49.01
MAXIMUM DEMAND (MW)	4.0	4.9	5.4	5.8	6.4	7.1	7.8	8.4	9.3	10.2	11.2	12.3
Annual growth rate %		23.71	8.53	7.51	10.91	10.62	10.63	7.91	10.11	10.01	9.81	9.61

REC NAME	NORTHERN SAHAR ELECTRIC COOPERATIVE INC.		07/30/97			
REC Acronym	NORSAMELCO		01:55 PM			
REC Code	NDB		Filename:MOBL.VM1			
YEAR OF FORECAST	1997					
1st Year of Historical Data (1992 or later year)	1992					
HISTORICAL SYSTEM PERFORMANCE						
	1992	1993	1994	1995	1996	1992-1996 Average
RESIDENTIAL (kWh)	3849	4470	5265	6472	8224	20.91
Customers	17457	17576	18243	18370	18076	4.18
Avg kWh/month	20	25	29	35	46	16.18
* Resid. Minimum Bill (kWh)	270	374	1250	2411	2261	30.91
Customers	6819	7500	7850	10000	10000	10.91
Avg kWh/month	9	10	16	24	23	19.91
* Other Resid. (kWh)	3079	3576	3823	5651	5457	19.91
Customers	4838	5076	2332	3303	3416	-7.21
Avg kWh/month	55	59	167	171	162	24.31
* BAPA (kWh)	0	0	190	410	526	NA
End-Use Customers	0	0	21	27	25	NA
Avg kWh/month	0	0	254	2765	1687	NA
SMALL COMMERCIAL (kWh)	1814	1767	1813	1533	1949	1.71
Customers	1281	1041	1324	1091	1120	-3.31
Avg kWh/month	170	139	114	117	177	5.11
LARGE COMMERCIAL (kWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
INDUSTRIAL (kWh)	-	156	143	99	89	NA
Customers	-	3	4	5	4	NA
Avg kWh/month	0	4333	2917	1650	1854	NA
LARGE LOADS (kWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
PUBLIC BUILDINGS (kWh)	455	633	712	444	359	13.41
Customers	187	179	229	287	312	16.91
Avg kWh/month	277	285	259	187	201	-3.01
IRRIGATION (kWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
STREET LIGHTS (kWh)	89	86	102	89	104	4.01
Installed Units (estimated)	67	51	59	42	46	-9.01
Avg kWh/month	171	143	144	177	188	14.21
TOTAL SALES (kWh)	4297	7092	8032	10877	11139	15.41
REC INTERNAL USE (kWh)	13	10	32	14	24	14.41
TOTAL CONSUMPTION (kWh)	4250	7102	8064	10851	11163	15.41
ENERGY LOSSES (kWh)	1703	2078	1956	2044	3016	14.81
ENERGY LOSSES (%)	278	231	244	188	231	
ENERGY GEN/PURCHASED (MWh)	8033	9100	10020	12095	14479	15.91
LOAD FACTOR (%)	461	351	341	371	411	
MAXIMUM DEMAND	2	3	3	4	4	18.91

SYSTEM SALES FORECAST	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
RESIDENTIAL (MWh)	8224	9548	11198	13273	15824	19178	23178	28251	34456	42854	53337	66084
Customers	13472	15696	19077	22719	26973	32021	37761	44704	52591	61864	72744	85503
Avg kWh/month	51	50	49	49	49	50	51	53	55	58	61	64
SMALL COMMERCIAL (MWh)	1649	2116	2289	2480	2693	2909	3140	3385	3642	3901	4052	4126
Customers	1120	1187	1246	1354	1446	1539	1641	1736	1837	1944	2058	2179
Avg kWh/month	147	149	151	153	155	158	159	162	166	171	164	158
LARGE COMMERCIAL (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL (MWh)	89	89	89	89	89	89	89	89	89	89	89	89
Customers	4	4	4	4	4	4	4	4	4	4	4	4
Avg kWh/month	1854	1854	1854	1854	1854	1854	1854	1854	1854	1854	1854	1854
LARGE LOADS (MWh)	0	0	2190	2190	2190	2190	2190	2190	2190	2190	2190	2190
PUBLIC BUILDINGS (MWh)	153	937	1177	1444	1856	2364	3054	3945	5111	6515	8275	10565
Customers	312	374	457	559	679	820	988	1174	1358	1665	1988	2374
Avg kWh/month	201	209	224	215	228	240	258	280	365	326	347	371
IRRIGATION (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
STREET LIGHTS (MWh)	304	432	284	433	157	1181	1727	2254	2883	3667	4597	5643
Installed Units	46	51	90	126	162	206	256	286	312	340	385	386
Avg kWh/month	188	215	262	321	390	477	562	658	769	870	1049	1218
TOTAL SALES (MWh)	11139	12822	12226	19958	23470	27913	33378	40115	48650	59298	72340	89292
REC INTERNAL USE (MWh)	24	25	25	25	25	25	25	25	25	25	25	25
TOTAL CONSUMPTION (MWh)	11163	12847	12251	19983	23495	27938	33403	40140	48675	59323	72365	89317
ENERGY LOSSES (k)	22.92	20.01	18.01	16.01	14.01	13.01	13.01	13.01	13.01	13.01	13.01	13.01
ENERGY GEN/PURCHASED (MWh)	14279	16058	21058	23790	27320	32112	38395	45137	55925	68165	83178	101985
LOAD FACTOR (k)	41.2	42.01	45.01	50.01	50.01	50.01	50.01	50.01	50.01	50.01	50.01	50.01
MAXIMUM DEMAND (kW)	4.0	4.4	5.3	5.4	6.2	7.3	8.0	10.5	12.8	15.6	19.0	23.3
Annual growth rate %		9.12	22.31	1.01	14.81	17.51	19.61	20.21	21.21	21.91	22.01	22.61

EASTERN SAMAR ELECTRIC COOPERATIVE, INC. 07/30/97
 ESANGLCO 02:33 PM
 REC Acronyms
 REC Code N11 Filename:R11L.WX1
 YEAR OF FORECAST 1997
 1st Year of Historical Data 1992
 (1992 or later year)

HISTORICAL SYSTEM PERFORMANCE	1992-1996					Average %
	1992	1993	1994	1995	1996	
RESIDENTIAL (MWh)	3181	3953	3710	5396	7602	24.31
Customers	8367	9242	9504	10788	13114	15.11
Avg kWh/month	37	36	32	38	45	9.91
* Resid. Minimum Bill (MWh)	210	230	200	357	170	-5.11
Customers	1757	1844	1536	1305	1445	-4.81
Avg kWh/month	10	10	11	10	10	-0.41
* Other Resid. (MWh)	2971	3723	3565	5070	1176	24.71
Customers	6610	6939	7006	9704	11431	15.71
Avg kWh/month	37	43	36	42	51	8.71
* BAPA (MWh)	-	487	153	149	256	NA
End-Use Customers	-	459	442	439	630	NA
Avg kWh/month	0	27	28	28	33	NA
SMALL COMMERCIAL (MWh)	837	1103	1066	1200	1495	15.81
Customers	114	286	264	313	315	3.41
Avg kWh/month	98	117	116	123	153	11.81
LARGE COMMERCIAL (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
INDUSTRIAL (MWh)	86	150	328	431	568	55.91
Customers	52	40	38	53	62	4.51
Avg kWh/month	138	596	829	678	683	49.21
LARGE LEADS (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
PUBLIC BUILDINGS (MWh)	551	404	404	584	710	19.31
Customers	129	241	184	234	277	21.11
Avg kWh/month	227	209	183	268	214	-1.51
IRRIGATION (MWh)	-	-	-	-	-	NA
Customers	-	-	-	-	-	NA
Avg kWh/month	0	0	0	0	0	NA
STREET LIGHTS (MWh)	85	139	181	302	492	47.51
Installed Units (estimated)	472	772	800	1010	1290	24.91
Avg kWh/month	15	15	19	25	28	16.81
TOTAL SALES (MWh)	4540	5787	5247	7913	10767	24.61
REC INTERNAL USE (MWh)	37	36	41	59	59	12.41
TOTAL CONSUMPTION (MWh)	4263	5843	5288	7972	10776	26.11
ENERGY LOSSES (MWh)	1312	1347	2345	1641	1574	4.71
ENERGY LOSSES (%)	242	191	291	178	133	
ENERGY GEN/PURCHASED (MWh)	5575	7190	8134	6633	12354	22.41

LOAD FACTOR (%)	321	418	458	371	472	
MAXIMUM DEMAND (MW)	2	2	2	3	3	10.71

SYSTEM SALES FORECAST	1995	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
RESIDENTIAL (MWh)	2692	8599	9860	11538	13155	16316	19877	23843	28052	32593	37623	43152
Customers	13714	15350	17448	20187	23182	25979	30296	34402	39237	42774	45148	50518
Avg kWh/month	46	47	47	46	49	52	55	58	61	64	63	72
SMALL COMMERCIAL (MWh)	1495	1678	1832	2129	2451	2832	3235	3764	4264	4712	5283	5928
Customers	815	864	923	998	1090	1169	1255	1346	1417	1495	1578	1655
Avg kWh/month	153	182	179	178	183	242	215	230	247	263	279	277
LARGE COMMERCIAL (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
INDUSTRIAL (MWh)	508	535	563	593	625	658	694	731	771	813	857	904
Customers	62	64	67	70	73	75	78	82	85	88	92	95
Avg kWh/month	683	691	700	709	718	727	737	747	757	767	778	789
LARGE LOADS (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
PUBLIC BUILDINGS (MWh)	710	755	771	826	881	924	1007	1093	1144	1207	1261	1317
Customers	277	283	295	312	327	349	374	396	393	399	406	412
avg kWh/month	214	217	218	219	221	221	224	235	243	252	259	266
IRRIGATION (MWh)	0	0	0	0	0	0	0	0	0	0	0	0
Customers	0	0	0	0	0	0	0	0	0	0	0	0
Avg kWh/month	0	0	0	0	0	0	0	0	0	0	0	0
STREET LIGHTS (MWh)	402	443	1168	2640	3383	3973	5086	5781	6134	6508	6910	7345
Installed Units	1200	1520	3288	5458	8559	9659	11791	12934	15080	13337	13420	13931
Avg kWh/month	28	28	30	31	33	34	36	38	39	41	42	44
TOTAL SALES (MWh)	10717	11981	14244	17120	21083	24700	29899	35141	40308	45832	51935	58956
REC INTERNAL USE (MWh)	59	61	62	63	63	63	63	63	63	63	63	63
TOTAL CONSUMPTION (MWh)	10776	12042	14306	17183	21146	24763	29962	35204	40371	45895	51998	59019
ENERGY LOSSES (%)	12.02	12.02	12.02	12.02	12.02	12.02	12.02	12.02	12.02	12.02	12.02	12.02
ENERGY GEN/PURCHASED (MWh)	12354	13684	16237	19526	24030	28160	34047	40095	45977	52154	59088	67667
LOAD FACTOR (%)	47.1	43.02	45.02	50.02	52.02	53.02	54.02	55.02	55.02	55.02	55.02	55.02
MAXIMUM DEMAND (MW)	3.0	3.6	4.1	4.5	5.3	6.1	7.2	8.3	9.5	10.8	12.3	13.9
Annual growth rate %		21.12	13.53	8.13	18.32	14.92	18.72	15.42	14.72	13.12	13.32	13.52

Appendix 3.12.1.1-1 Expansion Plan of Total Distribution Lines (km) of 13.2 kV and 240 V in each ECs

Name of EC	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total Length (km)	Average Length (km)	Growth rate of Demand (%)
Leyeco I	6.99	30.59	21.96	54.46	51.61	17.07	20.12	34.12	15.94	252.85	28.09	12.7
Leyeco II	5.28	11.17	10.75	10.20	8.13	7.20	3.30	2.11	2.26	60.39	6.71	15.6
Leyeco III	8.95	15.65	14.90	16.35	9.60	11.51	17.05	15.55	11.90	121.46	13.50	13.0
Leyeco IV	18.00	20.00	15.00	23.00	25.00	22.00	16.00	20.00	35.00	194.00	21.56	5.9
Leyeco V	28.25	56.98	68.90	80.75	55.25	50.50	45.44	54.55	58.25	498.87	55.43	9.3
Soleco	12.60	54.70	28.90	39.00	34.20	27.10	40.90	44.20	43.10	324.70	36.08	5.8
Sameco I	13.55	16.55	27.35	36.65	29.70	34.25	34.00	43.50	38.67	274.22	30.47	17.8
Sameco II	13.84	34.58	24.82	15.08	15.98	13.94	21.85	19.28	50.00	209.36	23.26	9.2
Norsameco		64.80	58.10	30.30	45.80	35.90	117.00	128.00	126.80	606.70	67.41	17.6

Appendix 3.12.1-2 Expansion Plan of 13.2kV/240V Distribution Transformer (kVA) in each ECs

Name of EC	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total Capacity (kVA)	Average Capacity (kVA)
Leyeco II	1550.0	1800.0	3150.0	2500.0	2350.0	1500.0	1205.0	1430.0	1100.0	16585.0	1842.8
Leyeco IV	650.0	725.0	462.5	462.5	400.0	600.0	500.0	901.0	651.0	5352.0	594.7
Leyeco V	495.0	625.0	510.0	435.0	515.0	285.0	340.0	550.0	540.0	4295.0	477.2
Soleco	675.0	575.0	525.0	525.0	525.0	525.0	525.0	525.0	525.0	4925.0	547.2
Samelco I	1787.5	2926.0	1675.0	1975.0	1863.0	2075.0	1850.0	2801.0	1775.0	18727.5	2080.8
Esamelco	575.0	772.0	482.5	1299.0	587.5	582.5	1267.0	1769.0	2323.5	9658.0	1073.1
Norsamelco		550.0	960.0	547.5	1129.5	1132.5	1292.5	1305.0	1417.5	8334.5	1041.8

LEYTE V ELECTRIC COOPERATIVE, INC.
(LEYECO V)
Ormoc City

Appendix 4.4-1

FINANCIAL ANALYSIS

A. Statement of Operations

Description/Particulars	1991	1992	1993	1994	1995	1996 As of 11/30
1 Utility Operating Revenue						
1.1 Operating Revenues	P 77,363,923	95,394,906	108,199,549	123,376,633	144,149,628	151,320,950
1.2 Other Operating Revenues				2,905,034	3,458,136	3,531,204
1.3 Total Operating Income	77,363,923	95,394,906	108,199,549	126,281,667	147,607,764	160,850,154
2 Power Cost						
2.1 Cost of Power Purched from NPC	51,454,082	65,118,108	72,425,041	84,060,933	104,675,493	113,405,742
3 Non-Power Cost						
3.1 Distribution Expenses-Operation	1,891,438	2,156,958	1,967,254	2,008,102	2,123,436	3,693,257
3.2 Distribution Expenses - Maint.	1,875,931	3,851,477	3,005,422	3,773,749	8,812,402	3,611,991
3.3 Consumers Accts. Expenses	5,767,720	6,713,718	7,479,994	7,712,983	9,155,097	7,275,500
3.4 Administrative & Gen. Expenses	6,174,268	7,504,767	8,045,099	8,396,005	12,401,598	14,866,250
3.5 Total Non-power cost	15,709,357	20,226,950	20,497,769	21,890,839	32,492,533	29,446,998
4 Total Operating & Maint. Expenses	67,163,439	85,345,058	92,922,810	105,951,772	137,168,026	142,852,740
5 Operating Margin (Loss) (1-4)	10,200,484	10,049,848	15,276,739	20,329,895	10,439,738	17,999,414
6 Depreciation & Amortization Expense	1,537,214	2,032,660	2,581,707	3,241,994	3,810,685	4,363,648
7 Interest Expense	894,337	2,740,305	3,928,883	5,272,586	6,123,540	5,798,825
8 Net Operating Margin (Loss) (5-6&7)	7,768,933	5,276,833	8,766,149	11,815,315	505,513	7,836,941
9 Non-Operating Revenue						
9.1 House wiring	55,036	28,819	30,661	27,634	29,145	20,008
9.2 others	326,434	1,091,731	1,347,312	1,833,647	2,007,061	1,290,453
10 Non-Operating Expense						
10.1 House wiring	32,673	10,600	7,407	4,515	4,944	8,709
10.2 Others				58,454	27,425	80,863
11 Extra Ordinary				4,830	68,418	250
12 NET MARGIN (Loss) (8+9-10+11)	P 8,117,730	6,386,833	10,136,715	13,608,797	2,577,768	9,058,080
B FINANCIAL DATA						
Cash General Fund	2,554,490	2,497,416	9,854,390	10,623,343	8,120,263	9,592,611
Sinking Fund :						
NEA Amortization				2,534,840	2,538,501	619,098
Reinvestment Fund (5%)		1,518,202	4,523,882	7,373,251	9,425,038	2,378,051
Accounts Receivable Energy						
Gross Receivable				25,706,628	31,877,180	47,720,193
Allowance for uncollectibles				10,072,447	11,525,596	13,031,535
Net Receivables	17,867,917	11,114,382	12,856,081	15,634,181	20,351,584	34,638,658
Accounts Payable Power						
Current	4,238,743	9,188,368	6,361,170	7,086,326	8,641,975	9,609,489
Arrears						605,395
3% Prompt Payment Disc. Availed						68,929
Interest Charges						
Advances to Officers & Employees	743,657	188,351	99,752	51,089	83,769	206,068
C STATISTICAL DATA						
KWH Purchased	32,558,407	37,289,497	40,349,456	42,910,313	50,263,169	54,183,884
KWH Sales	27,391,560	31,341,384	34,567,869	37,618,105	42,671,198	46,631,262
Coop consumption	113,115	132,002	205,718	234,999	273,187	224,601
System Loss :						
In KWH	5,053,737	6,816,111	5,575,869	5,057,209	7,318,784	7,328,021
In Peso Value	7,984,896	10,178,194	9,980,805	9,912,130	15,223,071	15,462,124
In %				12%	15%	14%

Collection Efficiency						
Loan Amortization Payment (Current with Advance)	2,130,428	6,229,742	7,669,269	7,200,324	7,685,748	6,429,897
Average System's Rate	2.66	3.03	3.05	3.28	3.38	3.42
Average Power Cost	1.58	1.75	1.79	1.96	2.09	2.11
Ratio of Consumers/Employees						
Total Number of Employee					141	178
Number of Consumers Served					31,052	32,298
Ratio					220	181
O CONSUMER SALES & REVENUE DATA						
D.1 Consumers per Class/Type						
Residential	21,277	23,713	24,346	26,631	29,078	30,377
Commercial	815	984	1,037	1,074	1,104	972
Industrial	207	257	276	339	385	421
St. Lights/Sec. Lights	40	97	88	122	155	197
Public Buildings	89	151	177	189	207	210
Water System			13	14	14	18
BAPA			82	92	109	103
TOTAL	P 22,428	25,202	26,019	28,460	31,052	32,298
D.2 Sales in KWH						
Residential	11,971,597	14,040,081	15,196,880	17,315,266	19,434,874	21,836,287
Commercial	1,924,334	2,187,214	2,411,976	2,686,668	2,935,696	2,864,975
Industrial	12,608,122	13,932,630	9,157,393	10,453,121	12,132,858	13,262,548
St. Lights	430,392	707,699	660,029	670,277	960,084	1,703,674
Public Buildings	457,115	473,760	588,769	675,101	684,651	672,660
Water System			5,737,912	4,820,547	5,334,746	4,962,816
BAPA			814,890	997,125	1,168,289	1,328,302
TOTAL	27,391,560	31,341,384	34,567,869	37,618,105	42,671,198	46,631,262
D.3 Sales in Peso						
Residential	33,322,018	41,669,782	45,134,638	55,554,172	65,479,733	73,481,062
Commercial	5,405,846	6,434,084	7,278,807	8,681,487	9,959,438	9,841,333
Industrial	37,170,256	43,787,646	29,616,873	35,590,871	43,730,512	47,532,379
St. Lights	1,193,050	1,795,402	2,182,118	2,553,158	3,269,878	5,733,687
Public Buildings	1,296,915	1,391,181	1,712,797	2,140,777	2,284,341	2,256,743
Water System			16,171,353	15,694,994	15,524,173	14,073,019
BAPA			3,517,212	3,161,174	3,901,553	4,402,727
TOTAL	P 78,388,085	95,078,095	105,613,798	123,376,633	147,607,764	157,320,950

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TREND OF FIXED ASSETS OVER THE LAST 6 YEARS
 1991 - 1996
 GENERAL PLANT

	1991	1992	1993	1994	1995	1996
OFFICE EQUIPMENT (391)						
FIXED ASSET	1,439,727.33	1,782,674.39	2,010,479.91	2,429,424.82	3,425,069.59	3,687,854.99
Less: Depreciation	1,164,024.46	1,294,336.11	1,490,026.25	1,740,009.12	309,277.47	986,975.59
NET BOOK VALUE	275,703.37	488,338.28	520,453.66	689,415.70	3,115,792.12	2,700,879.40
TRANSPORTATION EQUIPMENT (392)						
FIXED ASSET	1,307,631.92	2,272,572.72	3,563,090.99	4,176,464.24	5,048,346.78	5,238,346.78
Less: Depreciation	589,042.53	696,655.26	1,393,220.25	1,362,279.75	1,823,798.26	1,455,539.72
NET BOOK VALUE	718,589.39	1,575,917.46	2,169,870.74	2,814,184.49	3,224,548.52	3,782,807.06
TOOLSHOP & GARAGE EQUIPMENT (394)						
FIXED ASSET	688,909.24	905,949.24	916,279.89	1,147,777.39	1,551,397.13	1,740,719.13
Less: Depreciation	471,757.92	547,708.13	685,347.99	810,120.36	184,970.55	528,978.90
NET BOOK VALUE	217,151.32	358,241.11	230,931.90	337,657.03	1,366,426.58	1,211,740.23
LABORATORY EQUIPMENT (395)						
FIXED ASSET	131,642.50	131,642.50	131,642.50	138,384.00	138,384.00	138,384.00
Less: Depreciation	72,396.64	84,467.68	96,538.72	120,946.26	15,471.54	6,741.50
NET BOOK VALUE	59,245.86	47,174.82	35,103.78	17,437.74	122,912.46	131,642.50
POWER OPERATED EQUIPMENT (396)						
FIXED ASSET	-	-	-	-	245,592.00	-
Less: Depreciation	-	-	-	-	-	-
NET BOOK VALUE	-	-	-	-	245,592.00	-
COMMUNICATION EQUIPT. (397)						
FIXED ASSET	528,932.48	528,932.48	780,832.48	1,199,895.28	1,244,702.18	1,479,762.18
Less: Depreciation	393,887.12	439,640.03	492,408.44	639,664.26	790,020.94	498,782.27
NET BOOK VALUE	135,045.36	89,292.45	288,424.04	560,231.02	454,681.24	980,979.91
MISCELLANEOUS EQUIPMENT						
FIXED ASSET	41,289.01	41,289.01	41,289.01	54,289.01	57,414.01	79,986.51
Less: Depreciation	36,108.81	37,320.26	38,226.62	41,289.01	45,882.73	18,162.08
NET BOOK VALUE	5,180.20	3,968.75	3,062.39	13,000.00	11,531.28	61,824.43

LEYTE V ELECTRIC COOPERATIVE, INC.
 (LEYECO V)
 Ormoc City
 -000-

TREND OF FIXED ASSETS OVER THE LAST 6 YEARS
 1991 - 1996
 DISTRIBUTION PLANT

ACCOUNT No.	1991	1992	1993	1994	1995	1996
362-370						
Structures & Improvements						
Station Equipments	1,991,187.28	1,991,187.28	7,659,621.66	8,003,448.34	14,405,827.05	7,970,649.47
Poles/Towers & Fixtures	3,455,340.77	3,455,340.77	3,455,340.77	3,455,340.77	5,978,301.15	5,927,964.37
Overhead Conductors & Devices	2,848,248.49	3,058,368.18	3,058,244.39	3,058,244.39	4,651,508.17	4,851,508.17
Line Transformers	4,694,956.86	5,271,510.58	6,287,950.38	6,980,203.32	8,617,351.94	11,078,921.66
Services	4,225,034.19	4,225,034.19	4,225,034.19	4,225,034.19	4,225,034.19	4,225,034.19
Meters	3,928,813.66	5,624,653.32	7,369,644.65	9,943,670.35	13,508,399.43	163,101,634.46
St. Lightings & Signal System	648,601.88	657,409.88	657,409.88	657,409.88	657,409.88	657,409.88
Electric Plant Purchased				63,383.00	63,383.00	63,383.00
Completed Const. not Classified	16,857,810.89	17,346,503.24	30,434,657.33	32,081,719.79	35,946,837.46	35,946,837.46
TOTAL FIXED ASSETS	38,649,994.02	41,630,007.44	63,147,303.25	68,468,454.03	88,054,062.27	86,829,871.66
Less: Depreciation	9,080,094.45	10,825,520.77	13,069,043.31	17,286,685.34	20,833,361.66	24,788,046.24
NET BOOK VALUE	29,569,899.57	30,804,486.67	50,078,259.94	51,181,768.69	67,220,690.61	62,041,825.42

JICA/RS

LEYTE IV ELECTRIC COOPERATIVE, INC.
Hilongos, Leyte

A: STATEMENT OF OPERATION						
	1991	1992	1993	1994	1995	1996
1. Utility Operating Revenues						
1.1 Operating Revenues	22,045,278	28,602,666	32,839,466	37,549,747	43,304,330	50,930,133
1.2 Other Operating Revenue				675,680	1,230,682	1,498,308
1.3 Total Operating Income						
2. Power Cost						
2.1 Power Production Cost	12,792,385	17,312,147	19,003,062	22,687,044	28,394,482	32,975,642
3. Non-Power Cost						
3.1 Dist. Expense - Operation	1,425,153	1,926,960	2,341,922	1,925,467	1,371,059	1,735,255
3.2 Dist. Expense - Maintenance	1,727,674	1,606,434	1,852,818	1,814,597	2,048,709	2,283,758
3.3 Consumers Accounts Expenses	1,073,403	1,547,340	1,755,441	2,086,405	2,102,481	2,911,162
3.4 Administrative & General Expenses	4,079,461	4,588,425	4,375,915	5,132,126	6,997,367	8,462,629
4. Total Operating & Maintenance Expenses	21,098,076	26,981,306	29,329,158	33,645,639	40,914,098	48,368,446
5. Operating Margin	947,202	1,621,360	3,510,308	4,579,788	3,620,914	4,059,995
6. Depreciation & Amortization Expenses	1,670,809	1,865,245	2,469,513	2,920,783	3,371,283	4,098,979
7. Interest Expenses	404,932	541,941	1,386,042	1,354,793	1,414,672	2,552,749
8. Net Operating Margin	(1,128,539)	(785,826)	(345,247)	304,212	(165,041)	(2,591,733)
9. Non-Operating Revenues	1,534,911	1,734,507	1,368,105	1,501,019	1,394,070	1,390,907
10. Non-Operating Expenses	260,670	289,531	297,027	259,910	109,234	112,285
11. Extraordinary Items						
12. NET MARGIN	145,702	659,150	725,831	1,545,321	119,795	(313,111)
B. FINANCIAL DATA						
Cash General Fund	1,045,157	1,151,787	1,520,724	2,300,424	2,650,295	2,539,943
Sinking Fund						
NEA Amortization	3,627	4,042	3,906	4,185	4,761	4,761
Reinvestment Fund (5%)			515,200	679,302	1,240,671	1,361,467
Accounts Receivable Energy						
Gross Receivable	1,810,014	1,998,563	1,934,785	2,219,650	3,217,306	3,597,420
Allowance for Uncollectibles				31,735	487,459	487,459
Net Receivables	1,810,014	1,998,563	1,934,785	2,187,915	2,729,847	3,109,961
Accounts Payable Power						
Current	1,080,099	1,486,408	1,711,993	1,881,458	2,564,769	3,212,991
Arrears						
3% Prompt Payment Disc. Available	311,021	307,171	313,131	315,680	313,335	313,335
Interest Charges						
Advances to Officers	72,109	94,004	25,231	54,382	47,011	43,591

C. STATISTICAL DATA

KWH Purchased	8,099,761	9,873,428	10,849,872	11,582,404	13,672,842	15,498,416
KWH Sales	6,619,749	8,062,913	8,962,902	9,879,933	11,013,335	12,825,999
Coop Consumption	22,078	32,350	67,309	62,985	72,663	76,787
System Loss						
in KWH	1,480,012	1,778,165	1,819,661	1,639,486	2,586,844	2,595,630
in Peso Value	2,337,462	3,117,849	3,187,054	3,211,345	5,372,116	5,522,665
in %	18.27%	18.01%	16.77%	14.15%	18.92%	16.75%
Collection Efficiency						
Loan Amortization Payment (Current w/ Advance)						
Average System Rate	3.40	3.43	3.62	3.90	3.93	4.06
Average Power Cost						
Ratio of Consumers/Employees						
Total Number of Employees	87	103	97	96	99	100
Number on Consumers Served	22,213	21,073	28,679	23,466	25,261	27,033
Ratio	255	205	296	244	255	270

D. CONSUMER SALES & REVENUE DATA

D.1 Consumers per class/type

Residential	16,969	16,140	22,036	18,286	20,102	21,774
Commercial	3,005	2,701	3,813	2,622	2,672	2,685
Industrial	137	141	270	173	166	186
St. Lights/Sec. Lights	442	457	869	770	744	733
Public Buildings	933	926	641	551	599	693
BAPA	727	708	1,050	1,064	978	962
TOTAL	22,213	21,073	28,679	23,466	25,261	27,033

D.2 Sales in KWH

Residential	2,847,091	3,185,644	4,354,650	4,954,564	5,841,145	7,329,939
Commercial	1,449,342	5,830,954	1,781,970	1,938,958	2,173,099	2,538,834
Industrial	354,681	1,545,095	461,680	534,605	371,006	380,437
St. Lights/Sec. Lights	234,899	466,449	133,457	114,281	119,609	110,124
Public Buildings	1,644,449	7,011,706	2,005,498	2,040,872	2,251,456	2,176,002
BAPA	89,287	555,667	225,647	296,653	257,020	290,663
TOTAL	6,619,749	28,595,515	8,962,902	9,879,933	11,013,335	12,825,999

D.3 Sales in Peso

Residential	9,597,699	13,185,644	15,525,493	18,875,919	23,239,609	29,138,434
Commercial	4,886,893	5,830,954	6,363,275	7,374,221	8,605,581	10,081,705
Industrial	1,302,593	1,545,095	1,813,288	2,325,356	1,667,982	1,758,511
St. Lights/Sec. Lights	729,975	466,449	448,092	989,455	452,787	420,047
Public Buildings	5,245,030	7,011,706	6,889,964	6,934,056	8,382,646	8,446,706
BAPA	281,888	555,667	758,770	1,050,740	955,727	1,084,730
TOTAL	22,044,078	28,595,515	31,798,882	37,549,747	43,304,332	50,930,133

SOUTHERN LEYTE ELECTRIC COOPERATIVE, INC.
Maasin, Southern Leyte

Description/Particulars	A: STATEMENT OF OPERATIONS				
	1991	1992	1993	1994	1995
					Jan - Nov, 1996
1. Utility Operating Revenue					
1.1 Operating Revenue	24,066,080	31,467,116	35,344,668	34,066,090	43,367,575
1.2 Other Operating Revenue (N-1)	281,675	400,635	3,983,225	1,282,180	1,714,302
1.3 Total Operating Income	24,347,755	31,867,751	39,327,893	35,348,270	45,075,877
2. Power Cost					
2.1 Power Production Cost					
2.11 Genset	25,658	510,638	578,137	652,508	718,399
2.12 Mini Hydro	472,287	17,041,595	19,460,873	19,883,546	27,184,876
2.2 Purchased Power	11,770,376	17,552,233	20,039,010	20,536,054	27,903,275
2.3 Total Cost of Power Produced/Purchased	12,268,321	26,232			95,587
3. Transmission Expense	10,208				
4. Distribution Expense					
4.1 Operation	500,333	812,174	1,091,628	953,401	1,525,850
4.2 Maintenance	1,283,328	1,748,661	1,633,280	1,404,054	1,937,234
4.3 Total Distribution Expense	1,783,661	2,560,835	2,724,908	2,357,455	3,463,084
5. Consumers' Accounts Expense	2,264,331	2,544,796	2,631,504	2,687,118	2,997,104
6. Administrative & General Expense	2,728,604	3,659,725	4,685,112	5,983,407	5,918,911
7. Total Operating & Maintenance Expense	19,056,125	26,343,821	30,080,534	31,264,034	40,377,961
8. Operating Margin	5,292,630	5,523,930	9,247,359	4,084,236	4,697,916
9. Depreciation & Amortization Expense	1,823,489	2,152,425	2,501,580	2,852,767	4,238,573
10. Interest Expense	4,089,104	4,599,757	4,043,836	3,420,477	3,041,282
11. Net Operating Margin	(619,963)	(1,228,252)	2,701,943	(2,189,008)	(2,581,939)
12. Non-Operating Revenue	841,965	1,373,774	854,998	1,666,794	1,649,113
13. Non-Operating Expense	1,719	1,071	5,095	59,236	2,041
14. Extraordinary Items	1,895,757	144,451	3,551,846	(581,450)	(934,867)
15. NET MARGIN	(1,675,474)				(687,249)
B: FINANCIAL DATA					
Cash General Fund	2,747,019	3,900,742	3,325,238	3,795,497	4,760,978
Sinking Fund:					
NEA Amortization	293,609	833,490	1,233,497	342,080	359,690
Reinvestment Fund (5%)	0	497,720	2,309,444	1,690,834	2,246,034
Accounts Receivable	4,081,141	4,072,323	4,929,289	5,464,299	6,467,204
Gross Receivable	1,077,448	1,391,905	1,568,542	1,738,794	1,955,409
Allowance for Uncollectibles	3,003,693	2,680,418	3,360,747	3,725,505	4,511,795
Net Receivable					
Accounts Payable Power	1,012,973	1,358,113	1,972,446	1,843,367	2,756,349
Current	0	0	0	0	0
Arrears	327,618	500,894	565,396	601,186	776,876
3% Prompt Payment Disc. Availed	0	0	0	0	0
Interest Charges	32,324	33,168	2,904	3,087	16,119
Advances to Officers & Employees					27,717

Description/Particulars	C: STATISTICAL DATA					Jan - Nov, 1996
	1991	1992	1993	1994	1995	
KWH Purchased	7,456,566	9,719,288	10,218,776	9,870,998	13,029,232	15,615,371
KWH Generated	1,696,040	1,484,680	1,614,000	618,750	402,100	0
Total	9,152,606	11,203,968	11,832,776	10,489,748	13,431,332	15,615,371
KWH Sales	7,160,713	8,815,459	9,417,558	8,696,540	10,768,059	12,481,640
Coop Consumption	74,444	85,868	77,342	79,092	81,504	81,725
In KWH	250,206	306,463	290,265	309,819	328,208	330,618
In Peso Value	0.81%	0.77%	0.65%	0.75%	0.61%	0.52%
In %	82.6%	94.6%	94.7%	94.0%	94.7%	93.5%
Collection Efficiency	1,250,000	3,081,875	2,789,327	2,040,479	2,332,241	3,362,330
Loan Amortization Payment (Current with Advance)	3,3610	3,5690	3,7530	3,9172	4,0269	4,0455
Average System's Rate	1.3404	1.5666	1.6935	1.9577	2.0775	2.1299
Average Power Cost						
Ratio of Consumers/Employees						
Total Number of Employees	113	118	118	158	129	128
Total Number of Consumers Served	18,551	20,432	21,824	22,805	24,472	25,769
Ratio	164 : 1	173 : 1	185 : 1	144 : 1	190 : 1	201 : 1
D: CONSUMER SALES & REVENUE DATA						
D.1 Consumers per Class/Type						
Residential	17,656	19,399	20,666	21,623	23,158	24,340
Commercial	448	525	559	567	596	637
Industrial	1	5	5	6	5	5
Public Buildings	417	466	532	571	670	742
St. Lights/Sec. Lights	29	37	42	38	43	45
Water System						
BAPA						
Sale for Resale						
Total	18,551	20,432	21,824	22,805	24,472	25,769
D.2 Sales in KWH						
Residential	5,299,882	6,638,490	7,099,558	6,330,120	7,990,502	9,429,911
Commercial	1,093,680	1,318,729	1,484,513	1,443,943	1,622,692	1,741,136
Industrial	128,310	135,676	38,690	259,335	356,176	525,735
Public Buildings	472,656	625,398	690,154	582,319	714,784	829,311
St. Lights/Sec. Lights	87,925	97,166	104,643	80,823	83,905	91,287
Water System						
BAPA						
Sale for Resale						
Total	7,160,713	8,815,459	9,417,558	8,696,540	10,768,059	12,481,640
D.3 Sales in Peso						
Residential	17,884,786	23,689,377	26,626,861	24,739,091	32,042,328	38,063,224
Commercial	3,695,989	4,733,598	5,611,154	5,712,664	6,655,986	7,185,716
Industrial	479,105	499,058	153,102	1,051,795	1,482,878	1,354,860
Public Buildings	1,582,132	2,206,745	2,571,556	2,253,862	2,851,150	3,338,219
St. Lights/Sec. Lights	294,235	338,338	381,995	308,678	329,233	364,012
Water System						
BAPA						
Sale for Resale						
Total	24,066,080	31,467,116	35,344,668	34,066,090	43,361,575	50,494,016
	129,833					187,485

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BILIRAN ELECTRIC COOPERATIVE, INC.
Carey/caray, Naval, Biliran

FINANCIAL ANALYSIS

DESCRIPTION/PARTICULARS	1991	1992	1993	1994	1995
A. STATEMENT OF OPERATION					
DESCRIPTION/PARTICULARS					
1. Utility Operating Revenues	9,779,284.45	11,611,571.35	15,136,705.47	17,411,563.92	22,773,481.41
1.1 Operating Revenues					
1.2 Other Operating Revenues	9,779,284.45	11,611,571.35	15,136,705.47	17,411,563.92	22,773,481.41
1.3 Total Operating Income					
2. Power Cost	5,585,727.44	7,165,489.64	9,180,268.16	9,404,019.03	11,809,834.40
2.1 Power Production Cost					
3. Non Power Cost	781,687.17	561,859.01	423,581.59	283,067.23	271,715.06
3.1 Distribution Expenses Operation	580,522.41	933,839.13	809,419.93	911,542.98	1,267,647.07
3.2 Distribution Expenses Maintenance	616,022.12	689,096.63	688,630.69	766,736.32	875,404.71
3.3 Consumer Account Expenses	2,155,354.58	2,273,280.80	2,515,193.36	2,543,621.34	3,582,146.23
3.4 Administrative & Gen. Expenses	4,133,586.28	4,458,075.57	4,436,825.57	4,504,967.87	5,996,913.07
3.5 Total Non Power Cost	9,719,313.72	11,623,565.21	13,617,093.75	13,998,986.90	17,806,547.47
4. Total Operating & Maint. Expenses	59,930.73	(11,993.86)	1,519,611.72	3,502,577.02	4,966,933.94
4.1 Operating Margin (Loss) (1-4)	439,149.91	491,446.60	1,564,986.84	585,392.94	820,166.99
5. Depreciation & Amortization Expenses	361,240.00	361,440.00	1,039,572.68	1,436,127.63	2,696,076.99
6. Interest Expenses	(746,639.18)	(864,880.46)	(1,084,947.78)	(1,481,056.45)	(1,450,687.36)
6.1 Net Operating Margin (Loss) (5-6 & 7)	69,590.85	165,768.15	187,680.76	1,515,618.99	1,105,533.76
9. Non Operating Revenue	426,790.02	619,236.80	846,738.86		
9.1 Housewiring					
9.2 Others				10,880.00	14,250.00
10. Non Operating Expenses					
10.1 Housewiring					
10.2 Others					
11. Extra Ordinary	(250,252.31)	(79,875.51)	59,471.84	2,985,795.44	2,542,021.74
12. Net Margin (Loss) (6 + 9 - 10 + 11)					
B. FINANCIAL DATA					
Cash General Fund	151,660.71	1,029,926.01	990,549.17	842,448.68	414,120.70
Sinking Fund					
NEA Amortization	0.00	0.00	145,864.69	557,312.91	615,231.30
Reinvestment Fund (5%)					
Account Receivable energy	1,079,914.31	1,368,608.19	1,841,495.53	2,039,152.66	2,752,391.14
Gross Receivable	8,841.81	8,841.81	8,841.81	8,841.81	8,841.81
Allowance for Uncollectibles	1,082,156.12	1,359,766.38	1,632,653.72	2,024,310.65	2,743,489.33
Net Receivables					

BILIRAN ELECTRIC COOPERATIVE, INC.
Carayoray, Naval, Biliran

FINANCIAL ANALYSIS

Account Payable Power									
Current	432,849.67	615,517.40	764,828.97	885,201.86	1,212,843.63				
Arrears									
3% Prompt Payment Disc. Availed	167,571.82	214,964.69	275,408.05	282,120.57	354,289.03				
Interest Charges									
Advances to Officers & Employees	239,512.76	318,428.57	145,318.73	70,195.60	29,422.78				
C. STATISTICAL DATA									
KWH Purchased	3,498,180	3,986,303	4,808,642	4,676,894	5,670,292				
KWH Sales	2,727,838	3,098,987	3,523,800	3,563,691	4,501,808				
Coop Consumption	8,983	12,803	16,047	10,310	11,288				
System Loss									
In KWH	761,359	874,513	1,268,795	1,102,233	1,157,196				
In Peso Value	2,629,459.86	3,222,831.49	5,391,118.85	5,234,423.58	5,703,442.56				
In %	21.76%	21.94%	26.39%	23.57%	20.41%				
Collection Efficiency	77.00%	75.00%	75.00%	82.79%	97.06%				
Loan Amortization Payment	660,000.00	620,145.95	1,250,000.00	5,481,120.00	5,500,000.00				
(Current with Advance)									
Average System Rate	3.4566	3.6853	4.2490	4.7489	4.9287				
Average Power Cost	1.5968	1.7975	1.9091	2.0108	2.0927				
Ratio of Consumers/Employees									
Total No. of Employees	46	43	49	51	51				
Number of Consumers Served	6,429	7,125	7,654	8,381	9,457				
Ratio	139.76	165.70	156.20	164.33	185.43				
D. CONSUMER SALES AND REVENUE DATA									
D.1 Consumers Per Class/type									
Residential	5,916	6,580	7,065	7,696	8,621				
Commercial	410	430	464	498	535				
Industrial				1	1				
St. Light/Sec. Lights					43				
Public Building	103	115	125	144	173				
Water System									
BAPA				42	84				
Total	6,429	7,125	7,654	8,381	9,457				

BILIRAN ELECTRIC COOPERATIVE, INC.
 Caraycaray, Naval, Biliran

FINANCIAL ANALYSIS

D.2	Sales in KWH								
	Residential	1,921,090	2,317,017	2,697,776	2,633,049	3,369,604			
	Commercial	604,843	550,447	597,751	620,218	710,859			
	Industrial				30,967	6,087			
	St. Light/Sec. Lights	51,128	45,301	45,006	46,724	71,359			
	Public Building	150,777	186,222	189,267	241,648	330,590			
	Water System								
	BAPA				1,085	13,309			
	Total	2,727,838	3,098,967	3,523,800	3,563,691	4,501,808			
D.3	Sales in Peso								
	Residential	6,605,747.54	8,520,826.62	11,426,743.24	12,532,492.97	16,608,228.22			
	Commercial	2,129,935.70	2,057,262.12	2,573,787.31	2,841,943.06	3,542,937.62			
	Industrial				154,090.51	30,071.42			
	St. Light/Sec. Lights	168,500.82	162,050.63	188,492.65	229,351.46	326,488.61			
	Public Building	516,785.51	680,517.49	783,627.70	1,160,645.29	1,615,773.65			
	Water System								
	BAPA				5,183.60	64,447.13			
	Total	9,420,969.57	11,420,656.86	14,972,650.90	16,923,706.89	22,187,946.85			

EASTERN SAMAR ELECTRIC COOPERATIVE, INC.
(ESAMELCO)
Brgy. Cabong, Borongan, Eastern Samar

	1991	1992	1993	1994	1995	1996
Financial Data:						
Cash General Fund	390,089	657,854	315,578	1,185,525	42,065	366,356
Sinking Fund:						
NEA Amortization	218,548	208,880	127,027	366,265	846,524	274,109
Reinvestment Fund			284,018	403,640	1,579,721	530,925
Accounts Receivable Energy:						
Gross	2,311,246	3,256,440	3,256,440	4,290,575	6,669,313	10,813,524
Allow. for Uncollectible						
Accounts	132,082	132,082	132,082	132,082	132,082	132,082
Net Receivables	2,179,164	2,514,466	3,124,358	4,158,493	6,537,231	10,681,442
Accounts Payable Power						
Current				1,615,134	722,196	2,345,594
Arrears	1,438,863	978,684	3,356,237			
3% prompt payment discount					453,626	672,196
availed					124,769	250,285
Advances to Officers & Employees	318,489	295,379	255,655	268,636		
Statistical Data:						
KWH Purchased	5,010,465	5,595,175	7,190,030	8,076,665	9,613,824	11,938,956
KWH Sales	4,113,470	4,533,411	5,634,036	6,181,011	7,915,355	9,898,225
Coop Consumption	23,227	36,819	56,937	55,937	59,457	49,693
System Loss						
KWH	873,868	1,024,945	1,499,201	1,839,917	1,639,012	1,991,038
Peso Value	1,380,711	1,665,400	2,863,474	3,606,237	3,196,073	4,121,459
%	17%	18%	21%	23%	17%	17%
Collection Efficiency						
Loan Amortization Payment	765,000	1,200,000	511,405	1,557,381	3,850,000	4,500,000
Ave. System Rate	3.44	4.23	4.09	4.20	4.53	4.10
Ave. Power Cost	1.58	1.62	1.96	1.96	1.95	2.07
Ratio of Consumer per employee						
Total no. of employees	77	85	83	100	118	114
No. of consumers	8,061	9,292	10,284	10,863	13,013	14,868
Ratio	104	108	123	110	110	130

Revenue Data		1991	1992	1993	1994	1995	1996
Consumer per class							
Residential		7,320	8,367	9,242	9,804	11,269	12,929
Commercial		546	706	786	764	813	802
Industrial		39	52	40	38	50	50
St. Lights		23	36	55	73	125	179
Public Buildings		133	129	161	184	234	268
BAPA						499	550
Total		8,061	9,292	10,284	10,863	13,013	14,888
Sales in KWH							
Residential		2,861,334	3,174,260	3,800,805	4,123,694	5,226,742	6,812,153
Commercial		666,383	836,735	1,101,640	1,065,903	1,200,721	1,361,589
Industrial		148,888	86,017	189,243	378,507	431,170	491,555
St. Lights		73,217	85,336	138,712	181,066	302,477	353,652
Public Buildings		363,648	351,063	403,636	431,841	584,987	642,330
BAPA						169,198	207,746
Total		4,113,470	4,533,411	5,634,036	6,181,011	7,915,355	9,898,225
Sales in Pesos							
Residential		9,582,429	12,604,459	15,342,721	17,094,674	22,469,533	29,826,840
Commercial		2,443,232	3,346,412	4,652,243	4,664,316	5,468,432	5,293,982
Industrial		545,499	317,123	776,620	1,589,604	1,764,907	2,172,940
St. Lights		277,798	335,226	613,273	799,883	1,287,058	1,765,086
Public Buildings		1,318,045	1,389,251	1,667,744	1,825,993	2,513,895	2,600,950
BAPA						727,244	907,970
Other Electric Revenue		559,600	83,463	656,440	691,991	828,975	613,899
Total		14,726,603	18,075,942	23,709,041	26,666,461	35,100,044	44,181,667

Figure 5.1.1-1 Transmission System in Leyte and Somar Islands

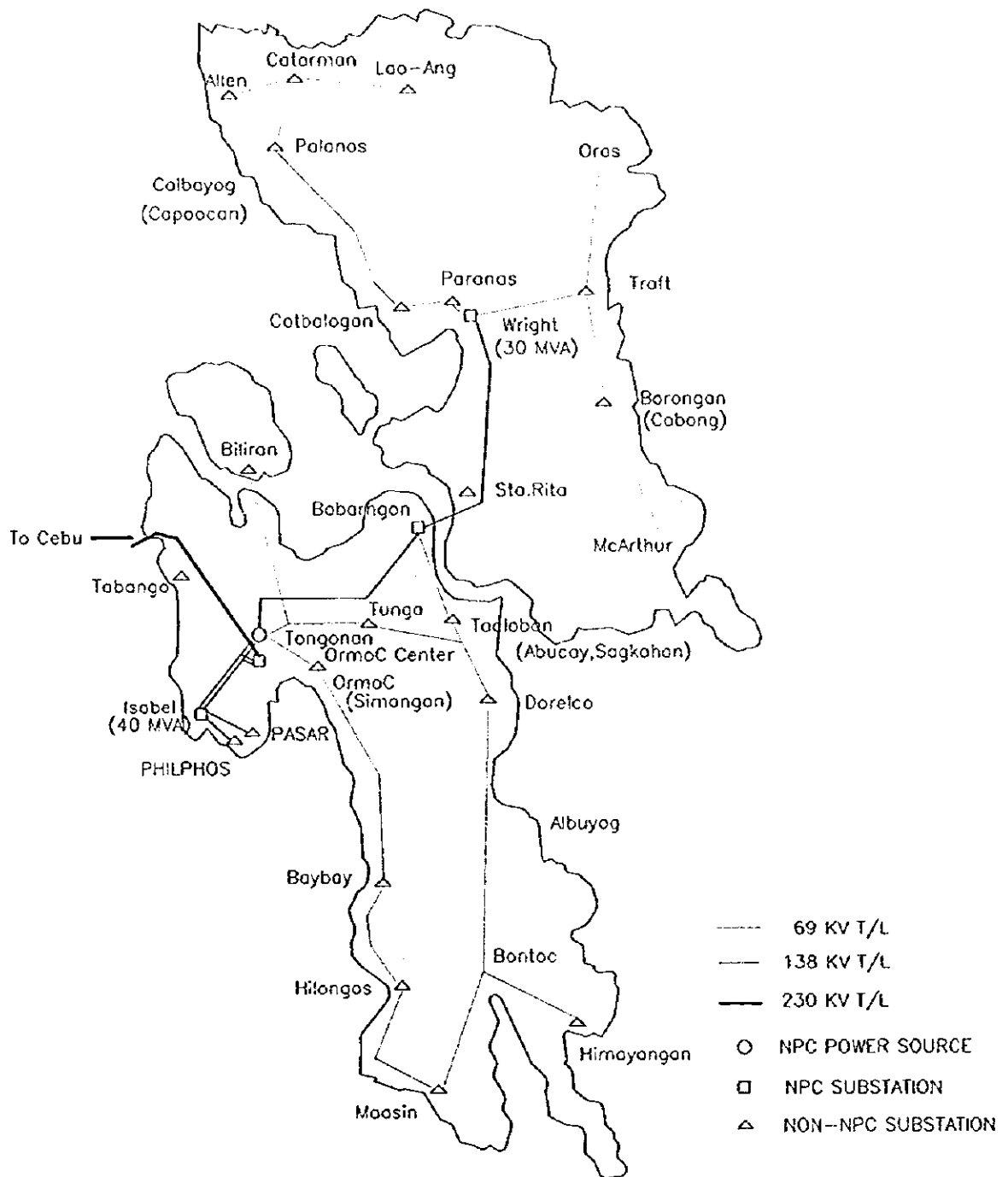
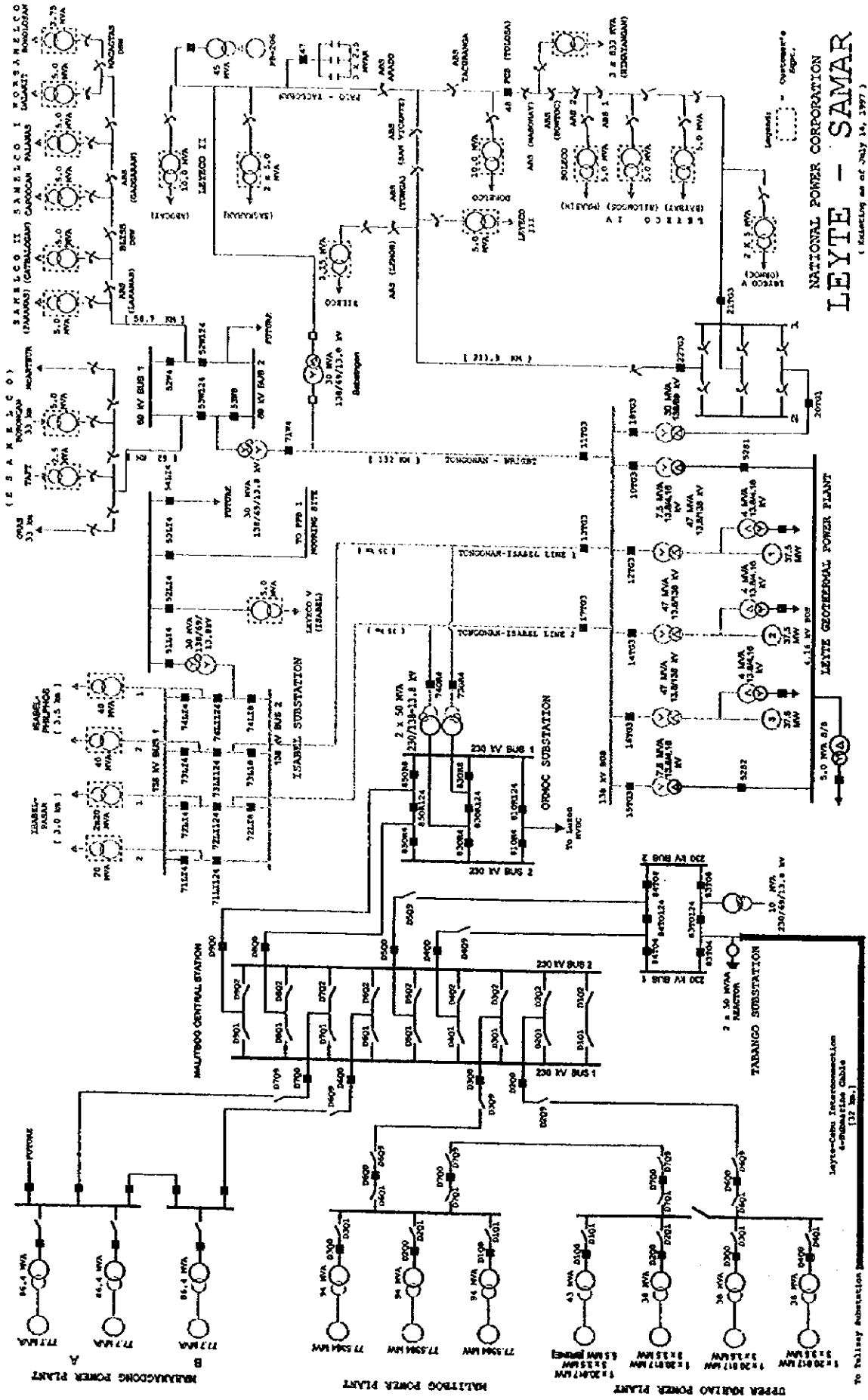


Figure S.1.1-2 Single Line Diagram in Leyte and Samar Islands



Appendix 5.1.1-1 Branch Existing Data for Leyte-Samar Grid

From	To	kV	Type of Structure	No. of Structure	No. & Size of Cond.	Length (km)	Rating (MVA)		Year Comm.
							A	B	
Tongonan I	Babatngon	138	SC-WP		1-336.4MCM	73	105	137	1987
Babatngon	Wright	138	SC-WP		1-336.4MCM	58.5	105	137	1987
Tongonan I	Leyte Tap1	138	SC-WP		1-336.4MCM	5	105	137	1981
Leyte Tap1	Isabel	138	SC-WP	236	1-336.4MCM	29.5	105	137	1981
Tongonan I	Leyte Tap2	138	SC-WP		1-336.4MCM	5	105	137	1984
Leyte Tap2	Isabel	138	SC-WP	231	1-336.4MCM	30.5	105	137	1984
Ormoc	Leyte Tap1	138	DC-ST		1-454SQMM	6	212	275	1996
Ormoc	Leyte Tap2	138	DC-ST		1-454SQMM	6	212	275	1996
Isabel	Pasar	138	2-SC-WP	13	1-336.4MCM	3.4	105	137	1992
Isabel	Philphos	138	2-SC-WP	41	1-336.4MCM	3.5	105	137	1983
Tongonan I	Limon	69	SC-WP		1-336.4MCM	14.7	53	68	1991
Limon	Tunga	69	SC-WP	336	1-336.4MCM	29.5	53	68	1991
Tongonan I	Ormoc	69	SC-WP	150	1-336.4MCM	19.6	53	68	1977
Limon	Biliran	69	SC-WP	170	1-336.4MCM	27	53	68	1988
Tunga	Palo-Tap	69	SC-WP	186	1-336.4MCM	28	53	68	1979
Palo-Tap	Tacroban	69	SC-WP	84	1-336.4MCM	14	53	68	1979
Palo-Tap	Tolosa	69	SC-WP	126	1-336.4MCM	19	53	68	1979
Tacroban	PBGMT6	69	SC-WP		1-336.4MCM	3	53	68	
Tacroban	Babatngon	69	SC-WP		1-336.4MCM	14.4	53	68	1996
Tolosa	Mabhay	69	SC-WP	334	1-336.4MCM	61	53	68	1979
Mabhay	Bontoc	69	SC-WP	113	1-336.4MCM	25	53	68	1980
Bontoc	St. Bernard	69	SC-WP	305	1-336.4MCM	43	53	68	1996
Bontoc	Maasin	69	SC-WP	147	1-336.4MCM	30	53	68	1980
Maasin	Baybay	69	SC-WP	653	1-336.4MCM	75	53	68	1996
Baybay	Ormoc	69	SC-WP	433	1-336.4MCM	51	53	68	1985
Isabel	PB Isabel	69	SC-WP	88	1-336.4MCM	12.1	53	68	1981
Wright	Calbayog	69	SC-WP	625	1-336.4MCM	68	53	68	1989
Wright	Taft	69	SC-WP	421	1-336.4MCM	60	53	68	1989
Calbayog	Catarman	69	SC-WP	444	1-336.4MCM	67	53	68	1989
Catarman	Catubig	69	SC-WP	550	1-336.4MCM	62	53	68	1990
Catarman	Allen	69	SC-WP		1-336.4MCM	42.8	53	68	1995
Taft	Oras	69	SC-WP	297	1-336.4MCM	33.2	53	68	1990
Taft	Borongan	69	SC-WP	448	1-336.4MCM	33	53	68	1993
Borongan	Mcarthur	69	SC-WP	635	1-336.4MCM	72	53	68	1994

Figure 5.1.2-1 Secondary side Single Line Diagram of Isabel 138/69 kV Substation

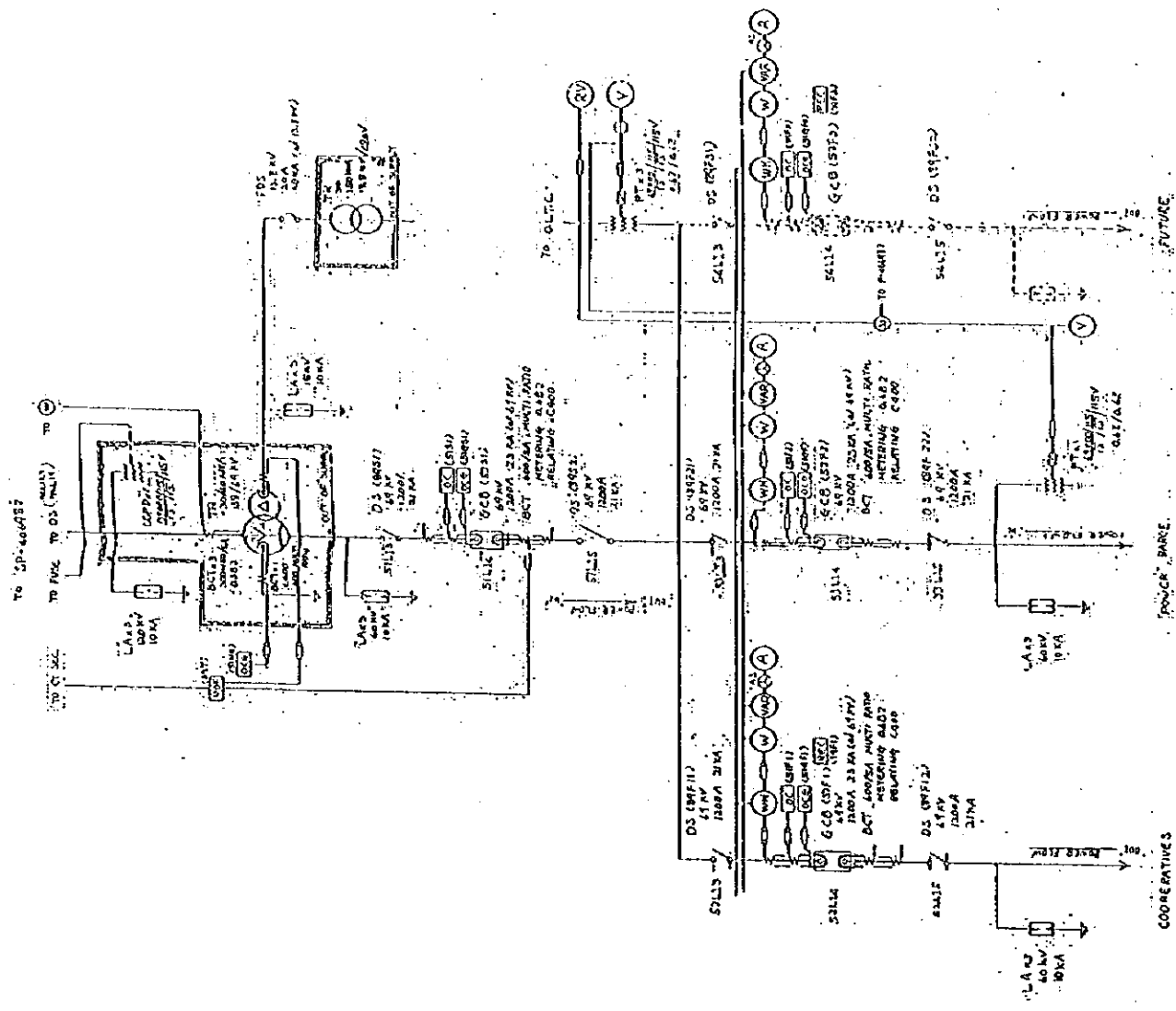
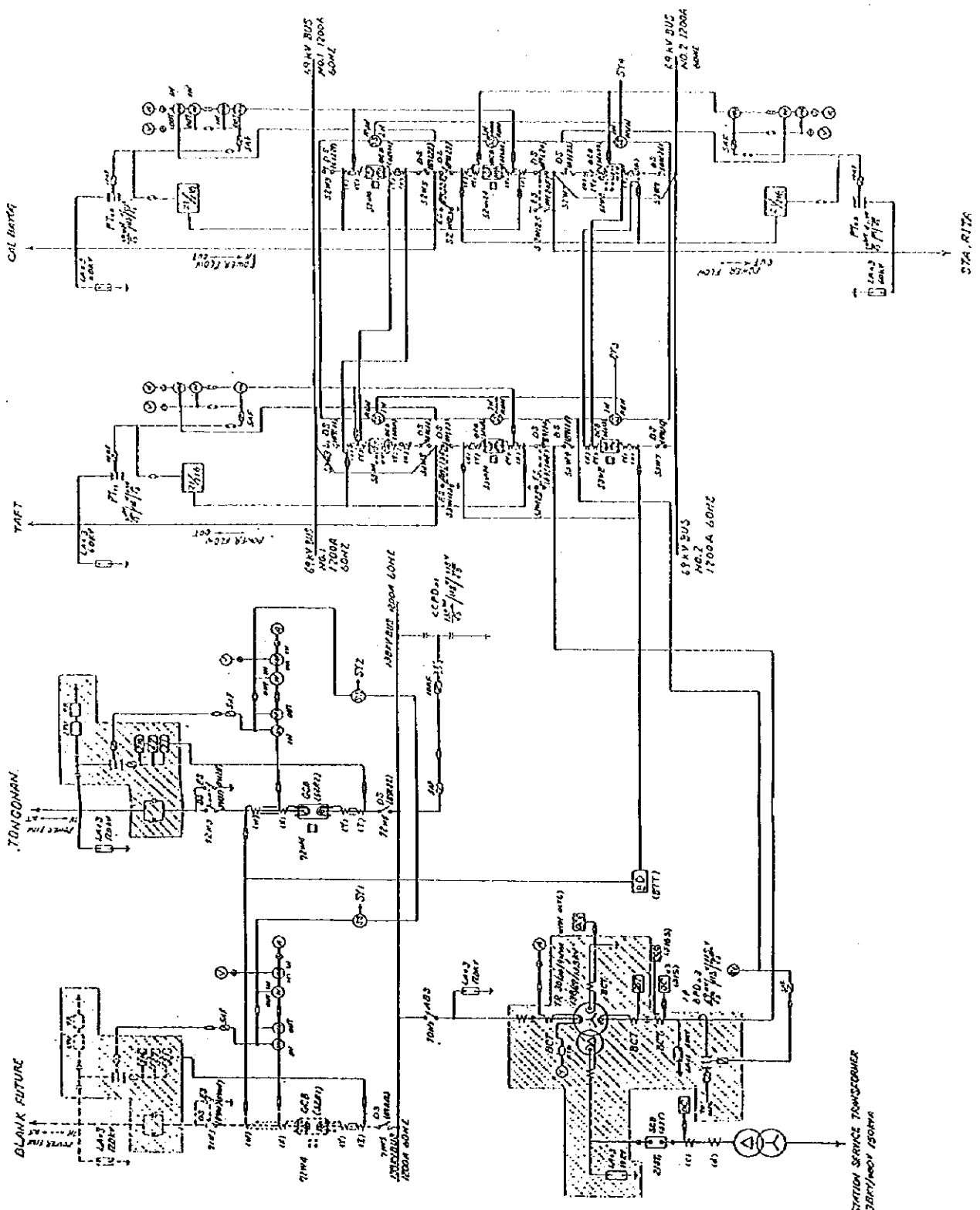


Figure 5.1.2-2 Single Line Diagram of Wright 138/69 kV Substation



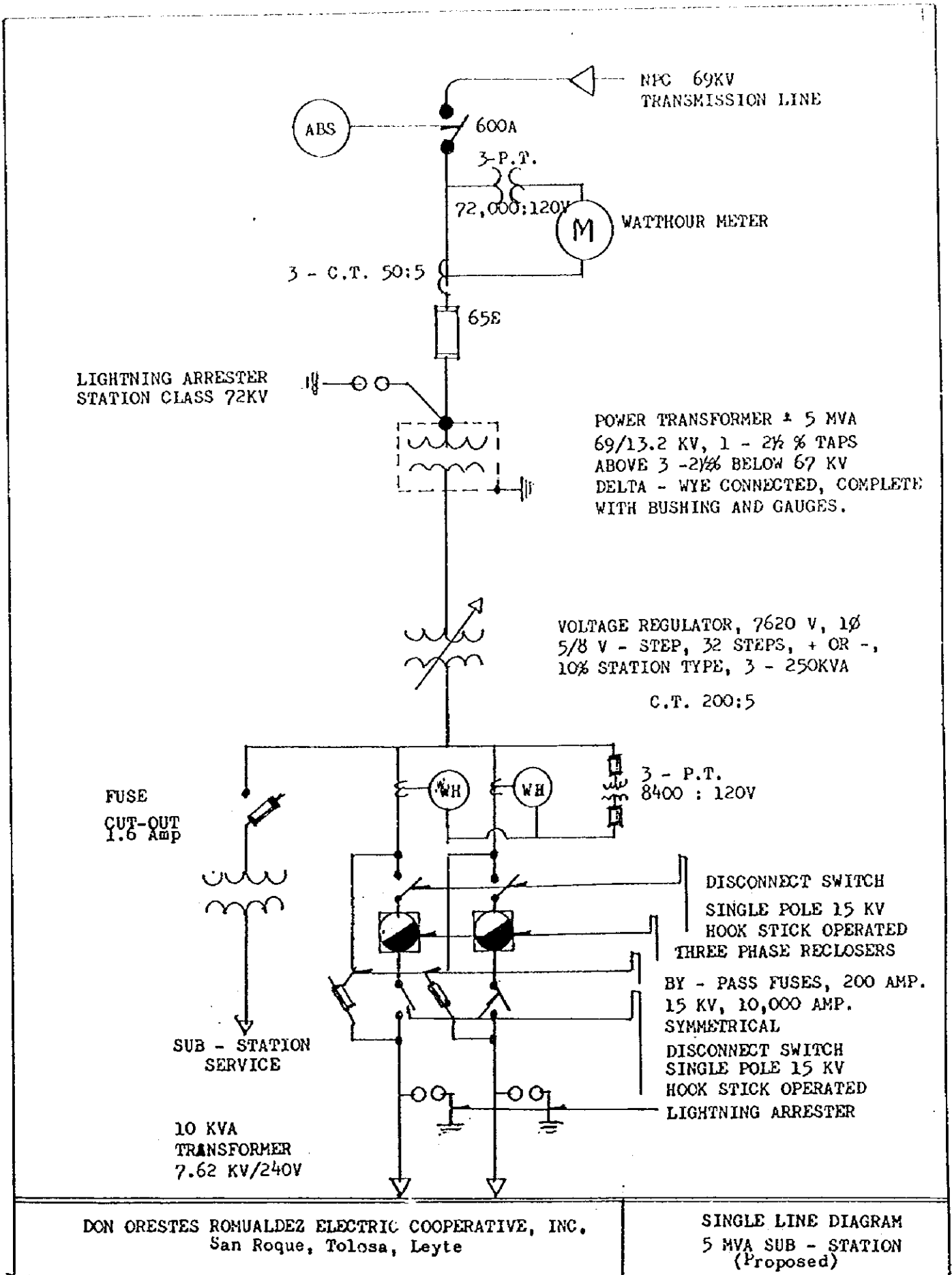
- 138 kV EQUIPMENT**
- GCB 138KV 1200A 315 kA (at 138KV)
 - CT 1700/1000/800/400/200/100/500/400/300/200/100 -5A
 - (1) (1) class 0.3B - 2.0 METERING TYPE
 - (1) (2) class C-400(MNS) RELAYING TYPE
- 69 kV EQUIPMENT**
- PCB 69KV 1200A 20 kA (at 69KV)
 - CT 600/500/450/400/300/200/150/100/50 - 5A
 - (1) class 0.3B - 1.0 METERING TYPE
 - (1) class C-400(MNS) RELAYING TYPE
 - DS 69KV 1200A
- 138KV EQUIPMENT**
- SCB 1200V 300A (200V 1.2 (0.4V)
 - CT (at 20-V) (at 500-V)

TO BE SUPPLIED BY OTHERS

Appendix 5.1.2-1 Outline of 69/13.2 kV Substation Data

Name of EC	Name of Sub-station	Location	Voltage (kV)	Capacity	Power Fuse Rating	Year Installed	No. of Feeder	Capacitor Bank
Leyeco I	Dorleco	San Roque, Tolosa	67/13.2Y/7.62	10 MVA		Feb. 1982	2 feeders	
Leyeco II	Sagcahan	Sagcahan, Tacloban City	67/13.2Y/7.62	5 MVA		1979	1 feeder	
	Sagcahan	Sagcahan, Tacloban City	67/13.2Y/7.62	5 MVA		June 1990	2 feeders	
Leyeco III	Abucay	Abucay	67/13.2Y/7.62	10 MVA		Dec. 1992	3 feeders	3-50 kVar
	Tunga	Brgy. San Roque, Tunga	67/13.2Y/7.62	5 MVA	3-69 kV 65E, 3-13.2kV 200A	1982	1 feeder	
Leyeco IV	Baybay	Brgy. Gaas, Baybay	67/13.2Y/7.62	3.75 MVA	3-69 kV 65E, 6-13.2kV 175E	March 1988	2 feeders	
	Hilongos	Brgy. Gaas, Baybay	67/13.2Y/7.62	5 MVA	3-69 kV 65E, 6-13.2kV 175E	Aug. 1996	2 feeders	
Leyeco V	Simangan I	Brgy. San Pablo, Ormoc	67/13.2Y/7.62	5 MVA	3-69 kV 65E, 6-13.2kV 175A	Oct. 1992	2 feeders	3-150 kVar, 3-50 kVar
	Simangan II	Brgy. San Pablo, Ormoc	67/13.2Y/7.62	5 MVA	3-69 kV 65E, 6-13.2kV 175A	Feb. 1993	2 feeders	6-300 kVar
	Mahayag	Isabel, Leyte	67/13.2Y/7.62	5 MVA	3-69 kV 65E, 6-13.2kV 175A	May 1982	2 feeders	3-100 kVar, 6-50 kVar
	Simangan III	Brgy. San Pablo, Ormoc	69/13.8Y/7.96	12 MVA	3-69 kV 90E, 3-13.2kV 175A	On going	1 feeder	
	Leyte-Leyte	Leyte-Leyte	67/13.2Y/7.62	5 MVA	3-69 kV 65E, 6-13.2kV 175A	On going	2 feeders	
Soleco	Maasin	Nasaug HQ., Maasin	67/13.2Y/7.62	5 MVA		Jan. 1987	3 feeders	
	Himay-Angan		67/13.2Y/7.62	5 MVA			3 feeders	
Bileco	Biliran	Brgy. San Isidro	69/13.2Y/7.62	3.15 MVA	3-69kV 30E	May 1988	2 feeders	
Sameico I	Capoocan	Brgy. Capoocan, Calbayog	67/13.2Y/7.62	5 MVA		Apr. 1989	3 feeders	
	Palanas	Palanas Cara, Calbayog	67/13.2Y/7.62	5 MVA		Dec. 1996	2 feeders	
Sameico II	Paranas	Brgy. Arado, Paranas	69/13.2Y/7.62	5 MVA	3-69 kV 65A, 6-13.2kV 175A	Feb. 1989	2 feeders	9-50 kVar, 3-100 kVar
	Catbalogan	Km1, Catbalogan	67/13.2Y/7.62	5 MVA	3-69 kV 65A, 6-13.2kV 175A	Aug. 1995	2 feeders	6-100 kVar, 3-50 kVar
Esameico	Dolongan	Brgy. Dolongan, Basey	67/13.2Y/7.62	5 MVA		1998		
	Taft	Brgy. Polangi, Taft	67/13.2Y/7.62	2.5 MVA	3-69 kV 30E, 6-13.2kV 175A	Jan. 1986	2 feeders	
	Cabong	Brgy. Cabong, Bor.	67/13.2Y/7.62	5 MVA	3-69 kV 65E, 6-13.2kV 200E	Oct. 1994	2 feeders	
	Buonavista	Brgy. Buonavista, Quinaon	67/13.2Y/7.62	2.5 MVA		Unfinished	3 feeders	
	Oras	Brgy. Burak, Oras	67/13.2Y/7.62	2.5 MVA		Unfinished	2 feeders	
Norsameico	Catarman	Brgy. Dalakit, Catarman	67/13.2Y/7.62	5 MVA	3-69kV 50A, 6-13.2kV 175A	Sep. 1995	2 feeders	3-100 kVar, 3-50 kVar
	Lao-Ang	Brgy. Bobolosan, Lao-Ang	67/13.2Y/7.62	3.75 MVA	3-69kV 45A, 6-13.2kV 150A	Oct. 1996	2 feeders	

Figure 5.1.2-3 Representative Single Line Diagram of 69/13.2 kV Substation



DON ORESTES ROMUALDEZ ELECTRIC COOPERATIVE, INC.
 San Roque, Tolosa, Leyte

SINGLE LINE DIAGRAM
 5 MVA SUB - STATION
 (Proposed)

Appendix 5.1.3-1 Existing Distribution Line Data in each Ecs (1)

Name of EC	Line Circuit	Voltage	Wire	Length in kms.	No. of Structure	Kind of Tower/poles
Leyeco I	Three Phase	13200	ACSR	127.58	1,501	Wood Poles
	Two Phase	13200	ACSR	51.3	616	Wood Poles
	Single Phase	7620	ACSR	239.28	2,815	Wood Poles
	Open Sec.	240	ACSR	139.57	4,561	Wood Poles
	Underbuilt	240	ACSR	228		Wood Poles
	Total			785.73	9,493	
Leyeco II	Double Circuit	13200	ACSR	1.8		Wood Poles
	Three Phase	13200	ACSR	62.7626		Wood Poles
	Two Phase	13200	ACSR	23.7		Wood Poles
	Single Phase	7620	ACSR	100.8325		Wood Poles
	Open Sec.	240	ACSR	86.6761		Wood Poles
	Underbuilt	240	ACSR	107.2649		Wood Poles
Total			383.0361	0		
Leyeco III	Three Phase	13200	ACSR	91.681		Wood Poles
	Two Phase	13200	ACSR	37.471		Wood Poles
	Single Phase	7620	ACSR	146.797		Wood Poles
	Open Sec.	240	ACSR	146.98		Wood Poles
	Underbuilt	240	ACSR	139.18		Wood Poles
	Total			562.109	0	
Leyeco IV	Double Circuit	13200	ACSR	0.62	6	
	Three Phase	13200	ACSR	91.33	1,075	Wood Poles
	Two Phase	13200	ACSR	8.25	97	Wood Poles
	Single Phase	7620	ACSR	185.5	2,226	Wood Poles
	Open Sec.	240	ACSR	123.99	1,478	Wood Poles
	Underbuilt	240	ACSR	199.155		Wood Poles
Total			608.845	4,882		

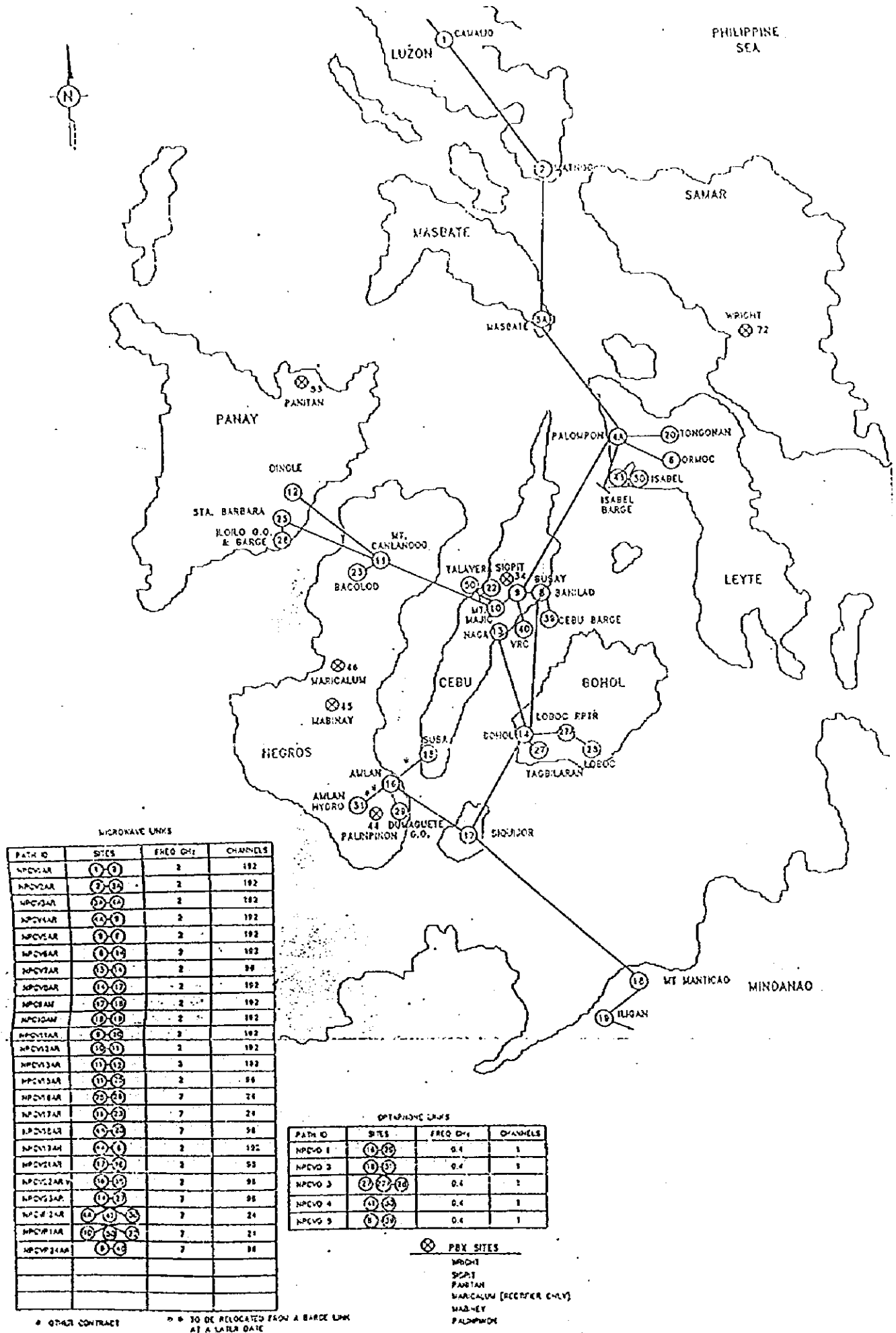
Appendix 5.1.3-1 Existing Distribution Line Data in each Ecs (2)

Name of Coop	Line Circuit	Voltage	Wire	Length in kms.	No. of Structure	Kind of Tower/poles
Leyeco V	Three Phase	13200	ACSR	236.806	2,842	Wood Poles
	Two Phase	13200	ACSR	26.289	315	Wood Poles
	Single Phase	7620	ACSR	333.451	3,996	Wood Poles
	Open Sec.	240	ACSR	161.499	2,423	Wood Poles
	Underbuilt	240	ACSR	952.531		Wood Poles
	Total			1710.576	9,576	
Soleco	Double Circuit	13200	ACSR	2.285	40	Wood Poles
	Three Phase	13200	ACSR	268.763	2,850	Wood Poles
	Two Phase	13200	ACSR	12.972	116	Wood Poles
	Single Phase	7620	ACSR	111.855	1,250	Wood Poles
	Open Sec.	240	ACSR	160.012	1,655	Wood Poles
	Underbuilt	240	ACSR	201.362		Wood Poles
Total			757.249	5,911		
Bileco	Three Phase	13200	ACSR	106.885	1,060	Wood Poles
	Two Phase	13200	ACSR	5.162	16	Wood Poles
	Single Phase	7620	ACSR	45.726	278	Wood Poles
	Open Sec.	240	ACSR	46.894	506	Wood Poles
	Underbuilt	240	ACSR	51.192		Wood Poles
	Total			256	1,860	
Sameleo I	Three Phase	13200	ACSR	125.559		Wood Poles
	Two Phase	13200	ACSR	35.148		Wood Poles
	Single Phase	7620	ACSR	85.2183		Wood Poles
	Open Sec.	240	ACSR	85.1363		Wood Poles
	Underbuilt	240	ACSR	61.049		Wood Poles
	Total			392.1106	0	

Appendix 5.1.3-1 Existing Distribution Line Data in each Ecs (3)

Name of Coop	Line Circuit	Voltage	Wire	Length in kms.	No. of Structure	Kind of Tower/poles
Samelco II	Three Phase	13200	ACSR	248.1	2,593	Wood Poles
	Two Phase	13200	ACSR	107.155	653	Wood Poles
	Single Phase	7620	ACSR	200.927	1,357	Wood Poles
	Open Sec.	240	ACSR	203.134	1,566	Wood Poles
	Underbuilt	240	ACSR			Wood Poles.
	Total			759.316	6,169	
Esamelco	Double Circuit	13200	ACSR	0.22		Wood Poles
	Three Phase	13200	ACSR	224.044		Wood Poles
	Two Phase	13200	ACSR	27.103		Wood Poles
	Single Phase	7620	ACSR	66.661		Wood Poles
	Open Sec.	240	ACSR	82.437		Wood Poles (Including 5 steel poles)
	Underbuilt	240	ACSR	122.498		Wood Poles
Total				0		
Norsamelco	Three Phase	13200	ACSR	228.2	3,066	Wood Poles
	Two Phase	13200	ACSR	8.27	150	Wood Poles
	Single Phase	7620	ACSR	41.69	542	Wood Poles
	Open Sec.	240	ACSR	78.65	1,000	Wood Poles
	Underbuilt	240	ACSR	76.88		Wood Poles
	Total			433.69	4,758	

Figure 5.2.2-1 Telecommunications Networks in Visayas Area



WIDEBAND LINKS

PATH ID	SITES	FREQ GHz	CHANNELS
NP0V31A	1-2	2	192
NP0V32A	3-12	2	192
NP0V33A	27-12	2	192
NP0V34A	14-11	2	192
NP0V35A	11-7	2	192
NP0V36A	1-12	2	192
NP0V37A	15-11	2	96
NP0V38A	14-17	2	192
NP0V39A	17-19	2	192
NP0V40A	19-19	2	192
NP0V41A	2-12	2	192
NP0V42A	15-11	2	192
NP0V43A	11-12	2	192
NP0V44A	11-25	2	96
NP0V45A	25-23	2	24
NP0V46A	11-23	7	24
NP0V47A	15-22	7	96
NP0V48A	2-4	2	192
NP0V49A	17-22	2	96
NP0V50A	14-12	2	96
NP0V51A	11-13	2	96
NP0V52A	14-11-25	7	24
NP0V53A	10-12-25	7	24
NP0V54A	8-15	7	96

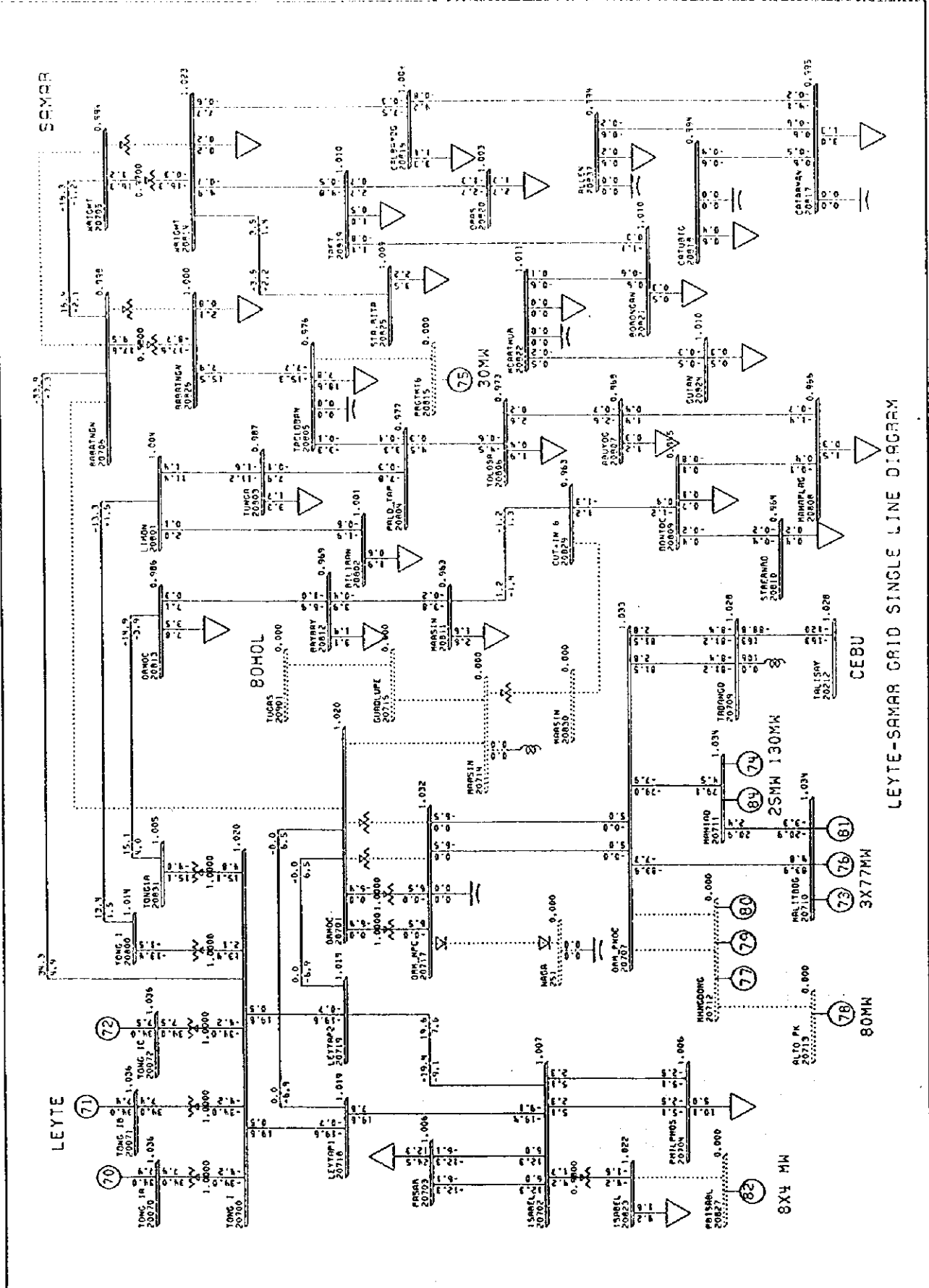
OPTIC LINKS

PATH ID	SITES	FREQ GHz	CHANNELS
NP0V01	14-25	0.4	1
NP0V02	18-25	0.4	1
NP0V03	27-27-18	0.4	1
NP0V04	41-45	0.4	1
NP0V05	8-25	0.4	1

- ⊗ PRX SITES
- WRIGHT
- SOGIT
- PARTAN
- MARICALUM (RECEIVER ONLY)
- MAD-NEY
- PALIMPON

* 07-87 CONTRACT ⊗ TO BE RELOCATED FROM A BARGE LINK AT A LATER DATE

Figure 5.2.3-1 Calculation Result of Power Flow in Leyte-Samar Area



LEYTE-SAMAR GRID SINGLE LINE DIAGRAM

BUS - VOLTAGE (PU)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR

LEYSAM96 / 1996 VISAYAS POWER SYSTEM
 OCTOBER 1995 GENERATION LINE-UP
 EXISTING CONDITION MON. JAN 13 1992 04:23

Appendix 5.3-1 Power System Loss (%) of Distribution System in each Ecs

Name of Company	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NPC	3.30	3.20	3.80	3.10	3.10	2.90	2.30	2.40	1.60	2.70	
Leyeco I	10.00	11.00	33.00	21.00	18.50	18.55	24.17	28.44	26.22	20.27	22.35
Leyeco II	29.27	28.57	28.94	32.62	31.00	32.61	30.68	31.67	31.84	24.78	18.15
Leyeco III					23.11	25.86	25.76	24.57	22.31	30.45	17.35
Leyeco IV	10.01	18.58	13.35	15.57	11.69	18.00	17.89	16.77	13.42	18.94	15.90
Leyeco V	12.40	14.98	17.77	17.80	15.96	15.54	15.60	13.90	13.07	15.64	12.87
Solcco	25.62	24.02	18.93	19.42	17.19	20.95	20.55	19.76	18.22	19.63	19.21
Bilecco					20.91	21.74	22.88	26.39	26.79	23.77	21.79
Samecco I			13.32	13.42	9.79	10.67	12.64	11.34	10.09	10.17	9.84
Samecco II	24.38	25.75	30.35	28.33	24.16	23.25	22.68	20.95	22.14	20.47	15.84
Esamecco					22.29	17.44	18.35	23.02	23.96	17.33	20.40
Norsamecco					20.30	20.65	22.17	21.73	19.07	19.86	16.88

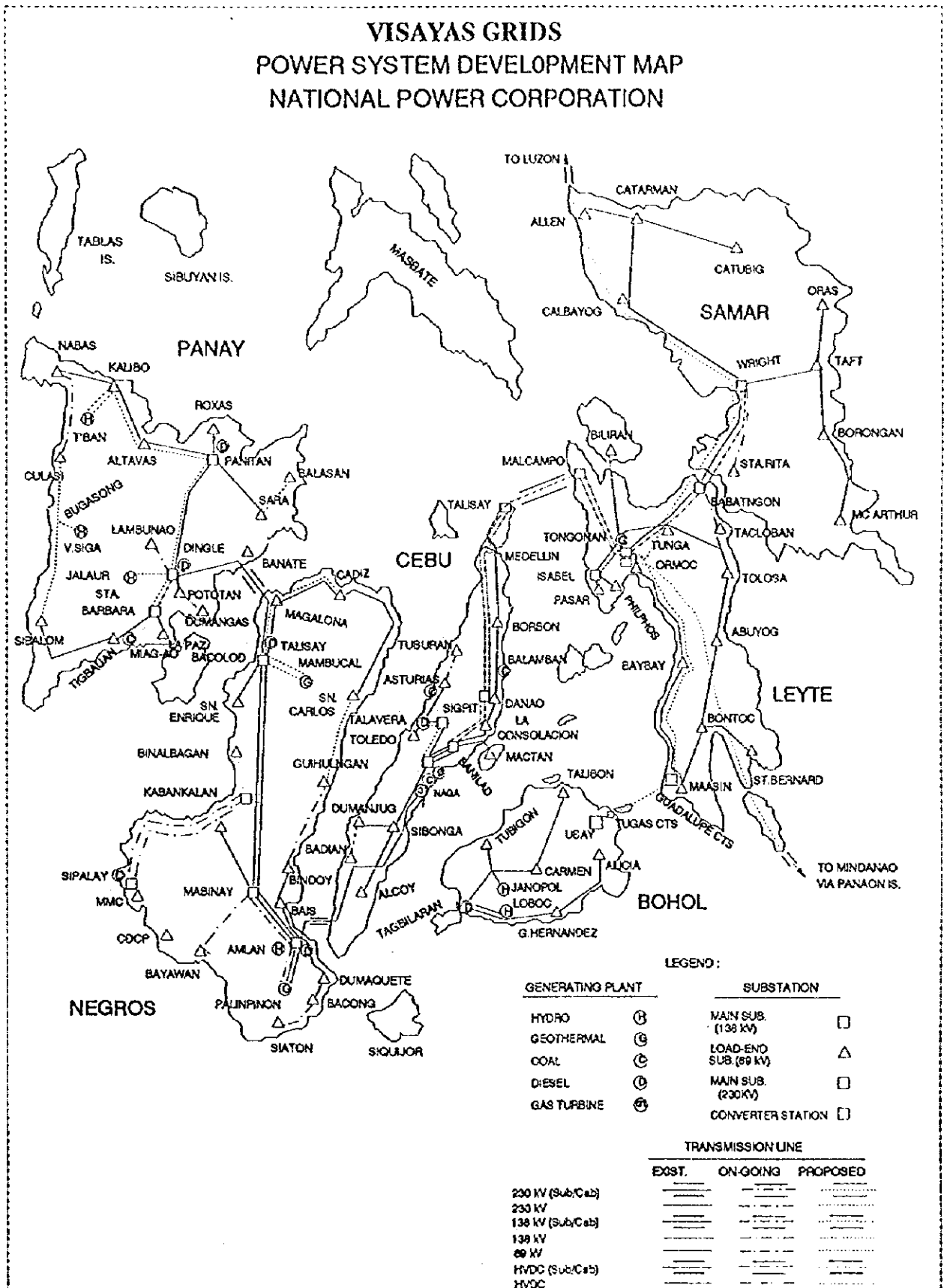
Appendix 5.4-1 Power Outage (hours) in each Ecs

Name of EC	Cause	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total	Average
Leyeco I	NPC	278.52	763.70	357.63	619.79	279.89	394.14	295.05	285.00	239.03	505.63	4018.38	401.84
	EC	205.01	1277.66	668.80	3567.70	499.43	1035.11	641.76	689.50	508.42	1156.19	10249.58	1024.96
Leyeco II	NPC			567.46	125.80	9.40	336.47	317.39	405.37	405.37	334.88	2502.14	312.77
	EC			153.70	9.30	37.85	40.42	127.39	375.69	375.69	316.29	1436.33	179.54
Leyeco IV	NPC		133.46	181.20	161.20	96.02	211.41	276.29	434.37	323.85	265.85	2083.65	231.52
	EC		371.77	78.00	330.20	417.33	22.30	40.47	25.98	55.51	57.41	1398.97	155.44
Leyeco V	NPC							47.55	113.85	257.85	47.06	466.31	116.58
	EC							188.25	426.30	410.65	460.65	1485.85	371.46
Soleco	NPC					465.00	839.00		953.00	590.00		2847.00	711.75
	EC					367.00	486.00		522.00	462.00		1837.00	459.25
Bileco	NPC								305.56	463.97	262.15	1031.68	343.89
	EC								595.22	263.63	205.09	1063.94	354.65
Samelco I	NPC							347.53	778.58	1261.91	735.51	3123.53	780.88
	EC							123.97	173.94	206.98	75.90	580.79	145.20
Samelco II	NPC			221.46	267.96	242.28		86.84	143.56	414.55	153.58	1530.23	218.60
	EC			27.04	31.43	48.05		30.22	27.76	21.55	38.66	224.71	32.10
Norsamelco	NPC									134.10	149.11	283.21	141.61
	EC									1864.09	1131.43	2995.52	1497.76

Appendix 5.4-2 Power Outage (frequency) in each Ecs

Name of EC	Cause	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total	Average
Leyeco IV	NPC		30	21	30	41	38	33	29	30	31	283	31
	EC		21	20	25	27	22	28	28	28	28	16	215
Leyeco V	NPC							35	53	48	48	184	46
	EC							27	108	140	173	448	112
Samelco I	NPC							265	308	392	351	1316	329
	EC							87	89	120	77	373	93
Norsamelco	NPC									16	21	37	19
	EC									431	391	822	411

Figure 5.6.1-1 Power System Development Map in Visayas Grids



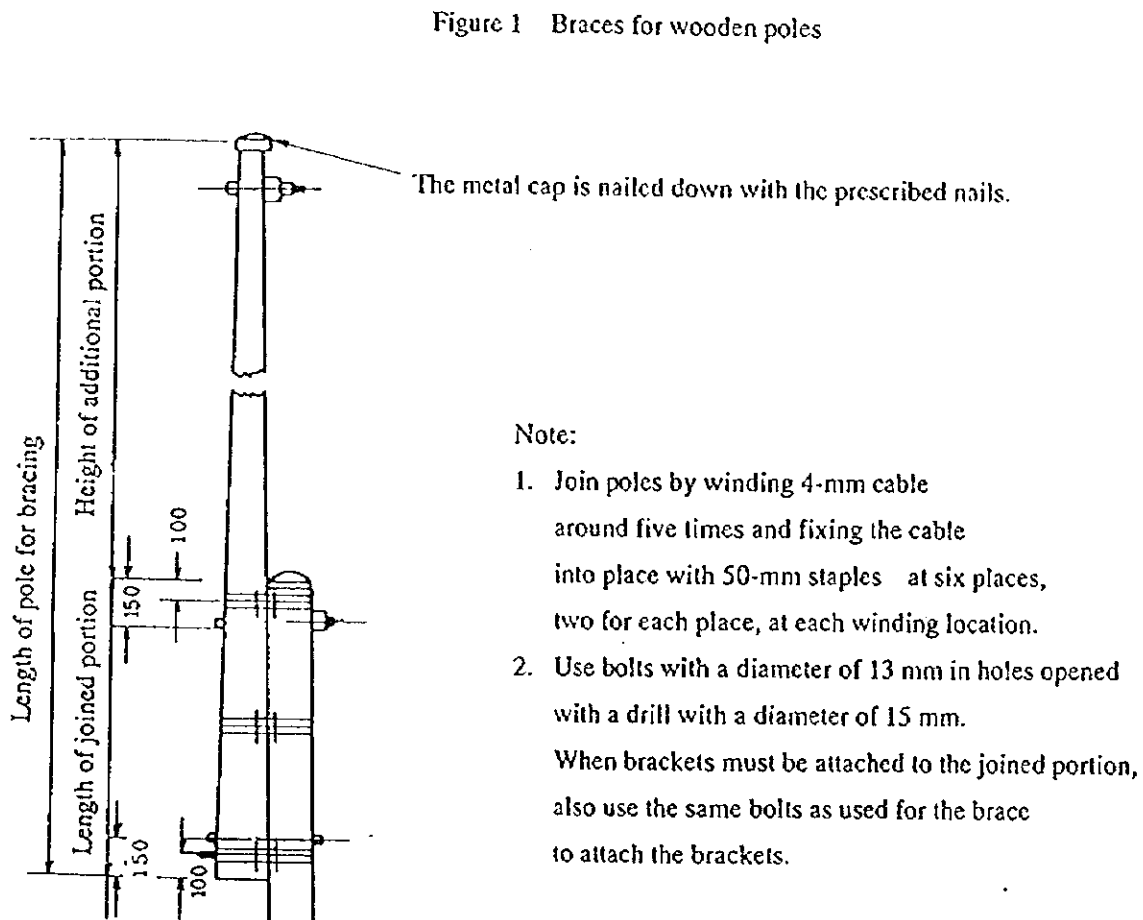
Appendix 5.9-1 Bracing and base reinforcing work

I. Preparations

I. Bracing at the top

(1) Braces for wooden poles

Braces for wooden poles are as shown in Figure 1.



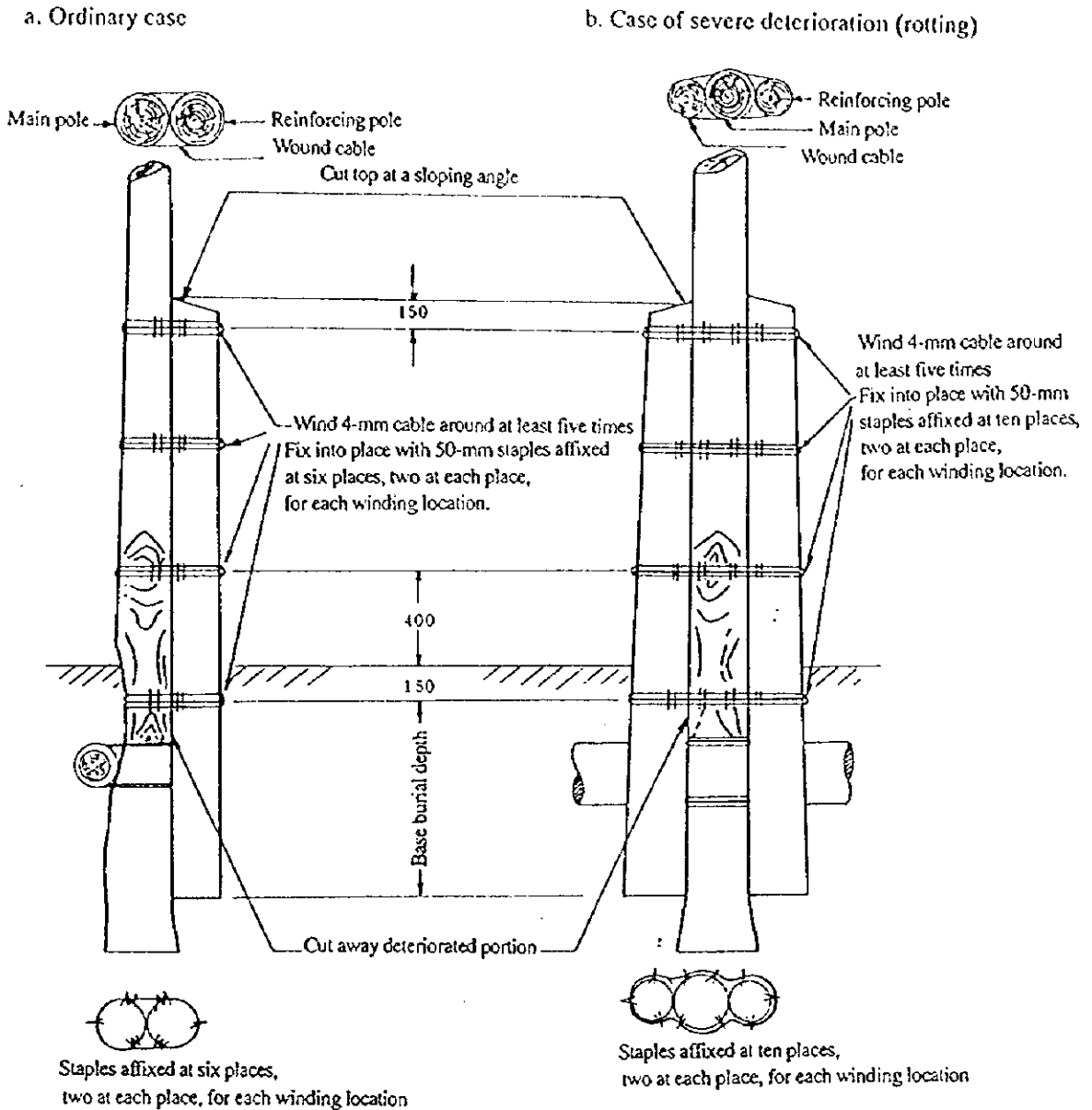
Main supplies

Item	Number
Bracing wooden pole	1
Bolt	2
Zinc-plated cable	
Metal cap	1

2. Base reinforcement

(1) Base reinforcement for wooden poles is as shown in Figure 2.

Figure 2 Method of base reinforcement



Main supplies

Item	Number
Reinforcing wooden poles	1(2)
Zinc-plated cable	-

(2) Standard measurements for base reinforcing work

The standard measurements for base reinforcement are shown in Table 1. The reinforcing pole length and the depth of burial may be increased, depending on the degree of deterioration (rotting) of the main pole.

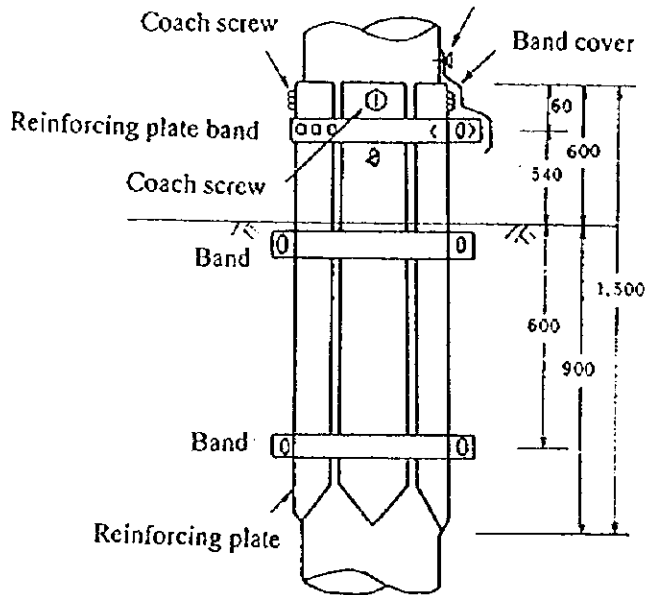
Table 1 Standard measurements for base reinforcement

Existing pole length (m)	Standard length of the reinforcing pole(m)	Depth of burial of the reinforcing pole(m)	Number of places of winding with cable
7 - 8	3	1.0	4
9 - 11	3	1.2	4
12 - 14	4	1.5	5
15 and above	5	1.8	5

3. Reinforcement at the ground contact portion

(1) Reinforcement of wooden poles at the ground contact portion is as shown in Figure 3.

Figure 3 Method of reinforcement of wooden poles at the ground contact portion



Main supplies

Item	Specification number
Reinforcing plate	4
Reinforcing plate band	1
Band cover	1
Band	2
Coach screw	4
Threaded nail to affix rack	1

Appendix 5.9-2 Items of transmission line observation

Part	Item	
Supports (including struts and strut guys)	* Wooden poles	- Rotting - Listing
	* Wooden pole Installation	- Insufficient Installation - Insufficient burial depth
Assembling	* Crossarms	- Rotting, listing, and loss
	* Insulators	- Insufficient number, damage, or improper attachment - Cracking, bending, or rusting of metal fittings - Loose bolts or clamps
Guys	* Separation distance	- Insufficient distance from other transmission or distribution lines - Insufficient height above ground
	* Other items	- Insufficient burial depth - Corrosion or severe rusting of steel core strand wire - Growth of vines, etc. - Insufficient thickness - Looseness
conductors	* Separation distance	- Insufficient distance from building structures, distribution lines, or trees - Insufficient height above ground
	* Faulty cable	- Presence of kinks or damage - Deficient insulation
	* Contact points	- Insufficient number of connectors attached - Damage to sleeves or connectors - Other visible external change
	* Other items	- Improper degree of slackness - Proximity of jumper cable to the crossarm
Aerial ground lines	* Method of installation	- Looseness of bolts for metal attachments - Improper degree of slackness
	* Other items	- Cracking, bending, or rusting of metal attachments

Appendix 5.9-3 Specific measures for assurance of personnel safety in work on 69kV lines.

1) Measures for prevention of electric danger

In work on power transportation facilities, measures must be taken to protect personnel from injury.

a. Determination and role of leader

One person must be selected as leader to exercise direct control over the work. Besides informing all workers of the deadline and substance of the work, the leader must give them an understanding of the work method and procedure. In addition, the following items must be confirmed before the work commences.

- * Whether or not electricity is flowing through the transmission line
- * The posting of supervisory personnel
- * Presence or absence of short-circuit grounding for the work
- * Scope of work

b. Measures for work entailing outage

In addition to the items of confirmation noted above, the following measures must be taken before the work commences.

- * Sure performance of electricity discharge by all persons who may possibly be carrying a residual charge
- * Examination of the presence or absence of electricity, and sure performance of short-circuit grounding

c. Measures for work of resumption of service through lines that had been out

- * Confirmation that workers are at no risk of shock
- * Confirmation of removal of short-circuit ground

d. Measures for work in proximity to charged parts

Some work on transmission lines is performed while adjacent distribution lines are charged. The following measures must be taken in such cases.

- * Installation of enclosure to prevent shocks
- * Attachment of insulated protective gear to the charged line
- * Demarcation of the work site from other facilities

2) Method of demarcating the work site

The work site may be along roads or other places where ordinary citizens are nearby, or adjacent to charged facilities such as distribution lines as noted above. In such cases, special bars or tape must be used for clear demarcation of the work site entrance and exit, the work site proper, and the no-trespassing area.

3) Prevention of danger of falling

Attachment of arms and other parts on transmission line poles involves aerial work that is

accompanied by danger of falling. To prevent falling, workers must wear safety belts and connect the belts to the pole by means of a rope for the duration of the work.

4) Reinforcement of preventive safety measures

Because accidents arise from contact between persons and objects, their prevention demands the erection of measures on each of these sides.

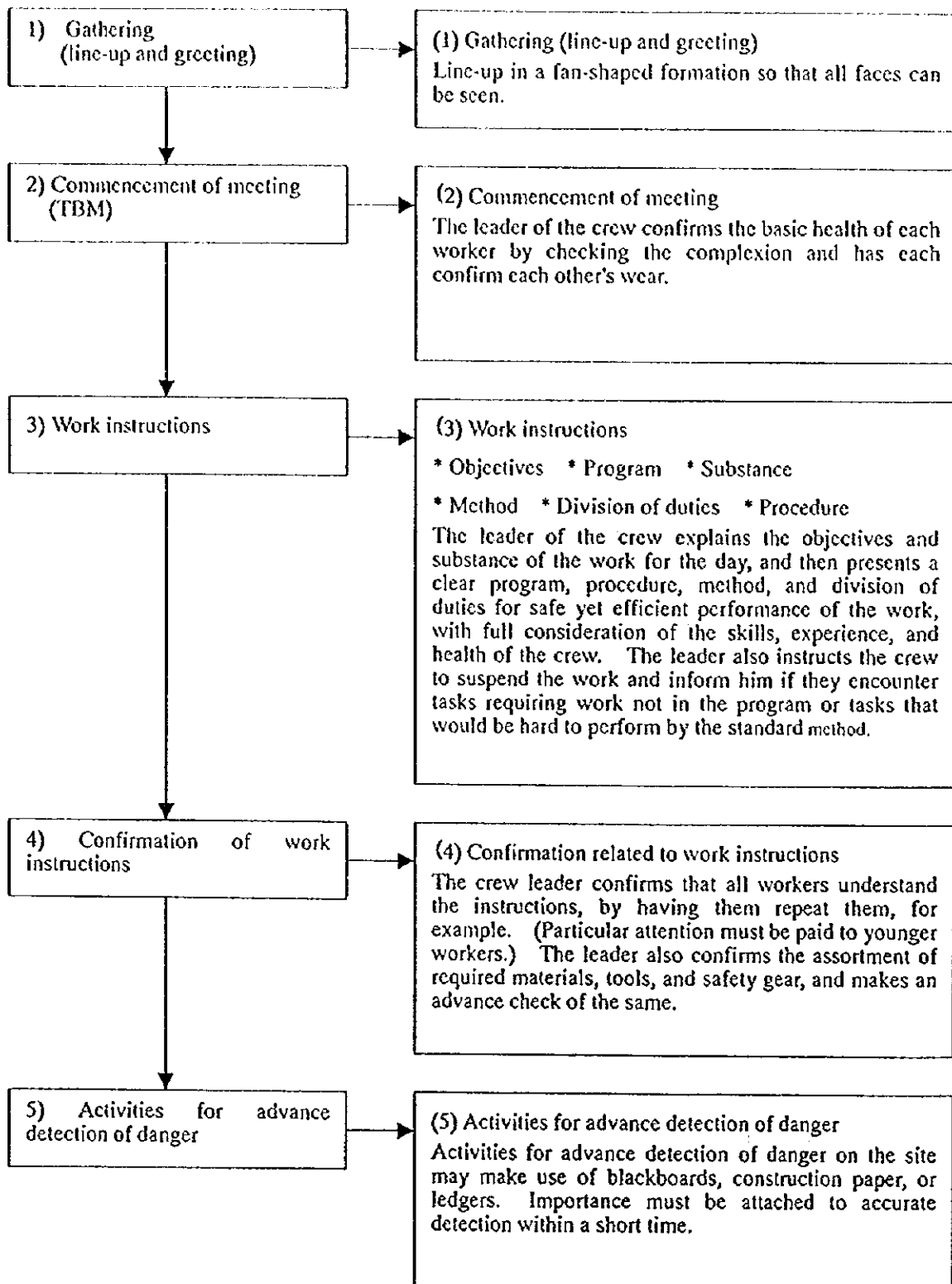
On the side of objects, it is necessary to eliminate circumstances that could invite accidents as regards facilities and equipment, that is, to remove unsafe conditions. On the side of personnel, there is a corresponding need to eliminate acts that could cause accidents, that is, unsafe behavior. However, it is human nature to err, and measures on the personnel aspect should therefore have top priority in safety management. Multifaceted measures must be taken for prevention of human error, including codification of work methods, rigorous control of the basic sequence of acts, and reinforcement of supervision on the site.

In addition, efforts should incorporate the perspective of "room for danger," whereby latent danger is promptly foreseen and precluded. This perspective will help to heighten advance awareness of danger among workers and to make preclusion of the same a habit.

Such advance detection of danger can be realized through on-site discussion before the commencement of the work. At these so-called "tool box meetings" (TBM), workers would foresee danger and devise countermeasures for it, thereby raising the level of safety. The TBM procedure is shown on the following page.

Advance detection of danger is therefore an effective means of ensuring safety. It is consequently vital for workers not only to acquire skill in various types of work but also to increase their capabilities for detection of danger in advance through repeated training in the same.

Outline of the TBM (Tool-Box-Meeting) procedure



Appendix 8.2-1 Evaluation on Management Aspect

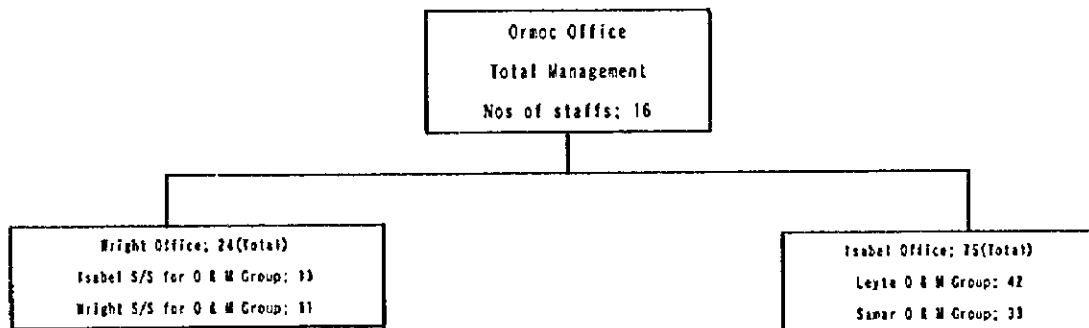
● **Evaluations of the Options in View of Nos. of Staff and Organization**

(1) **Nos. of staff & Organization of the NPC**

According to the existing operation and maintenance organization of the NPC, the operation and maintenance of substations and transmission line facilities in Leyte and Samar is carried out respectively by the Isabel Office and Wright Office. These two offices are totally managed and controlled by the Ormoc Office in Leyte. The general organizations of these offices are as shown in the following charts.

As mentioned previously, Leyte and Samar are located in the Visayas Area and the power facilities therein are managed and controlled by the Visayas Regional Center. Whereas, the Ormoc Office is under the control of the Visayas Regional Center located in Cebu.

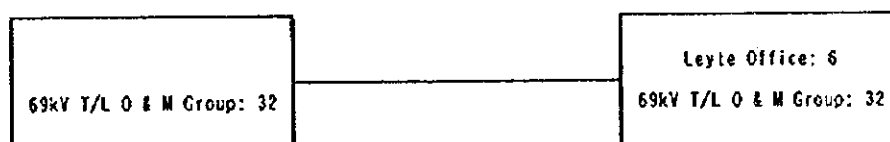
O & M Organization for S/S and T/L of NPC in Leyte and Samar



In contrast to the above, the organizations and number of staffs of the eleven ECs based upon Options 1, 2 and 3 are deemed to be as follows.

(2) **Organizations and number of staffs of the eleven ECs**

1) In the case of Option 1A and 1B, the following organization is recommended for operation and maintenance of the T/L facilities taking into account the situations of operation and maintenance of the existing T/L facilities of NPC and the technical capabilities of the staffs of existing ECs.



Meanwhile, the principle staff formation is as presented below:

Technical staff

Roughly per 100 ckt. km: 1 group

One group consists of

Foreman : 1

Senior line men : 3

Line men : 3

Driver : 1 each and 8 in total

Transmission line distance on Leyte Island = Approx. 440 km: 4 groups (32)

Transmission line distance on Samar Island = Approx. 450 km: 4 groups (32)

The Leyte Island Office will undertake maintenance of the 69 kV T/L facilities existing on Leyte Island as well as management and rationalization of the entire 69 kV T/L facilities throughout the Eastern Visayas Area at the same time.

Total number of staff in the Leyte Island Office: 38 (6 + 32)

Manager: 1

Assistant manager in charge of finance & accounting:

3 (2 in charge of Leyte Island + 1 for overall control)

Assistance manager in charge of technical service:

3 (2 in charge of Leyte Island + 1 for overall control)

Assistant manager in charge of procurement of equipment and materials: 1

Assistant manager in charge of communication service: 2

Staff in charge of computer and clerical service: 2

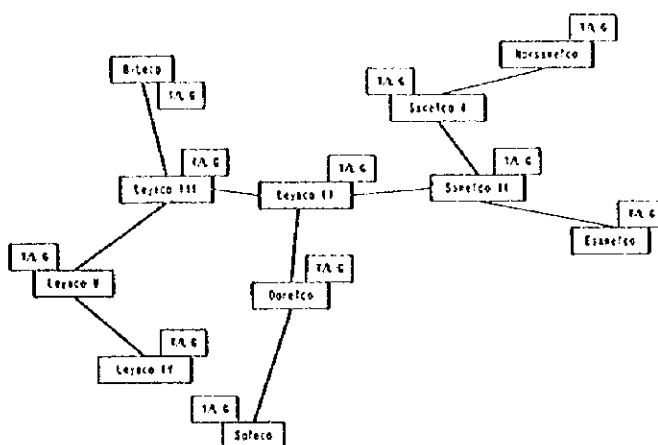
Driver: 1

Guardsmen: 1

Therefore, the total number of the staff of the new transmission cooperative will be 70.

They will be newly recruited.

- 2) In the case of Option 2A, O & M organization for 69 kV T/L (T/L Group) should be established additionally as operation and management department in each existing EC. Thereby, roughly 110 staff should be needed in total for the entire eleven ECs, they will be newly recruited. The general organization chart will be given below:



The principle staff formation of Option 2A is as presented below. (staffs of each EC are one group and 2 office staffs)

One group consists of 8 staffs.

Foreman : 1

Senior line man : 3

Line man : 3

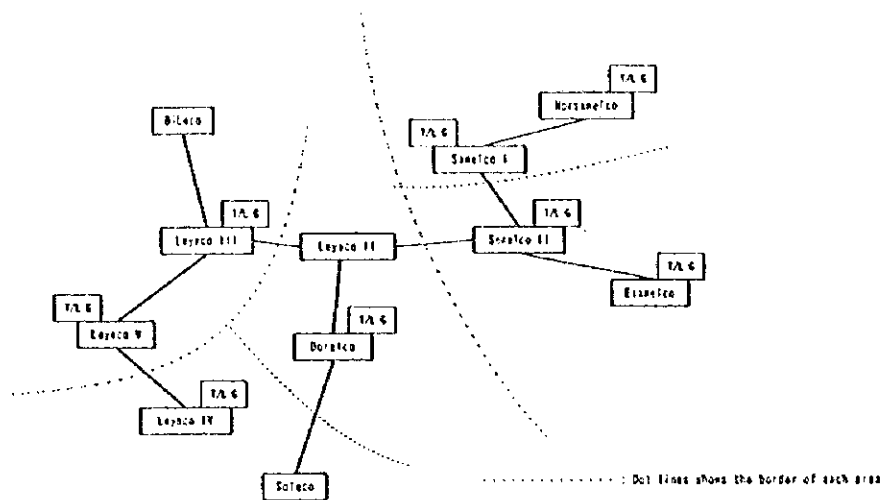
Driver : 1

And 2 office staffs, 10 in total.

Accordingly, additional number of 11 ECs will be 110.

According to Option 2B, several ECs acquiring the 69 kV transmission lines will organize their own transmission line operation and maintenance sectors within their organizations. In case two ECs are to acquire the transmission lines, for example, about 80 staffs, the respectively four Groups, eight in each and six office staffs, 76 staffs in total will be newly recruited.

- 3) In the case of Option 3A and 3B, the electric power supply areas throughout the entire Leyte and Samar districts will be reorganized into five supply areas, and eight groups consisting of 64 maintenance staffs of the 69 kV transmission lines and eight office staffs, 72 in total will be allocated in these five supply areas. A general organization chart therefore is as presented below:



In the case of Option 3A, the groups each consisting of eight maintenance staffs (similarly as in the case of Options 2A and 2B) will be allotted in the respective five power supply areas as follows:

- Area A : 2 groups
- Area B : 2 groups
- Area C : 1 group
- Area D : 2 groups
- Area E : 1 group

Therefore, eight groups consisting of sixty-four transmission line operation and maintenance staffs and eight office staffs, 72 in total will be required. These staffs will be allotted with surplus staffs by merger. Under this study, the district on Samar Island has been divided into two southern and northern areas, while the district on Leyte Island has been divided into the eastern area, western area including Biliran Island, and southern part.

Meanwhile, the areas with the longer distance of 69 kV transmission lines have been selected from among those of the existing ECs employing operation and maintenance staffs.

In the case of Option 3B, each EC taking part in the merger will have to newly establish an organization consisting of eight transmission line operation and maintenance groups with sixty-four staffs, and eight office staffs, 72 in total. The staffs are allocated similarly as in the case of Option 3A.

But according to the number of merged ECs, it may be severe to secure required staffs.

● **Evaluation of the Options in terms of administrative facilities**

The cost and expenses for the office and other facilities have been estimated approximately on a trial basis according to the basic conditions shown below:

- (1) For estimating the land and building cost, it has been assumed that the required building space accommodating 30 - 40 office staffs is 500 m² and the land area required for the building is 1,000m².
- (2) The unit land and building costs have respectively been estimated to be 5,000 and 10,000 Pesos/square meter in the areas on Leyte Island and half the above respective values in the areas on Samar Island.
- (3) The land and building spaces occupied per one staff have been estimated to be 26 and 13 square meters in the areas on Leyte Island and 31 and 16 square meters in the areas on Samar Island, respectively.

Meanwhile, the values of land and building costs estimated for the individual options on a trial basis are presented in the table attached hereto.

Option	Area	Staffs (人)	Space (sqm)		Unit Cost (P/sqm)	Cost (pesos)
Option 1A&1B						16,000,000
	Leyte	38	Land	1,000	5,000	5,000,000
			Build.	500	10000	5,000,000
	Samar	32	Land	1,000	2,500	2,500,000
			Build.	500	5000	2,500,000
			Others			1,000,000
Option 2A					15,000,000	
	Leyte	70	Land	0	-	0
			Build.	1,000	10000	10,000,000
	Samar	40	Land	0	-	0
			Build.	500	5000	2,500,000
			Others			2,500,000
Option 2B					9,000,000	
	Leyte	40	Land	0	-	0
			Build.	500	10000	5,000,000
	Samar	40	Land	0	-	0
			Build.	500	5000	2,500,000
			Others			1,500,000

- Evaluation of the Option in View of Electricity Rates

The detail of option 2A and 2B is as follows.

Presented in the table on the following page is the results of calculating on a trial basis the operation and maintenance cost of the 69 kV transmission line in case the transmission facilities are transferred separately to the respective eleven ECs. In the case of Leyeco II (0.05 P/kWh) and Leyeco V (0.17 P/kWh), the operation and maintenance cost of the 69 kV transmission line is lower than 0.25 in the case of Option 1A and 1B.

In the case of the other nine ECs, the operation and maintenance cost of the 69 kV transmission lines is higher than 0.25 P/kWh in the case of Option 1A and 1B due to the additional transmission cost from Samelco I (0.31 P/kWh) through to Leyeco IV (0.80 P/kWh). Since there is not any 138/69 kV substation within the supply areas of the ECs excluding Leyeco II, Leyeco V and Samelco II, the operation and maintenance cost of transmission lines of the respective ECs across the above supply areas should further be added. Consequently, the transmission cost of the 69 kV should resultantly be raised as listed below:

(Unit: P/kWh)			
Leyeco I	0.63 (= 0.05 + 0.58)	Samelco I	0.74 (= 0.43 + 0.31)
II	0.05	II	0.38
III	0.79 (= 0.05 + 0.74)	Norsamelco	1.27 (= 0.43 + 0.31 + 0.53)
IV	0.97 (= 0.17 + 0.80)	Esamelco	0.95 (= 0.43 + 0.52)
V	0.17		
Soleco	1.16 (= 0.05 + 0.58 + 0.53)		
Bileco	1.37 (= 0.05 + 0.74 + 0.41 + 0.17)		

69kV TL Facility Operation and Maintenance Cost of each EC in Leyte and Samar

(Unit: thousand pesos)

Year:2001

	Doreico	Leyeco II	Leyeco III	Leyeco IV	Leyeco V	Soleco	Bileco	Samelco I	Samelco II	Nossameico	Esameico	Total
1. Revenue	14,231	6,325	9,989	12,881	15,002	10,375	3,240	10,953	10,375	13,846	12,110	119,328
2. Costs												
1) Maintenance *1	2,895	1,011	1,884	2,573	3,078	1,976	276	2,114	1,976	2,803	2,389	22,973
2) Personnel cost(Ave. nos of staff:10 employees) -8,000 pesos per month per employee in 1996 -Increase at a rate of 3 percent annually	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113	12,242
3) Administrative costs (2) Personnel cost x 80%)	890	890	890	890	890	890	890	890	890	890	890	9,794
69kV facility fixed assets balance (year-end) (449 mil. P)	54,688	19,097	35,591	48,612	58,160	37,327	5,208	39,931	37,327	52,952	45,139	434,033
4) Depreciation cost (3.3%)	1,886	659	1,227	1,676	2,006	1,287	180	1,377	1,287	1,826	1,557	14,967
Capital investment	3,338	1,166	2,173	2,968	3,550	2,279	318	2,438	2,279	3,232	2,756	26,496
5) Σ -Depreciation (Capital investment *3.3%)	111	39	72	99	118	76	11	81	76	108	92	883
6) Interest payments on borrowings (12%) (balance of 449 million pesos)	6,789	2,371	4,418	6,035	7,220	4,634	647	4,957	4,634	6,573	5,604	53,880
2. Total costs (1)+2)+3)+4)+5)+6))	13,684	6,082	9,605	12,386	14,425	9,976	3,116	10,532	9,976	13,313	11,644	114,738
3. Profit (revenue - total cost = total cost*4%)	547	243	384	495	577	399	125	421	399	533	466	4,590
4. Sold energy (MWh)	24,327	126,230	13,424	16,002	87,106	19,525	7,985	35,386	24,096	26,253	23,231	403,564
5. Average power rate (P/kWh):(1/4)	0.58	0.05	0.74	0.80	0.17	0.53	0.41	0.51	0.43	0.53	0.52	0.30

*1 : 69 kV facility fixed assets and maintenance costs are calculated by the length of 69 kV T/L for each EC service area.

*2 : Total of 69 kV facility fixed assets with 449,000 thousand pesos is derived based upon depreciation in 2001.

All figures is 2001 base.

- Evaluation in View of Rationalization

Options 1, 2 and 3 have been evaluated respectively in terms of the merits and demerits of centralization and decentralization, namely, the advantages in cost reduction (rationalization) and disadvantages in cost increase (no rationalization):

In the case of Option 1A and 1B, the cost will be increased for recruiting additional staff (about 70 staffs) and building their accommodation facilities of the new transmission cooperative.

On the other hand, the 69 kV transmission facilities owned so far by the NPC are scheduled to be owned by the new transmission cooperative so that there will be no need for the cooperative to pay the transmission cost any more to the NPC.

The load dispatching system across the borders of the respective ECs will be integrated into one system by means of centralization of management and operation of the 69 kV transmission lines. Thereby, it will be possible to eliminate the waste of time for system coordination. Therefore, this option is evaluated to be advantageous over Option 2A and 2B.

In the case of Option 2A and 2B, it will be possible to rationalize the operation and maintenance structure by mobilizing the maintenance staffs mutually for operation and maintenance of both the transmission and distribution facilities. As it will be possible for the maintenance staffs to reach any fault occurrence site within shorter time than in the case of the other options, this option is evaluated to be advantageous over the others because of the possibility to reduce the duration of power outage.

Since the number of staffs should be increased to 110 from 70 in the case of Option 1A and 1B, however, the burden of the personnel cost will be increased nearly by 50 per cent.

Moreover, the equipment and materials should be procured individually by the respective eleven ECs. Therefore, there will be no advantage attained through one package procurement of equipment and materials as in the cases of Options 1A, 1B and 3A.

Furthermore, Option 2a and 2B will also be disadvantageous over Options 1A, 1B and 3A in introducing the required amount of capital since the respective eleven ECs should negotiate separately for acquiring the capital.

Meanwhile, the vehicles for operation and maintenance can be used commonly between both the transmission and distribution sectors.

When the respective eleven ECs is scheduled to be merged into one cooperative in the case of Option 3A, it will be possible for the cooperative to strengthen its bargaining power for acquiring any overseas loan.

In the Option 3B, that bargaining power will be weaker than Option 3A, due to merger of

two or three ECs.

It will be necessary to extend the mobility for covering the entire supply areas on the other hand. For this purpose, the vehicle purchasing cost will be required additionally (eight vehicles for eight groups where one vehicle is required per one group).

Appendix 8.2-2 Assessment of Transfer Options in the Aspect of Facilities and Technology

This section presents an assessment of the options for transfer of 69 kV transmission lines on Leyte and Samar in the aspect of facilities and technology.

The superior voltage systems on Leyte and Samar consist of 230 and 138 kV AC transmission lines. Upon the completion of the 350 kV DC transmission lines now under construction, there will be a trunk transmission system including an interconnection between the islands. The 69 kV transmission lines will play the role of supply lines to the ECs. Upon the transfer, the 69 kV transmission lines will consequently be part of a local supply system including distribution lines and distinguished from the trunk system.

It is the aim of this assessment to determine which of the options for transfer of the 69 kV transmission lines as part of the local supply system will be most efficient and entail the least problems as viewed from the standpoint of facilities and technology.

● Assessment in the Case of Partitioned Transfer

First, let us consider the mode of facility partition on the premise of operation of the lines in a radial system, as at present.

The conceivable modes of partition include partition in terms of supply areas and in units of 138/69 kV substation feeders. These modes would apply to the following options.

1) Option 1B-t: formation of new transmission cooperatives by the strong ECs

Assuming that two new transmission cooperatives would be formed on Leyte, the 69 kV transmission lines on Leyte would be partitioned in units of 138/69 kV substation feeders.

2) Option 2A-w: receipt of transfer of all assets by the 11 existing ECs

Transfer upon partition in terms of the supply areas of the 11 ECs.

3) Option 2B-w: purchase of all assets by the strong existing ECs

The two strong ECs on Leyte could purchase all assets on Leyte, dividing them between them. In this case, the 69 kV transmission lines on Leyte would be partitioned in units of 138/69 kV substation feeders.

4) Option 2B-x: purchase of only some transmission lines by the strong existing ECs

Because only certain lines would be purchased, the others would be the property of the NPC or other utilities. This would naturally result in partitioned transfer.

5) Option 3B-z: amalgamation of some ECs and purchase of some 69 kV transmission lines

The result would be the same as in Option 2B-x.

1) The partitioned transfer of 69 kV transmission lines in terms of EC service areas may be expected to create the following problems.

- A discrepancy could arise in respect of performance of maintenance between the transmission lines supplying power from the power source substations to the EC substations and other transmission lines. This could result in a decline in the condition of lines supplying other companies and, by extension, in service reliability.
- Transmission line cost would have to be allocated in correspondence with the load of use by each EC. The allocation would entail a complicated procedure. In addition, a great amount of labor would have to be expended for adjustment of cost allocations for the portion of new transmission line sections.
- It would be difficult to resolve voltage and power flow problems. For example, there would not be such a great voltage drop among ECs located upstream of the 69 kV transmission lines, but there would be a great drop among ECs located downstream. The downstream ECs would therefore be compelled to take measures to counter voltage drop.

2) Partition in units of feeders may be expected to create the following problems.

- If the Maasin point were to be left open for separate supply to each area from the respective substations, it is doubtful whether power interchange could be smoothly made in response to trouble. As such, effective use of the loop-form power system could become impossible.

It should be added that the following problem could result in the event of looped operation on Leyte and construction of a loop system on Samar in the future.

1) Partition of the 69 kV transmission lines on Leyte island at the point of Maasin (between the Tongonan power station and the Babatngon substation and Maasin) could be expected to create the following problems.

- In case of loop operation, for example, it would be unclear whether the supply to a given EC arrived through the transmission line from Tongonan or that from Babatngon. The settlement of transmission line use fees would therefore become complicated.
- With a loop operation under the current setup of breakers, the clearance sections in the event of trouble would cover a wide range, and this could prevent efficient use of the loop system.

2) Partition in units of feeders of the Wright substation on Samar island, i.e., between the northern feeder and the eastern feeder, may be expected to create the following problems.

- At present, NPC is considering a looping of the 69 kV transmission system on Samar island for the future. However, a partitioning between the northern and eastern feeders before the loop is completed would make it impossible to coordinate facility development for transmission line routes, etc., because different construction plans would be promoted for each feeder. As such, partitioning could jeopardize the future loop plans.

In view of the above, the practical possibility of partitioned transfer is thought to be low, for the following reasons: 1) power facilities would not be handled as a single whole in electrical terms, 2) supply responsibilities would become unclear, and 3) system operation would become more complicated.

- **Assessment in the Case of Blanket Transfer of 69 kV Transmission Lines**

Blanket transfer of the 69 kV transmission lines is thought to hold the following advantages over partitioned transfer, the problems of which were outlined above.

- 1) Blanket transfer would make it possible to operate and maintain all of the 69 kV transmission lines. This, in turn, would enable a uniform quality of power in supply to all 11 ECs. For example, measures for maintenance of voltage (i.e., supply of reactive power) could be taken for all of the lines alike. In addition, it would be possible to ascertain the total power flow distribution and to switch load in the event of overloading of lines.
- 2) The whereabouts of responsibility will become clear. For example, in the case of partitioned transfer, it would be unclear in which sections ground accidents due to contact with trees occurred. In the case of blanket transfer, by contrast, such accidents would be the responsibility of the transmission line owner. The owner would consequently respond to accidents and take preventive measures, and this could be expected to reduce the frequency of outages.

As viewed from the facility aspect, blanket transfer as far as possible is therefore advisable for the purpose of uniform quality of power and clarification of responsibilities.

As used here, the term "blanket transfer" refers to transfer of all 69 kV transmission facilities on Leyte and Samar islands to a single enterprise. However, transfer to one enterprise on Leyte island and one on Samar island could also be considered. This is because the two islands are separated from each other by a strait; the 69 kV systems are not interconnected now and there is little possibility that they will be interconnected in the future as well.

The following is an assessment of options on the premise of blanket transfer. The conceivable options are 1A-s, 1B-s, 3A-y, and 3B-y. These basically pose a choice between establishment of a new transmission cooperative for management and operation of the transmission lines and purchase of the lines jointly by the existing ECs. The assessment is a comparative evaluation of these two options.

The first option (establishment of a new transmission cooperative) is thought to hold the following drawbacks and issues.

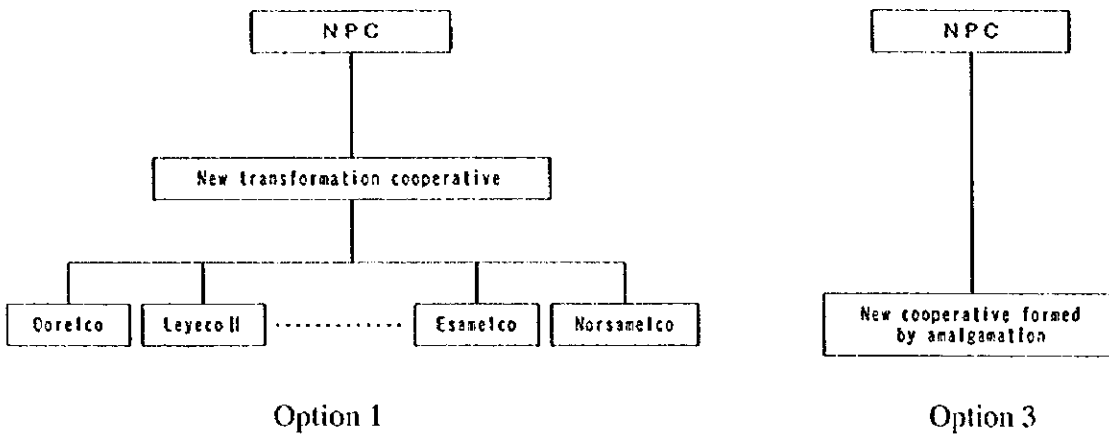
- 1) Ownership of the transmission lines by the new cooperative and the distribution lines by the ECs would mean that facilities of different voltage classes would be operated and managed by different parties. This would make it difficult for draft total plans based on coordination between the transmission and distribution systems. Furthermore, the transmission system planners would have to be constantly mindful of the demand trend in the distribution system and reflect the same in the transmission plans.
- 2) This option would rule out unified system operation. As shown in Figure, for example, the chain of instruction for system operation would have three layers: the NPC, the new transmission cooperative, and the ECs. This would result in procedural complexity. Instructions from the NPC to operate the ABS would require prior confirmation of the condition of the EC distribution system and the status of the ABS at 69 kV substations.

The second option (i.e., Option 3, maintenance and operation of transmission lines by the amalgamated ECs) would resolve the shortcomings and issues associated with the first option, as follows.

- 1) Because the same party would own both the transmission and distribution lines, transmission and distribution plans could be prepared by the same section. As such, plans could be made with an overview of the entire transformation and distribution system. It would also be possible to plan joint use of transmission and distribution lines.
- 2) System operation could be unified. For example, assembly by a single section of information on the status of work on the transformation and distribution systems and of switches would enable prompt reaction to operating instructions from the NPC.
- 3) Maintenance work could be rationalized, since the same personnel could perform maintenance for transmission and distribution lines, and simultaneously.
- 4) Operation of the transmission and distribution system by the amalgamated ECs would enable establishment of a new 138 kV substation in the demand site close to the area border. This would bring a reduction of the power loss caused by supply of this site by low-voltage distribution lines.
- 5) In addition, the amalgamation would facilitate power interchange through distribution lines,

and help to resolve the current supply of power through distribution lines over long distances. This would result in reduction of distribution line loss and correction of voltage drop.

Figure Diagram of organization for system operation in options 1 and 3



As described above, even in the case of blanket transfer of the 69 kV transmission lines, a gap arises in respect of relative superiority depending on whether it is possible to achieve greater coordination with the distribution system in planning and maintenance and whether the configuration of the operation can be simplified.

In sum, Option 3 is thought to be preferable to Option 1 because it enables greater efficiency in planning and maintenance and positions the ECs directly under the NPC in the chain of instruction.