TRUK STATE'S ELECTRICAL SYSTEM

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INTRODUCTION

Over the past years, Micronesia has gradually entered the modern world. Along with this process came the introduction of several advanced technologies. As these newly instituted technologies kept flowing into our islands each year, electricity became a common need for their operation.

When electricity was first initiated on Moen, it only extended to Iras and Mwan villages. Besides this electricity provided by the government, a few houses in various villages had their own generators. It was not until last year that the government started to extend power lines around the island. At present, the electrical poles dot most of Moen, leaving only a sparsely populated stretch of 7 to 8 miles on the northwest side of the island.

Since the installation of electricity could be used for economic development but at the same time can be used for political needs, it makes an interesting topic for investigation. Our initial goals in this project were to present a general history of Truk electrical power, describe the operation and costs of electricity at present, and bring out some problems regarding power production. Furthermore, we examined the impact on the different families who use electricity, tried to find out the reasons for the decision to extend electricity, and analyzed the current and future demands for electricity.

To fulfill the objectives of this paper, we conducted interviews with some government officials working in the field of electricity, different owners of stores and houses using electricity, and certain members and leaders of the Moen Community. We also obtained information concerning electricity from reports and statements from the Micronesian Seminar library and Truk State Planning office. We would like to thank all those who spent time with us to make this paper possible.

GENERAL HISTORY ON TRUK POWER

In the early years of the Japanese administration, electricity, mainly for the Japanese Headquarters, was introduced in Truk for the first time. However, Japan's mandate came to an end, giving way to the Americans. During the early American administration, electricity was supplied to the government offices and some private homes, mostly for Americans working for the Trust Territory.

Yet, beginning in 1963, electricity rapidly expanded. A diesel electric power plant was purchased by the Truk government. This plant had a capacity of 750 kilowatts and generated an average of 240,000 kilowatt hours a month. The electricity produced at this time was distributed through some seven miles of primary lines and secondary lines which fed into some 160 government and private buildings. Some of these buildings were the hospital, Truk High School, communications stations and various trading companies.

In 1965 the state increased the capacity of the plant to 1,000 kw, and again in 1970 the plant's capacity was increased to 1500 kw. By 1970 the power plant generated an average of 285,000 kilowatt hours a month, which was distributed through some 10 miles of primary and secondary lines feeding 210 government and private buildings. In 1971, power lines reached as far as Continental Hotel at Southfield. The capacity of the plant increased to 1600 kilowatts. Presently, the power plant has a capacity of 4800 kw and serves an estimated 736 customers.

During all these years, Trust Territory funds, Congress of Micronesia funds, U.S. Department of Interior grants and U.S. categorical grants covered the costs of labor and electrical equipment. Some Capital Improvement Projects funds in the past were also used. However, information regarding the accurate amount of grants and costs of labor and equipment were difficult to obtain and are probably nonexistent.

A major difficulty in doing this study was the lack of reliable data. Most users are not metered and few receive and even fewer pay utility bills. Therefore, few records exist and those that do are poorly kept. At times officials were reluctant to speak.

GENERAL ELECTRICAL ENERGY SYSTEM

At present, there are approximately 13 miles of operating electrical lines serving an estimated 736 customers. In the distribution of electricity, there are four main feeders which

serve the following areas: (1) the area beginning with the hospital and all of Nantaku, a residential area mainly for government workers, (2) the area beginning with the state government building and extending through Tunnuk's valley to St. Cecilia, (3) the area beginning with the power plant and extending out to the business center around Nepukos all the way to Continental Hotel in Southfield, and (4) the area beginning with Iras and extending out to Xavier High School in Sapuk(See Map I). Electricity is on twenty-four hours a day with four generators operating at day-time and three at night.

This load is supplied by a diesel (#2) fueled power plant rated at a capacity of 4800 kw. There are four 800 kw and one 500 kw engine generators, all mid speed Caterpillar diesels. In addition, there is a low speed 1100 kw Nordberg diesel. Allowing for one machine down and one for standby, the power plant has a firm capacity of 2900 kw.

Truk's state's peak electrical demand is 1900 kw, only equal to 65% of the firm capacity of the plant; Hence, there is a significant excess capacity. This peak demand occurs in the mid-morning and mid-afternoon. The weekend/holiday loads are considerably less (1300kw) owing to the government sector being off work. (See Graph I)

INITIAL COSTS (See Table I)

In the appendix, we listed the initial costs of building the power plant and its distribution system; further, based on inflation rates and life spans, we calculated capital recovery costs which represent average annual replacement costs. Obviously, this is a very expensive system to build ($3.2 million) and will be a very expensive system to replace as it gets old ($415,506 each year on average over its life span).

PRODUCTION AND USE OF ELECTRICITY (See Table II)

The major users of electricity can be categorized in four sectors:

Residential	273,360 kwh/month
Commercial	254,334 kwh/month
Government	173,800 kwh/month
Industrial	47,000 kwh/month

Electricity can be used for three economic activities: consumption, marketing, and production. Electricity in residential and government sectors is used primarily for consumption such as air conditioning, lighting, and pumping water. In the commercial

sector, electricity is used mainly for marketing such as refrigeration of food for sale. Electrical use in the Industrial sector is primarily for production such as freezing of fish for export or ice-making to refrigerate the holds of local fishing boats. In this way 60% of electricity is used for consumption, 34% is used for marketing and only 6% is used for production.

The totals given for all sectors' use are only estimates. Approximately 204,723 kwh/month or 19.3% of the grand total of electricity produced are unaccounted for. It is impossible to get hard statistics since a large number of users of electricity (i.e, all of the government offices) are not metered.

COSTS AND REVENUES (See Table III)

The actual operation of the power plant proves even more that this system is very expensive to run. Annual costs of fuel and lube are about $1.5 million, while annual labor costs are about $71,000. These items result in a total cost of $1.6 million. The utility department of Public Works handles all the billing for electrical usage. For private homes and church institutions, they charge 6¢/kwh for the first 1,000 kwh and 9¢/kwh thereafter. The commercial sector pays 10¢/kwh and those living in government housing do not pay if they consume less than 1000 kwh. Due to many unpaid bills and many who are not billed, the total amount of revenues collected ($147,000) makes only a small contribution to the cost of electricity. The large deficit of about $1.4 million annually is subsidized by the state government.

In this section, there are three ways to look at the costs per kilowatt-hour of electricity. They are the actual, budgeted, and real costs/kwh. The actual cost/kwh is based on the money directly spent to produce electricity. The budgeted cost/kwh represents the money budgeted for utilities which corresponds with the government's estimation of electrical costs/kwh given in Energy Plan for Truk State. The real cost/kwh is based on the money that should be spent to produce electricity when proper maintenance is paid for.

The actual cost to produce electricity is 12.5¢/kwh. The budgeted cost however, is 17.1¢/kwh (close to the figure reported in five-year energy plan). Budgeted costs are higher than the actual costs due to high salaries in the bureaucracy and other Public Works activities, such as water and sewerage, not directly involved in the production of electricity. It was impossible to get the complete breakdown of the budget for Public Works due to poor records.

Based on life spans and interest rates, we calculated the annual replacement costs needed to secure worn out equipment. The annual replacement cost ($415,506) plus normal operating costs divided by the total kilowatt-hour produced in a year result in a real cost of 15.8¢/kwh. This cost is extremely high compared with the U.S. national average of 5¢/kwh.*

Since Moen's electrical needs are small, only small scale production using diesel generators is feasible. Unfortunately, in energy production, the smaller its scale is the higher are the unit costs of production. Moen's electrical system, due to its small scale production, is technologically inefficient. It becomes impossible to produce electricity anywhere near the costs found in the U.S. An added problem is that apparently not enough funds are allocated to maintenance while funds are directed to bureaucratic jobs.

Due to problems of bookkeeping, we estimated a hidden budget of about $260,700. This is the actual cost of electricity used by the government sector. None of this is charged to the government offices which use it, but hidden in the budget of Public Works. The main source of income for the electrical system, is the government, which pays 91% of the actual costs to produce electricity.

*1979 U.S. national average Electric rate, U.S. Department of Energy.

MAINTENANCE

In past years, Truk had a very poor maintenance record for its power plant. Mechanics from distant places like Saipan were called in to repair broken down generators and other mechanical failures that the Trukese could not handle. It was not until 1977 that a new generation of better trained Trukese mechanics took over the power plant, creating a lesser dependency on outside help. But carelessness continued, resulting in crippled generators caused by blocked up valves from unfiltered fuel. Often the crew forgot to check generators and before they realized it, genetators which were supposed to last a long time broke down. Lack of proper maintenance might have been the major cause that has put one 500kw CAT diesel generator completely out of operation.

PRESENT USES OF ELECTRICITY (See Table IV)

Before, electricity was mainly used for lights; however, its quick progress has given way to other electrical items ranging from heavy water pumps to stereos. In Truk, the overall major use of electricity goes into refrigeration, air conditioning and cooking. These three uses alone consume 71.5% of total monthly production.

The major uses by each sector are as follows:

Sectors	Used for	% of total consumption
Government	Air conditioning	36.7 %
	Water pumps	36.2 %
Industrial	Refrigeration	100 %*
Commercial	Refrigeration	69.5 %
	Lights	23.8 %
Residential	Air conditioning	30.9 %
	Cooking	29.0 %
	Lights	12.8 %

The residential sector, however, is divided into two parts: government and private housing. The government housing, homes for people generally with higher income, pays less and consumes more electricity. Average consumption in government housing is 979 kwh/month, while in private housing it is 400 kwh/month. This is due in part because for government housing, the first 1000 kwh/month of electricity is free. Government houses tend to use electricity more for air conditioning and water heaters, while private houses tend to use electricity for more basic needs of cooking and lighting.

*See Table IV, Note #2

EFFECTS OF ELECTRICITY ON THE ECONOMY (See Table V)

For any nation to gain a healthy, self-supporting economy in the modern world, the exports and imports have to be balanced. Truk supposedly relies upon its electrical production as one of the cornerstones for its economic development; however, the actual case is quite different.

Electrical production in Truk creates an annual trade deficit of $1.7 million. In effect, Truk loses three times as much money to the outside world in producing electricity as it earns from the outside world in selling copra--Its number one export.

Exports and Imports due to Electrical Power (FY 1981)

IMPORTS		EXPORTS	
Fuel & Lube	$1,521,090	Fish products	$197,000
Consumer goods	400,000		
Total imports	$1,921,090	Total exports	$197,000
Trade deficit	$1,724,090		

DECISIONS TO EXTEND ELECTRICITY

It was not until last year that the Truk government began to expand the installation of electricity on Moen. Previously, government electricity had been centered around Iras and Mwan. To find out why the government extended electricity, our group interviewed several people with different occupations from various villages on Moen.

The decision to extend the electrical lines originated in the needs of the citizens. Many citizens, mostly those running small business around the island and others who wanted to electrify their homes, requested the government to extend electricity. As one interviewee said, "A large number of people from distant villages possesed equipment that needed electricity; therefore, they asked the government to extend installation of electricity."

In the government, elected officials have the power to decide the physical infrastructures of Moen. To attract the votes of the citizens, elected officials promised the people to extend electrical lines. One of the interviewees replied to our question by saying, "When the lieutenant governor was running for the position, he promised to extend electrical lines if the people choose him." Another interviewee explained it by pointing out an example, "Now the election time is approaching and the governor extended electrical lines in order for the people to re-elect him." At least in the public mind, there is a strong connection between supplying electricity and getting elected. As a consequence, the major reason state officials extended power lines was to gain the votes and support of their constituents.

EFFECTS OF ELECTRICITY ON PEOPLE

In order to obtain some essential information regarding the impact of electricity on family routines, our group interviewed ten families

out of a total of twenty houses connected to the public power from the recently wired villages of Peniasene, Penia, and Sapuk.

In Truk, electricity has had great effects on the people for the past twenty years or so, as is still apparent today. From the three villages surveyed, all the families stated, "Electricity has brought many changes into our family routines. Before, sunset was the deadline of a race between us and time." In other words, all the work that required light had to be done before darkness. However, the problems before the expansion of electrical lines are now resolved and a day's house work can be done at night with the glimmering rays of a few light-bulbs.

Stores that used to be closed at night are now opened until mid-night. The installation of electricity into several stores has stretched business hours and made some of the goods more palatable. As one of the store owners remarked, "At the present time, my store is open until midnight and I sell cold drinks."

The possesion of electricity appears not to be a problem; in fact, it is an advantage. Five of the families interviewed had formerly used generators, and all commented that they are spending less money now that they are tied into government power.

Aside from the changes in costs, one house owner claimed that by having electricity in his house he had bought a T.V. set, which had helped in tightening the family relationship. Formerly the children left the house right after dinner, but now all the family members sit and watch T.V. together. He felt the family is much closer now because sometimes during or after an interesting show, they would spend time discussing and asking each other questions about certain parts of the show. Before there wasn't any chance to talk with his children because they were not in the house.

Though the introduction of electricity into these villages is new, it has given these villagers expectations of a better lifestyle in the future. One woman confided her dreams to us, "To cook dinner, all I will have to do is fill the oven with food and I will be free to do other things while waiting for the food to cook. Now, I have to spend time gathering firewood and I always have to be around the fire to check the cooking." As one interviewee said, "Electricity is an infant child for us, but the dreams of buying more home appliances will soon become a reality."

FUTURE DEMANDS FOR ELECTRICITY

There is the possibility of some increasing demands for electricity in the government and commercial sectors. No major expansion on Moen is expected in industrial and residential uses.

In the government sector new water wells and sewers as well as additional water systems are being constructed. There will be twelve new sewer systems altogether with an electrical load of 20,000 kilowatt hours a month. The Wichen/Pou water system has been planned to produce 600,000 gallons of water each month, requiring approximately 30,000 kwh/month. The government sector is expected to increase its use in the near future by 50,000 kwh/month or 29%.

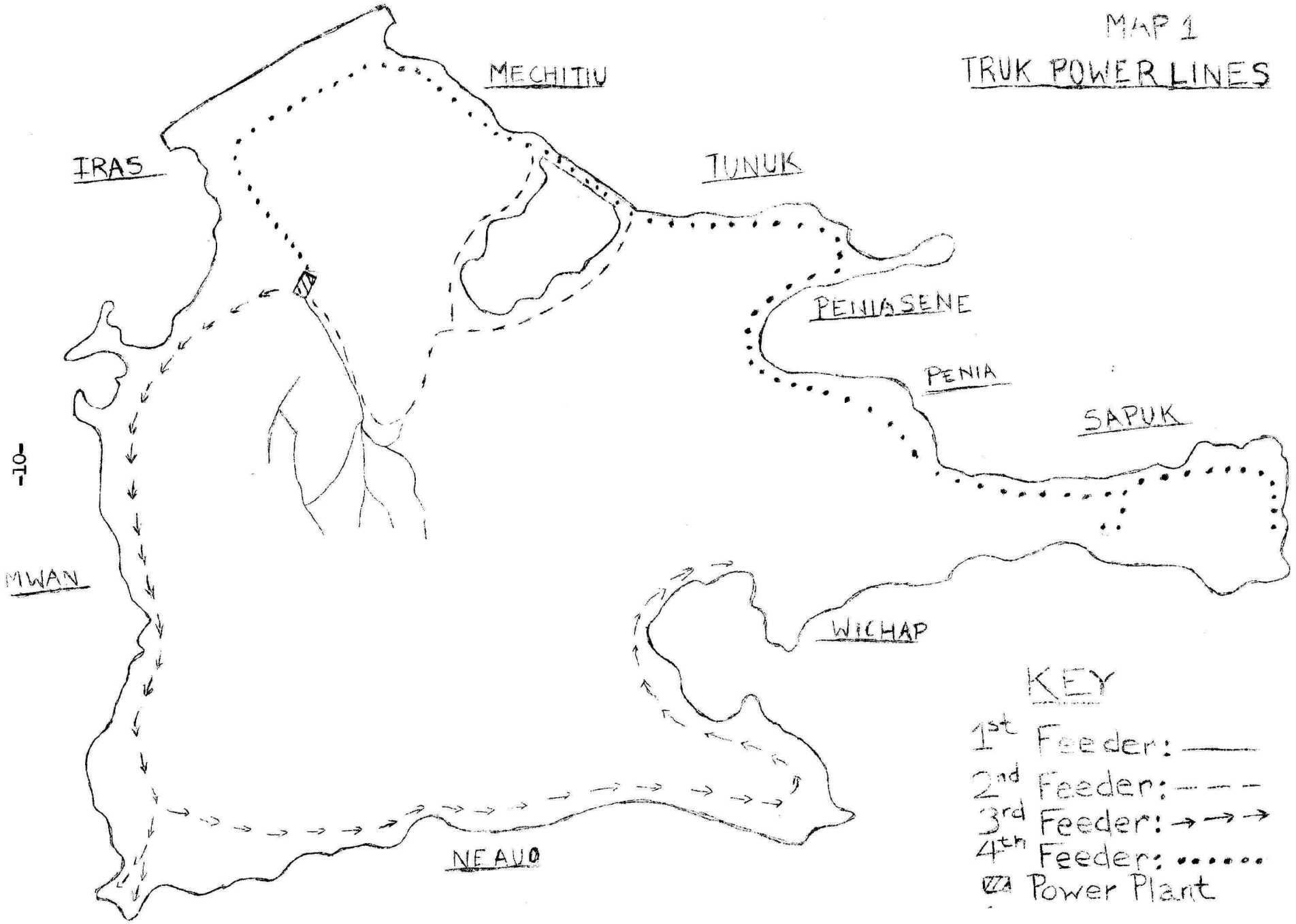
In the commercial sector, Truk Trading Company's plans for expansion may well require an additional electrical load of 26,000 kwh/month. Therefore, the commercial sector is expected in the near future to increase its use by 26,000 kwh/month or 10%.

In the industrial sector, a marine transfer dock is being built on Dublon. On Moen there is the possibility of copra processing plant.

Expansion in the residential sector is based on electrical lines that have recently reached distant villages like Sapuk. Last year there were 327 people on the waiting list to be hookedup. As of the beginning of 1982, the waiting list had only 14 people remaining. Apparently, there will be few additions to the residential sector.

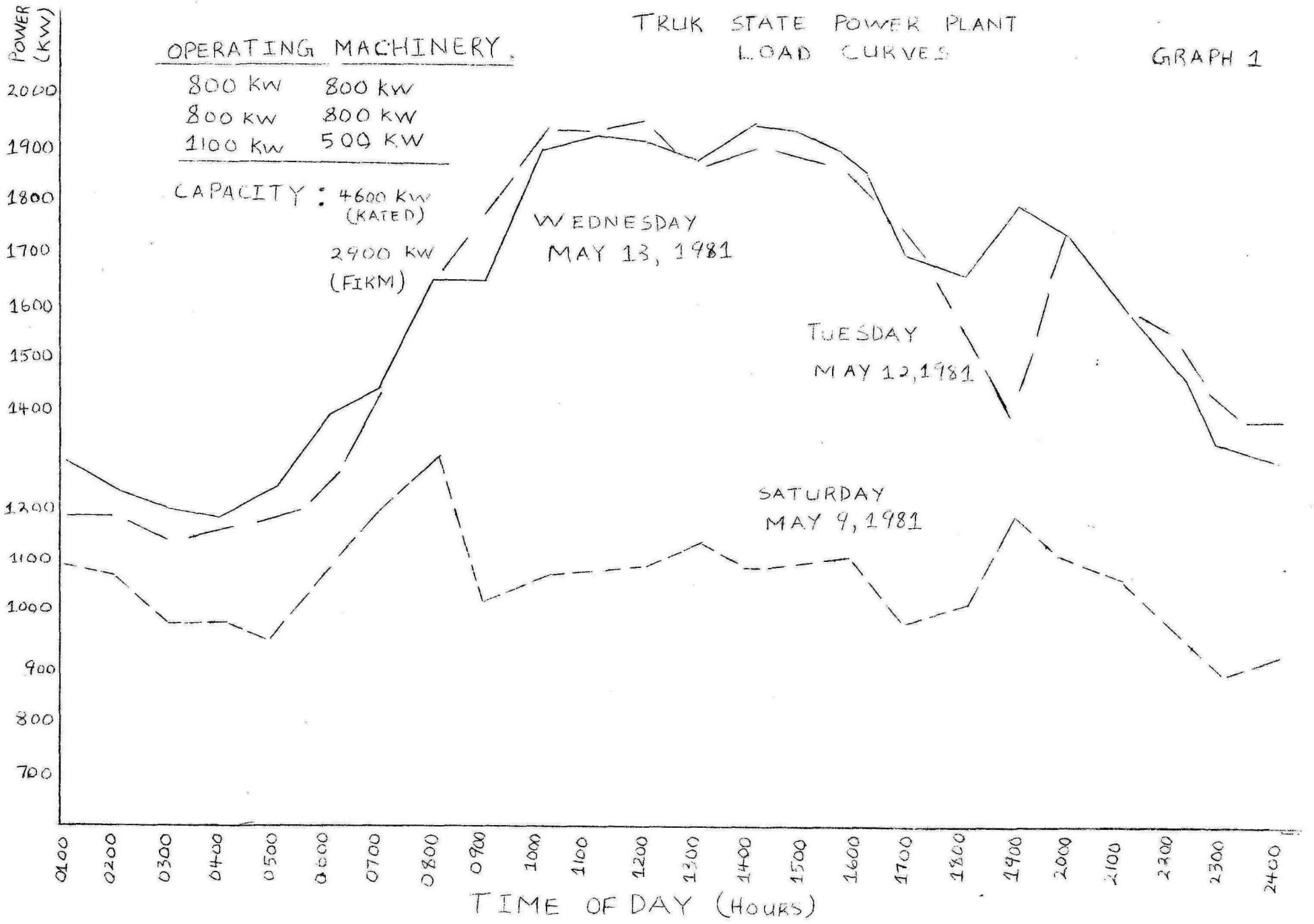
CONCLUSION

As time passes by, Truk becomes more and more a part of the modern world, and electricity is one of the few major advantages that gives Truk a touch of the modern world. For the past years, Truk has been relying on foreign aid to pave the way toward its modernization. This foreign dependency will always remain unless Truk itself builds up its own economy to supply its own needs.


MAP 1
TRUK POWER LINES
MECHITIU
IRAS
TUNUK
PENIASENE
PENIA
SAPUK
MWAN
WICHAP
NEAUO
KEY
1st Feeder: ——
2nd Feeder: — — —
3rd Feeder: → → →
4th Feeder: ……
Power Plant

TRUK STATE POWER PLANT
LOAD CURVES

GRAPH 1



APPENDIX-ECONOMIC ANALYSIS OF TRUK ELECTRICAL POWER SYSTEM

TABLE I

A. Initial Costs

Items		Costs	Estimated life span[5]	Capital Recovery costs[6]
Generators[1]	500kw	61,247	17 years	$10,920
"	500kw	61,247	17 years	$10,920
"	800kw	69,329	17 years	12,361
"	800kw	69,329	17 years	12,361
"	800kw	69,329	17 years	12,361
"	800kw	69,329	17 years	12,361
"	1100kw	95,000	25 years	16,026
Power Plant building[2]		800,000	30 years	133,360
Power Poles(236)[3]		283,000	15 years	51,958
Wires(Electric wires)[3]		780,000	30 years	130,026
Transformers[3]		70,000	15 years	12,852
Installation Costs[4]		730,000		

Total initial costs $3,157,810

Total capital recovery costs $415,506

NOTES:

1. Generators-Data based on aquisition cost that is recorded in RPPM office in Truk State.
   -1100kw generator's cost is estimated by the per kw costs of 800kw generators since no records are available.
2. Power Plant building's cost is the minimum cost given by the Director of Public Works, Truk State.
3. Costs of poles, wires and transformers are those given by the Director of Public Works, Truk State.
4. Installation costs are estimated to equal 30% of equipment costs.
5. Estimated life spans are those given in Eugene L. Grant, "Engineering Economy" in Water-Resources Engineering by Linsley and Franzini, McGraw-Hill, 1972, page 381.
6. Capital-recovery cost is average annual replacement costs based on life span of the equipment and the interest rate needed to secure or to get

funds to replace worn or used machinery & equipment. The interest rate used in calculations is the prime lending rate of Feb. 9, 1982, of 16.5%. This percentage underestimates recovery costs(Capital-Recovery Costs) since actual commercial interest rates are higher than the prime interest rate. Commercial interest rates in Truk are currently 18.5%.

B. PRODUCTION, COSTS, AND REVENUES

TABLE II

I. Production and use of Electricity[1] (March 1981)

1. Government Sector:	Electrical use(kwhrs/month)
Water pumping system	44,000
Government offices	38,000
Hospital[2]	30,000
Communications[2]	26,700
Sewage Treatment plant	19,000
Radio Station	8,600
Truk High School	6,000
Weather Station	1,500
Total Government Sector	173,800
2. Commercial Sector:	
Private business	224,334
Reefer Plant Storage[2]	30,000
Total Commercial Sector	254,334
3. Industrial Sector:	
R & D Reefer Plant[3]	36,000
Fisheries Coop Reefer Plant[3]	11,000
Total Industrial Sector	47,000

4. Residential Sector:

Government housing	59,738
Private housing[4]	213,622
Total Residential Sector	273,360

5. Totals:

Total kwhrs for all Sectors	748,494
Electricity Unaccounted for	204,723
Electricity lost in system[5]	105,913
Grand Total	1,059,130

TABLE III

II. Costs and Revenues[6]

1. Actual Costs and Revenues

Costs(FY '81)		Revenues(FY '81)	
Fuel & Lube[7]	$1,521,090		
Workers[9]	70,720	Utility bills[7]	$147,000
Other Costs[10]	0		
Total Costs:	$1,591,810	Total Revenues	$147,000

-Deficit(To be covered by Government subsidy) $1,444,810

-Actual Cost per kw hour[11] 12.5¢
-Actual subsidy per kw hour 11.4¢

2. Budgeted Costs

Budget of Department of Public Works(FY '81 for utilities only)

Salaries[8]	$245,000
All others[8]	1,924,000
Total:	2,169,000

-Budgeted Cost per kwhr[12]: 17.1¢

3. Real Costs(FY '81)

Fuel & Lube[7]	$1,521,090
Workers[9]	70,720
Other Costs[13]	415,506
	$2,007,316

-Real cost per kw hour[14]: 15.8¢

NOTES:

1. Data for production and use of electricity is taken from "Present Electrical Energy Usage By Sector," March 1981 from State planner, Truk.
2. Communications & Hospital and Truk Reefer Plant electrical use data taken from "An Energy Plan for Truk State,"(1981) State Planner, Truk.
3. Data based on on-site inspection (Feb. 1982)
4. Private housing electrical use data based on the sum of energy used by those paying utility bills as given in "Present Electrical Energy Usage By Sector," plus our estimation of use by private homes not paying utility bills. We estimated that 234 connections were not accounted for. Average electrical use by private homes is 419 kwhrs/month based on those paying bills. Our estimation of non-metered use equals 234 connections times 419 kwhrs/month= 98,046 kwhrs/month. Total private housing=115,576 kwhrs/month (metered use)+98,046 kwhrs/month(non-metered use)=213,622 kwhrs/month. This probably underestimates private housing use of electricity because those not paying utility bills probably consume electricity at a higher rate.
5. Data is from Government report "Present Electrical Energy Usage By Sector," but seems to be quite large.
6. Certain Government Officials were hesitant to give this data in any detail.
7. Data from Administration Officer (Public Works).
8. Data from Budget Office.
9. Estimation based on 17 workers employed in power plant at $2.00 an hour assuming 40 hours work a week.
10. Unable to get an estimate of money spent on Maintenance and Repair as well as any other miscellaneous costs, we suspect very little is spent in this area and have assumed a value of zero. This is obviously an underestimate, but fuel costs surely dominate total costs. So by leaving out this expense, we probably do not underestimate total cost by a significant amount.
11. Actual costs per kwhr represents the actual money spent to produce electricity in our estimation.
12. Budgeted costs for kwhr represents the money budgeted for utilities. This corresponds with the government's estimation of electrical costs per kwhr, given in "Truk State Electrical Energy system."

from State Planner Office (Truk State). It represents an over-estimation of costs since a significant amount of these salaries are for expensive bureaucratic officials and to cover other costs not related to the power plant.

13. Other costs-This number is set equal to the total Capital Recovery costs, given in Table I. It represents the money that should be spent on an average to repair and eventually replace worn out equipment.

14. Real cost for kwhr estimates the amount of money that should be spent per kwhr to maintain an efficiently operating system.

C. Present uses of Electricity[1]

TABLE IV

1. Totals for Truk State (kwhrs/month)

Refigeration	243,108	32.5 %
Air conditioning	208,722	27.9 %
Cooking	83,110	11.1 %
Heavy equipment(Water pump)	63,000	8.4 %
Lighting	56,616	7.6 %
Communication equipment	33,215	4.4 %
Water heaters	24,743	3.3 %
Washers and dryers	21,226	2.8 %
All other	14,754	2.0 %

Total = 748,494

2. Uses of Electricity by Government Sector (kwhrs/month)

Air conditioning	63,700	36.7 %
Heavy equipment(Water pumps)	63,000	36.2 %
Lighting	9,080	5.2 %
Communications equipment	33,215	19.1 %
All other	4,805	2.8 %

Total = 173,800

3. Uses of Electricity by Commercial Sector (kwhrs/month)

Refrigeration	176,714	69.5 %
Air conditioning	60,570	23.8 %
Lighting	12,563	4.9 %
All other	4,487	1.8 %

Total = 254,334

4. Uses of Electricity by Industrial Sector[2]

Refrigeration	47,000	100 %

Total = 47,000

5. Uses of Electricity by Residential Sector (kwhrs/month)

Air conditioning	84,452	30.9 %
Cooking	79,260	29.0 %
Lighting	34,973	12.8 %
Water heaters	24,743	9.1 %
Washers and dryers	21,226	7.8 %
Refrigeration	19,394	7.1 %
All other	9,312	3.3 %
(Rounding off error included)		

Total = 273,360

6. Uses of electricity by Government Housing (kwhrs/month)

Air conditioning	24,851	41.6 %
Water heaters	15,771	26.4 %
Cooking	8,124	13.6 %
Washers and dryers	6,272	10.5 %
Refrigeration	2,091	3.5 %
Lighting	1,434	2.4 %
All other	1,195	2.0 %

Total = 59,738

7. Uses of Electricity by Private Housing (kwhrs/month)

Cooking	71,136	33.3 %
Air conditioning	59,601	27.9 %
Lighting	33,539	15.7 %
Refrigeration	17,303	8.1 %
Washers and dryers	14,954	7.0 %
Water heaters	8,972	4.2 %
All other	7,904	3.7 %
Rounding off error	213	0.1 %

Total = 213,622

NOTES:

1. Calculations are based on data from: (A) "Present Electrical Usage By Sector," Truk State Planning office; (B) Survey of business, representing a sample size of 35 % of Electrical use by Private Business; (C) Survey of 6 government houses, representing a sample size of 10 % of all government housing units; and (D) A survey of 20 Private houses, representing a sample size of 3.5 % of total private units.
2. Industrial sector is taken as Reefer Plants used for freezing fish for local sale or exports, other electrical uses such as lighting are very small in relative terms and are excluded.

D. Economic Externalities

TABLE V

1. Creation of fish production for local consumption and exports(1981)[1]

Amount of ish production	288.4 tons/year
Value of fish exports	$196,941/year
Value of fish sold locally	$ 72,059/year
Total value of fish produced	$269,000/year

2. Creation of imports(Consumption)[2]

Item[3]	Current value	Life span	Expected Average Annual replacement costs.
Air conditioning	$255,200	5 years	$67,373
Flourescent lights	4,509	2 years	2,597
Light bulbs	6,911	1 year	7,602
Elec. Refrigerators	343,000	5 years	90,552
Freezers	40,640	5 years	10,729
Washing machines	94,500	4 years	29,768
Dryers	28,060	4 years	8,839
Rice cookers	18,160	4 years	5,720
Water heaters	18,430	5 years	4,866
Elec. stoves	302,630	5 years	79,894
T.V. sets	156,350	4 years	49,250
Stereos	69,660	5 years	18,390
Fans	35,055	2 years	20,192
Coffee pots	4,224	2 years	2,433
Toasters	5,170	3 years	2,078
Irons	5,940	3 years	2,388
Mixers/Blenders	1,550	4 years	488
Sewing machines	39,368	7 years	8,070
Cash registers	21,000	5 years	5,544