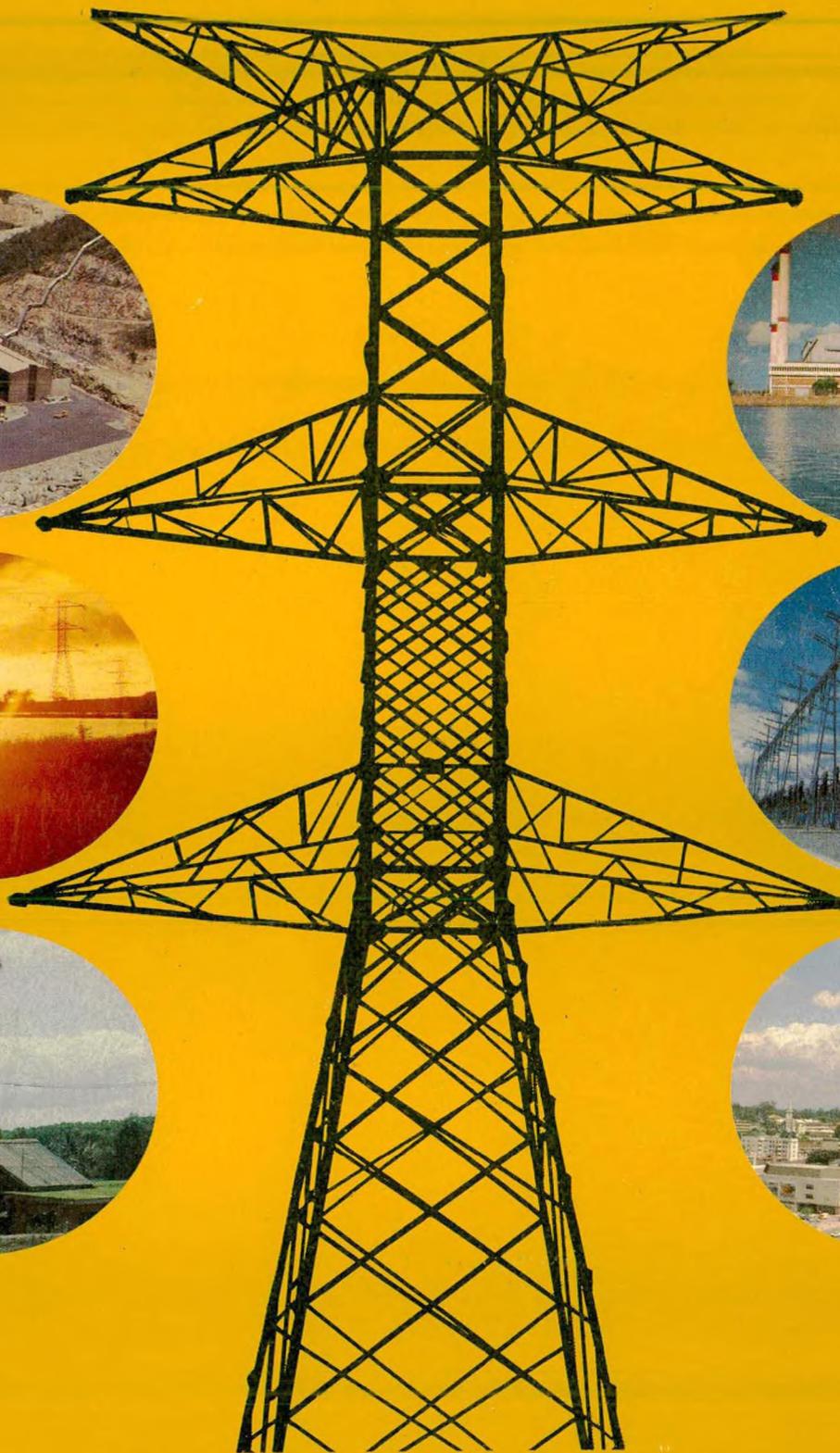
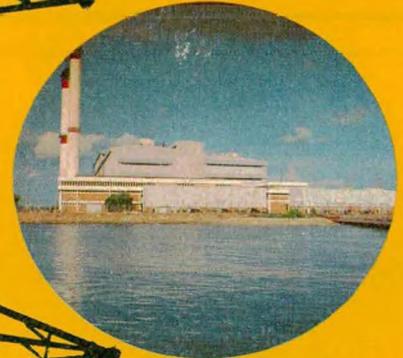
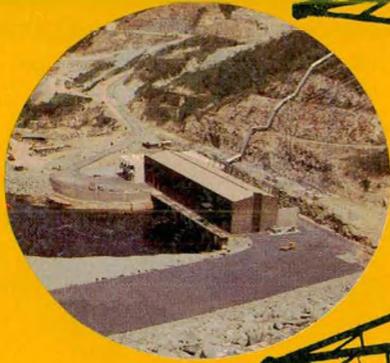




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# 29<sup>th</sup> ANNUAL REPORT

1st September 1977-31st August 1978

**NATIONAL ELECTRICITY BOARD  
OF THE STATES OF MALAYA**



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## ABBREVIATIONS

NEB	: National Electricity Board
kV	: kilovolt
kVA	: kilovolt Ampere
kW	: kilowatt
kWh	: kilowatt hour
MVA	: Megavolt Ampere
MW	: Megawatt
V	: Volts
IBRD	: International Bank for Reconstruction and Development
VHF	: Very High Frequency
SIRIM	: Standards and Industrial Research Institute of Malaysia



## OPERATIONS & MAINTENANCE DIVISION

- Deputy General Manager (Operations)  
**Ir. Wong Kin Hong**, J.M.N., B.E.E., P.Eng., F.I.E.(M), C. Eng., M.I.E.E.
- Chief Engineer (Generation)  
**Ir. M. Rajendra**, P.Eng., M.I.E.(M), C.Eng., M.I.E.E.
- Chief Engineer (System Operations & Transmission)  
**Ir. Leong Yoke Kow**, B.Sc., C.Eng., M.I.E.E.
- Chief Engineer (Distribution)  
**Ir. Basil Manasseh**, P.Eng., F.I.E.(M), C.Eng., M.I.E.E., M.I.E.(Aust.), A.M.B.I.M.  
(up to 31.8.78.)  
**Ir. Wong Wai Kheong**, P.Eng., M.I.E.(M), C.Eng., M.I.E.E. (w.e.f. 26.6.78)
- Chief Engineer (Materials Management)  
**Ir. Lee Siaw Phin**, B.E., P.Eng., M.I.E.(M), C.Eng., M.I.E.E., M.I.E.(Aust.).
- Chief Engineer (Rural Electrification)  
**Ir. Mokhtar bin Taib**, A.M.P., D.B.C., M.I.E.(M), (w.e.f. 1.6.78)
- Deputy Chief engineer (Transmission Maintenance)  
**Ir. R. Rajagopal**, B.Sc. (Eng.), P.Eng., M.I.E.(M).
- Deputy Chief Engineer (Distribution)  
**Ir. A. Rajadurai**, P.J.K., D.B.C., P.Eng., M.I.E.(M), C.Eng., M.I.E.E. (up to 31.8.78)  
**Ir. Chan Moon Thong**, D.B.C., P.Eng., C.Eng., M.I.E.E., M.I.E. (M).  
(w.e.f. 24.7.78)
- Deputy Chief Engineer (System Operations)  
**Ir. Lee Yee Cheong**, B.E.Hons. (Adel.), M.I.E.(M), P.Eng., M.I.E.E., C.Eng.
- Area Manager (Selangor)  
**Ir. Rajinder Singh Gill**, M.I.E.(M), C.Eng., M.I.E.E., P.Eng.
- Area Manager (North)  
**Ir. Mokhtar bin Taib**, A.M.P., D.B.C., M.I.E.(M). (up to 1.6.78)  
**Ir. R. Nagarajah**, B.Sc.(Lon.), M.I.E.(M). (w.e.f. 8.8.78)
- Area Manager (East)  
**Ir. Wan Hussein bin Endut Al-Haj**, D.B.C., P.Eng., C.E.E. (First Grade)
- Area Manager (South)  
**Dato' Haji Ir. Ismail bin Ahmad**, D.P.M.J., S.M.J., P.I.S.II, D.B.C., P.Eng., M.I.E.(M).
- Area Manager (Federal Territory)  
**Ir. Ibak bin Abu Hussin**, D.B.C., P.Eng., C.Eng., M.I.E.E., M.I.E.(M).
- Senior Purchasing & Contracts Officer  
**Ir. Mohd. Ariffin bin Abdul Rahman**, D.B.C., P.Eng.
- Station Superintendent, Tuanku Jaafar Power Station, Port Dickson  
**Ir. Yong Chin Thong**, B.Sc.(Eng.), C.Eng., M.I.E.E., M.I.E.(M), P.Eng.

## ADMINISTRATION & MANAGEMENT DEVELOPMENT DIVISION

- Deputy General Manager (Administration)  
**Y.M. Ir. Tengku Daud bin Tengku Besar Burhanuddin**, J.S.M., P.P.T., P.J.K., D.L.C., P.Eng., M.I.E.(M).
- Director (Personnel Administration)  
**Ir. Nik Mohamed bin Nik Yusoff**, P.Eng., M.I.E.(M).
- Secretary  
**Encik Megat Nordin bin Megat Yunus**, J.S.M., B.A.(Malaya), M.P.A.(Pittsburgh)
- Commercial Manager  
**Ir. Chan Beng Kong**, P.Eng., M.I.E.(M), C.Eng., M.I.E.E., M.I.E.(Aust.)
- Director (Management Services & Development)  
**Ir. Mohd. Jalaluddin Zainuddin**, B.Sc.(Wales), P.Eng., M.I.E.(M).



# CHIEF EXECUTIVE OFFICERS OF THE BOARD

## GENERAL MANAGER

Y.B. Tan Sri Dato Ir. Abu Zarim bin Haji Omar, P.S.M., P.J.K., D.L.C., P.Eng., F.I.E.(M.), C.Eng., M.I.E.E.



## SPECIAL SERVICES DIVISION

Director General (Special Services)

Ir. Chan Khee Pok, J.M.N., B.Sc.(Eng.), P.Eng., F.I.E.(M.), C.Eng., F.I.E.E. (up to 31.7.78)

Deputy Director General (Special Services)

Ir. Wong Wai Kheong, P.Eng., M.I.E.(M.), C.Eng., M.I.E.E. (up to 25.6.78)

Director (Special Services)

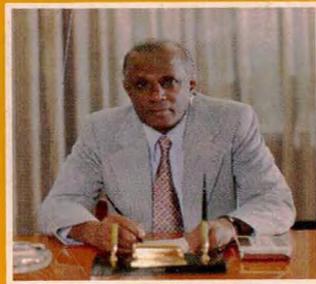
Ir. Loong Sow Toong, D.F.H., P.Eng., M.I.E.(M.), C.Eng., M.I.E.E. (w.e.f. 26.6.78)

Deputy Director (Special Services)

Ir. Kamaluddin bin Haji Ibrahim Ali, B.Sc.(Eng.), C.Eng., M.I.E.E., P.Eng., M.Eng. (w.e.f. 1.1.78)

Chief Civil Engineer

Ir. Fong Thin Yiew, B.E., P.Eng., M.I.E.(M.), C.Eng., M.I.C.E., M.I.W.E.



## PLANNING & CONSTRUCTION DIVISION

Deputy General Manager (Planning & Construction)

Ir. A. Ramanath, J.S.M., B.Sc.(Eng.), P.Eng., F.I.E.(M.), C.Eng., F.I.E.E., F.I.Mech.E.

Chief Engineer (Planning & Construction — System)

Ir. Eddie Tan Ghee Soon, B.E.(M&E.), F.I.E.(M).

Deputy Chief Engineer (Research & Development)

Ir. Loong Sow Toong, D.F.H., P.Eng., M.I.E.(M.), C.Eng., M.I.E.E. (up to 19.6.78)

Ir. C.P. Karunakaran, B.E.(Melb.), P.Eng., M.I.E.(M.) (w.e.f. 10.7.78)

Deputy Chief Engineer (Planning & Construction Generation)

Ir. D. Jesuthasan, B.Sc.(Eng.), C.Eng., M.I.E.E., M.I.Mech.E., M.I.E.(M.), P.Eng.

Deputy Chief Engineer (Transmission Planning)

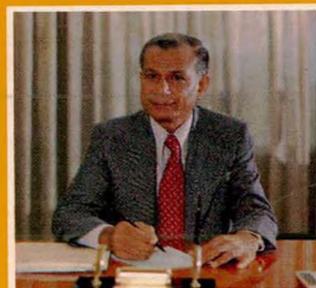
Ir. F. Magimay, K.M.N., B.E.(Syd.), P.Eng., M.I.E.(M.), C.Eng., M.I.E.E. (w.e.f. 1.7.78)

Ir. C.P. Karunakaran, B.E.(Melb.), P.Eng., M.I.E.(M.) (up to 10.7.78)

Deputy Chief Engineer (Transmission Construction)

Ir. F. Magimay, K.M.N., B.E.(Syd.), P.Eng., M.I.E.(M.), C.Eng., M.I.E.E. (up to 1.7.78)

Ir. Tara Singh Gill, P.J.K., B.Sc.(Eng.), P.Eng., M.I.E.(M.), A.M.I.E.E. (w.e.f. 27.6.78)



## INSPECTORATE DIVISION

Chief Electrical Inspector

Ir. Mohd. Khalid bin Din, J.S.M., D.B.C., P.Eng., M.I.E.(M.), C.Eng., M.I.E.E., M.B.I.M.



## FINANCIAL DIVISION

Financial Controller

Encik Chan Kai Foo, J.S.M., F.A.S.A.

Chief Accountant

Encik Mansor bin Latiff, A.A.S.A., A.M.B.I.M., C.P.A.

Manager Electronic Data Processing

Encik Fong Ah Ngoh, K.M.N., A.R.M.T.C., A.A.S.A.(Sr.), C.P.A., M.A.C.S.

Chief Auditor

Encik Liow Shih Mow, F.A.S.A., C.P.A. (w.e.f. 10.4.78)

# The Board ✓

IKATAN RESOURCE CENTRE  
TENAGA NASIONAL BERHAD  
JALAN SERDANG  
43009 KAJANG  
SELANGOR DARUL EHSAN

IKATAN RESOURCE CENTRE TENAGA NASIONAL BERHAD	
NO. PANGKILAN:	
TARIKH TERLIA:	
NO. PEROLEHAN:	23048

## CHAIRMAN

YB Tan Sri Abdullah bin Mohd. Salleh, PMN, DMSM, KMN

## DEPUTY CHAIRMAN AND GENERAL MANAGER

YB Tan Sri Dato Abu Zarim bin Haji Omar, PSM, PJK

## TEMPORARY DEPUTY CHAIRMAN AND ACTING GENERAL MANAGER

Encik Wong Kin Hong, JMN (from 16.9.1977 up to 13.10.1977)

## MEMBERS

YB Tan Sri Mohd. Noor TaHir Tan, PMN, CWE

Dr. P.P. Narayanan

YB Dato Chan Keong Hon, DPMS, JSM, AMN, SMS, PJK

Encik Mohd. Jumah bin Mat Satir, PCM, JP

YB Dr. Nik Hussein bin Abdul Rahman, KMN (up to 28.8.1978)

+ Tuan Haji Othman bin Abdul Malek, KMN (up to 30.11.1977)

YB Dr. Tan Tiong Hong, MP

Encik Mohd. Zain bin Haji Abdul Majid, JMN (up to 30.9.1977)

+ + Encik Mohd. Khalil bin Haji Hussein, KMN (up to 31.7.1978)

Encik Megat Abdul Rahman bin Megat Ahmad

Encik N. Sadasivan (from 1.10.1977)

+ + + Encik Mohd. Hussaini bin Abdul Jamil, JSM (from 1.12.1977)

Encik Nik Ahmad bin Haji Nik Hassan, JMN, KMN (from 1.8.1978)

+ Alternate Member : Encik Mohd Hussaini bin Abdul Jamil, JSM  
(up to 30.11.1977)

+ + Alternate Member : Encik Sulaiman bin Mohd Amin (up to 30.9.1977)

: Tuan Syed Rosley bin Syed Abu Bakar (from 1.10.1977 up to  
31.7.1978)

+ + + Alternate Member : Encik Helmi bin Mohd Noor (from 1.12.1977)

On 28th July 1978, the National Electricity Board of the States of Malaya, ceased to be under the Ministry of Works and Public Utilities and came under the Ministry of Energy, Telecoms and Posts.

## **FUNCTIONS AND FINANCIAL POLICY OF THE BOARD**

The Board is under a statutory duty to promote the generation of electrical energy with a view to the economic development of Peninsular Malaysia and to secure the supply of such energy at reasonable prices. It has a duty also, to advise the Minister, charged with responsibility for electricity, on all matters relating to its generation and use. The Board is required to manage and operate electrical installations transferred to, acquired or established by the Board. In the field of legislation the Board is entrusted with the duty of making regulations for the generation and use of energy. To enable it to carry out its duties, the Board is vested with wide powers empowering it to construct and operate supply lines and stations, to generate and sell energy, to acquire electrical plant and property and to assemble or manufacture electrical plants and fittings.

It is the duty of the Board as an organisation providing service to the public, to ensure that its revenue, after meeting all outgoings including depreciation and interest on capital, is utilised to finance a proportion of its capital development programme to meet the country's increasing demand for electricity. The high rates of growth in the capital intensive field of electricity supply necessitate the deployment of almost all of the balance of its revenue towards meeting the capital development programme.

### **Auditors to the Board**

MESSRS. PRICE WATERHOUSE & CO., KUALA LUMPUR

MESSRS. HANAFIAH, RASLAN, MOHAMAD & PARTNERS, KUALA LUMPUR

### **Consultants to the Board**

MESSRS. PREECE, CARDEW & RIDER, BRIGHTON, U.K. AND KUALA LUMPUR

MESSRS. SNOWY MOUNTAINS ENGINEERING CORPORATION, AUSTRALIA

MESSRS. TATA CONSULTING ENGINEERS, INDIA

MESSRS. SHAWINIGAN ENGINEERING COMPANY LIMITED, CANADA

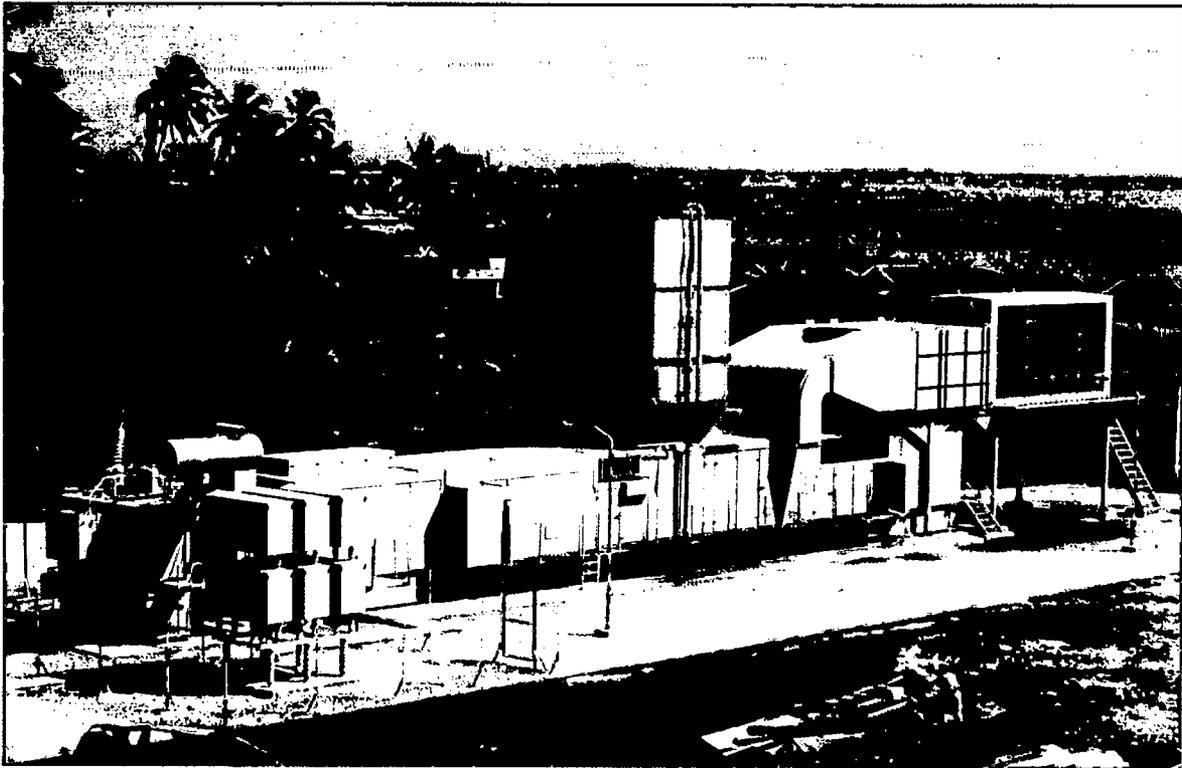
MESSRS. EWBANK & PARTNERS, UNITED KINGDOM

## SUMMARY OF RESULTS COMPARED WITH PREVIOUS YEAR

	Units	1976/1977	1977/1978	% Increase
<b>SALES OF ELECTRICITY</b>				
Units sold	Kwh	5,297,145,297	5,934,175,399	12.02
<b>NUMBER OF CONSUMERS SERVED BY AREAS</b>				
	No.			
Central Area		249,089	274,954	10.38
Northern Area		290,897	316,278	8.72
Southern Area		246,514	272,975	10.73
Eastern Area		129,846	148,623	14.46
Total		916,346	1,012,830	10.53
<b>FINANCE</b>				
	\$ Million			
Total income		585.60	665.95	13.72
Net operating surplus (after interest and taxation)		60.88	92.89	52.58
Capital Expenditure		344.54	371.42	7.80
Net Fixed Assets in operation		1,613.77	1,858.35	15.16
Net return on Net Fixed Assets in operation	%	3.77	5.00	32.63
<b>GENERATION</b>				
Installed Capacity	MW			
Thermal		970.00	970.00	Nil
Hydro		265.40	352.42	32.79
Diesel		81.00	97.42	20.27
Gas Turbine		—	20.00	—
Thermal Efficiency	%	26.04	25.36	2.61 (Decrease)
<b>WESTERN NETWORK</b>				
Maximum Demand	MW	975.09	1,082.36	11.00
Load Factor	%	68.91	69.49	0.84
Total Units generated	Million kwh	5,848.88	6,588.50	12.65
<b>TRANSMISSION</b>				
	Miles			
Length of 275 KV Lines		137.00	231.00	68.61
Length of 132 KV Lines		894.65	959.62	7.26
Length of 66 KV Lines		338.97	336.49	0.73 (Decrease)
<b>SUBSTATIONS</b>				
Number of Substations	No.	4,760	5,264	10.59
Transformer Capacity	MVA	6,752	8,146	20.65
<b>EMPLOYEES</b>				
Total Number of Employees	No.	13,757	15,590	13.32
Sales per Employee	Kwh	385,051	380,640	1.16 (Decrease)

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The contract was awarded to Messrs Marubeni Corporation of Japan in early March, 1978. The first unit at Penang was commissioned on 21st August, 1978.



*Gas Turbine, Glugor Power Station.*

## NUCLEAR POWER PROGRAMME

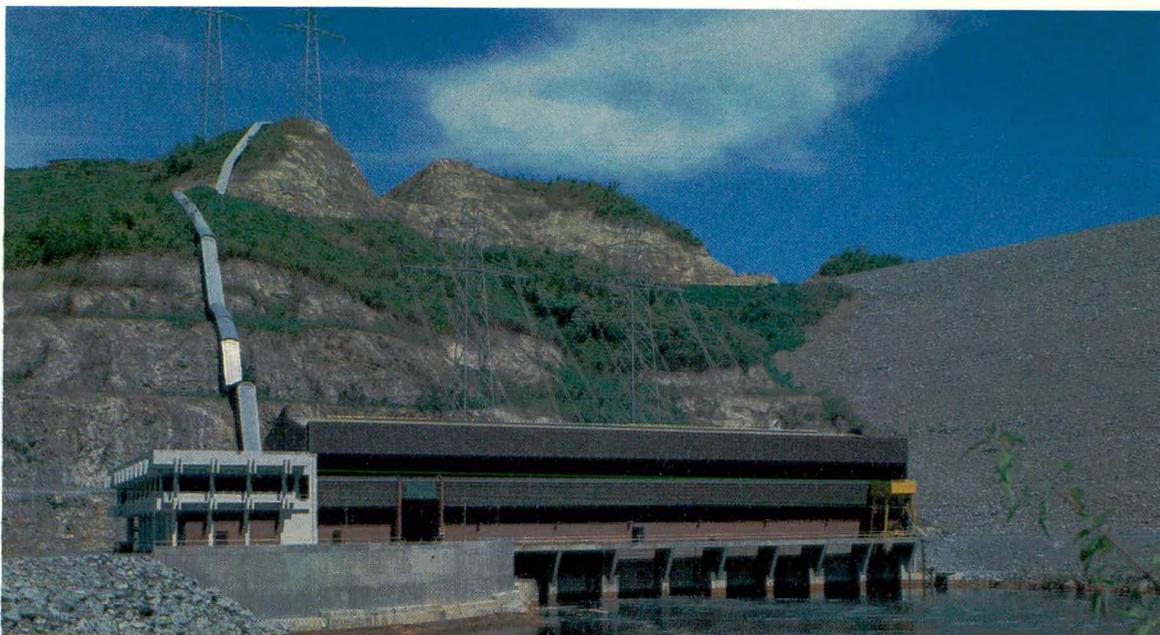
Preliminary site studies and review were carried out during the year with the assistance of a siting mission from the International Atomic Energy Agency (I.A.E.A.) for the proposed first nuclear power project. Several members of the Board's staff were sent to undergo training conducted by I.A.E.A. on nuclear power project planning, implementation, construction, operation and manpower development.

# Hydro-Electric Development

## TEMENGOR, PERAK

Substantial completion of the civil works for Temengor Project was achieved as scheduled. The erection of electrical and mechanical plant and equipment in the power station was completed by July 1978.

The impounding of Temengor reservoir did not reach the level as scheduled due to the protracted drought. Generating unit No. 2 was put on commercial operation in April 1978. It is anticipated that commissioning tests for generating units 1, 3 and 4 would be carried out in February 1979.



*Hydro-Electric Power Station at Temengor.*



*Control Room, Temengor Hydro-Electric Power Station.*

---

## **BERSIA AND KENERING, PERAK**

Further discussions were held with the consultants to finalise the basic design documents and the project procedures manual. In early 1978, the Perak State Government gave its approval for the implementation of these two projects.

In January, 1978 the World Bank carried out an appraisal of these projects and they confirmed the economic viability and technical feasibility of this development. An application will be made to the World Bank to finance the foreign exchange cost of the civil works contract.

Meanwhile prequalification exercises have been carried out on the main Civil Works and the Turbines, Generators and associated equipment contracts. Preliminary works such as site surveys and jungle clearing have already commenced.

## **KENYIR, TRENGGANU**

Further site investigations, including diamond drilling at Kenyir damsite and the Gawi saddle dams area, were completed in June 1978. Work on the engineering design has progressed satisfactorily. Staff of the Board were seconded to Australia to participate in the design of the Trengganu Project.

In August 1978, the first major civil works contract to drive two 14-metre diameter diversion tunnels was awarded to a Japanese construction company. Prequalification of tenderers for the second civil works contract, Kenyir Dam and Associated Works, was initiated in April 1978.

## **FUTURE HYDRO PROJECT**

A review of the Fergau Hydro-Electric Development in Kelantan was done.

Negotiations were undertaken with the Japanese Aid Bureau with a view to obtain grant aid to finance the cost of the feasibility study of the Lebir Dam Project in Kelantan.

In Trengganu, site investigations for the Ulu Trengganu hydro power development which were scheduled for the second half of 1978 were deferred further.

# Transmission Planning & Construction

## TRANSMISSION

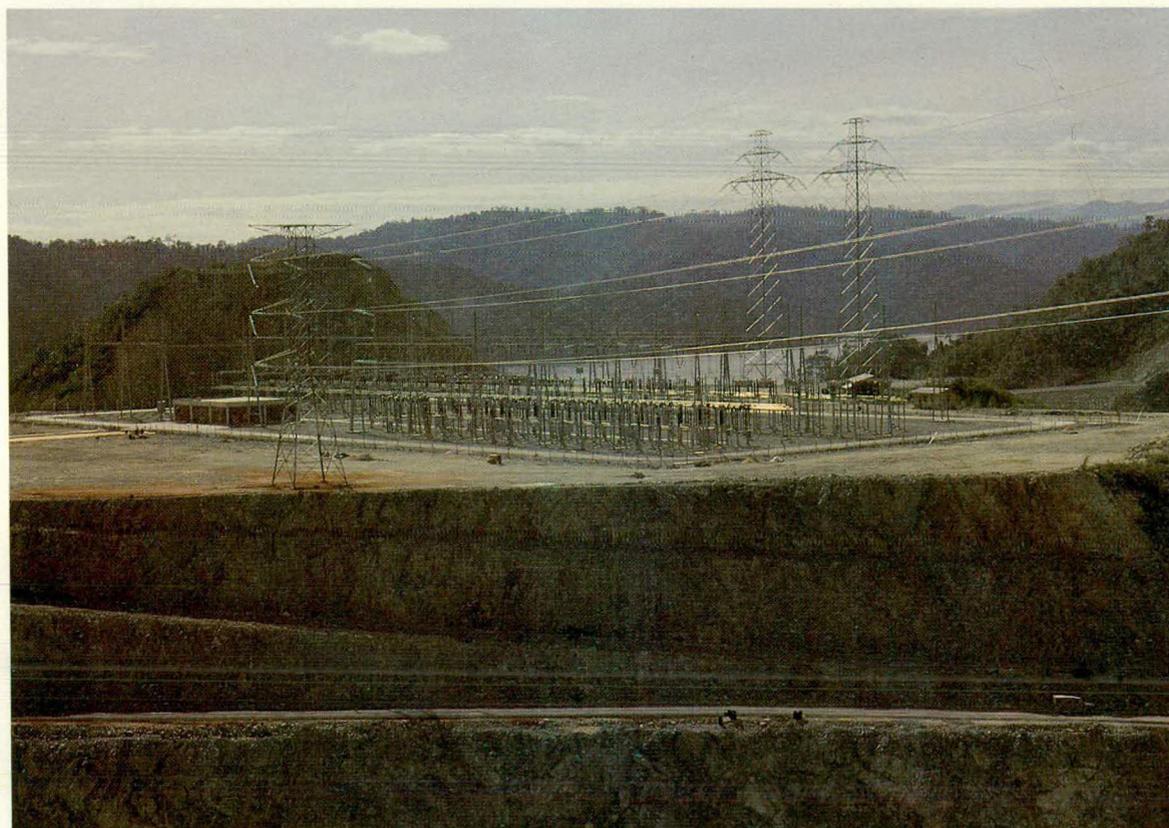
The Board completed laying and energising the two 12.5km 90 MVA 132kV oil-filled cables between Bukit Raja and North Kelang Straits.

The 275kV duplex 300 square mm ACSR double circuit transmission line 150km long from Temengor to Papan was completed and energised during the year.

Construction work is progressing satisfactorily on the 132kV 120.7km second single circuit line from Kampung Awah to Kuantan as well as on the 132kV single circuit lines between Kampung Awah to Jengka and Jengka to Jerantut respectively.

The second 132kV 90 MVA oil-filled cable from Kuala Lumpur (South) to SEA Park was also substantially completed.

Erection work on the 132kV lines on the Melaka-Muar-Yong Peng-Kluang-Scudai Contract, as well as on Scudai-Majidee-Kota Tinggi and Yong Peng-Batu Pahat Contract, are progressing satisfactorily.



*275kV Switchyard at Temengor.*

## SUBSTATIONS COMMISSIONED AND EXTENDED

1. Pontian Kecil	66/11kV	2x7.5MVA (Up-rated from 2x1.33MVA)
2. Johor Tengah	66/11kV	1x7.5MVA
3. Kulai Switching Station	66kV	—
4. Bona Vista	66/11kV	1x7.5MVA (3rd Transformer)
5. SEA Park	132/66kV	1x90MVA
6. Jalan Duta	33/11kV	2x15MVA
7. North Klang Straits	132/33kV	2x45MVA
	33/11kV	2x15MVA
8. Bukit Bintang	33/11kV	1x15MVA (3rd Transformer)
9. Lumut	132/11kV	1x30MVA
10. Teluk Anson	132/11kV	1x15MVA
11. Sg. Petani	132/11kV	2x15MVA (Up-rating from 2x5MVA)
12. Parit Buntar	132/11kV	1x15MVA (Up-rating)
13. Raub	132/11kV	1x7.5MVA
14. Bentong	132/11kV	1x7.5MVA
15. Genting Sempah	132/11kV	1x5MVA
16. Kampung Awah	132/11kV	1x7.5MVA
17. Prai Power Station	11kV	2x5MVAr Capacitor Banks
18. Prai Industrial	11kV	2x5MVAr Capacitor Banks
19. Kuantan	11kV	2x5MVAr Capacitor Banks

## HIGHLIGHTS OF TRANSMISSION PROJECTS

- 150km of 275kV duplex 300 sq. mm. ACSR transmission line was completed between Temengor and Papan and energised at 275kV.
- 27km 90MVA 132kV oil-filled cables were laid between Bukit Raja and North Klang Straits and commissioned.

## MAJOR PROJECTS PLANNED

To meet the projected future demand, plans to strengthen the transmission network by constructing lines and laying cables have been finalised as follows:—

From	To	Voltage	Size
1. Kuala Lumpur (North)	Kampung Awah	275kV	Duplex 400 sq.mm. D.C.
2. Chenderiang	Rawang	275kV	Duplex 400 sq.mm. D.C.
3. Prai	Temengor	275kV	400 sq.mm. D.C.
4. Temengor	Tanah Merah	275kV	300 sq.mm. D.C.
5. Kuala Lumpur (North)	Connaught Bridge Power Station	132kV	300 sq.mm. D.C.
6. Prai	Penang	132kV	2x100 MVA submarine & 2x100 MVA land cables
7. Tanjung Gelang	Kemaman & Dungun	132kV	Single 300 sq.mm. D.C.
8. Raub	Benta & Kuala Lipis	132kV	Single 150 sq.mm.
9. Pasir Gudang	Majidee	132kV	Duplex 300 sq.mm. D.C.

Commensurate with transmission line reinforcement, plans had also been drawn up to extend/increase existing substations and/or establish additional major substations in the following areas:—

(a) **Northern Area**

Prai	— Extension	4th 45MVA 132/33kV
Tikam Batu	— New	2 x 30MVA 132/33kV
Penang	— New	2 x 90MVA 132/33kV
Simpang Ampat	— New	2 x 15MVA 132/11kV
Temoh	— New	2 x 75MVA 132/66kV
Alor Star No. 2	— New	2 x 30MVA 132/33kV 2 x 30MVA 132/11kV

(b) **Southern Area**

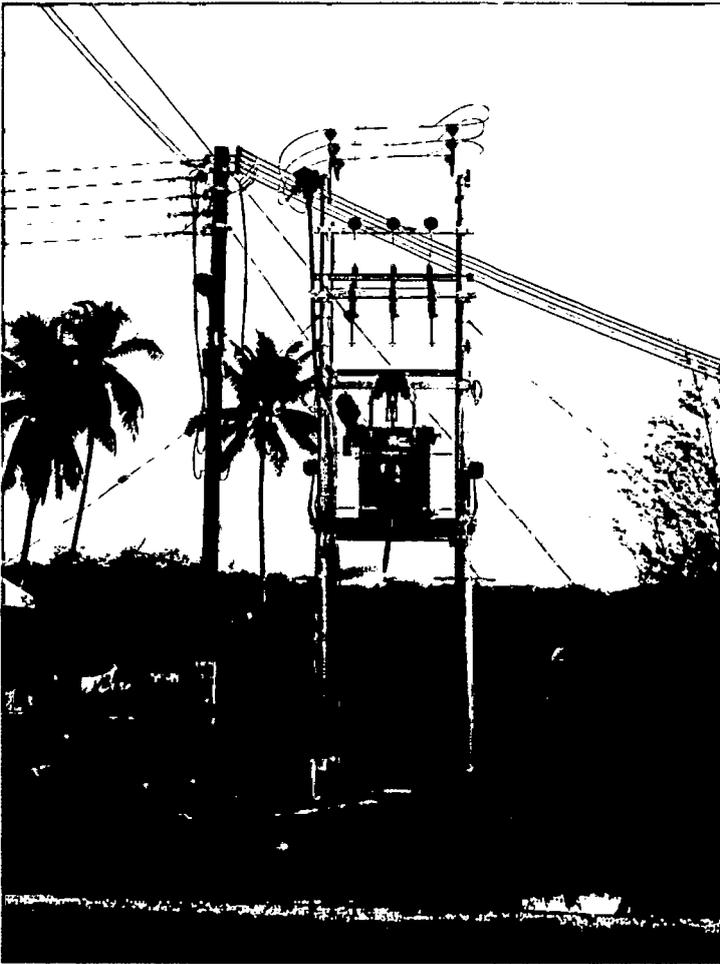
Senawang	— Extension	2 x 7.5MVA 132/11kV
Melaka	— New	2 x 30MVA 132/66kV
	— New	2 x 180MVA 275/132kV
Air Keroh	— Extension	2 x 15MVA 132/11kV
Semabok	— New	2 x 30MVA 132/11kV
Muar	— New	2 x 15MVA 132/11kV
Yong Peng	— New	2 x 7.5MVA 132/11kV
Batu Pahat	— Extension	2 x 15MVA 132/11kV
Kluang	— Extension	2 x 75MVA 132/66kV
Johor Bahru (Stulang Barat)	— New	2 x 45MVA 66/22kV
Johor Tengah	— New	2 x 15MVA 132/11kV
Scudai	— Extension	2 x 90MVA 132/66kV
Kota Tinggi	— New	2 x 15MVA 132/11kV

(c) **Eastern Area**

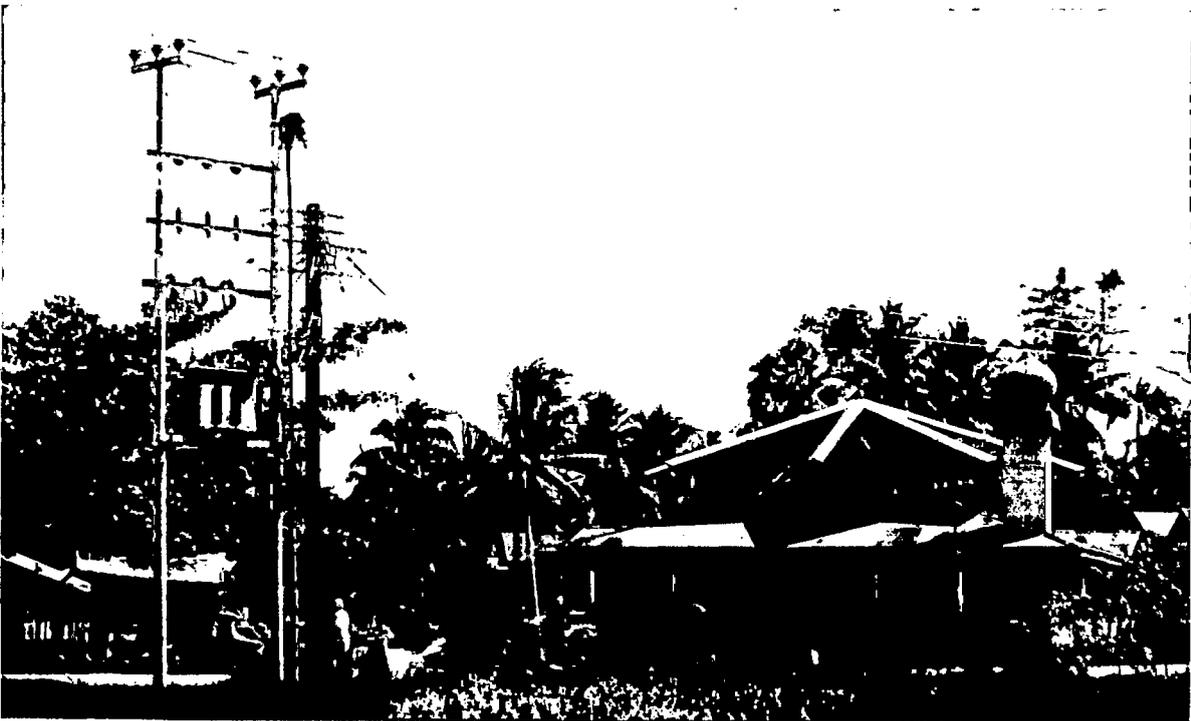
Kampung Awah	— New	2 x 7.5MVA 132/11kV
	— New	2 x 180MVA 275/132kV
Jengka	— New	2 x 15MVA 132/11kV
Jerantut	— New	2 x 7.5MVA 132/11kV
Kemaman	— New	2 x 15MVA 132/11kV
Benta	— New	2 x 7.5MVA 132/11kV
Kuala Lipis	— New	2 x 7.5MVA 132/11kV

(d) **Central Area**

CBPS Klang	— Extension	2 x 90MVA 132/66kV
Shah Alam	— New	2 x 30MVA 132/11kV
Subang Airport	— New	2 x 15MVA 66/11kV
SEA Park	— Extension	1 x 90MVA 132/66kV
Ampang	— New	2 x 45MVA 132/33/11kV
Kampung Lanjut	— New	2 x 45 MVA 132/33/11kV



*A typical pole-mounted rural substation.*



*Electricity supply to Yampung Imam, Kedah.*

# Sales of Energy

## DOMESTIC CONSUMERS

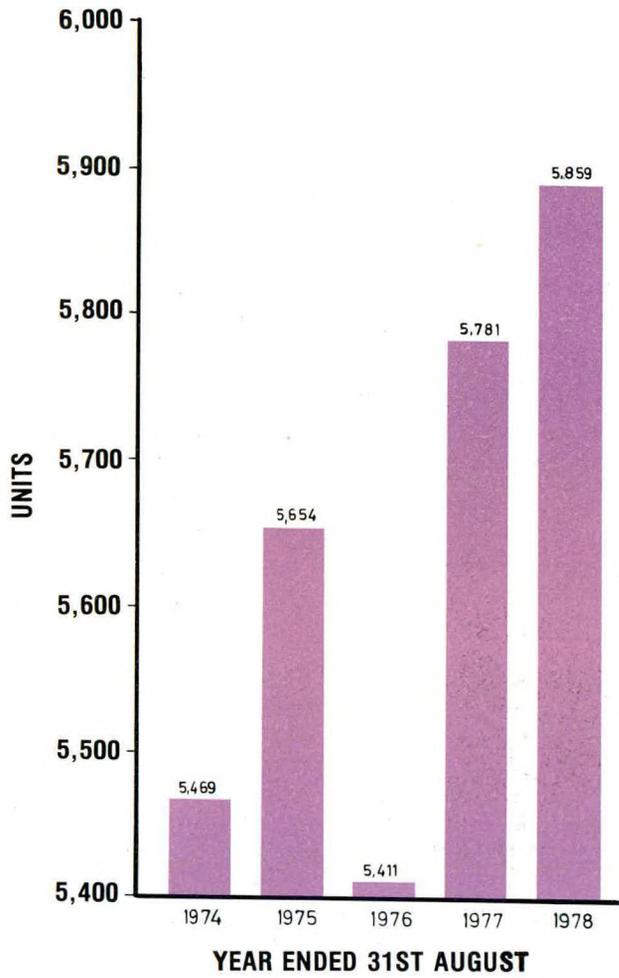
For the year under review, sales of energy to domestic consumers have increased from 702.4 million units to 847.6 million units representing an increase of 20.7%. Revenue from sales increased from \$97.7 million to \$115.8 million, representing an increase of 18.5% over the previous year. The average price per unit sold dropped from 13.91¢ to 13.66¢ or a drop of 1.8%.

Substantial increases in sales were to domestic consumers in Kuala Lumpur (33.7 million units), Petaling Jaya (12.7 million units), Penang (8.6 million units), Johore Bahru (8.4 million units) and Malacca (6.3 million units).

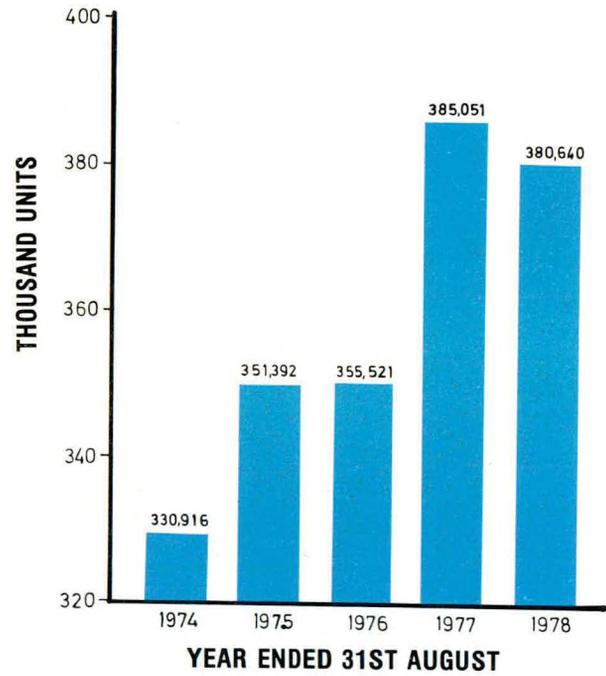


*Housing Estate, Bangsar Baru, Kuala Lumpur.*

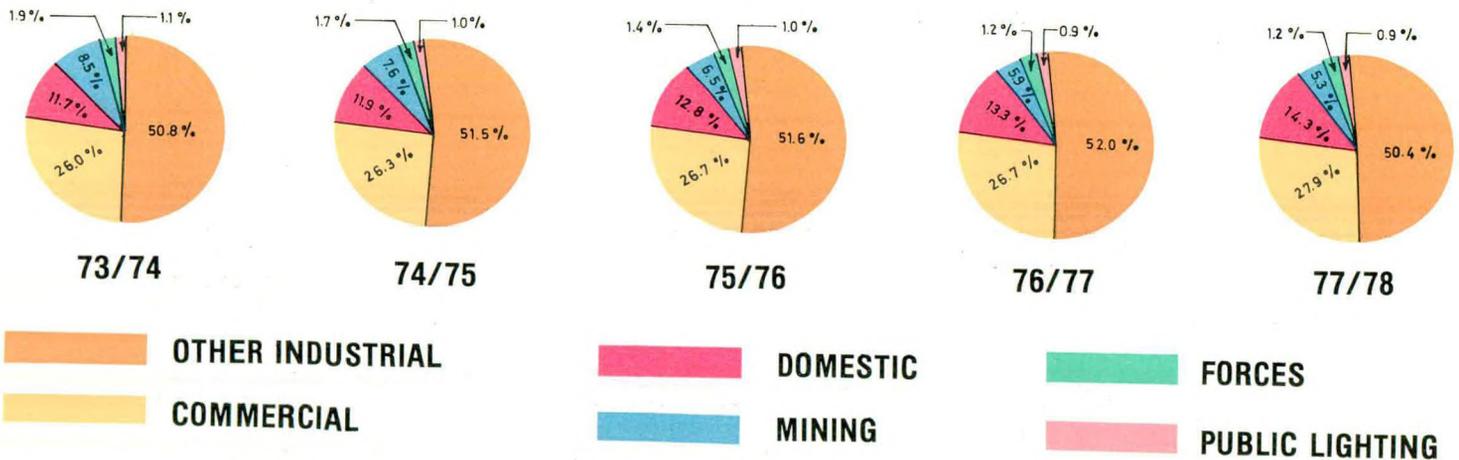
### UNITS SOLD PER CONSUMER



### UNITS SOLD PER EMPLOYEE



### UNITS SOLD TO THE VARIOUS SECTORS AS A % OF TOTAL UNITS SOLD

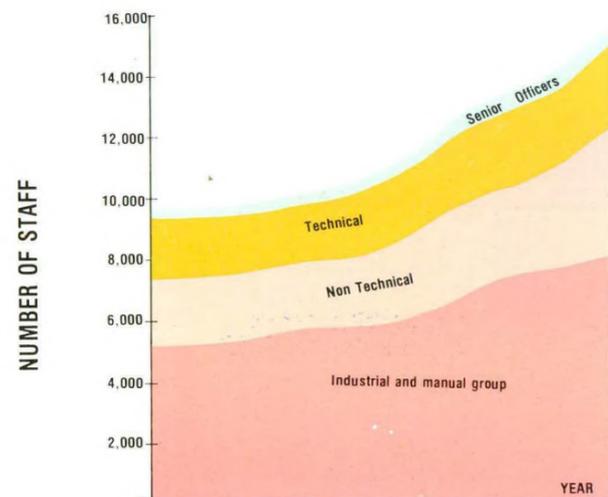


# General Administration

## PERSONNEL

The number of personnel employed by the Board as at 31st August, 1978 was 15,590.

### MANPOWER GROWTH AND CATEGORIES



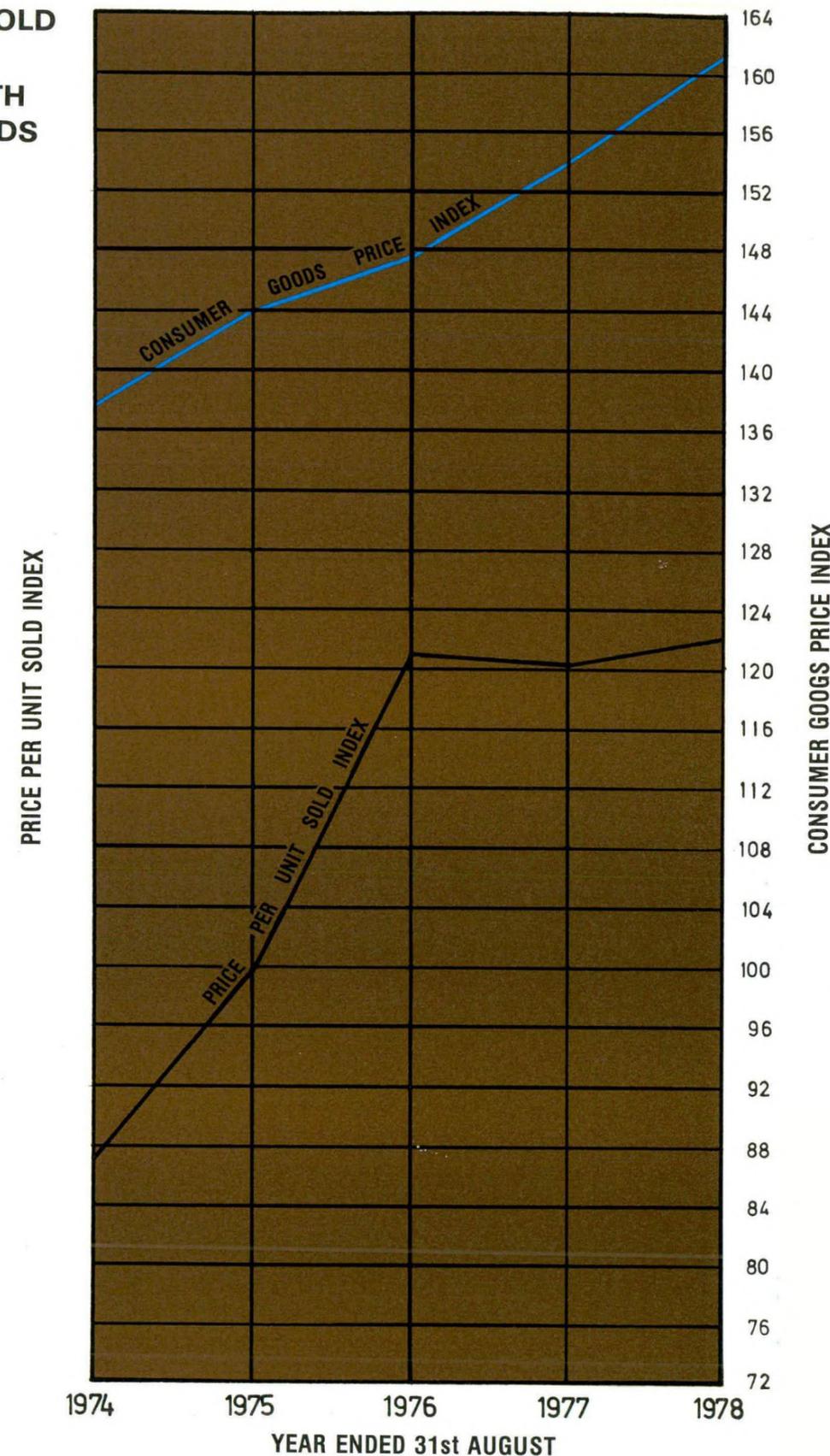
### NUMBER OF STAFF BY FUNCTIONAL GROUPING 1972/73 — 1977/78

	1972	1973	1974	1975	1976	1977	1978
Senior Officers	326	364	382	422	476	513	567
Technical	1842	1884	2026	2084	2359	2431	2780
Non Technical	2084	2247	2348	2644	2859	3164	4165
Industrial & Manual Group	5395	5601	5827	6183	7086	7649	8078
<b>TOTAL</b>	<b>9647</b>	<b>10096</b>	<b>10583</b>	<b>11333</b>	<b>12780</b>	<b>13757</b>	<b>15590</b>



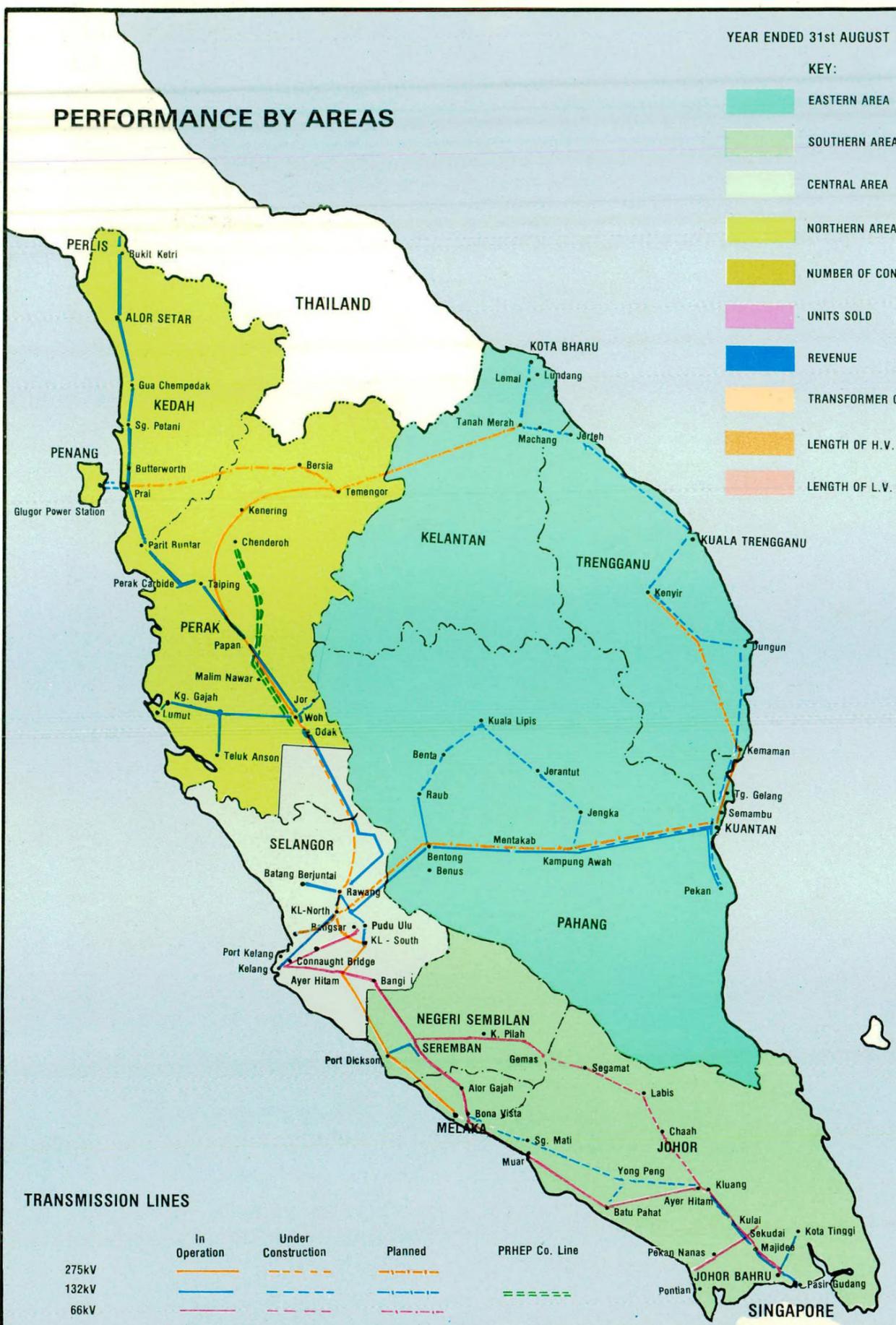
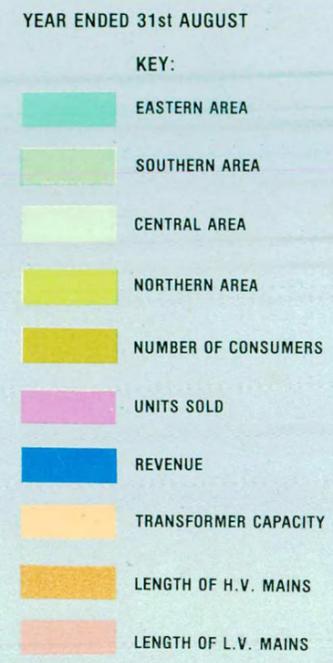
DYMM Yang Dipertuan Besar Negeri Sembilan declares open the new NEB Office at Kuala Pilah.

## PRICE PER UNIT SOLD INDEX IN COMPARISON WITH CONSUMER GOODS PRICE INDEX

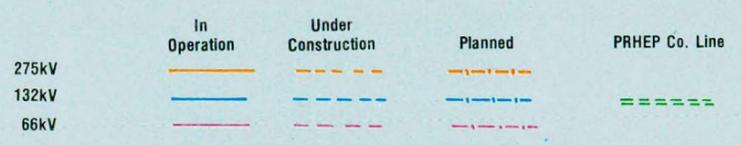


INDEX (BASE YEAR 1967 = 100)	1970	1978	NET INCREASE (POINTS)	% INCREASE
PRICE PER UNIT SOLD INDEX	86.9	122.2	35.3	40.6
CONSUMER GOODS PRICE INDEX	101.3	161.5	60.2	59.4

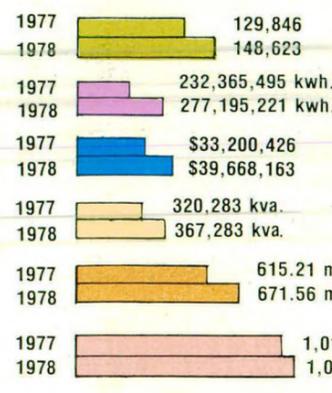
### PERFORMANCE BY AREAS



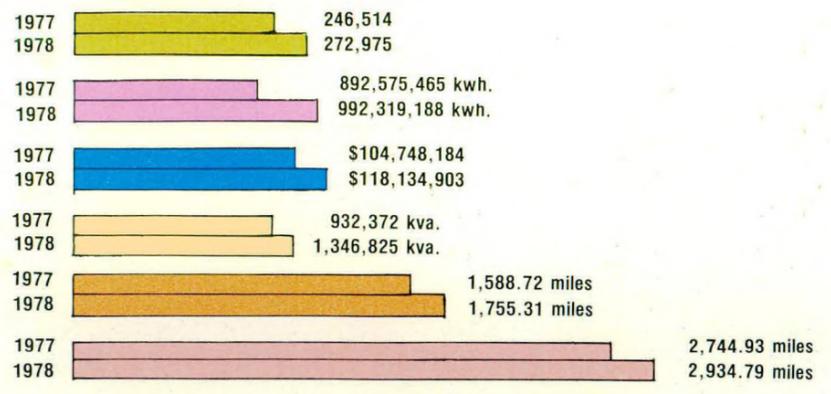
#### TRANSMISSION LINES



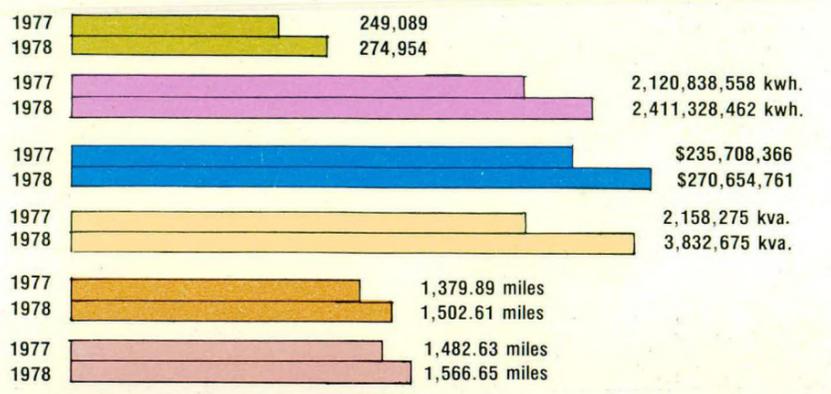
#### EASTERN AREA



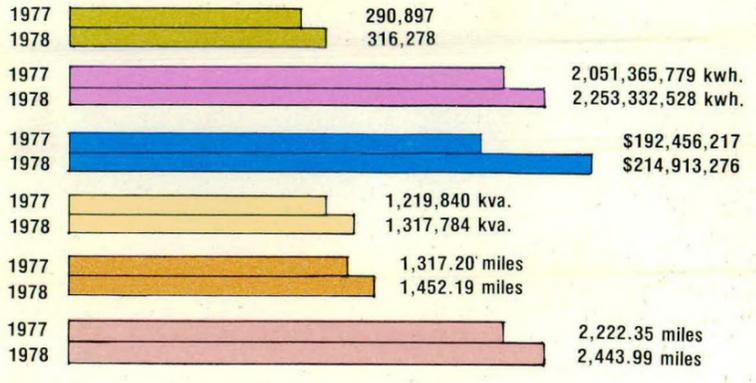
#### SOUTHERN AREA



#### CENTRAL AREA



#### NORTHERN AREA





*New NEB Office, Kuala Pilah.*



*New NEB Office, Melaka.*

## HONOURS

DYMM Seri Paduka Baginda Yang Dipertuan Agung, conferred the following titles to personnel of the Board, as listed below:—

- (a) Pingat Johan Setia Mahkota (JSM)  
Encik Chan Kai Foo, Financial Controller.  
Encik Basil Manasseh, Chief Engineer (Distribution).  
Encik Mohd. Khalid bin Mohd. Din, Chief Electrical Inspector.



*DYMM Seri Paduka Baginda Yang Dipertuan Agung confers Johan Setia Mahkota (JSM) on Encik Chan Kai Foo, Financial Controller.*



*DYMM Seri Paduka Baginda Yang Dipertuan Agung confers Johan Setia Mahkota (JSM) on Encik Mohd. Khalid bin Mohd. Din, Chief Electrical Inspector.*

## (b) Ahli Mangku Negara (AMN)

Encik Abdul Shukur bin Salleh, Board Clerical Service, Butterworth.

## (c) Pingat Pangkuan Negara (PPN)

Encik Hussein bin Hamid, Officer-in-Charge, Nibong Tebal.

Encik Raman Kutty @ Raman Nair, Senior Control Engineer's Office, Klang.

Encik Yeap Cheng Guan, Chief Clerk, Penang.

Encik P. Krishnan, Technician, Cameron Highlands.

Encik Cheah Khay Hoe, Chief Resident Engineer's Office, Temengor.

Encik R. Ponnampalam, Linesman, Kuantan.

DYMM Sultan of Pahang conferred the Pingat Jasa Kebaktian (PJK) to:—

Encik Tan Teow Suan, Assistant Generation Engineer (Diesel), Kuantan.

DYMM Sultan of Perak conferred the Pingat Pekerti Terpilih (PPT) to:—

Encik Yahaya bin Haji Salleh, District Manager, Telok Anson.

DYMM Sultan of Trengganu conferred the Pingat Jasa Kebaktian (PJK) to:—

Encik Ahmad bin Othman, Technical Assistant, Kuala Trengganu.

DYMM Yang Dipertuan Besar of Negri Sembilan conferred the Pingat Jasa Kebaktian (PJK) to:—

Encik J. Vijayan, Meter Reader, Seremban.

DYMM Sultan of Selangor conferred the Pingat Jasa Kebaktian (PJK) to:—

Encik Venkitesan @ Ramachandran s/o Munusamy, Meter Reader, Tanjong Malim.

DYMM Sultan of Johor conferred the following:—

## (a) Bintang Setia Mahkota Johor (SMJ)

Encik P.S. Moorthy, Senior District Manager, Johor Bahru.

## (b) Pingat Ibrahim Sultan Pangkat Kedua (PIS II)

Encik Wee Kin Siang @ New Ing Swee, District Manager, Batu Pahat.

Encik V. Shanmugam, Board Clerical Service, Johor Bahru.

Encik Mohd. Bakri bin Mohd. Sakeh, Technician, Johor Bahru.

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TYT Yang Dipertua Negeri Pulau Pinang conferred the Pingat Jasa Kebaktian (PJK) to:—  
Encik: Abdul Shukur bin Salleh, Board Clerical Service, Butterworth.

TYT Yang Dipertua Negeri Melaka conferred the following:—

- (a) Pingat Bak'ti Masyarakat (PBM)  
Tuan Haji Ali bin Haji Ehsan, Office Assistant, Seremban.  
Encik: Samsudin bin Haji Mohd. Ali, Meter Reader, Malacca.
- (b) Pingat Khidmat Lama (PKL)  
Mrs. Kwong Shuk Woon, Board Clerical Service, Malacca.  
Encik: Candrayah Samy, Junior Technician (retired).

### **AWARD OF THE HONORARY COLONEL**

DYMM Seri Paduka Baginda Yang Dipertuan Agung has graciously conferred to YB Tan Sri Dato Abu Zarim bin Haji Omar, the Deputy Chairman/General Manager of the Board, an Honorary Credential with the rank of Colonel in the Engineers Regiment from 1st December 1977.

### **SECURITY**

The Board's Security Unit now consists of 526 members. Of this figure 12 are ex-watchmen of the Board who have been absorbed into this Unit.

The Board's Security Unit has intensified its effort in exposing syndicates involved in the theft of electricity through "Operation Tracy".

## EDUCATION & TRAINING

The Education & Training Department has spent about \$8,767,454 in the form of training and scholarship during the year under review.

The training programme summary is as follows:

### Engineering Scholarship Award

	At Beginning of Year	Year's Intake	Completed	Resigned/ Withdrawn	At end of year 31.8.78
Overseas	164	45	40	2	167
Univ. of Malaya	6	1	—	1	6
Univ. Teknologi Malaysia	72	64	19	5	112
Ungku Omar Poly. (Ipoh)	126	87	37	6	170
Kuantan Polytechnic	37	44	6	4	71
Basic Science (Univ. of Malaya)	10	10	—	—	20
Mara Inst. of Tech.	—	10	—	—	10

### Accountancy Scholarship

Overseas	18	—	1	1	16
----------	----	---	---	---	----

### Trainees & Apprentices

Technicians Cadets	9	4	—	—	13
Apprentices	392	—	25	15	352

### Miscellaneous

	Number
Trainees from External Bodies	22
Attachment training of Ex-Serviceman	34

### Staff Training Programme

As one of its development programmes the Board has also organised for its serving officers various short term courses and seminars locally and abroad summarised as follows:—

Training in the Board	Category of Staff	Number of Staff Given Training
Induction Course	Engineers, Accountants & Administrative Officers	40
Induction Course	Technicians	64

Training in the Board	Category of Staff	Number of Staff Given Training
<b>Local Institutions</b>		
Intan	Senior Officers & Supervisors	9
National Productivity Centre	Senior Officers & Supervisors	62
Malaysian Inst. of Management		50
Mara Inst. of Technology (BBA Course)		1
<b>Overseas</b>		
Seminars, Symposiums & Study Tours	Senior Officers	67
Post Graduate Studies at Universities	Senior Officers	
(a) Ph. D		4
(b) Masters		9

Industrial training facilities were also extended to students from Universities, as well as to personnel from Government and other statutory organisations.

Nature of Training	Category	Number
Vacation Training	College & University Students	30
<b>Training Facility for Overseas Officers</b>		
From the Sabah Electricity Authority		4

#### The Establishment of a Board of Examiners

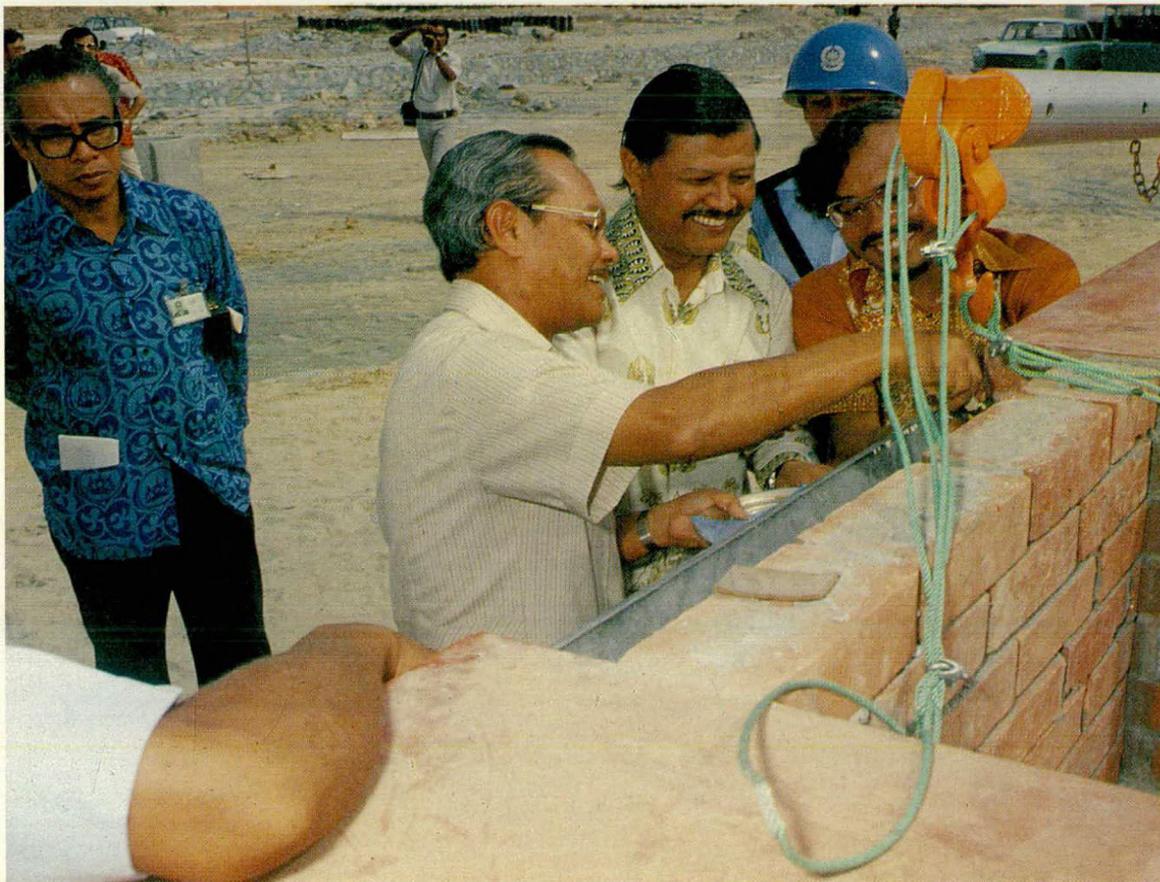
With the establishment of the Board of Examiners on 1st September 1975, steps were taken to centralise all examinations and tests. Examinations and tests organised by the Education and Training Section are as follows:—

Types of Examinations & Tests	Number of Candidates
Trade	365
Qualifying (Category 'A' workmen and plant operators)	631
Bahasa Malaysia for senior officers	21
Department Technical	3
Clerical	821
Stenography	85
Typewriting	195
Storekeeping	8
First Technician	22
Second Technician	64

## TRAINING INSTITUTE NATIONAL ELECTRICITY BOARD

The Bangi Training Centre was renamed the Training Institute, National Electricity Board, on the occasion of the Laying of the Foundation Stone by the General Manager for the Administrative Building on 3rd June 1978.

During the year two blocks of classrooms and laboratories, the mechanical workshop, the dining hall and the kitchen and one hostel were completed. The teaching and administrative staff of the Institute moved into the Centre in July 1978.

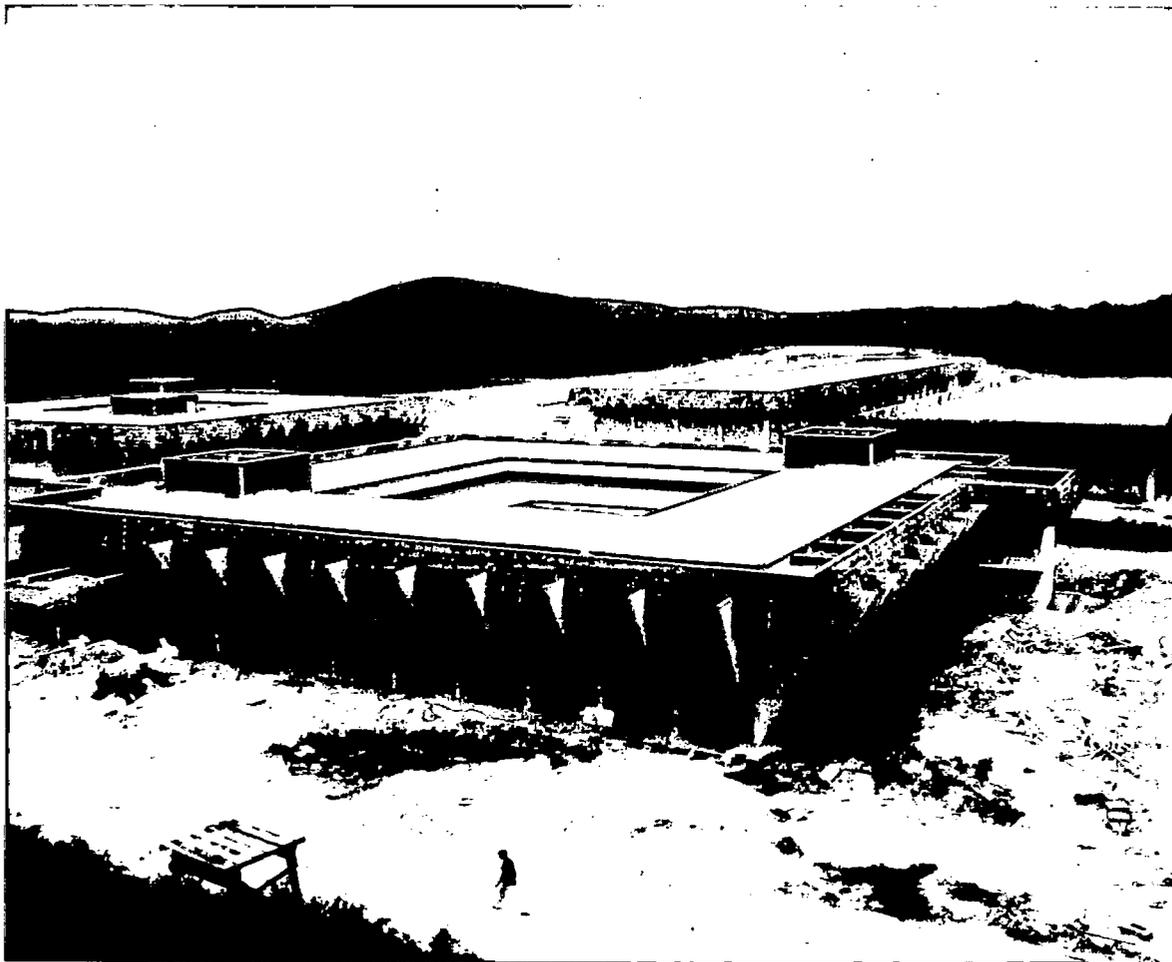


*The General Manager laying the Foundation Stone*

To ease the shortage of Linesmen arising out of intensification of the Rural Electrification Programme, a crash programme was implemented.

During the year the following courses were conducted:—

	No. of Courses	No. of Trainees
(1) Standardisation of Medium and Low Voltage Overhead Line practice for Linesmen and Junior Technicians	8	115
(2) Crash Programme for Linesmen	5	80
(3) Jointers' Mates' Course	7	67
(4) Low Voltage Jointers' Course	1	8



*The Training Institute, Bangi.*

## PUBLIC RELATIONS

In line with its main functions, the Public Relations Department has discharged its duties to sustain the good image of the Board. Various activities of the NEB were fully publicised and advertisements inserted in souvenir programmes of charitable organisations. Local and foreign visitors were given hospitable attention, and through this department the Board participated in various Government exhibitions and other Government celebrations in conjunction with significant national events.

Besides producing house magazines "Tenagawan", "Power" and "Tenaga", the department also produced a booklet on "How To Apply For the Electricity Supply", with a view to providing information to would-be consumers as the name implies, and also another booklet containing questions and answers on electricity supply.

In Press relations, the Board continued to receive full cooperation not only from the local newspapers and magazines but also from radio and television through Press conferences and Press releases pertaining to the Board's activities and new policies affecting the public from time to time. Complaints by consumers appearing in local Press were attended to immediately.

## INDUSTRIAL RELATIONS

During the period under review, management/union relationship underwent a process of steady growth. Industrial relation was free from any form of unhealthy developments. The prevailing stable situation could be attributed mainly to the firm belief and conviction of both management and unions that the Departmental Joint Council machinery is still the most effective channel in tackling outstanding issues. This is a step towards a better and more stable industrial relation within NEB.

The machinery of the Departmental Joint Council was revised in order to keep abreast with changing circumstances and demands especially in taking note of advancement and progress made by trade union movement generally. With the heightening of industrial relation challenges and demands, fresh changes were made as regards conciliation meetings and in this respect, a special calendar which served as a guide to management and unions on matters pertaining to joint council meetings, was drawn up.

Departmental Joint Council meetings which were held in accordance with the set calendar were focussed mainly on subjects like essential posts and package deal. It is expected that with the co-operative attitude displayed by both management and unions, these matters will be resolved satisfactorily.

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## MANAGEMENT SERVICE & DEVELOPMENT

The Management Services Department which was first established in April 1972 was re-designated in January 1978 as Management Services and Development Department, in line with its present functions. The department places great emphasis in the continuous process of innovation and change by making recommendations and proposals after in-depth studies to overcome short term and long term problems in management and administration and to monitor the implementation and gather feedback on those recommendations and proposals.

During the year, 13 projects had been concluded, including seminar and project on Management of Rural Electrification leading to the establishment of the Rural Electrification Department, Policy on complement, Promotions and Transfers of Senior Officers, Review of Post Graduate Programmes in the LLN, Establishment of Corporate Audit, Work Study on Meter Readers and Cost Benefit Analysis of the Work of Meter Reading.

This department will continue to make recommendations and proposals to overcome problems in management, in line with its functions.

## WELFARE

As at 31st August 1978, the Board owned 9 dispensaries, 9 holiday bungalows for senior officers (2 each in Penang, Cameron Highlands, Port Dickson and one each in Kuantan, Johore Bahru and Fraser's Hill) and 8 bungalows for junior officers (4 in Port Dickson, 2 each in Penang and Cameron Highlands).

In social activities and sports, the Board as an affiliate of the Malaysian Government Services Welfare and Recreational Council, has participated in all the competitions organised by the Council. As at 31st August 1978, the Board's team won at golf, football and hockey and tied with the Federal Territory team in cricket. The Welfare Department also co-ordinated the activities conducted by Kilat Clubs, Muslim Staff Welfare Associations, and the Women's Association of the National Electricity Board, better known as Pelitawanis.

A charity premier film show was organised by Pelitawanis to raise funds for the implementation of its biggest project, which is the establishment of a Kindergarten and a Children's Library. The Minister of Works & Public Utilities, Datuk Haji Abdul Ghani Gilong declared open the Pelitawanis library on 23rd July, 1978.

# Finance

## Financial Results

Income from sales of electricity for the year increased by 13.6% to \$643,371,108 (\$566,113,193) while other income increased by 15.8% to \$22,578,370 (\$19,489,407). Total income for the year was thus \$665,949,478 (\$585,602,600) a 13.7% increase. Operating expenses including depreciation increased by 8.9% to \$502,472,255 (\$461,450,386) leaving an operating surplus of \$163,477,223 (\$124,152,214) an increase of 31.7% over the previous year.

From the operating surplus of \$163,477,223 (\$124,152,214) and after deducting interest payable on borrowings and bank overdrafts amounting to \$48,488,147 (\$31,892,064), provision for taxation of \$15,000,000 (\$25,000,000) and net interest payable on ordinary stock of \$7,101,570 (\$6,377,200), the balance of revenue was \$92,887,506 (\$60,882,950). This amount was transferred to reserves and retained solely to finance the Board's capital expansion programme.

## Interest on Ordinary Stock

The Board declared an interest of 5 per cent per annum on its ordinary stock of \$236,719,000 (\$236,719,000). The amount of interest declared for the year under review was \$11,835,950 (\$10,628,670). After deducting 40% for taxation, the net amount of interest payable was \$7,101,570 (\$6,377,200).

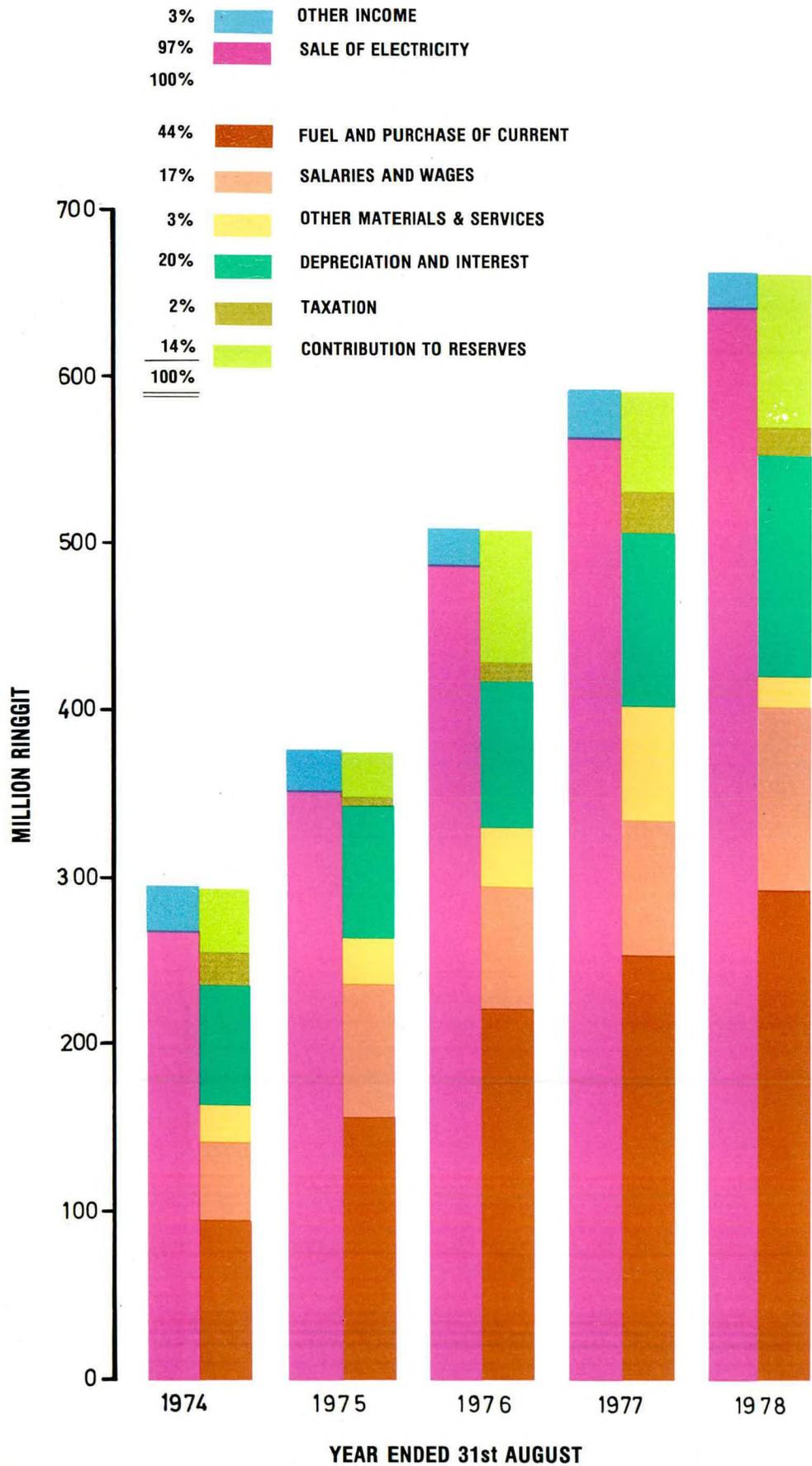
## Capital Expenditure

Capital expenditure for the year amounted to \$371,418,813 (\$344,542,277). This capital expenditure brought the total investment of the Board in fixed assets (property and plant) including capital projects in progress to \$2,602,673,485 (\$2,234,592,659). Financing of the 1978 capital expenditure was done in part with funds generated internally and in part from suppliers' credit and external borrowings from the World Bank (IBRD) and other financial institutions and the Government of Malaysia.

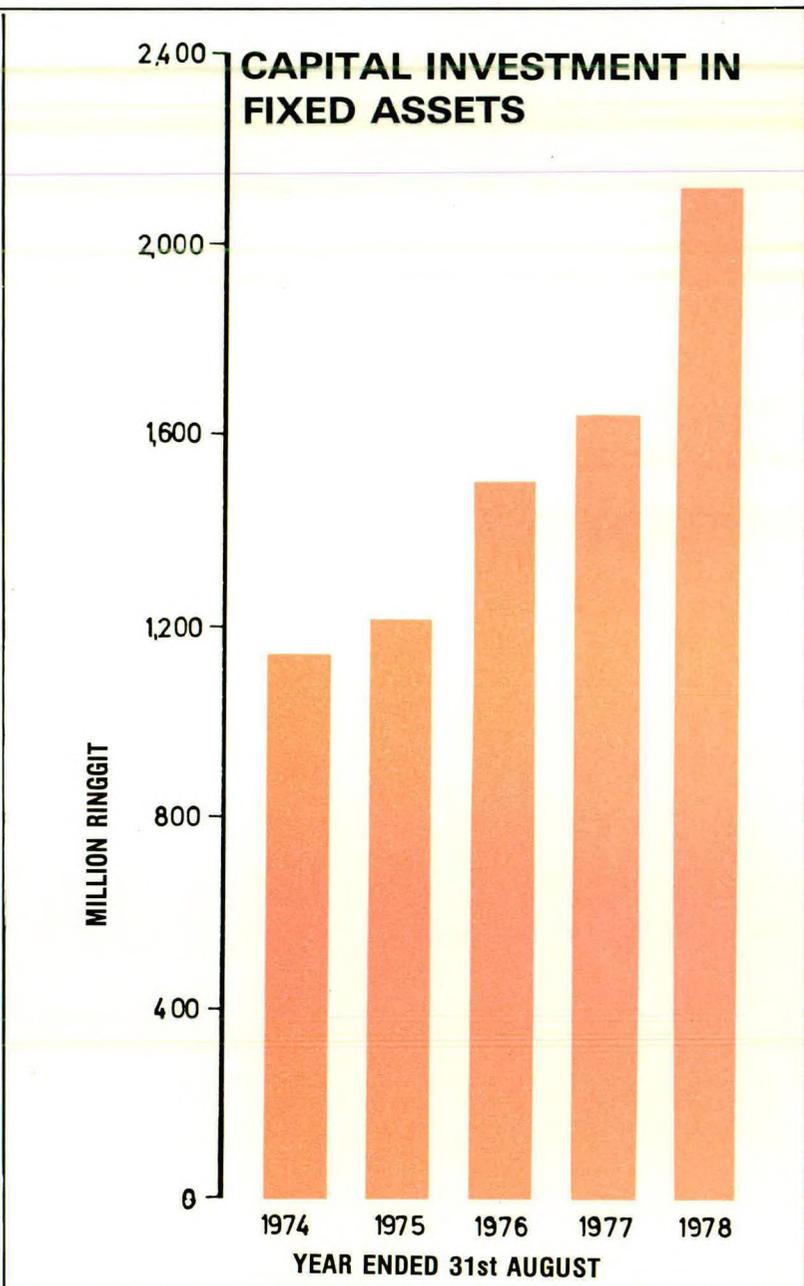
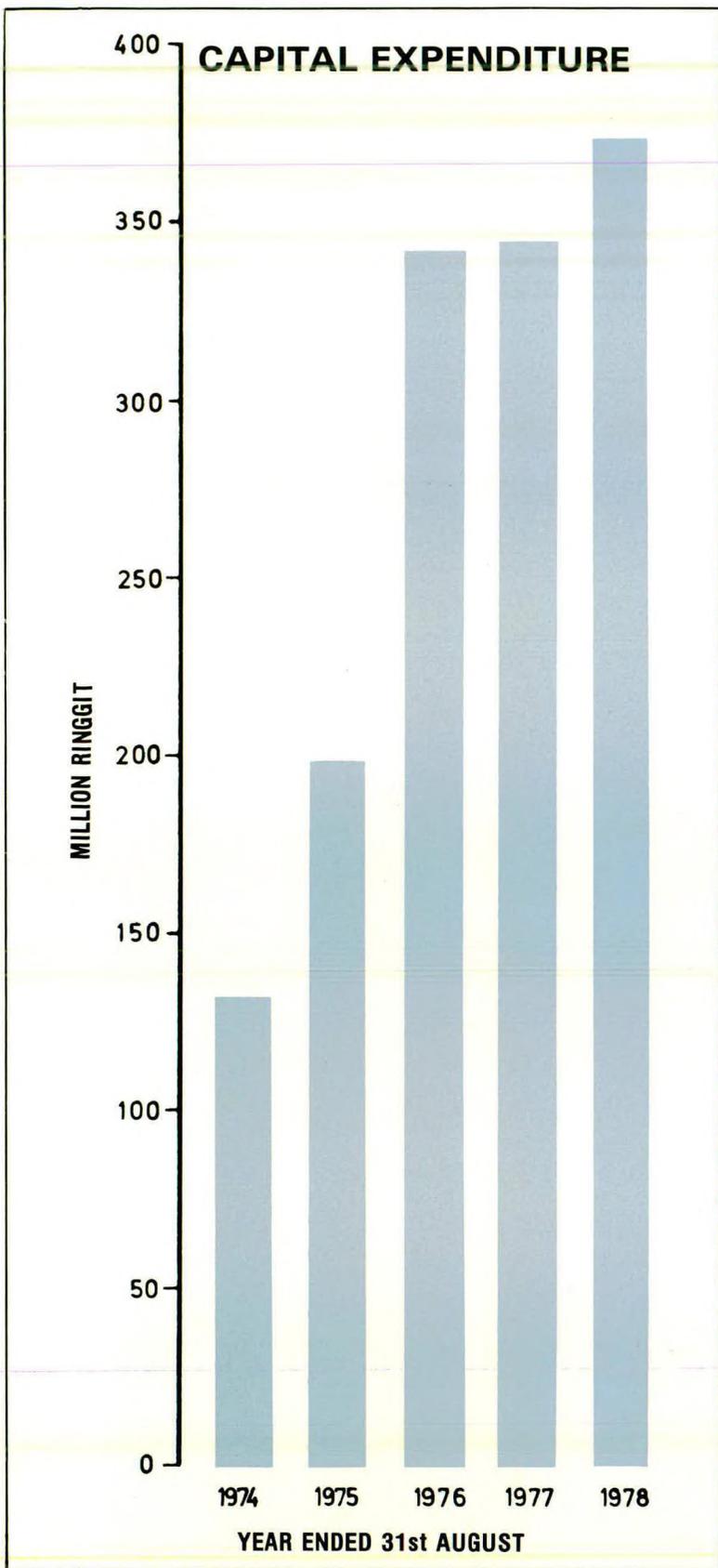
(Figures shown in brackets refer to corresponding items for the previous year)

# THE GROWTH OF INCOME & EXPENDITURE

1978



- 3% OTHER INCOME
- 97% SALE OF ELECTRICITY
- 100%
- 44% FUEL AND PURCHASE OF CURRENT
- 17% SALARIES AND WAGES
- 3% OTHER MATERIALS & SERVICES
- 20% DEPRECIATION AND INTEREST
- 2% TAXATION
- 14% CONTRIBUTION TO RESERVES
- 100%



PERCENTAGE CAPITAL INVESTMENT IN FIXED ASSETS

	1974	1975	1976	1977	1978
GENERATION	47	44	45	45	48
TRANSMISSION	16	16	16	16	17
DISTRIBUTION	29	31	31	32	28
GENERAL, HIRE APPARATUS AND TRANSPORT	8	9	8	7	7

- GENERATION
- TRANSMISSION
- DISTRIBUTION
- GENERAL, HIRE APPARATUS AND TRANSPORT

PERCENTAGE CAPITAL EXPENDITURE

	1974	1975	1976	1977	1978
GENERATING PLANT	40	43	40	56	48
TRANSMISSION LINES	15	17	20	15	15
DISTRIBUTION AND RURAL ELECTRIFICATION	44	37	35	25	32
STAFF QUARTERS AND OFFICE ACCOMODATION	1	3	5	4	5

- GENERATING PLANT
- TRANSMISSION LINES
- DISTRIBUTION AND RURAL ELECTRIFICATION
- STAFF QUARTERS AND OFFICE ACCOMODATION

## REVENUE ACCOUNT FOR THE YEAR ENDED 31ST AUGUST, 1978

31.8.77			
\$		\$	\$
566,113,193	Income from sales of electricity	643,371,108	
19,489,407	Other income	22,578,370	
<u>585,602,600</u>		<u>665,949,478</u>	
	<b>Less</b> Operating expenses		
292,286,764	Generation	340,968,308	
<u>14,278,680</u>	Electricity purchased in bulk	<u>14,300,509</u>	
306,565,444		355,268,817	
14,137,074	Transmission	18,877,914	
59,643,112	Distribution	69,253,752	
5,643,644	Consumers' service	6,236,639	
	Meter reading, billing and collection		
12,730,415	of accounts	15,262,437	
8,803,193	Training and welfare	9,087,018	
7,857,887	Administration	10,266,826	
<u>46,069,617</u>	General expenses	<u>18,218,852</u>	
<u>461,450,386</u>			<u>502,472,255</u>
124,152,214			163,477,223
	<b>Less</b> Interest payable on		
29,520,769	Borrowings	44,590,903	
<u>2,371,295</u>	Bank overdrafts	<u>3,897,244</u>	
<u>31,892,064</u>			<u>48,488,147</u>
92,260,150	Net revenue before tax		114,989,076
<u>25,000,000</u>	<b>Less</b> Provision for taxation		<u>15,000,000</u>
67,260,150			99,989,076
	<b>Less</b> Interest payable on ordinary stock		
<u>6,377,200</u>	(less 40% tax)		<u>7,101,570</u>
<u>60,882,950</u>	Balance of revenue used to finance capital requirements		<u>92,887,506</u>
	Transferred to		
53,082,950	Capital development account		85,187,506
<u>7,800,000</u>	General reserve		<u>7,700,000</u>
<u>60,882,950</u>			<u>92,887,506</u>

The Notes on the Accounts form an integral part of these accounts.

## BALANCE SHEET – 31st AUGUST, 1978

		\$	\$
31.8.77			
\$	<b>NET ASSETS</b>		
	<b>Fixed Assets</b>		
1,655,581,097	Property, plant and equipment at cost	2,124,404,910	
<u>522,245,151</u>	<b>Less</b> Provision for depreciation	<u>598,315,697</u>	
1,133,335,946		1,526,089,213	
<u>98,581,912</u>	<b>Less</b> Balance of consumers' contributions account	<u>146,007,782</u>	
1,034,754,034		1,380,081,431	
<u>579,011,562</u>	<b>Add</b> Capital projects in progress	<u>478,268,575</u>	
1,613,765,596			1,858,350,006
<u>3,900,000</u>	<b>Investments</b> (Note 5)		5,100,000
	<b>Current Assets</b>		
14,456,000	Fuel at cost	12,829,637	
95,651,972	Stores at cost	152,859,054	
5,613,291	Rechargeable work-in-progress at cost	6,926,094	
87,650,788	Debtors	125,125,342	
25,935,213	Staff advances	32,452,581	
506,992	Payments in advance	705,934	
2,126,290	Cash at banks	2,356,317	
<u>109,490</u>	Cash in hand	<u>122,480</u>	
232,050,036			<u>333,377,439</u>
1,849,715,632			2,196,827,445
	<b>LESS</b>		
	<b>Current Liabilities</b>		
259,886,292	Creditors, accrued liabilities and short-term retentions on capital contracts (Note 3)	306,677,981	
43,532,900	Consumers' deposits	50,366,148	
<u>27,004,604</u>	Bank overdrafts and short-term loans	<u>63,168,233</u>	
330,423,796			420,212,362
1,519,291,836			<u>1,776,615,083</u>
	<b>FINANCED AS FOLLOWS</b>		
236,719,000	Ordinary stock		236,719,000
472,498,099	Reserves used in the Board's business		
56,600,000	Capital development account		557,685,605
<u>753,474,737</u>	General reserve		64,300,000
	Borrowings (Note 2)		<u>917,910,478</u>
1,519,291,836			<u>1,776,615,083</u>

The Notes on the Accounts form an integral part of these accounts.

TAN SRI ABDULLAH BIN MOHAMED SALLEH  
Chairman

TAN SRI DATO ABU ZARIM BIN HAJI OMAR  
General Manager

CHAN KAI FOO  
Financial Controller

## NOTES ON THE ACCOUNTS

These notes supplement the figures in the Revenue Account and Balance Sheet and form an integral part thereof.

### 1. CONVERSION OF OTHER CURRENCIES INTO MALAYSIAN RINGGIT

Borrowings in foreign currencies have been converted into Malaysian ringgit at rates of exchange ruling at the dates of the loan withdrawals. Other liabilities in foreign currencies have been converted at rates approximating those ruling at 31st August, 1978.

At 31st August, 1978 there was a net contingent liability of approximately \$119.5 million representing the excess of the Board's liability for the repayment of loans in Malaysian ringgit equivalent over the amount of the loans in foreign currencies converted at rates of exchange ruling at 31st August, 1978.

### 2. BORROWINGS \$917,910,478

Borrowings at 31st August, 1978 comprised the following loans:-

	Per cent	Amount
Government of Malaysia	5	\$ 35,895,670
	5¾	2,380,634
	6	25,441,905
	6½	16,766,630
	5½	17,962,373
	3	12,742,333
	7¼	7,801,832
	3¼	106,691,791
	7¼	30,810,368
	7¼	23,994,829
	3¼ — 5¾	19,369,145
	3	5,434,020
	3¼	150,992
	7¼	25,121,868
Commonwealth Development Corporation	6¼	26,886,380
	7½	26,535,050
	8¾	10,675,000
Commonwealth Development Finance Company Limited	6¾	428,570
Employees Provident Fund Board	6	4,155,885
	8	30,000,000
International Bank for Reconstruction and Development		
Loan 210 MA	5¾	31,842,852
Loan 350 MA	5½	97,570,395
Loan 458 MA	6	52,768,883
Loan 579 MA	6½	19,118,704
Loan 700 MA	7	41,189,022
Loan 1031 MA	7¼	71,467,207
Loan 1178 MA	8½	10,099,393
Loan 1443 MA	8½	1,099,761
Bharat Heavy Electricals Limited, India	5	3,110,115
	5½	19,577,464
Banque De L'Indochine & Banque Francaise Du Commerce Exterieur	7.05	32,791,157
Banque De L'Indochine	7¼	1,195,250
Aseam Merchant Bankers (Malaysia) Berhad	Floating	20,000,000
Amanah Chase Merchant Bank Berhad	Floating	25,000,000
Amanah Chase Merchant Bank Berhad	Variable	50,000,000
Tokai Bank Limited & Morgan Grenfell Company Limited	Floating	11,835,000
		<u>\$917,910,478</u>

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Repayment of the loans, with the exception of the loans from Aseam Merchant Bankers (Malaysia) Berhad and Amanah Chase Merchant Bank Berhad (\$25,000,000), is guaranteed by the Government of Malaysia.

### **3. CREDITORS \$306,677,981**

Included in the above amount are creditors for capital expenditure in respect of Port Dickson Stage III Power Development, Temengor Hydro-Electric Power Development, Prai Power Station Final extension and Temengor/Papan and Port Dickson - Malacca Transmission Lines, Gas Turbine Power Development, Other Capital Projects and purchase of oils totalling \$109,282,072. Also included in the above are provision for taxation, interest on ordinary stock and borrowings and Acquisition of Penang Electricity Supply Department totalling \$119,781,256.

### **4. CAPITAL COMMITMENTS**

Future capital expenditure authorised by the Board at 31st August, 1978 totalled approximately \$2,084 million, of which \$554 million was under contract at that date.

### **5. INVESTMENTS \$5,100,000**

The Board invested a sum of \$3,900,000 at cost, in the equity of Federal Power and Telecoms Sdn. Bhd., a company set up to manufacture paper insulated lead covered power cables, and a sum of \$1,200,000 at cost, in the equity of Malaysia Transformer Manufacturing Sdn. Berhad. Federal Power and Telecoms Sdn. Bhd., made a trading profit of \$3,226,000 in the year 1978 and Malaysia Transformer Manufacturing Sdn. Bhd., is expected to commence production in June, 1979.

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## AUDITORS' REPORT

ACCOUNTS FOR THE YEAR ENDED 31ST AUGUST, 1978

REPORT OF THE AUDITORS APPOINTED UNDER SECTION 25(2)  
OF THE ELECTRICITY ORDINANCE 1949 TO AUDIT THE ACCOUNTS  
OF THE NATIONAL ELECTRICITY BOARD OF THE STATES OF MALAYA

We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purposes of our audit. In our opinion proper books of account have been kept by the Board so far as appears from our examination of those books and proper returns adequate for the purposes of our audit have been received from district offices which were not visited by us.

We have examined the foregoing Revenue Account and Balance Sheet which are in agreement with the books of account and returns. In our opinion and to the best of our information and according to the explanations given to us, the Balance Sheet, together with the notes annexed thereto, gives a true and fair view of the state of the affairs of the Board as at 31st August, 1978 and the Revenue Account gives a true and fair view of the results of its operations for the year ended on that date.

Kuala Lumpur,  
31st March, 1979.

PRICE WATERHOUSE & CO.  
Certified Public Accountants.

## REPORT OF MALAYSIAN NATIONAL COMMITTEE WORLD ENERGY CONFERENCE ACTIVITIES

### MALAYSIAN NATIONAL COMMITTEE FOR THE WORLD ENERGY CONFERENCE

The Chairman of Malaysian National Committee for the World Energy Conference, YB Tan Sri Dato Abu Zarim bin Haji Omar, led a delegation of nineteen officials to the Tenth World Energy Conference, held in September 1977 at Istanbul, Turkey. Dr. D.G.S Chuah presented a paper on behalf of the Malaysian National Committee, entitled 'work in Universiti Sains Malaysia on Solar Silicon Electric Generator' and also participated in the Roundtable Conference on "Nuclear & Unconventional Energy". At this Conference, the Malaysian National Committee was appointed to the Administrative Committee for the period 1977/80. Subsequently the Malaysian Delegation joined a post-conference tour of the Aegian Coast, visiting both historical and technical points of interest.

The 21st Annual General Meeting of Malaysian National Committee — World Energy Conference was held in Penang in April 1978 in which Dr. Rahim bin Bidin from SIRIM gave a talk on "Prospects of Non-Conventional Energy Resources in Malaysia". The Annual General Meeting was also attended by representatives of the Indonesian National Committee in their capacity as guests of the Conference.

The Secretary-Treasurer, Encik Jalaluddin bin Zainuddin, represented the Malaysian National Committee in Brussels in April 1978 and the Annual General Meeting of the Indonesian National Committee in Jakarta in May 1978.

A talk on "Coal Option" was organised by Shell in July 1978. The Malaysian National Committee's Executive Committee, through its regular meetings, appointed a sub-committee on "Energy Resources Alternative Competition". This competition will be conducted amongst the various local institutions of higher learning in the latter part of 1979.

# Industrial involvement by the NEB

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## **FEDERAL POWER & TELECOMS SDN. BHD.**

This joint venture company, has shown improvement in its production and financial results in its fourth year of operation. The Company has doubled its production of 185 sq. mm. PILCDSTA cable from 206.27 km. to 423. 14 km. In addition, it has produced a total of 622.72 km. of 7/4.39 mm. hard drawn bare aluminium conductors. The financial results of the Company for the period from 1st September 1977 to 31st August 1978 showed a net profit of \$3,054,960.00.

## **MALAYSIA TRANSFORMER MANUFACTURING SDN. BHD.**

This joint venture project has achieved good progress during the year under review. The construction of the factory building and office block is well under way and is expected to be completed by the end of 1978.

The factory commissioning and commercial operation is expected to be in June/July 1979. The authorized capital of the Company is \$5.0 million and, as at 31st August 1978, the issued and paid-up capital was \$2.0 million.



*Malaysia Transformer Manufacturing Sdn. Bhd.*

## **JOINT VENTURE IN THE MANUFACTURE OF KILOWATT HOUR METERS**

The proposals from manufacturers were evaluated and has since been submitted to the Board for a decision on the selection of the joint venture partner.

## **JOINT VENTURE IN THE MANUFACTURE OF H.V. SWITCHGEARS**

Preliminary discussions have been held with various manufacturers of 11kV vacuum type and minimum oil type of switchgears.

# Electrical Inspectorate

The total number of registered installations as at 31.8.1978 is 2313 an increase of 8.0% over the previous year.

## REGISTRATION as at 31.8.1978

The number of registered wiring contractors and their classifications are as follows:—

Class A	—	42
Class B	—	3
Class C	—	753
Total	—	798

Total number of Electric Sign Contractors	—	6
Total number of Switchboard Makers	—	36
Total number of Supervising Electrical Engineers	—	249

## EXAMINATIONS FOR CERTIFICATE OF COMPETENCY

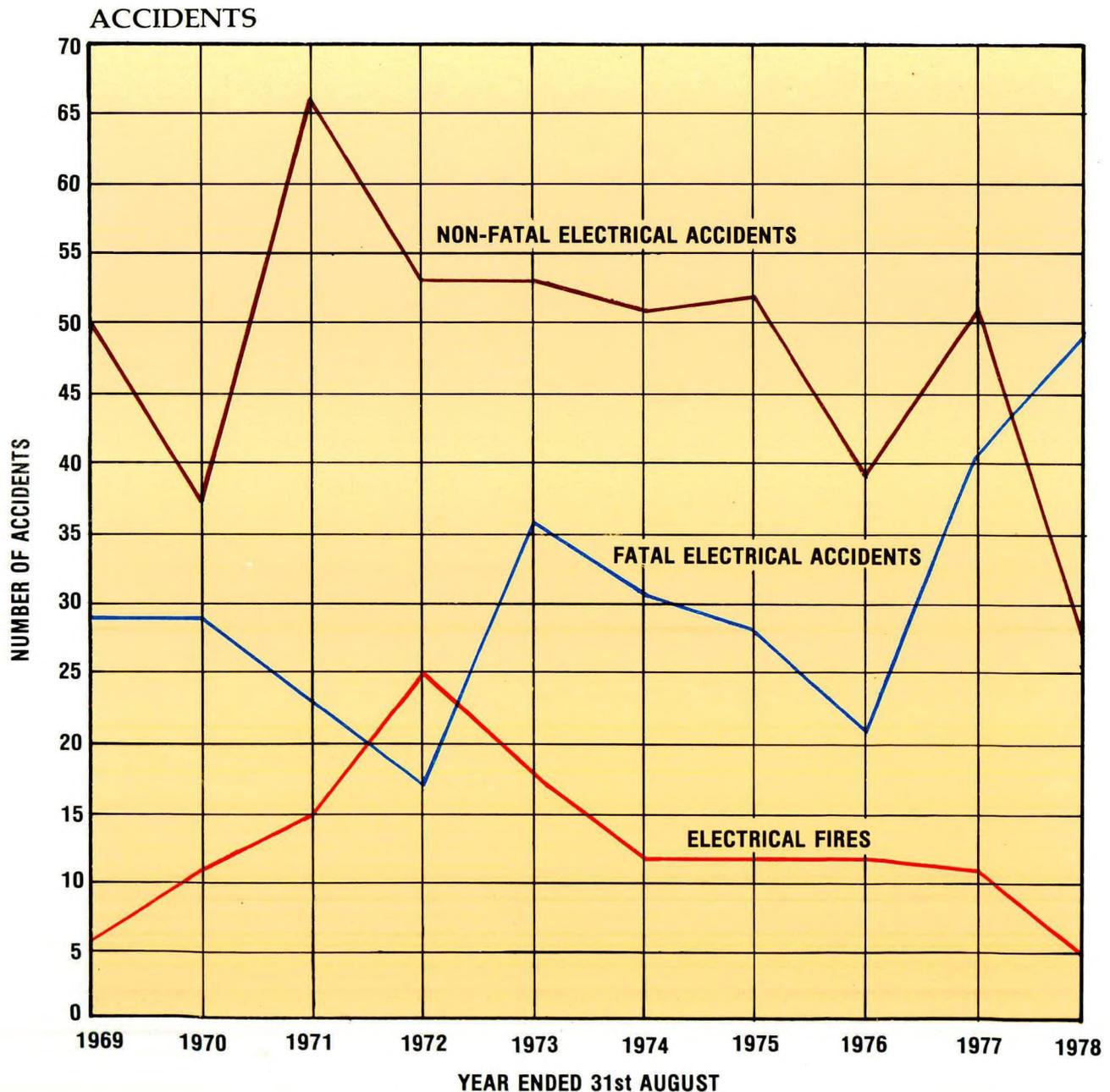
Examinations for various competency certificates were conducted from time to time throughout the year and the results are as follows:—

Examinations	Number of Applications Approved	Certificates Issued Without Examination	Certificates Issued With Vocational Mara/Dusun Tua Youth Training Centre, Qualifications	Passed	Failed	Absent
Electrical Engineer Grade I Competency Certificate	45	6	—	3	16	2
Electrical Engineer Grade II Competency Certificate		3	—	15		
Chargeman	325	—	7	157	129	32
Chargeman (Removal of Restriction)	119	—	—	49	60	10
Wireman (Single Phase)	413	—	89	142	126	56
Wireman (3 Phase/Nil)	239	—	—	112	93	34
Wireman (1—3 Phase/Nil)	109	—	—	36	50	23
Total	1,250	9	96	514	474	157

## ELECTRICAL ACCIDENTS AND ELECTRICAL FIRES

During the period under review electrical accidents causing the death of 44 people and 3 animals were investigated. The main causes of electrical accidents were carelessness, faulty appliances, ignorance and unauthorised extensions.

A total of 135 fires were investigated of which 5 were caused by electrical faults.



## PUBLIC AND PRIVATE LICENCES

A total of 84 Public Licences were in operation as at 31st August 1978.

There were no new Public Licences issued this year.

The number of Public Licences cancelled this year is 11 and they are:-

- |  |   |
|--|---|
| ( 1) Electricity Supply to<br>Benut, Johor                       | — NEB extended supply on<br>29th June, 1978     |
| ( 2) Electricity supply to<br>Parit Sulong, Johor                | — NEB extended supply on<br>26th July, 1978     |
| ( 3) Electricity supply to<br>Ayer Tawar, Perak                  | — NEB extended supply on<br>24th October, 1977  |
| ( 4) Electricity supply to<br>Rengit, Johor                      | — NEB extended supply on<br>10th August, 1978   |
| ( 5) Electricity supply to<br>Sabak Bernam, Selangor             | — NEB extended supply on<br>1st June, 1978      |
| ( 6) Electricity supply to<br>Pendang, Kedah                     | — NEB extended supply on<br>1st September, 1977 |
| ( 7) Electricity supply to<br>Ayer Jerneh, Kemasek,<br>Trengganu | — NEB extended supply on<br>5th July, 1978      |
| ( 8) Electricity supply to<br>Jementah, Johor                    | — NEB extended supply on<br>1st June, 1978      |
| ( 9) Electricity supply to<br>Kg. Kelapa Sawit, Johor            | — NEB extended supply on<br>31st December, 1977 |
| (10) Electricity supply to<br>Gua Musang, Kelantan               | — NEB extended supply on<br>1st June, 1978      |
| (11) Electricity supply to<br>Tanah Merah, Kedah                 | — NEB extended supply on<br>16th August, 1978   |

The total number of Private Licences in operation as at 31.8.1978 is 116. There were 5 Private Licences issued and 6 were cancelled during the year.



23048

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JALAN SERDANG  
BANDAR PAJANG  
SEKAMPONG PAKSI ERAS

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