

- PROFESSOR R.H. PAUL MEMORIAL LECTURE 1989 - EVOLUTION OF ELECTRICITY TARIFFS IN SRI LANKA (past 40 years)

by
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1.0 Introduction

1.1 Electricity was first introduced to Sri Lanka for public lighting as far back as the start of the century, with individual generating stations feeding small cities, and towns and were controlled by the Local Authorities of these places such as Urban Councils & Town Councils, who did their own generation and retailing, on tariffs drawn up by them, subject to the approval of the Ministry of Power. At the time when generation was by isolated individual power stations using diesel (which was prior to 1950), the retail tariffs of Local Authorities was based on the cost of diesel which was the main source of fuel.

1.2 The rapid spread of electricity within the Island of Sri Lanka took place only after the formation of the National Grid of the Ceylon Electricity Board (former Department of Government Electrical Undertakings) and the completion of the initial major hydro projects in the Central Hills in the Island in 1951 or so. The capacity of Plant installed in 1951 both hydro & thermal was of the order of 40MW consisting of 26MW of hydro and 14MW of steam and diesel whilst the present 1988 installed capacity is of the order of 1071MW consisting of 801MW of hydro and 270MW of thermal. The present generating capacity consists of the following:

	Year 1988
Hydro	801
Steam Thermal (heavy oil)	50
Gas Turbines (light oil)	120
Diesel (heavy oil)	80
Diesel (light oil)	20
	<u>1071 MW</u> =====

The peak load is at the moment is of the order of 575MW at an annual growth rate of the order of 7 - 8% (presently stalled due to civil disturbances). With the commissioning of three major multi-purpose hydro schemes under the accelerated Mahaweli River Development Project 466MW of hydro power was added on to the grid during the period 1980 - 19

The revenue from sale of electricity on different consumer category Tariffs is given below on rates applicable to these groups.

	(a) Revenue%	(b) Units%	a/b
a. Domestic (for residential homes)	11%	17%	0.6
b. Commercial (for business establishments)	24%	19%	1.2
c. Industrial (manufacturing establishments using electricity for motive power)	45%	38%	1.1
d. Local Authorities (Municipalities, Towns etc)	20%	26%	0.7
	<u>100</u> =====	<u>100</u> =====	

2.0 Tariff Setting

2.1 In tariff setting the ideal

would be to have a close relationship between electricity rates and the cost to serve. The cost to serve is dependant on two main factors the quantity of energy (KWH) consumed and the rate (KW) at which it is consumed. The former determines the amount of fuel/water used, and the latter the size of plant required to meet the load. The (KW) costs or capacity costs are related to demand and are the costs necessary to sustain the demand and mainly consists of interest on investment, depreciation expenses and maintenance and operation expenses which do not vary with the KWH supplied. The (KWH) costs are energy costs which vary with the KWH supplied and they are largely made up of fuel costs and operational costs which vary with the KWH supplied.

2.2 Capacity costs could be assigned to generation, transmission & distribution, retail costs; and those who obtain supply from an electric utilities. High Tension Grid are a lesser burden to a utility than those who are fed from an intensive system of transmission and distribution. The ideal form of charging the capacity cost would be to charge the "base demand" cost from all consumers and for peak hours to charge an additional capacity cost from prospective consumers who are responsible for the extra peak. However, this is not possible practically as it is difficult to estimate and determine the different load curves of different consumer groups.

2.3 In the Ceylon Electricity Board's present Tariff, capacity cost is allocated, in the case of medium and large consumers on the basis of each consumers maximum demand in KVA (on a 15 mt. interval) irrespective of when the demand occurs, and the energy costs are computed on the actual KWH consumption with a slight differential in the case of High Voltage, middle voltage,

and low voltage consumers. In the case of small retail consumers there is no demand charge as such but a unit charge in different steps which takes into account capacity costs too, subject to a minimum charge related to the service capacity of the installation.

In the Tariffs introduced from January 1988 medium and large Industrial & Hotel consumers have been given the option of choosing a Time of Day Tariff in lieu of the normal Tariff where the cost of energy at peak is higher than that at off-peak, with a view to shifting the peak since the C.E.B. has a system with an evening lighting peak between 1800 hrs and 2100 hrs which is almost double the day peak which occurs between 0900 hrs - 1100 hrs.

3.0 Other Considerations

3.1 In Arriving at rates to be paid by different classes of consumers there are other considerations that are important irrespective of the cost servicing. Due to social & economic reasons and depending on the development policies of a country certain categories of consumers would have to shoulder others and pay higher; for balanced socio-economic growth cross sectional as well as cross-regional subsidies may be desirable, however the utility itself in doing so should not endanger it's own financial stability, perhaps any concessions given to the poorer sector may have to be recovered from the budgetary sources of Government. Different customer groups will react differently to price changes because all do not have the same price-elasticity. Whilst one class of consumer, say a manufacturing concern may be able to absorb an increase in electricity prices by absorbing same within the cost of it's manufactured goods it may also deprive a poor domestic consumer, the use of electricity if his electricity

bill becomes a high percentage of his total family budget. As far as the utility is concerned the average selling price must be such that after taking into account his present day cost to serve inclusive of adequate replacements it must also provide an adequate return on the utility's investment which could be used for the growth and expansion of the industry.

4.0 Tariff Structure

In practical terms a tariff structure must have the following salient points.

- It must effectively yield the total return in revenue envisaged.
- It must be easy to apply for purpose of measurement, computation of bills and collection of revenue.
- It must be simple, readily understandable and generally acceptable to the public.
- It must encourage lower capacity costs guiding consumers towards optimum use of power during off peak hours.

Some additional points to bear in mind are -

- It must encourage socially desirable consumption and discourage non-productive consumption.
- It must promote industrial and agricultural development.
- It must encourage conservation and discourage waste specially if fossil fuel has to be imported for generation.
- It must become instrumental and effective in better allocation of national resources.

5.0 Financial criteria in fixing prices for sale of energy by International Lending Agencies

International and other lending agencies set certain guide lines and criteria in fixing average selling

price prior to granting of loans for expansion and development of one's system. Some of which are -

- An 8% return as nett re-valued assets.
i.e. Revenue from Sales less operating Expense less depreciation but before interest payment
$$\frac{\text{Revenue from Sales less operating Expense less depreciation but before interest payment}}{\text{Average re-valued nett fixed Assets}} \times 100 \geq 8\%$$

This return would be generally used to pay interest and principal on Loans borrowed and to finance part of the capital expenditure for expansion of the system. The average price of selling referred to above of course being exclusive of fuel cost which would be recovered under the Fuel Adjustment Charge.

- A debt service ratio of 1.5.

Net revenue before depreciation and before interest payment

$$\frac{\text{Net revenue before depreciation and before interest payment}}{\text{Debt Service (interest + loan repayment)}} \geq 1.5$$

- Internal Cash generation of 30% i.e. 30% of the Capital expenditure for works be met from internal resources of the utility.

5.1 Net revenue after depreciation but before interest payment $\times 100 \geq 30\%$

Capital Expenditure for the year

While it is admitted that the criteria stated above are in keeping with sound financial principles and are appropriate to a developing economy the question is whether such criteria should apply to developing countries. The developing countries need massive injection of capital in the Power Sector in order to extend generation and transmission facilities, at the same time they cannot increase the price of electricity without

adverse effects on other section of the economy which are dependent on electricity, and as such it may be difficult to keep up to a criteria of an 8% return on nett fixed assets, as re-valued assets are highly "Appreciative" due to an inflation rate of nearly 30% per annum. It is also doubtful whether an electric utility which is expected to keep electricity prices low due to socio-economic & political considerations could generate 30% of it's massive capital expenditure from internal resources. (This is a personal view of mine).

6.0 Comments on Past Tariffs of the Dept. of Govt. Elect. Undertakings (DGEU) and the Ceylon Electricity Board (CEB) in Sri Lanka, from 1950 - 1988

6.1 In this connection please see Annex 1

From 1950 onwards there have been number of Tariff changes, whilst the average price been generally steady from 1950 - 1973, thereafter they have gone up rapidly due to escalating costs after the oil shock of 1973.

<u>Year of Revision</u>			<u>Average Selling Price</u> <u>(inclusive of fuel charge)</u>	100 cents = Rs. 1 30 Rs. = 1US\$(1988)
Cost of Living Index				Selling Price / C.L.A.
-	June	1948	15.0 cents	15.0
102	July	1953	16.0 "	15.7
106	Jan.	1962	14.0 "	13.2
131	July	1969	14.5 "	15.1
148	Feb.	1972	15.2 "	10.3
237	Oct.	1978	31.0 "	13.1
326	Aug.	1980	83.6 "	25.6
416	June	1982	165.0 "	39.6
564	Jan.	1985	150.0 "	26.5
714	Jan.	1988	180.0 "	25.2

The cheap Tariff from 1948 - 1972 hastened the connection of the factories of individual Tea & Rubber Plantations on to the C.E.B. system, but one of the unfortunate things that happened was that certain mini-hydro plants of the order of 200KW which used to serve these estates from the streams in the central hills went into disuse and were abandoned, as plantations preferred the more convenient grid supply. As the grid supply price goes on increasing every year, some of the plantations are now thinking of reviewing their mini-hydro plants but here too the capital costs for refurbishing have become extremely high.

6.2 Comments

(I) In the June 1948 Tariff both the residential and the industrial tariffs are two part tariffs with a very slightly reducing variable rate demand charge and a flat rate unit charge. The minimum charge is equivalent to the demand charge and the fuel charge is reflected in the unit charge these increasing or decreasing depending on the increase or decrease in the price of furnace oil. At this period the DGEU would have had a system which would have been mostly thermal generation. The demand charge being computed on the connected load and there

is neither an incentive or a disincentive for extra consumption of units.

(II) In the July 1953 Tariffs both the residential and the industrial tariffs are two part tariffs. However, both the demand charge and the unit charges are not flat rates these are differential rates decreasing with increased demand and units. Unlike demand charge being tied upto the connected load in this case the demand charge has been related to the floor area in the case of residential consumers and the maximum demand over a 15 mt. interval in the case of industrial consumers. The unit charge decreases with increased consumption this type of tariff encourages consumption. This of course would have been for promotion of sales generated at the hydro power stations; the system being a mixture of hydro and thermal with greater emphasis on hydro generation.

(III), (IV) & (V) In the June 1962, July 1969 and February 1972 Tariffs, In the case of residential consumers there is no demand charge as such applied directly for a particular demand. However, there is a First Block of Units, a Second Block of Units and a Third Block of Units, which go on increasing correspondingly as the floor area increases, ensuring that consumers with a larger demand, i.e. those with greater capacity costs have to bear greater average unit costs. In the case of Industrial consumers the demand charge is related to the Maximum Demand over a 15 minute interval at a slightly reducing rate, the units being chargeable as a First a Second and a Third Block of Units, which go on increasing correspondingly as the maximum demand increases. It appears that in the case of the Industrial consumers the greater emphasis is on the recovery of capacity costs as compared to running costs. Of course this has to be so in the case of a predominantly hydro system with excess power.

On the whole the tariffs both Residential as well as Industrial has energy rates which go on decreasing with consumption the Third Block rate specially in the case of Residential consumer being nearly $1/2$ or $1/3$ of the First Block rate.

Under this Tariff a special tariff has been envisaged for air-conditioning and cold storage which is lower than the Industrial tariff possibly to help the Hotel industry during this period.

The tariffs mentioned above have a great disadvantage in that they are not readily understandable by the public in view of their complicity, and that they involve greater work as far as computation of bills are concerned for purposes of revenue collection. Also a Residential customer who has a house with a larger floor area has to pay more on the average per unit than a Residential customer who has a house with a smaller area but has a larger number of domestic appliances and as such a relative greater demand capacity than in the case of the former. Another significant fact is that the Domestic and other consumers have to a certain extent subsidised the Industrial consumer to give a boost to industrial development.

(VI) The Tariffs of October, 1979 have come into operation after the "Energy Crisis" of 1973 specially when fuel oil plant and generating costs have risen many-fold. Hydro electric energy is no more available as an excess quantity and when the demand for power has risen rapidly from a mere 6% per annum to about 14% per annum, necessitating the running of thermal plant to augment hydro generation. The tariffs themselves are simple with fairly high unit charges in the case of Residential consumers to meet both capacity costs as well as running costs and with a demand charge and a flat

rate unit charge in the case of Industrial consumers, there being minimal subsidisation of Industrial consumer by Domestic consumers and others. There is also no incentive for extra consumption in the case of Industrial consumers as the units in the higher consumption bands are not priced lower. The tariffs have been based on predominantly hydro electric generation but whenever thermal generation has to be resorted to at times of low hydro reservoir levels or poor inflows the Fuel Clause comes into operation enabling the fuel costs to be recovered as well as acting as an agent to cut down wasteful consumption as the fuel surcharge increases a consumer's monthly bill, specially if the consumption is in excess of the allocated units, viz. 50 units in the case of a Residential consumer and 75% normal consumption in the case of an Industrial consumer. The application of the Fuel Charge in this manner has certain disadvantages to both the utility as well as the consumer in that if the thermal generation is minimal then the utility may overcharge the consumers, whilst on the other hand if the thermal generation is substantial including Gas Turbines and Diesels then the utility may undercharge the consumers and end up with an overall loss.

(VII) The Tariffs of August 1980 have come into operation at a stage where both available hydro as well as thermal plants have not been able to meet the rising demand for power and when power cuts have become inevitable. Unlike in the past the Residential Tariff is completely different in that it has now a structural where the rate per unit increases rapidly being 70 cents per unit for consumption in excess of 350 units per month. This appears to be to ensure that unwarranted consumption is cut down, those who wish to have their residences air-conditioned pay actual costs for the same, and

to ensure that electricity is not used, due to its low pricing as a primary source of energy for heating and similar purposes where other forms of alternative energy resources are available at a competitive price. The Industrial tariff is not subsidised by others in the present structure. In fact to some extent they subsidise the Residential sector consumers in the lower consumption groups such as rural consumer whose average unit rate would be low as compared to the overall unit rate of 58 cents.

The present fuel surcharge clause ensures that there is equity in the distribution of fuel costs as a result of extra thermal generation for augmentation of hydro electric energy, the total fuel cost in any one month is distributed among the units sold that month (less the exempted units) such that the utility neither over-recovers nor under-recovers the cost of fuel. In the consumers' bill the fuel surcharge is shown as a percentage increase of the total unit charge, which percentage varies from month to month (35% - 200%) depending on the cost of fuel used during one particular month. This has, however, certain disadvantages specially in respect of the budgeting and fixation of prices in the case of certain manufactured goods. However, in the future years upto the commissioning of the major hydro projects under the Mahaweli Scheme, since substantial thermal generation will have to be resorted to, right throughout the year, if power cuts are to be eliminated, the fuel surcharge percentage would eventually even out and stabilize itself throughout the years.

(VIII) The Tariff of June 1982. This occurred at a time when the major hydro power stations under the Mahaweli were not yet commissioned and the C.E.B. had to resort to a fair amount of thermal generation, here the fuel adjustment charge

had been averaged at 185% per month, to be applied for a year instead of the earlier fuel surcharge percentage which used to be per month.

In the earlier tariff, domestic consumers using upto 200 units per month were exempted from the fuel charge, in the present Tariff this was reduced to 150 units; thus discouraging domestic consumers from using electricity for cooking etc., and encouraging L.P. gas for cooking which is comparably cheaper.

(IX) Tariff January 1985 The Fuel Adjustment Charge was virtually zero due to the commissioning of new Hydro Plants under the accelerated Mahaweli Project, however, the Fuel Adjustment Charge if applicable would be as an annual basis. Also a Time of day Tariff was introduced on an experimental basis for Hotels and for Large & Medium Industries.

(X) Tariff January 1988 The units exempted from Fuel Adjustment Charge was reduced further from 150 units to 100 units in the domestic sector. Time of Day Tariff has been applied as a permanent feature. Also the first block of units at low rate (life line) for domestic consumers were reduced from 30 units to 10 units and the 2nd block from 150 units to 100 units reducing further the subsidy given to domestic consumers. Also in the Religious Purpose Tariff the Fuel Adjustment Charge which was not there in the earlier Tariffs was introduced at 200 units of consumption, with a view to reducing wasteful consumption even in places of Religious Worship. The Fuel Adjustment Charge would be applicable on an annual basis, and would be announced at the start of the year.

7.0 What of the Future

The present generation is a mixture of hydro and thermal, the base load which is hydro may eventually be

replaced by a coal fired or nuclear plants. As experienced in the past these are bound to be periods almost every five year when rain-fall is low and thermal generation has to be resorted on a large scale.

In view of this senario, the Fuel Adjustment Charge which is now a percentage of the bill decided at the beginning of each year is bound to be consolidated on to the basic tariff by averaging out thermal cost that are bound to arise within 5 year periods.

The Tariff structure themselves would have higher rates at higher consumption to encourage conservation and reduce expenditure on imported fuel.

The concept of the off-peak cheaper Tariff would gain ground and many medium size industrialists would opt for the Time of Day Tariff thus bringing down the load factor of the system grid as a whole, and reducing to some extent the cost of meeting capacity costs.

With the colossal capital extensive expenditure required in the development of the electricity industry and in view of the fact that soft loans for development for third World countries would become more and more difficult, and these countries would have to depend more and more on the cash generated internally for it's development activities (if it is not to depend on Govt. subsidies), which in effect would be to keep prices for electricity high in the future; resulting in those who at present enjoy the benefits of electricity (by virtue of whatever circumstances which made them have it) to spend a bit more to accrue that this benefit is given to those who do not enjoy the same, which is the greater majority of the people. A recent International survey has shown that whilst the third World

needs annually U.S.\$ 150 Billion for proper development of the electrical sector. all that the International Lending Agency could muster would be a mere U.S.\$ 15 Billion per year which again emphasise the need for meeting the future of development costs of the electricity industry from internal resources.

8.0 Annexures

Annexure 1 - Salient Feature in

the Tariff Past & Present 1948 - 1988.

9.0 References

1. C.E.B. Tariff Gazettes 1950 - 1988
2. D.G.E.U. / C.E.B. Administration Reports 1950 - 1987
3. Electricity Pricing - Mohan Munasinghe World Bank

ANNEXURE 1 - EXTRACTS OF TARIFF 1948 - 1988

I. June 1948 (D.G.E.U.)

Residential Tariff

500 Watts Rs.5/- P.M.

 3000 Watts Rs.25/- P.M.
 06 cents per KWH
 Minimum charge to
 above demand charge.

Medium Industrial

100KW Rs.5/KW/P.M.
 Above 100 KW.Rs.4.50/KW/P.M.
 06 cents per KWH
 Minimum charge eg. to
 above demand charge.

Average Selling Price Per Unit (KWH)

Fuel Cost Charge 0.005 cents per unit
 for Rs.1/- variation above or below
 Rs.27.50 per Ton of fuel delivered.

15.0 cents/Unit

II. July 1953 (D.G.E.U.)

2500 sq. ft. floor area
 Rs.5/- P.M.
 16000 sq.ft. floor area
 Rs.22/- P.M.
 (Rs.1/- P.M. for additional 2000 sq.ft.)
 1st 100 units 10cts/Unit
 Next 100 units 8cts/Unit
 Next 150 Units 7cts/Unit
 Excess units 6cts/Unit
 Minimum charge eg. to above
 demand charge.

100 KVA.Rs.4/KVA/P.M.
 Above 100KVA.Rs.3.50/KVA/PM

1st 10,000 units
 Next 20,000 units
 Excess units

10cts/Unit
 9 cts/Unit
 8cts/Unit

Minimum charge eq.
 to maximum demand charge
 of the past 12 months

16:0 cts/unit

III. January 1962 (D.G.E.U.)

Residential Tariff

Units 1st Block

2nd Block

Medium Industrial

Average Selling Price Per Unit (KWH)

2500 sq.ft. floor area

27

135

100 KVA Rs.7/-
 KVA/P.M.
 100-500 KVA
 Rs.6.50 KVA/P.M.

5000 sq.ft. floor area
 (20 units P.M. per every
 500 sq.ft.)

57

285

Above 500 KVA.
 Rs.6/KVA/P.M.
 50 units for
 each KVA of demand
 8cts/Unit.
 50-400 Units for
 each KVA demand
 7 cts/Unit.

1st Block 30 cts/Unit
 2nd Block 12 cts/Unit
 Excess units 7cts/Unit
 Minimum charge eq. Rs.3/-P.M.

Excess of 400 Units for
 each KVA of demand 6cts/Unit.
 Minimum charge Rs.3/- per KVA 14.0
 of assessed demand cents/Unit

<u>Residential Tariff</u>	<u>Units</u> <u>1st Block</u>	<u>2nd Block</u>	<u>Medium Industrial</u>	<u>Average Selling Price</u> <u>Per Unit (KWH)</u>
IV. <u>July 1969 (D.G.E.U.)</u>				
2500 sq.ft. floor area	27	135		
.....				
5000 sq.ft. floor area	57	285		
(20 units P.M. for every 500 sq.ft.)				
1st Block 29cts/Unit			100 KVA Rs.8/KVA/PM	
			100-500 KVA Rs.7.50	
2nd Block 16cts/Unit			KVA/PM. Above 500KVA	
			Rs.7/KVA/PM.	
Excess Units 12cts/Unit			50 Units for each KVA of demand.	
Minimum charge eq. Rs.3/P.M.			10 cts/Unit 50-400 Units for each KVA of demand	
			9cts/Unit. Excess of 400 units for each KVA of demand	
			8 cts/Unit. Minimum charge of Rs.3/- per KVA of assessed demand	14.5 cents/Unit

Air Conditioning & Cold Storage Tariff (Hotels, etc.)

200 KVA Rs.8.00 per KVA/P.M.
200-500 KVA Rs.7.50 per KVA/P.M.
Above 500 KVA Rs.7.00 per KVA/P.M.
50 units for each KVA of demand 10 cts/Unit.
50-400 units for each KVA of demand 9 cts/Unit.
Excess of 400 units for each KVA of demand 8 cts/Unit.

Minimum charge of Rs.3/- per KVA of assessed demand.

V. February 1972 (C.E.B.)

<u>Residential Tariff</u>	<u>Unit</u> <u>1st Block</u> <u>2nd Block</u>	<u>Medium Industrial Tariff</u>	<u>Average Selling price</u> <u>per unit (KWH)</u>
2500 sq.ft. floor area	27 135	100KVA Rs.8/PM.	
.....		=100-500 KVA Rs.7.50/KVA/PM	
5000 sq.ft. floor area			
(20 units P.M. per every 500 sq.ft.)	57 285	Above 500 KVA Rs.7/KVA/PM	
1st Block 31 cts/Unit		50 units for each KVA of demand 12 cts/Unit.	
2nd Block 18 cts/Unit		50-400 units for each KVA of demand 11 cts/Unit.	
Extra units 14 cts/Unit		Excess of 400 units for each KVA of demand.	
Minimum charge of Rs.3/-PM.		Minimum charge of Rs.3/- per KVA of assessed demand.	15.2 cents/Unit

Air Conditioning & Cold Storage Tariff (Hotels)

200 KVA Rs.8/- per KVA/PM.
200-500 KVA Rs.7.50 per KVA/P.M.
Above 500KVA Rs.7/- per KVA/P.M.
50 Units for each KVA of demand 12 cts/Unit.
Excess of 400 units for each KVA of demand 10 cts/Unit.
Minimum charge of Rs.3/- per KVA of assessed demand.

VI. October 1978 (C.E.B.)

Residential Tariff

1st 50 units 31 cts/Unit
Excess of 50 units 21
cts/Unit. Minimum
charge of Rs.5/- P.M.

Medium Industrial Tariff

Demand charge Rs.19/- per KVA Unit charge of
25cts/Unit. Minimum charge of Rs.5/- per
KVA of assessed demand P.M.

Average Selling price
per unit (KWH)

31.0 cents/Unit.

Fuel cost charge

Excess of 50 units at
50 cts/Unit from the
fuel surcharge subject
to variation depending
on price of furnace oil
on a pro rata basis.

Fuel cost charge

75% of maximum consumption in any of the 6
months prior to the date of notification
of fuel surcharge to be charged at 25cts/unit.
Balance to be charged at 50 cts/Unit subject
to variation depending on the price of furnace
oil on a pro rata basis.

Special Tariff for Air Conditioning deleted
and categorised under Commercial Tariff.

VII. August 1980 (C.E.B.)

Residential Tariff

First 50 units 35 cts/
Unit.
50-350 units 45 cts/unit
Excess of 350 units 70
cts/Unit.

Medium Industrial Tariff

Demand charge Rs. 22/- per KVA
Unit charge of 60 cts/Unit.
Minimum charge of Rs. 10/- KVA of assessed
demand.

Average Selling price
per unit.

83.6 cents/unit

Fuel Recovery Charge is expressed as a % of the monthly electricity bill, this amount is determined by taking into account the actual cost of fuel during the relevant month and apportioning such costs among the units sold less those exempted. In the case of residential consumers the first 200 units of consumption are exempted from this application of the fuel recovery charge.

VIII. June 1982 (C.E.B.)

<u>Residential Tariff</u>		<u>Medium Industrial Tariff</u>	<u>Average Selling Price per unit (KWH)</u>
First 50 units	40 cts/unit	Demand charge Rs. 100 /- KVA	165.0 cts/Unit
50 - 150 units	80 cts/unit	Unit charge 60cts/unit	
150 - 500 units	80 cts/unit with F.C.	Minimum charge Rs.50/- KVA of assessed demand.	
500 units	100 cts/unit with F.C.		

Fuel recovery charge is given as 185% of the monthly bill per year, at the end of the year any adjustments could be made in the fuel adjustment charge of the next year. At the beginning of each year the fuel adjustment charge would be announced.

In the case of residential consumers 150 units of consumption are exempted from the fuel recovery charge.

IX. March 1985 (C.E.B.)

<u>Residential Tariff</u>		<u>Medium Industrial Tariff</u>	<u>Average Selling Price per unit (KWH)</u>
First 30 units	50 cts/unit	Demand charge Rs. 100/- KVA	150.0 cents/unit
30 - 150 units	90 cts/unit	unit charge 1.45/unit.	
150 - 500 units	1.80/unit with F.C.		
500 units	2.25/unit with F.C.		

Fuel charge is jero in 1985 and will be computed and amended at the beginning of each year. In the case of residential consumers 150 units of consumption are exempted from the fuel charge.

A time of Day Tariff is introduced on a trial basis.

<u>Medium Industries (normal)</u>	<u>Time of Day</u>	
	<u>Peak</u>	<u>Off-peak</u>
Rs. 100/- KVA	Rs. 50/- KVA	-
Unit charge 1.45/unit	1.90 unit	1.35/unit with

X. January 1988 (C.E.B. Tariff)

<u>Residential Tariff</u>		<u>Medium Industrial Tariff</u>
First 10 units	55 cts/unit	Demand charge Rs.110/- KVA
10 - 100 units	1.05 cts/unit	Unit charge Rs. 1.60 / unit with F.C.
100-450 units	2.00 cts/unit with F.C.	
450	2.50 cts/unit with F.C.	

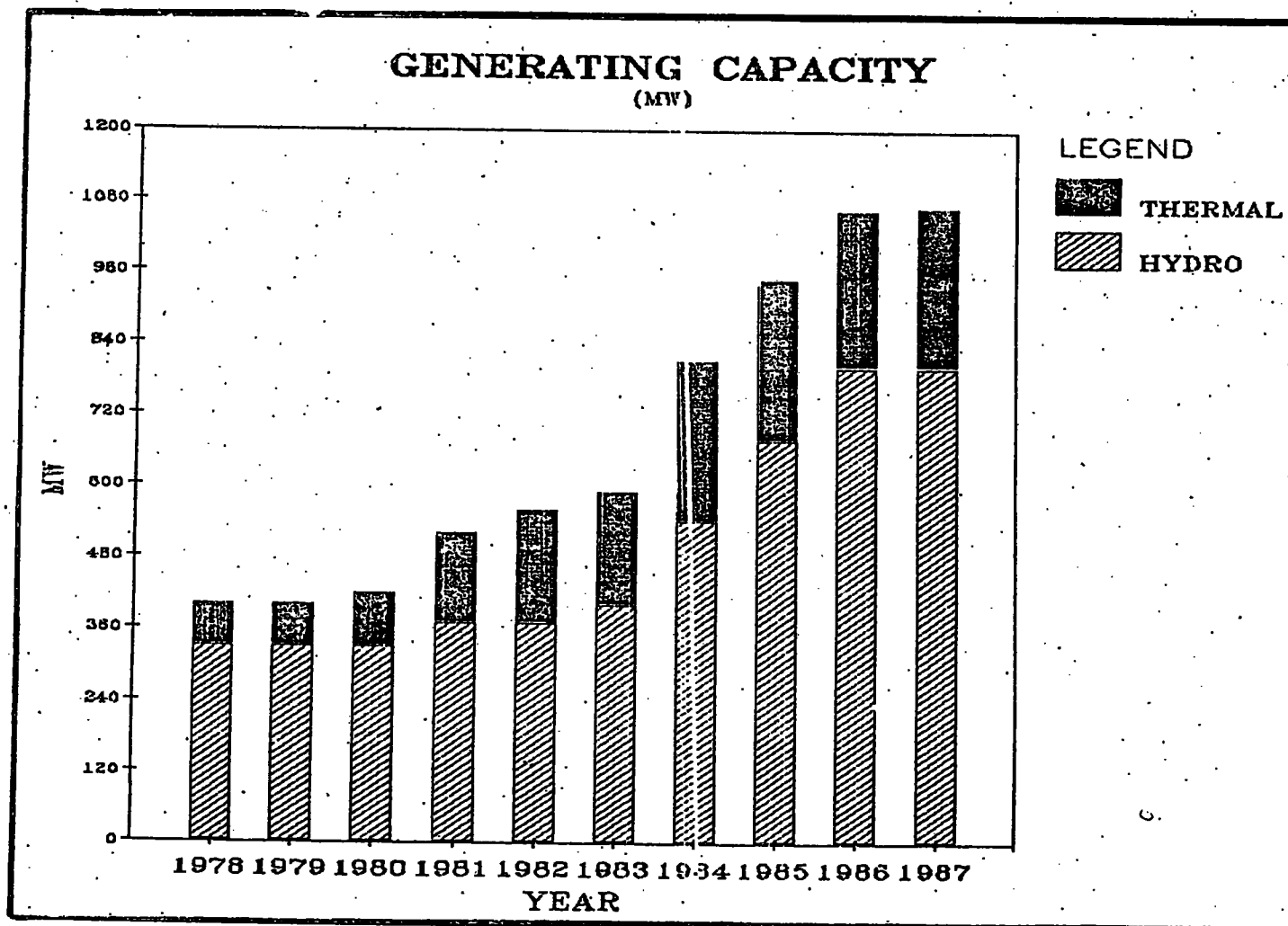
Fuel charge will be announced at the beginning of each year. In the case of residential consumers only 100 units are exempted from Fuel Charge.

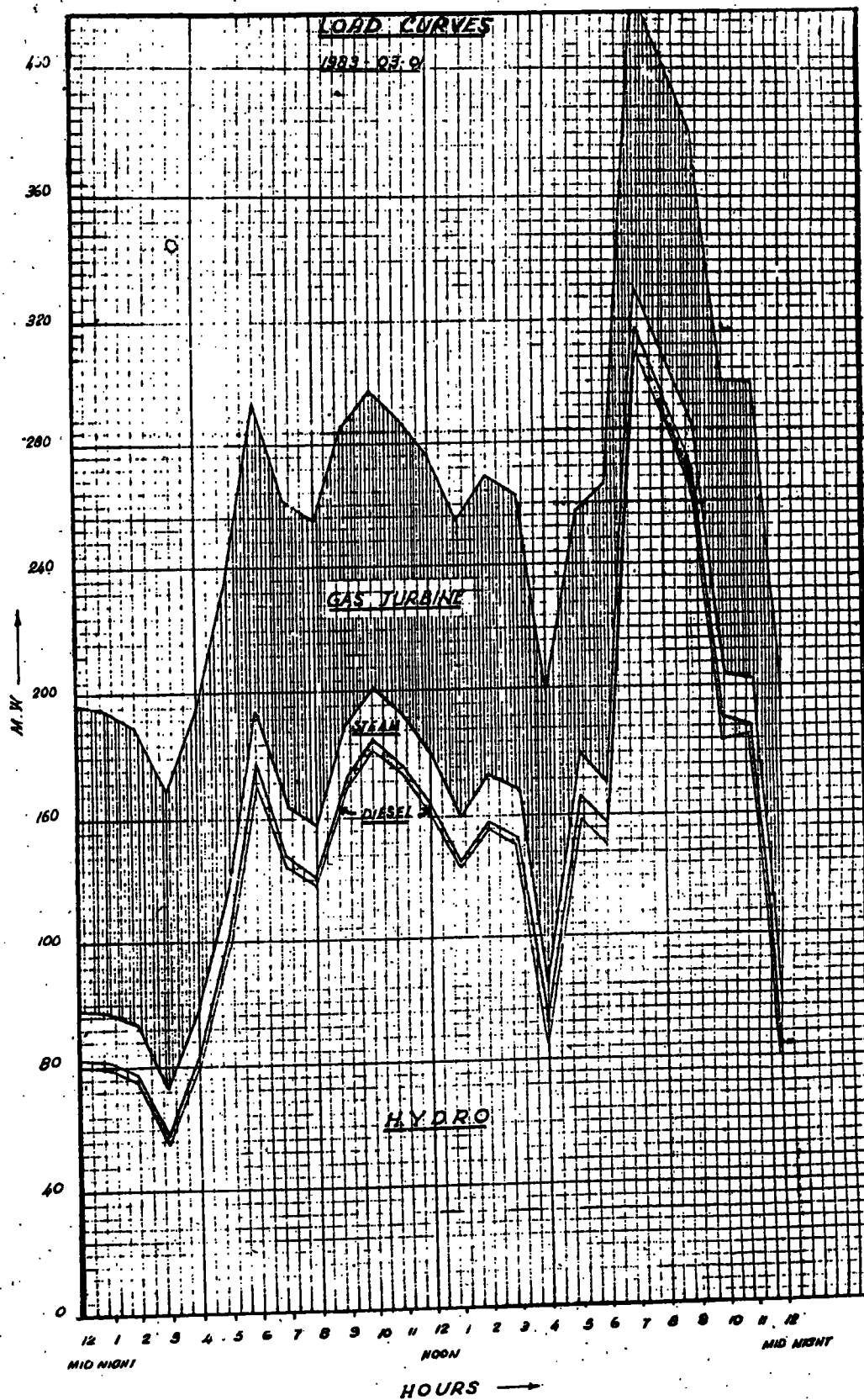
In the case of Religious Purpose consumers only 150 units are exempted from the Fuel Charge balance at Rs. 2.00 / unit with fuel charge, earlier there was no Fuel Charge on Religious Purpose consumers.

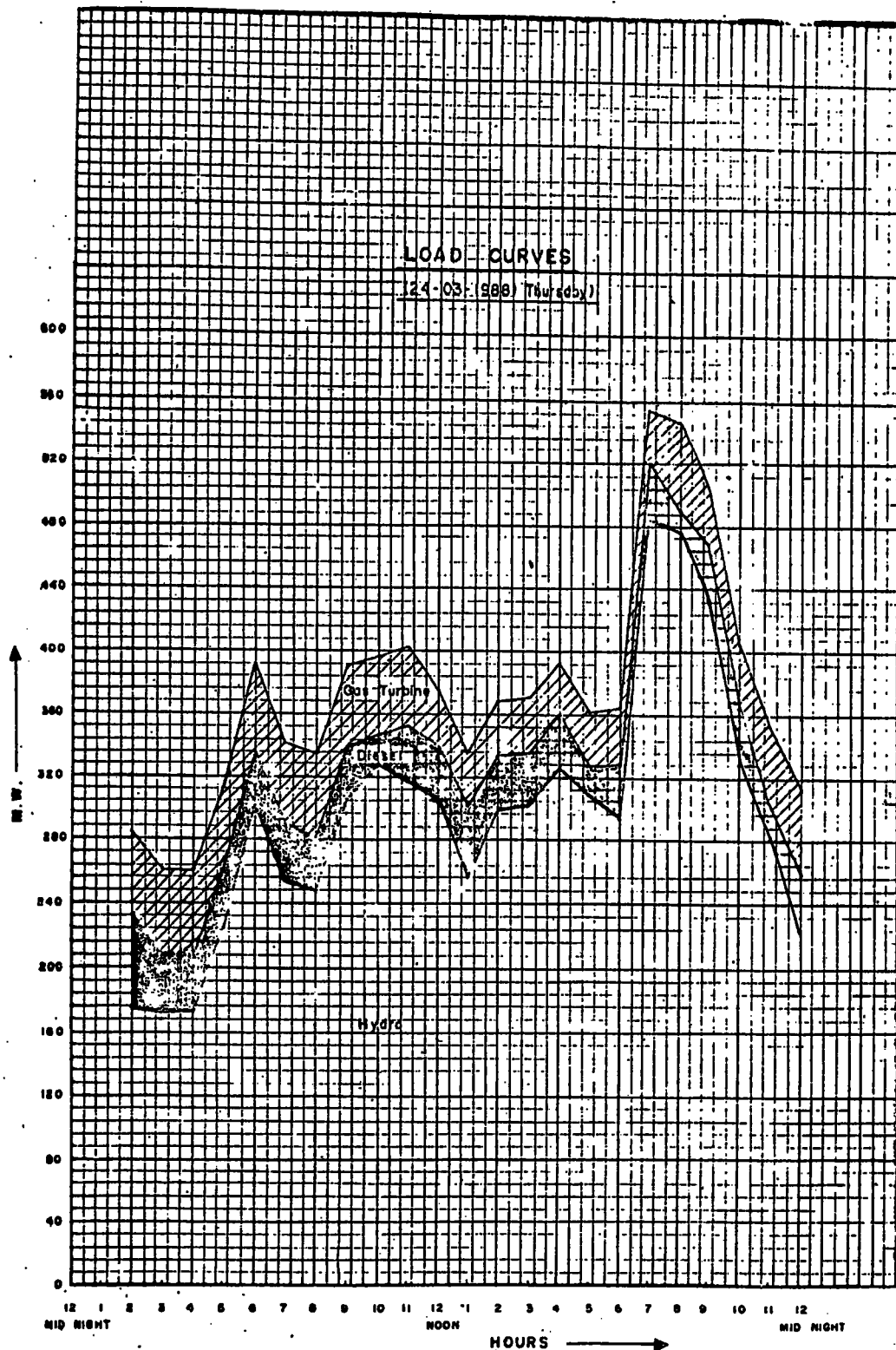
Time of day can be given to any Hotel or Industrial Consumer who seek for same.

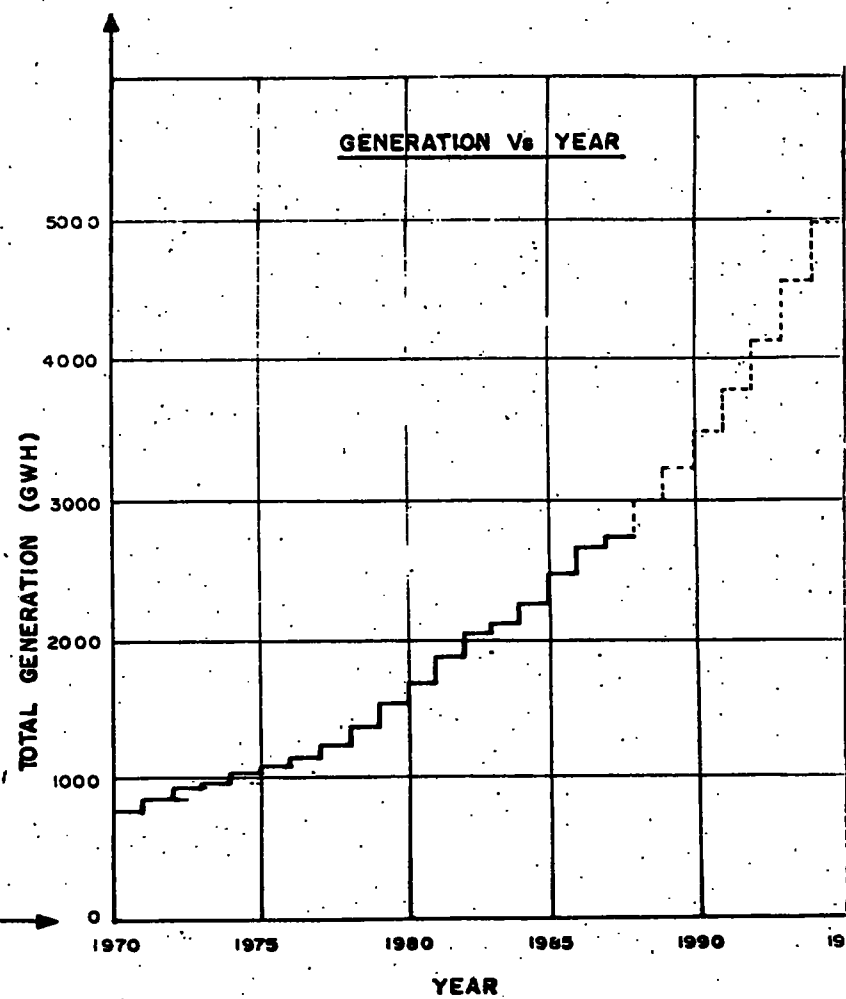
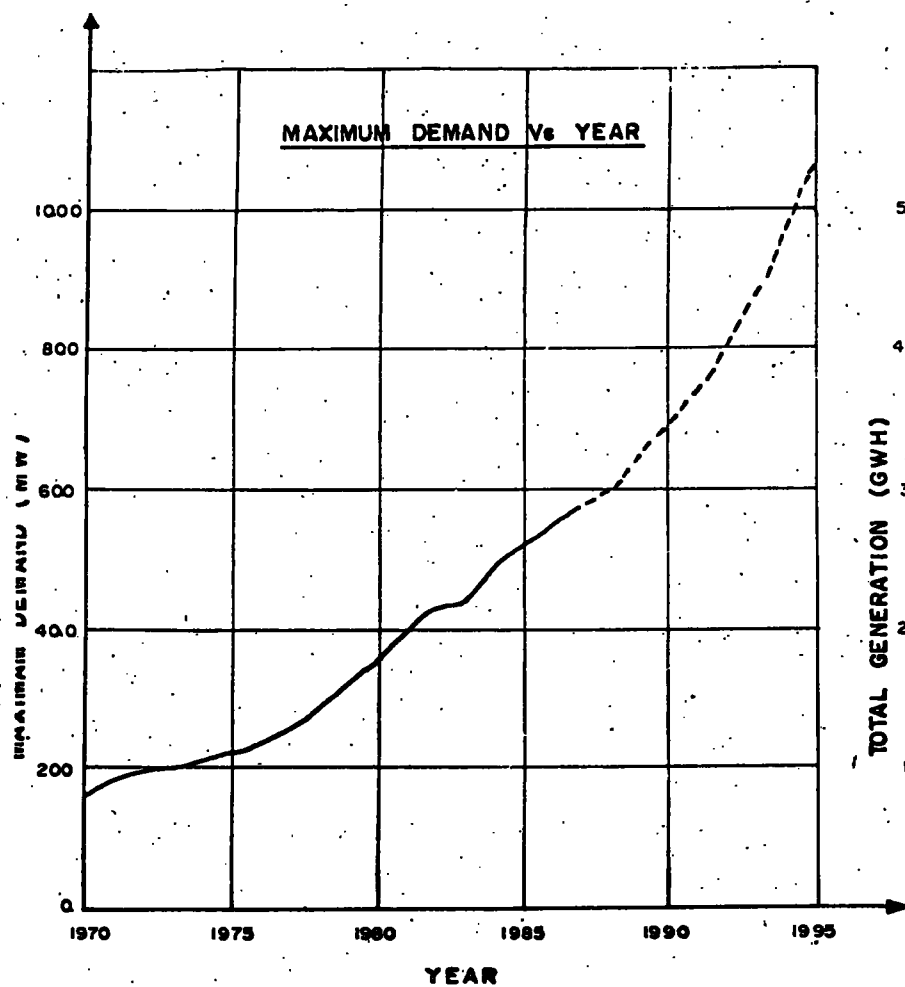
Time of Day Industrial

<u>Peak</u>	<u>Off-Peak</u>
Rs.50/KVA.	-
2.45/unit	1.50/unit
with F.C.	



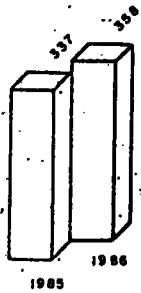




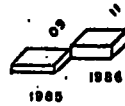


— 1970 To 1987 Historical
--- 1988 To 1995 Forecast

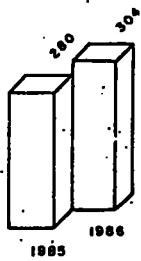
ENERGY SALES IN MILLION KWH



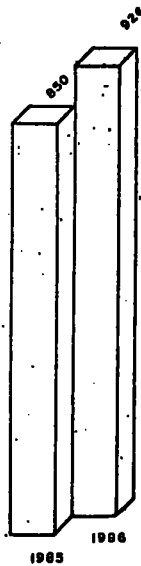
DOMESTIC



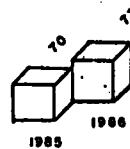
RELIGIOUS



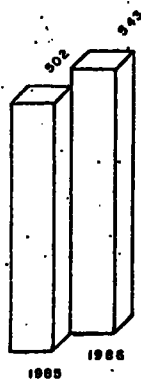
GENERAL



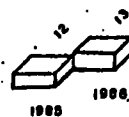
INDUSTRIAL



HOTEL

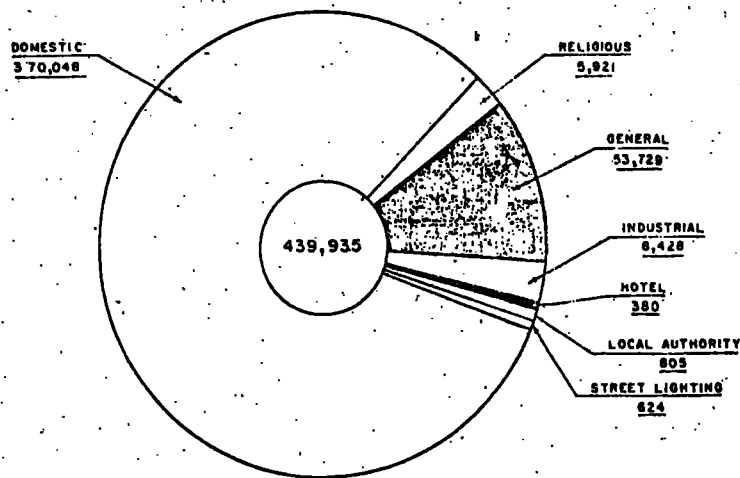
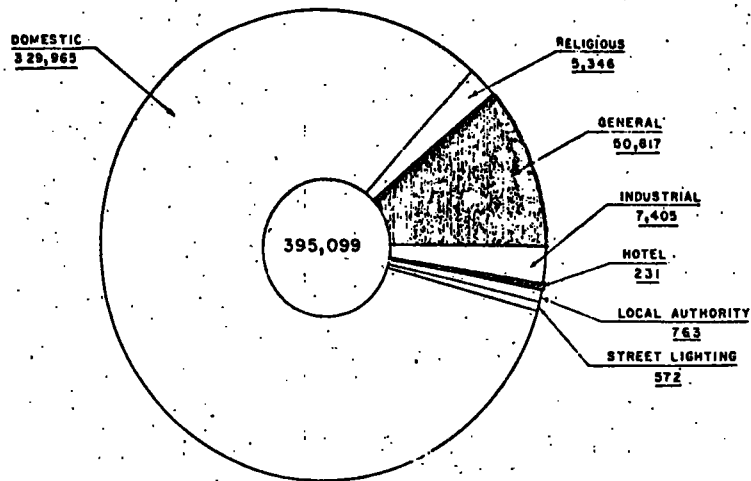


LOCAL AUTHORITY

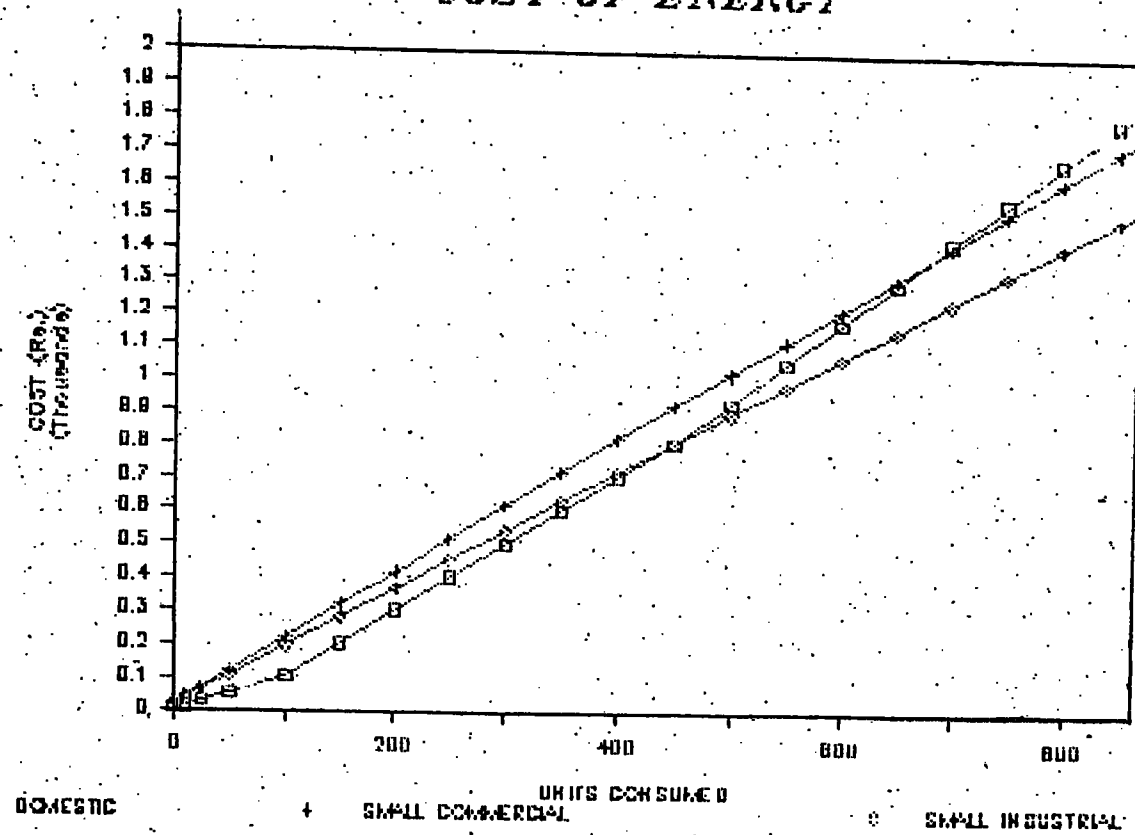


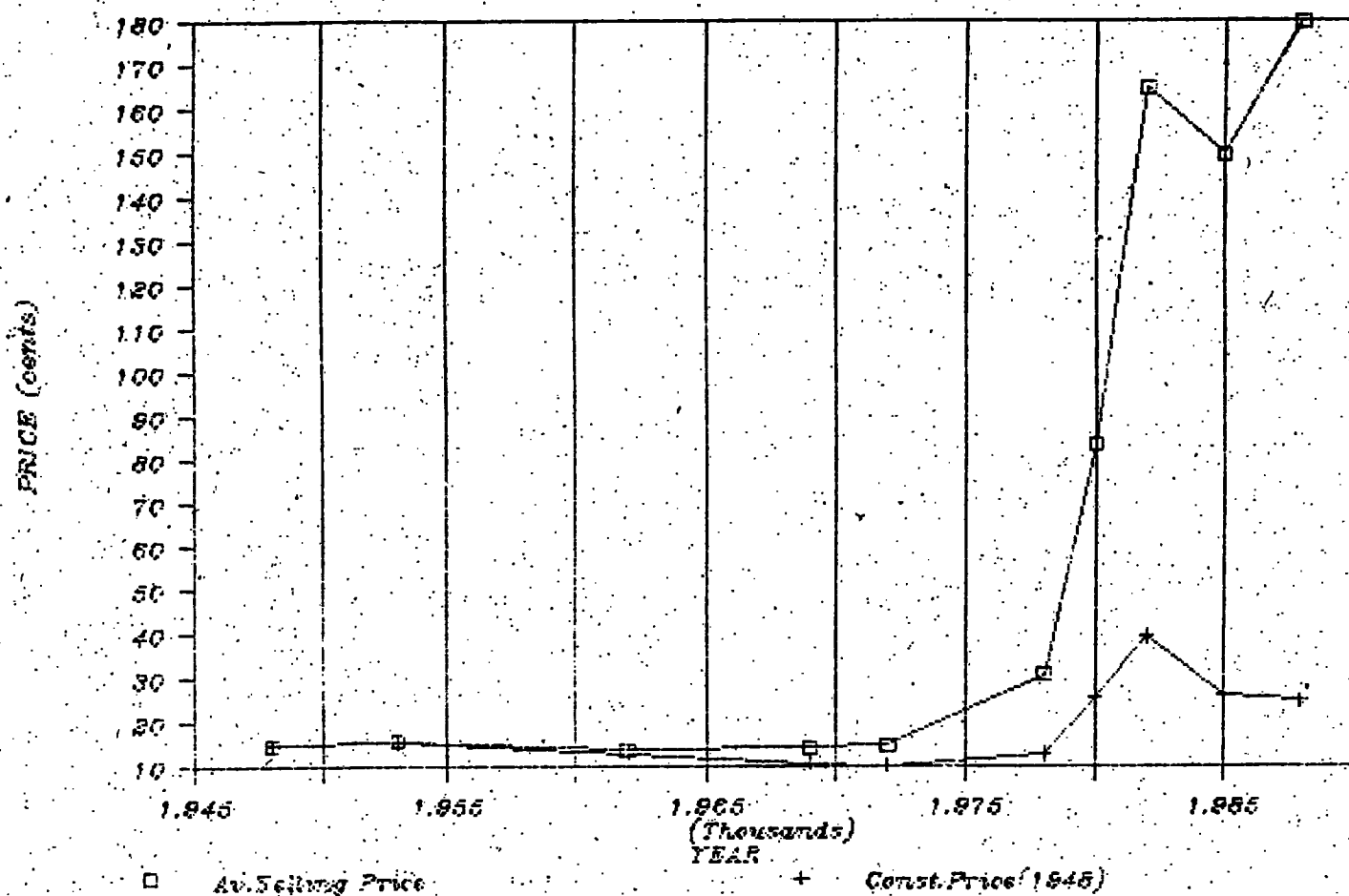
STREET LIGHTING

CONSUMERS



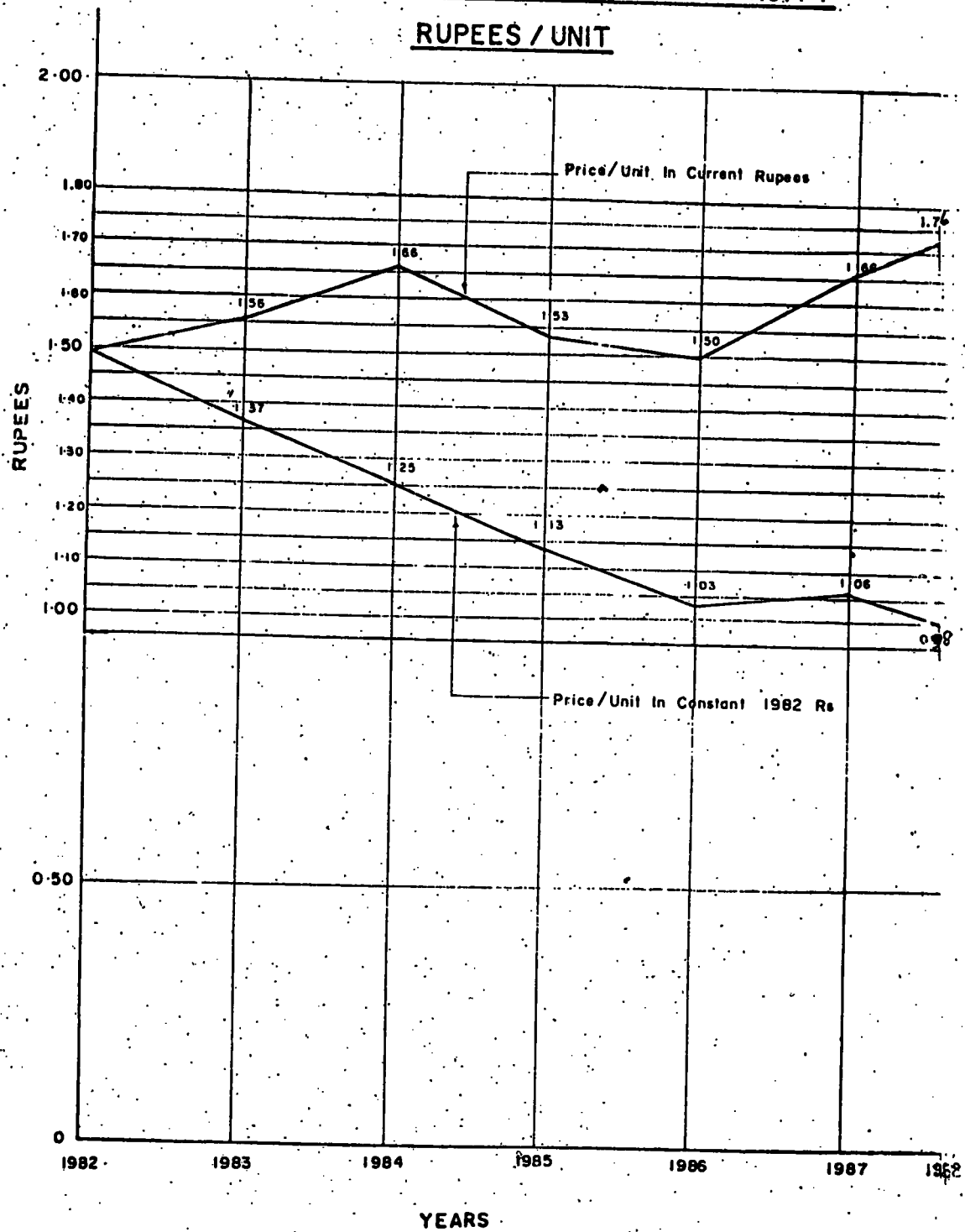
COST OF ENERGY





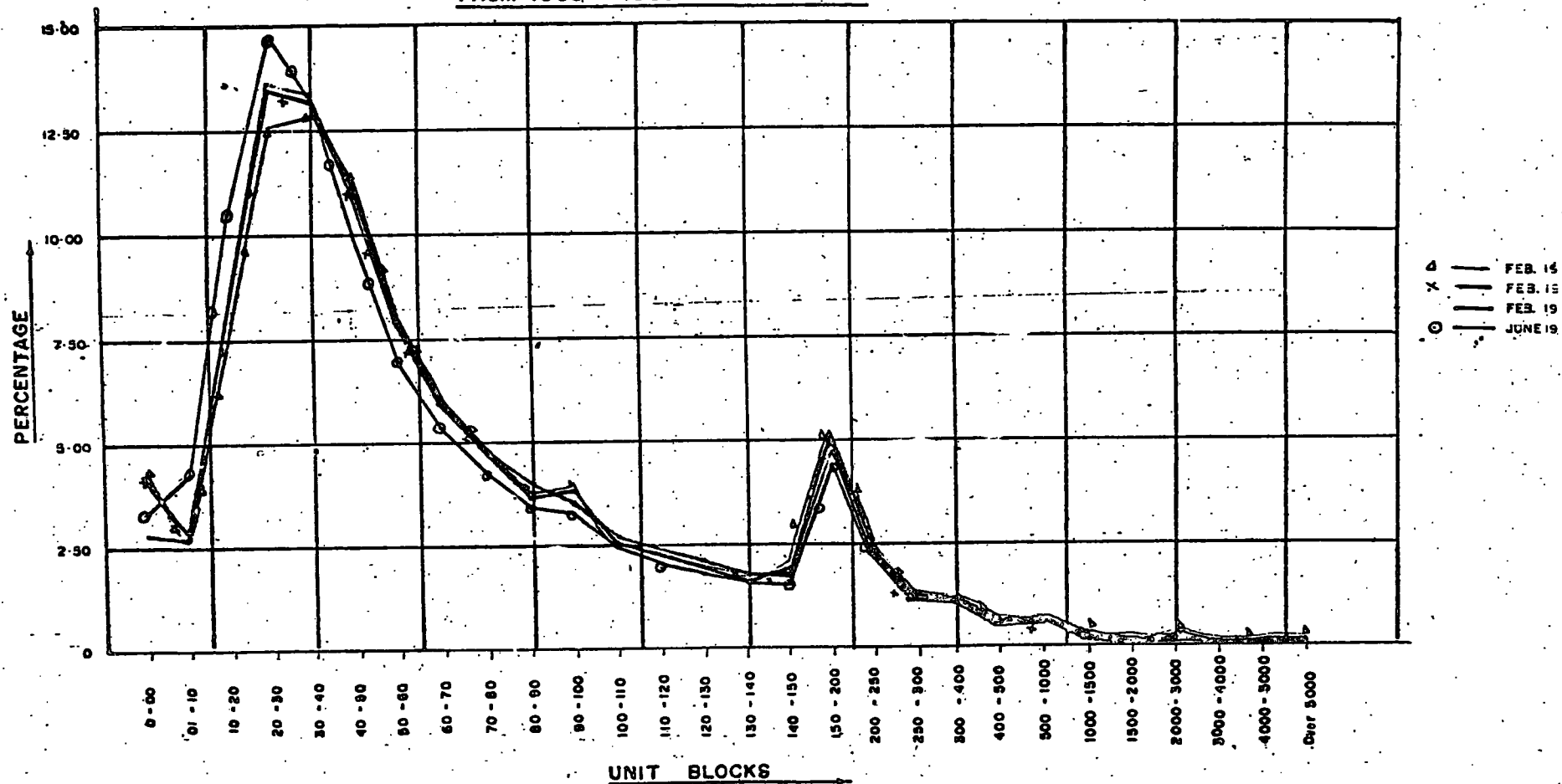
AVERAGE CEB SALE PRICE OF ELECTRICITY

RUPEES / UNIT



DOMESTIC ELECTRICITY CONSUMPTION PATTERN

FROM 1985 - 1988 CONSUMERS



DOMESTIC ELECTRICITY CONSUMPTION PATTERN

FROM 1985 - 1988, UNIT CONSUMPTION

