

REPORT ON THE PERFORMANCE OF THE ELECTRICITY SUPPLY SERVICES IN MALAYSIA

YEAR 2005 EDITION
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Published by:



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Electricity Supply Department
Energy Commission

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1.0 Introduction

This report contains a brief statistical information on the performance of the electricity supply services in Malaysia for the year 2004. It provides information and statistics on the performance of the services provided by the main utilities i.e. Tenaga Nasional Berhad (TNB) in Peninsular Malaysia, Sabah Electricity Sdn. Bhd. (SESB) in Sabah, Sarawak Electricity Supply Corporation (SESCO) in Sarawak and NUR Distribution Sdn. Bhd. in Kulim Hi-Tech Park, Kulim Kedah. The information in this report includes:-

- Installed generation capacity and maximum demand of the grid;
- sales of electricity;
- reliability of the transmission system and distribution system;
- number and causes of supply interruptions;
- performance indices of electricity supply such as SAIDI, SAIFI dan CAIDI;
- statistics of voltage excursion incidents;
- performance of customer services and
- prices of electricity in Malaysia in comparison with other countries.

A massive tsunami in the Indian Ocean hit some countries in South Asia and South East Asia on 26 December and caused serious destruction to the coastal areas of these countries. However the power stations along the coastline of Peninsular Malaysia were not hit by the tsunami and hence the security of the grid system was not affected.

The information and statistics in this report are extracted from :-

- monthly reports submitted by the electricity supply utilities;
- monthly reports submitted by the distribution licensees;
- monthly reports submitted by the Grid System Operator of Peninsular Malaysia;
- monthly reports submitted by the power producers such as independent power producers, co-generators and self-generators;
- complaints received by the Energy Commission;
- complaints in some local newspapers; and
- survey on customer satisfaction.

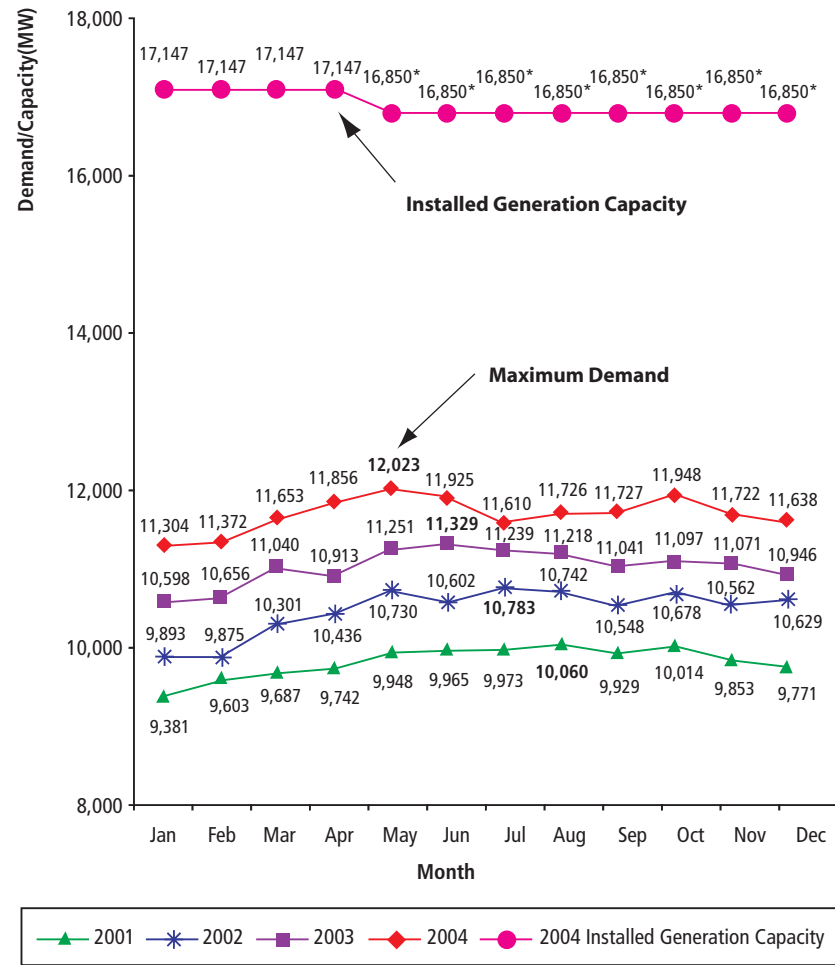
2.0 Installed Generation Capacity - Maximum Demand

2.1 Grid System of TNB

In the year 2004, the maximum demand of the grid system in Peninsular Malaysia grew by 6.1% from 11,329 MW in the year 2003 to 12,023 MW recorded on 13 May 2004. Although there was no addition of new generation capacity, the total generation was more than sufficient to meet the demand as the reserved margin was in the region of 40%. The total installed generation capacity had reduced from about 17,150 MW in early 2004 to 16,850 MW due to retirement of the remaining three generating units totalling 297 MW in Tuanku Jaafar Power Station (TJPS), Port Dickson in May 2004, for the construction of the second block of combined cycle unit of 750 MW under the TJPS redevelopment program of 2 x 750 MW.

Of the total installed capacity in the year 2004, 59% or 9,960 MW was owned by TNB and the remaining 6,890 MW by IPP's. Figure 1 shows the maximum demand and installed generation capacity in the year 2004.

Figure 1 : Monthly Maximum Demand and Installed Generation Capacity of the Grid System in Peninsular Malaysia



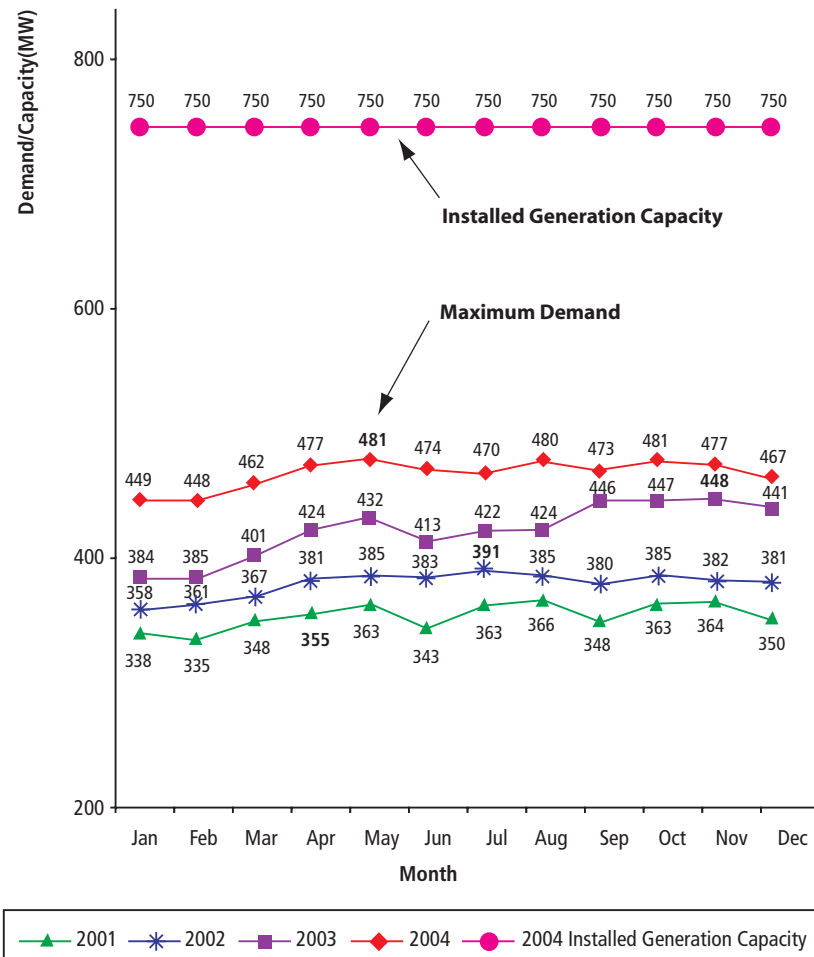
N.B.: (*) The reduction in capacity is due to decommissioning of 3 generating units totalling 297 MW in Tuanku Jaafar Power Station (TJPS), Port Dickson

2.2 Grid System of SESB

The project for interconnecting the West Coast Grid with the East Coast Grid in Sabah is still under construction. As such the maximum demand given in this report is the arithmetic sum of the maximum demands of the West Coast Grid and the East Coast Grid. For the year 2004 this maximum demand had grew by 7.4% to 481 MW from 448 MW in year 2003. However, the total installed generation capacity had decreased to 750 MW from 782 MW in the year 2003 due to decommission of some small generating plants.

Figure 2 shows the sum of the monthly maximum demands of the West Coast Grid and the East Coast Grid and the installed generation capacity in the year 2004 and the previous 3 years.

Figure 2 : Monthly Maximum Demands for West Coast of Sabah, Tawau and Sandakan & Installed Generation Capacity



N.B.: The grids in the West Coast and the East Coast of Sabah are not interconnected. The maximum demand shown are the arithmetic sum of the maximum demands of the two systems.

2.3 Grid System of SESCO

In Sarawak, the maximum demand of the SESCO's grid grew by 6.5% to 685 MW from 643 MW in year 2003. However, the total installed generation capacity in Sarawak decreased by 1.4% to 855 MW from 867 MW in the year 2003.

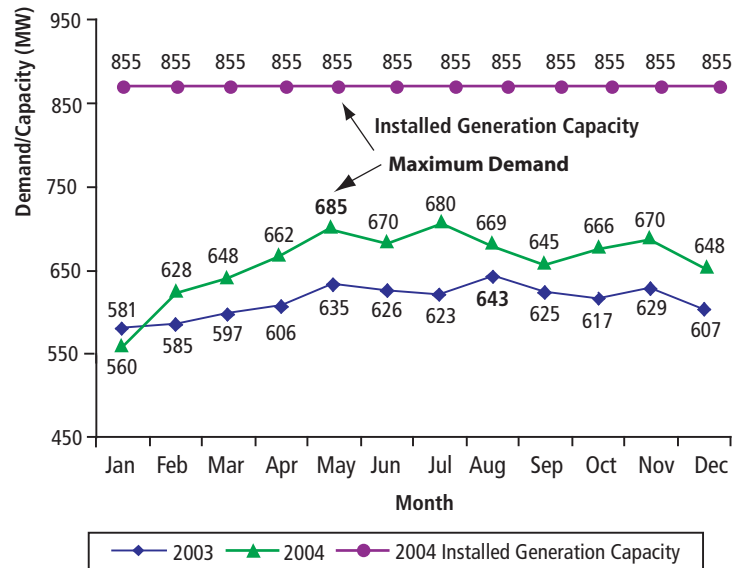
Table 1 shows the maximum demand of the SESCO's grid system in Sarawak in the year 2004 and the previous 3 years while Figure 3 represents the monthly maximum demands of the grid system and the installed generation capacity in Sarawak in the year 2003 and 2004.

Table 1 : Maximum Demand of Sarawak Electricity Supply Corporation (SESCO) System in the Year 2001 to 2004

Year	Maximum Demand (MW)
2001	574
2002	604
2003	643
2004	685

B. ELECTRICITY SUPPLY AND DEMAND

Figure 3 : Monthly maximum Demand of the SESCO's Grid and Installed Generation Capacity for the Year 2004

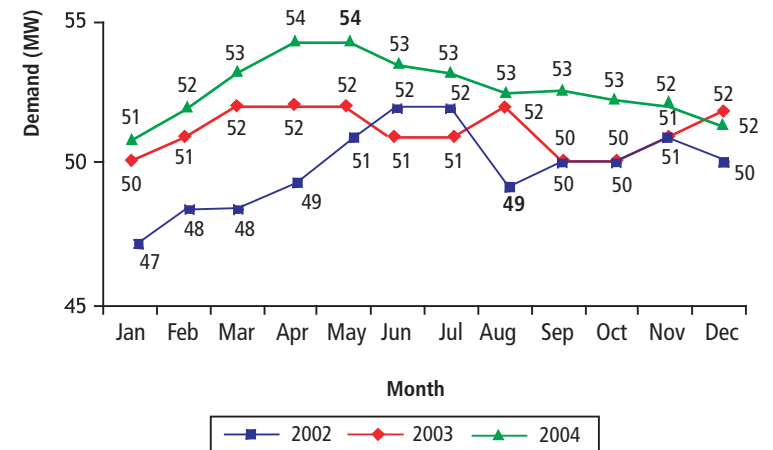


B. ELECTRICITY SUPPLY AND DEMAND

2.4 Distribution System of NUR

The electricity supply in Kulim Hi-Tech Park (KHTP) is served by NUR Distribution Sdn. Bhd. NUR Distribution purchases electricity from TNB and distributes to the consumers in KHTP. In the year 2004, the maximum demand in KHTP only grew marginally from 52 MW in the year 2003 to 54 MW.

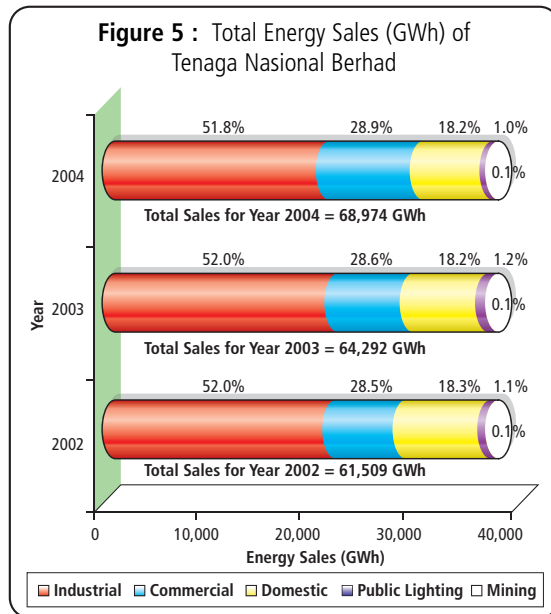
Figure 4 : Monthly Maximum Demand of NUR Distribution Sdn. Bhd.



3.0 Sales of Electricity

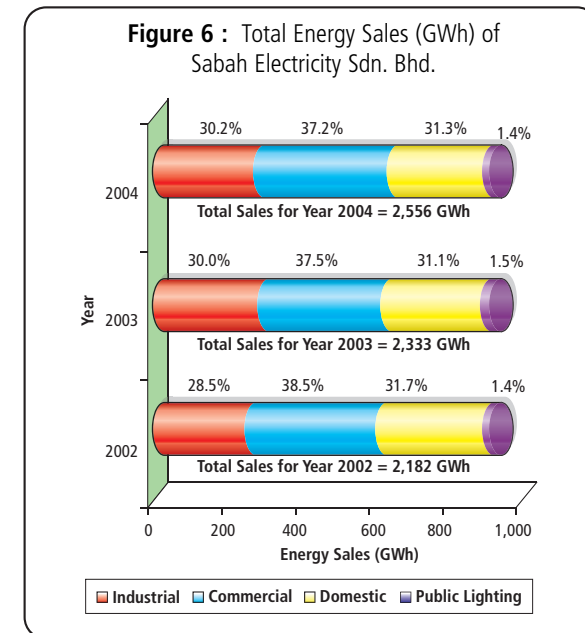
3.1 Energy Sales of TNB

In the year 2004, the total energy sold by Tenaga Nasional Berhad was 68,974 GWh, an increase of 7.3% over the 64,292 GWh sold in the year 2003. Figure 5 shows the composition of sales among different categories of consumers. Out of the total energy sold in the year 2004, the industrial sector consumed the most i.e. 51.8% while the commercial, domestic, public lighting and mining sectors consumed 29.2%, 18.2%, 1.0% and 0.1% respectively. The total number of consumers in Peninsular Malaysia in the year 2004 had increased by 3.4% to 6.0 million from 5.8 million in the year 2003. The consumers comprised of industrial (0.4%), commercial (15.6%), domestic (83.3%), public lighting (0.6%) and other customers (0.1%).



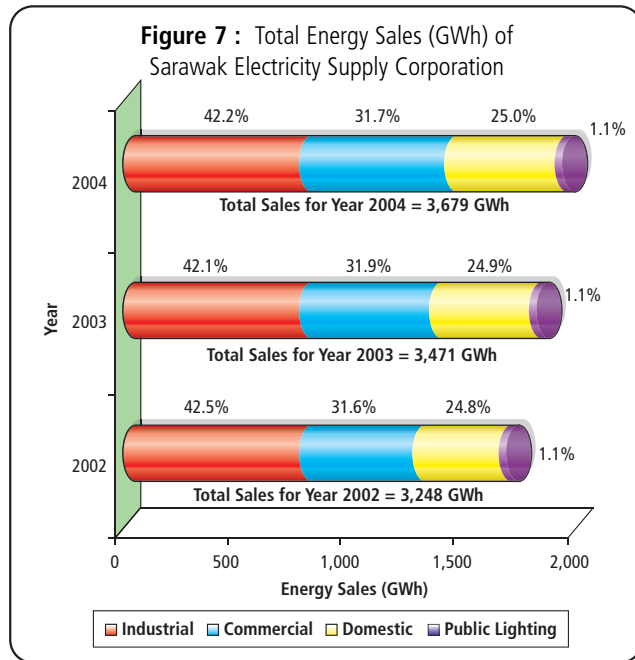
3.2 Energy Sales of SESB

For the year 2004, the sales of electricity by Sabah Electricity Sdn. Bhd. (SESB) had increased by 9.6% to 2,556 GWh from 2,333 GWh sold in the year 2003. The commercial sector used 37.2% of the total energy sold. This is followed by the domestic sector (31.3%), industrial sector (30.2%) and public lighting (1.4%), as shown in Figure 6. The total number of consumers of SESB had increased by 4.0 % from 322,830 in the year 2003 to 335,800 in the year 2004, comprising of domestic consumers (83.5%), commercial consumers (14.9%), public lighting (0.9%) and industrial consumers (0.8%).



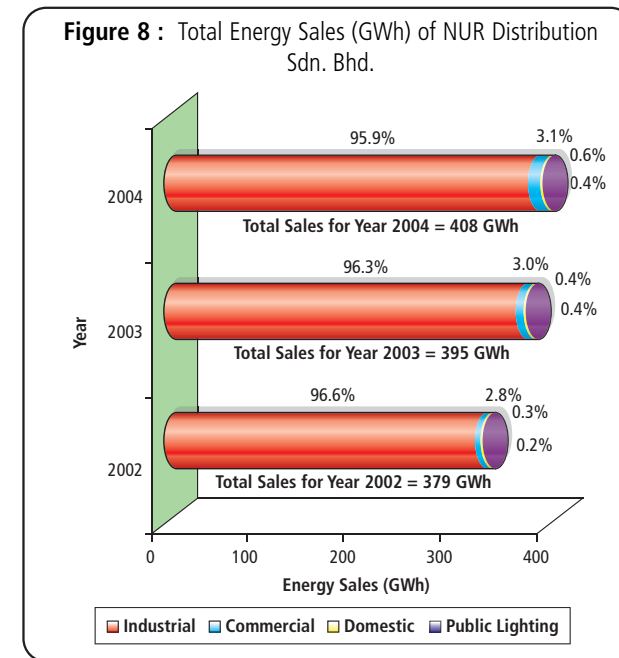
3.3 Energy Sales of SESCO

The sales of electricity by Sarawak Electricity Supply Corporation in the year 2002 to 2004 are as shown in Figure 7. In the year 2004, the total energy sold by SESCO was 3,679 GWh, a 6.0% increase over the 3,471 GWh sold in the year 2003. Out of the total energy sold in year 2004, the industrial sector consumed the most at about 42.2%. This is followed by commercial sector (31.7%), domestic sector (25.0%) and public lighting (1.1%). The total number of consumers in Sarawak in the year 2004 increased by 4.0% to 400,350 from 385,000 in the year 2003. These customers comprised of industrial consumers (0.2%), commercial consumers (14.6%), domestic consumers (84.0%) and public lighting (1.2%).



3.4 Energy Sales of NUR

In the year 2004, the total energy sold in Kulim Hi-Tech Park (KHTP) by NUR Distribution Sdn. Bhd. increased by 3.3% to 408 GWh from 395 GWh in the year 2003. Out of the total sales in 2004, 95.9% was to the industrial consumers. This is followed by commercial sector, domestic sector and public lighting at 3.1%, 0.6% and 0.4% respectively. The total number of consumers of NUR Distribution Sdn. Bhd. in the year 2004 was 1,501, an increase of 20.0% over the 1,250 in the year 2003. These customers comprised of industrial consumers (1.5%), commercial consumers (5.5%), domestic consumers (89.6%) and public lighting (3.3%). Figure 8 shows the energy sold in KHTP by NUR Distribution in the year 2004 and the previous 2 years.



4.0 Performance of Transmission System

4.1 Transmission System of TNB

Among the indicators used in assessing the performance of the transmission system are :-

- delivery point unreliability index (system minutes);
- unsupplied energy during load sheddings and trippings;
- numbers of load sheddings and trippings; and
- average interruptions per delivery point

Table 2 shows the total number of trippings of the transmission network in Peninsular Malaysia with a load loss of 50 MW and above in the year 2003 and 2004 while Table 3 shows the monthly number of trippings in the year 2004.

There were 10 incidents of tripping in the year 2004 compared with 7 in the year 2003. However the number of load shedding and unsupplied energy had reduced.

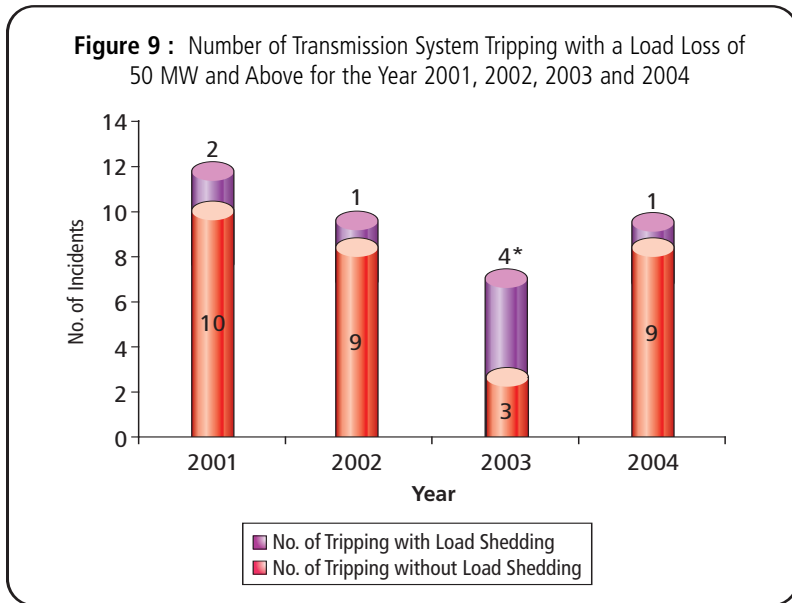
Table 2 : Transmission System Trippings with a Load Loss of 50 MW and Above for the Year 2003 and 2004 in Peninsular Malaysia

Indicators	2003	2004
No. of Tripping without Load Shedding	3	9
No. of Tripping with Load Shedding	4	1
Unsupplied Energy due to Tripping (MWh)	5,673.4	596.1
Unsupplied Energy during load Shedding (MWh)	1,618.0	178.0

Table 3 : Monthly Transmission System Trippings with a Load Loss of 50 MW and Above for the Year 2004 in Peninsular Malaysia

Indicators	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
No. of Tripping without Load Shedding	1	1	1	1	1	0	1	1	1	0	1	0
No. of Tripping with Load Shedding	0	0	0	0	0	0	0	0	1	0	0	0
Maximum Load Losses (MW)	110	56	60	217	52	0	110	100	85		68.0	
Unsupplied Energy due to Tripping (MWh)	16.5	82.67	22	229.28	64.77	0	18.6	10	72.3		80.0	
Average Unsupplied Energy per Trip (MWh)	16.5	82.67	22	229.28	64.77	0	18.6	10	72.3		80.0	
Average Duration per Trip (Hour)	0:09	1:29	0:22	1:03	1:15	0:00	0:10	0:06	1:02		1:11	
Unsupplied Energy during Load Shedding (MWh)	0	0	0	0	0	0	0	0	178.0		0	0

C. PERFORMANCE OF TRANSMISSION SYSTEM

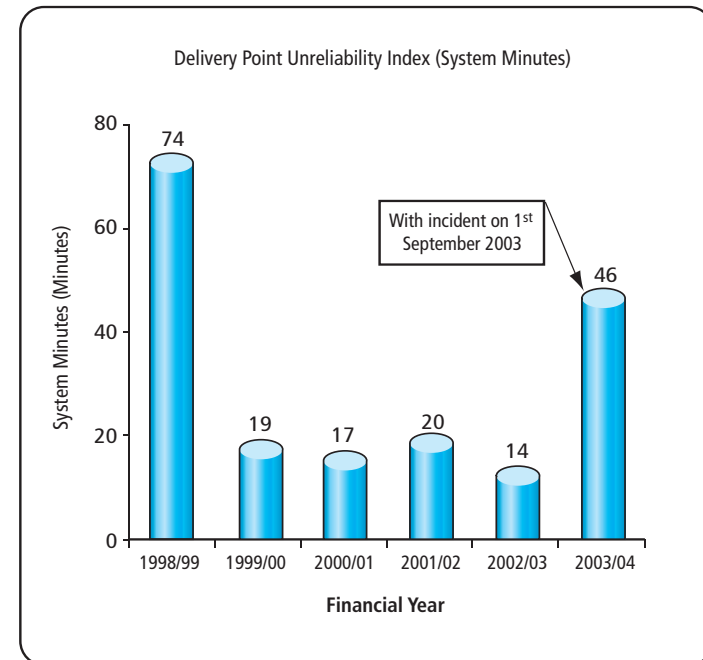


N.B.: (*) Including incident of tripping on 1st September 2003

System minutes of the TNB's transmission system from the financial year 1998/99 to financial year 2003/04 are as shown in Figure 10. In the financial year 2003/04 system minutes of TNB's transmission system had increased to 46 minutes compared with 14 minutes in the financial year 2002/03. The increase was due to the tripping of the Bukit Beruntung - Batu Gajah lines on 1st September 2003 causing wide interruption in the Northern part of the Peninsula. This single incident accounted for 28.14 minutes of the total 46 minutes in the financial year 2003/04.

C. PERFORMANCE OF TRANSMISSION SYSTEM

Figure 10 : System Minutes of TNB's Transmission System



4.2 Transmission System of SESB

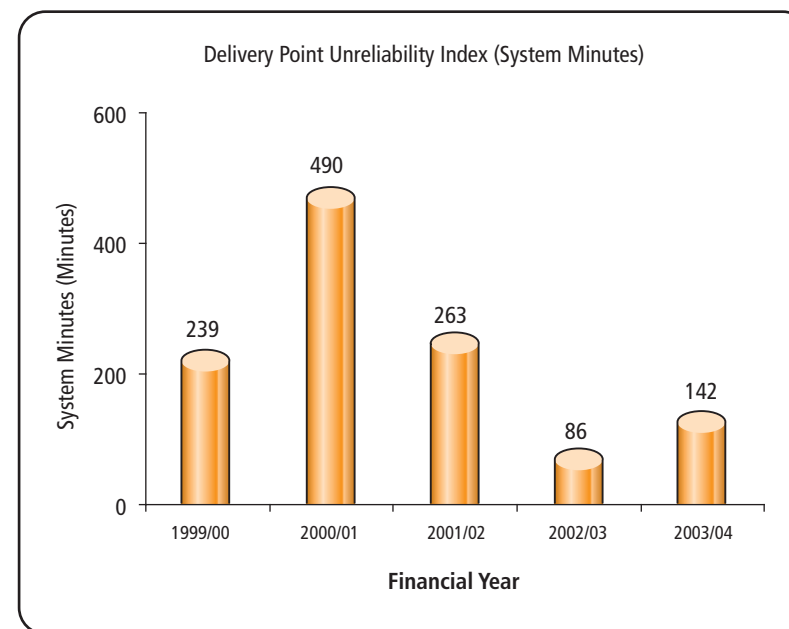
The number of trippings with a load loss of 50 MW and above had increased from 2 incidents in the financial year 2003 to 3 incidents in the year 2004. Table 4 shows the numbers of SESB's transmission system trippings with a load loss of 50 MW and above in financial year 2004.

Table 4 : Statistics of Transmission System Trippings of SESB with a Load Loss of 50 MW and Above in the Financial Year 2004

Indicators	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
No. of Tripping without Load Shedding	1	0	0	0	0	0	0	0	1	1	0	0
No. of Tripping with Load Shedding	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Load Losses (MW)	218								260	131		
Unsupplied Energy due to Tripping (MWh)	335.5								241.17	82.71		
Average Unsupplied Energy per Trip (MWh)	335.5								241.17	82.71		
Average Duration per Trip (Hour)	24.1								1.41	1.35		
Unsupplied Energy during Load Shedding (MWh)	0								0	0		

System minutes of SESB's transmission system for the financial year 2004 had increased by 65% to 142 minutes from 86 minutes in the financial year 2003. Figure 11 shows the system minutes of SESB's transmission system in 2004 and the previous few years.

Figure 11 : System Minutes of SESB's Transmission System



C. PERFORMANCE OF TRANSMISSION SYSTEM

4.3 Transmission System of SESCO

The incident of trippings of SESCO's transmission system in Sarawak reduced by 57% from 21 incidents in the year 2003 to 9 incidents in the year 2004. Of the total of 9 incidents, only 1 incident involved load shedding.

Table 5 : Statistics of Monthly Transmission System Trippings in Sarawak for the Year 2004

Indicators	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
No. of Tripping without Load Shedding	3	0	1	0	1	2	0	0	0	0	2	0
No. of Tripping with Load Shedding	0	0	0	0	1	0	0	0	0	0	0	0
Maximum Load Losses (MW)	30	0	46	0	140	77	0	0	0	0	105	0
Unsupplied Energy due to Tripping (MWh)	34	0	19	0	74	65	0	0	0	0	77	0
Average Unsupplied Energy per Trip (MWh)	11	0	19	0	74	33	0	0	0	0	35	0
Average Duration per Trip (Hour)	31	0	25	0	78	18	0	0	0	0	181	0
Unsupplied Energy during Load Shedding (MWh)	0	0	0	0	71	0	0	0	0	0	0	0

D. PERFORMANCE OF DISTRIBUTION SYSTEM

5.0 Performance of Distribution System

The following aspects are used to assess the performance of the distribution systems:-

- number of supply interruptions
- duration of supply interruptions
- type of supply interruptions
- causes of supply interruptions
- System Average Interruption Duration Index (SAIDI)
- System Average Interruption Frequency Index (SAIFI)
- Customer Average Interruption Duration Index (CAIDI)
- customer complaints

5.1 Statistics of Supply Interruptions

5.1.1 Statistics of Supply Interruptions of TNB

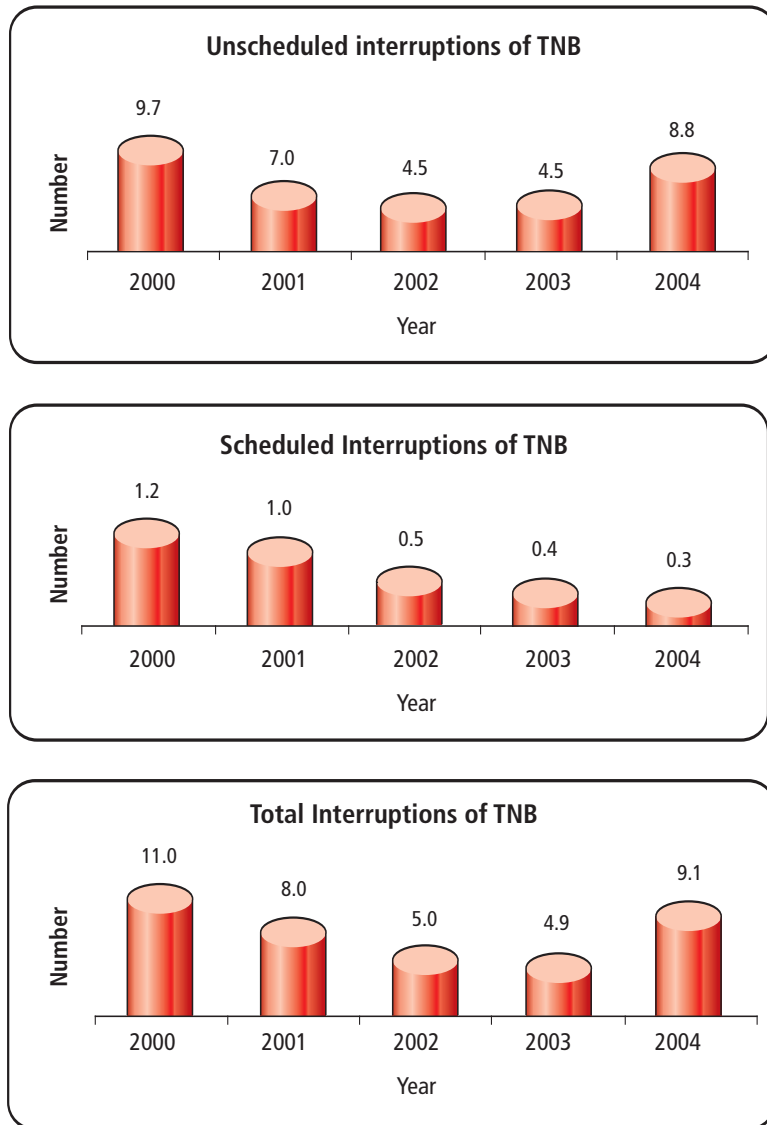
From 1st September 2004, i.e. commencement of the 2004/2005 financial year, TNB has included interruption of supply to a single customer for more than 1 minute, which was omitted in the past, in its statistics of supply interruptions. As such for the year 2004, the number of supply interruptions per 1000 customers in TNB's distribution system in Peninsular Malaysia recorded had increased by 85.7% to 9.1 from 4.9 interruptions in year 2003. Out of the total number of supply interruptions, 96.6% was unscheduled interruptions while the remaining 3.3% was scheduled interruptions.

Figure 12 shows the numbers of supply interruptions per 1000 customers of TNB in the last 5 years. In the year 2004, the monthly average number of supply interruptions of TNB increased by 91.5% to 4,529 from 2,365 in the year 2003 as shown in Figure 13. Selangor, Wilayah Persekutuan, Kedah and Johor had the highest number of supply interruptions in the year 2004 compared with the other states.

Among the efforts being carried out by TNB to improve the reliability of the distribution system are:-

- (a) implementing various projects to strengthen the distributions network such as :-
 - changing bare conductors to insulated aerial bundled cable (ABC)
 - injecting new feeders
 - constructing new substations
- (b) enhancing preventive maintenance programmes which include :-
 - scheduled preventive maintenance of substations on a continuous basis
 - condition monitoring of substation equipment, lines and cables
 - preventive testing of cables by very low frequency (VLF) test method
- (c) reviewing manuals on operation and asset maintenance to enhance the quality of work.

Figure 12 : Number of Electricity Supply Interruptions Per 1000 Customers of TNB from the Year 2000 to 2004



N.B.:

Number of customers :
 5.0 Million (Year 2000)
 5.2 Million (Year 2001)
 5.5 Million (Year 2002)
 5.8 Million (Year 2003)
 6.0 Million (Year 2004)

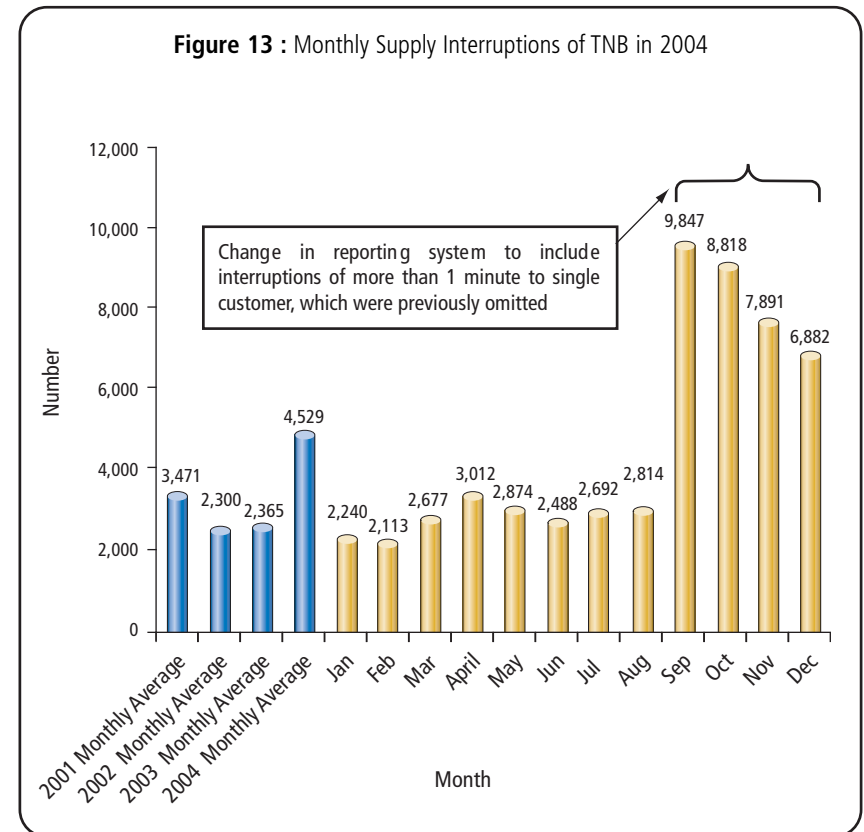
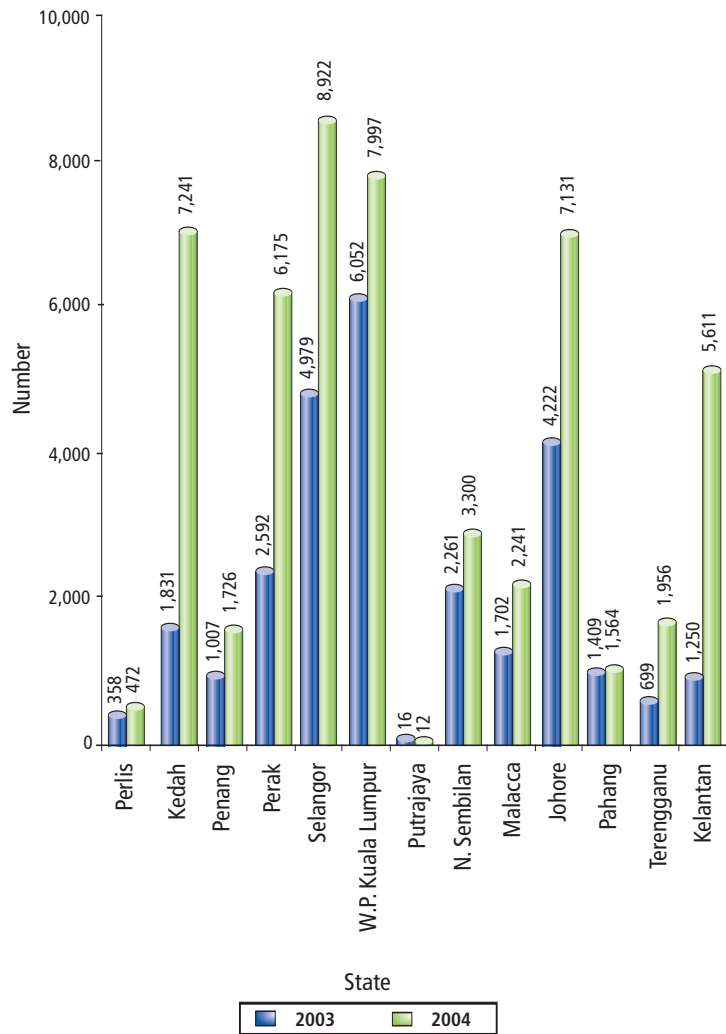


Figure 14 : Total Number of Supply Interruptions in Various States in Peninsular Malaysia in the Year 2003 and 2004



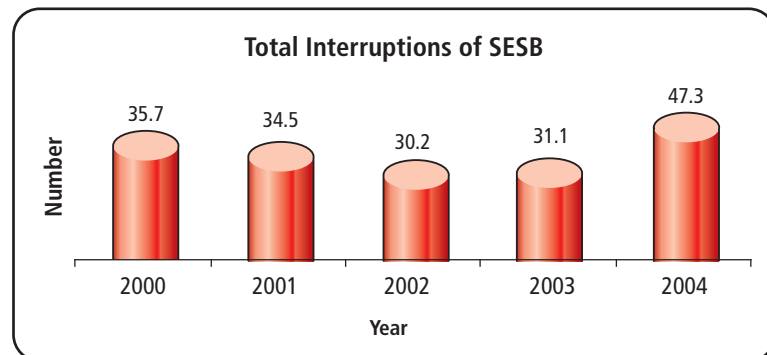
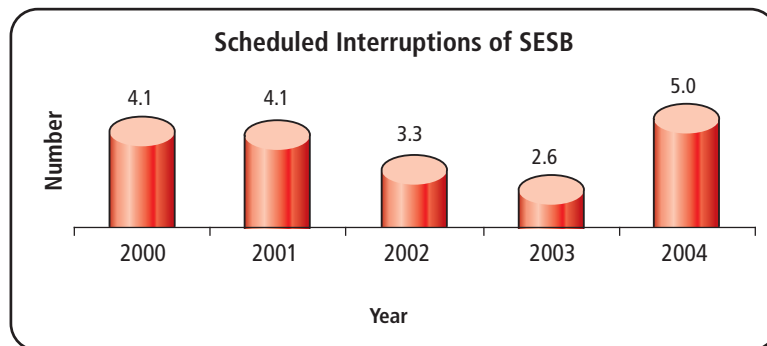
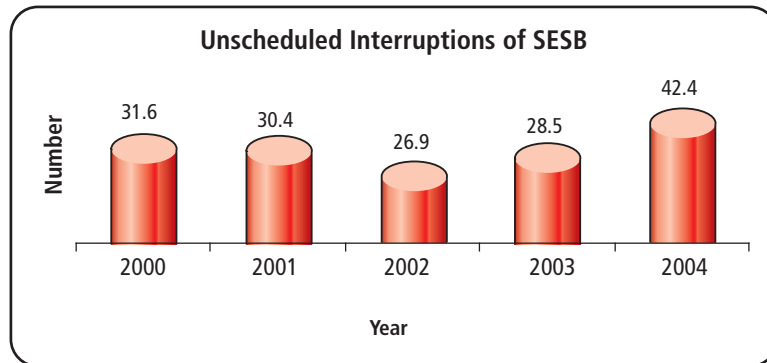
5.1.2 Statistics of Supply Interruptions of SESB

In the year 2004, the total numbers of electricity supply interruptions per 1000 customers of SESB in Sabah was 47.3, an increase of 52.1% over the 31.1 interruptions recorded in the year 2003. Out of the total number of interruptions, 42.4 or 89.6% was unscheduled interruptions and the remaining 10.4% was scheduled interruptions. Figure 15 shows the number of electricity supply interruptions per 1000 customers of SESB in Sabah in the year 2004 compared with the previous few years.

The monthly average number of supply interruptions in Sabah had also increased by 58% from 838 in the year 2003 to 1,325 in the year 2004 as shown in Figure 16.

D. PERFORMANCE OF DISTRIBUTION SYSTEM

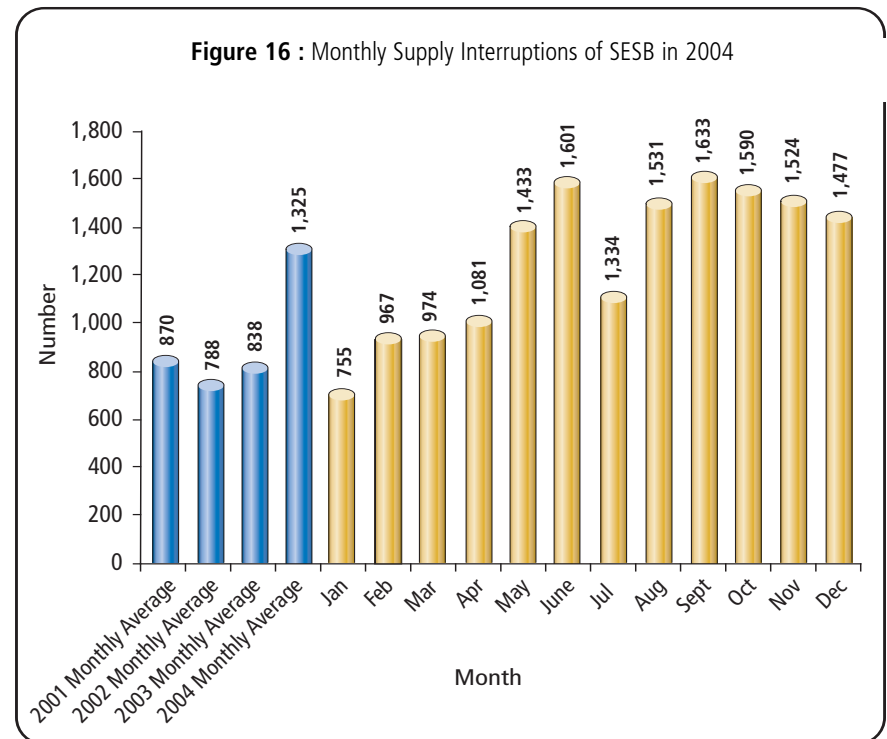
Figure 15 : Number of Electricity Supply Interruptions Per 1000 Customers of SESB from the Year 2000 to 2004



D. PERFORMANCE OF DISTRIBUTION SYSTEM

N.B.:

Number of Customers :
 290,412 (Year 2000)
 302,981 (Year 2001)
 313,381 (Year 2002)
 322,830 (Year 2003)
 335,800 (Year 2004)



5.1.3 Statistics of Supply Interruptions of SESCO

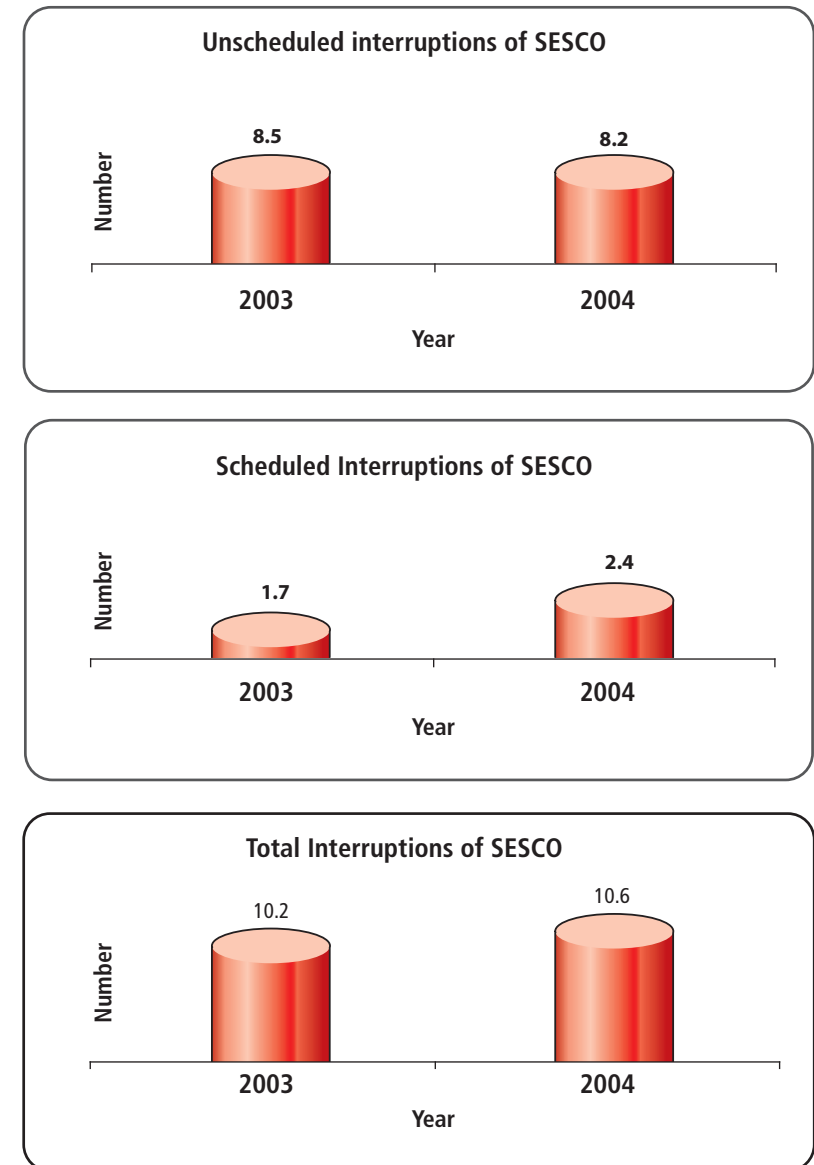
In Sarawak, the numbers of electricity supply interruptions per 1000 customers for the year 2004 had increased by 4.0% to 10.6 interruptions from 10.2 interruptions in the year 2003. Table 6 and Figure 17 show the numbers of electricity supply interruptions per 1000 customers in Sarawak in the year 2004 compared with the previous few years. Of the total numbers of interruptions, 8.2 or 77.4% was unscheduled interruptions and the remaining 22.6% was scheduled interruptions.

The monthly average of supply interruptions in Sarawak for the year 2004 had also increased by 8.3% to 354 from 327 in the year 2003 as shown in Figure 18.

Table 6 : Number of Electricity Supply Interruptions Per 1000 Customers of SESCO for the Year 2001 to 2004

Year	No. of Interruptions Per 1000 Customers
2001	17.6
2002	11.5
2003	10.2
2004	10.6

Figure 17 : Number of Electricity Supply Interruptions Per 1000 Customers of SESCO in the Year 2003 and 2004



N.B.:

Numbers of customers
 341,224 (Year 2001)
 361,545 (Year 2002)
 385,003 (Year 2003)
 400,348 (Year 2004)

5.1.4 Statistics of Supply Interruptions of NUR Distribution

Figure 18 shows the number of electricity supply interruptions per 1000 customers in Kulim Hi-Tech Park for the past few years. The numbers of supply interruptions per 1000 customers in the year 2004 had increased by 33.2% to 79.9 from 60.0 interruptions in the previous year.

The monthly average number of supply interruptions in Kulim Hi-Tech Park in the year 2004 had increased to 10 from 6 incidents in the year 2003, as shown in Figure 20.

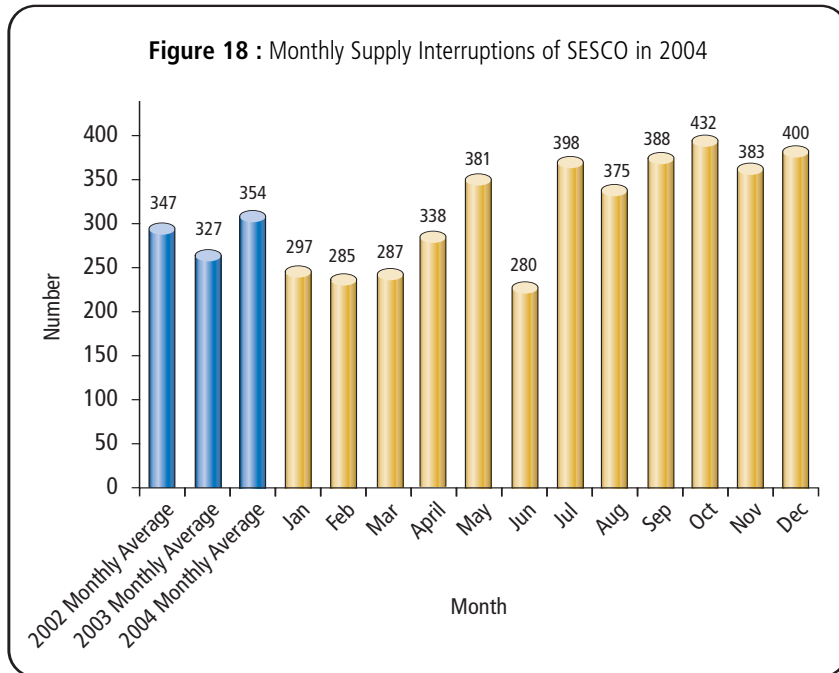
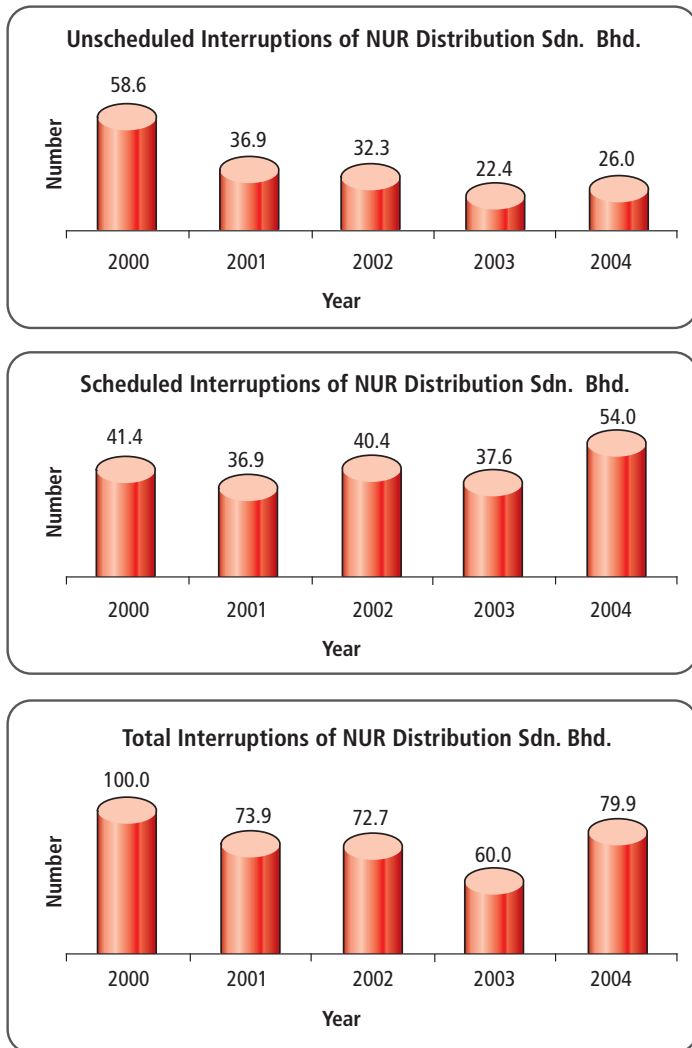


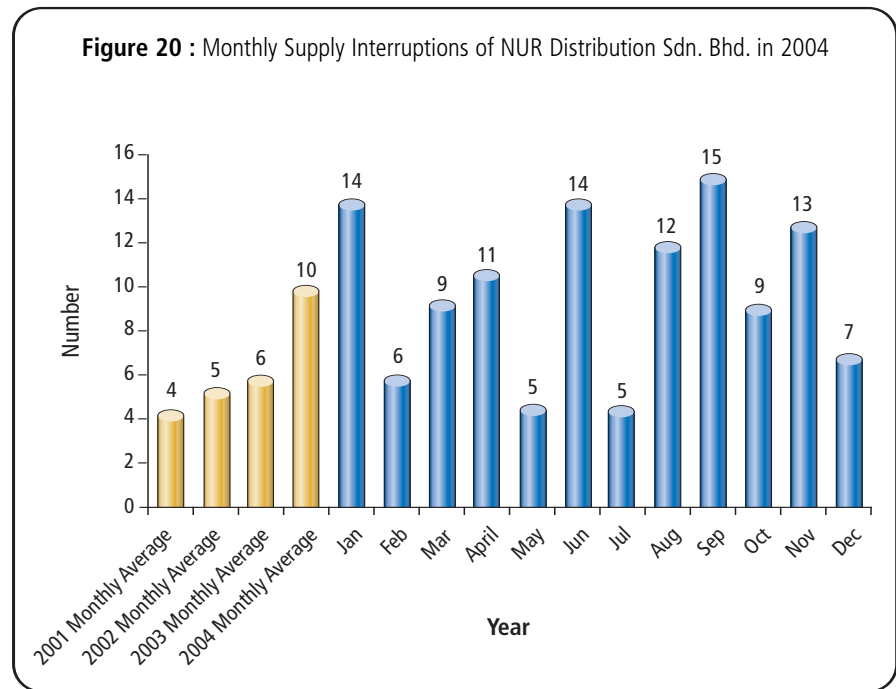
Figure 19 : Number of Electricity Supply Interruptions Per 1000 Customers in Kulim Hi-Tech Park for the Years 2000 to 2004



N.B.:

Numbers of customers
 290 (Year 2000)
 704 (Year 2001)
 867 (Year 2002)
 1,250 (Year 2003)
 1,501 (Year 2004)

Figure 20 : Monthly Supply Interruptions of NUR Distribution Sdn. Bhd. in 2004



5.2 Distribution System of TNB

5.2.1 System Average Interruption Duration Index (SAIDI)

Reliability of electricity supply is normally measured by the duration and frequency of interruptions of supply experienced by customers. System Average Interruption Duration Index (SAIDI) represents the total duration in minutes on average that a customer is without supply in a certain period, normally a year.

Figure 21 shows the SAIDI of TNB in various states in Peninsular Malaysia in the last 3 years. The SAIDI in the year 2004 for most of the states in Peninsula, with the exception of Johore, Terengganu and Kedah, had reduced compared with the year 2003.

For the year 2004, the overall SAIDI of TNB had reduced by 22.8% from 167.6 minutes in the year 2003 to 129.0 minutes. This reflects an improvement in the performance of the supply system of TNB in the year 2004. The monthly SAIDI in Peninsular Malaysia in the year 2004 are as shown in Figure 22.

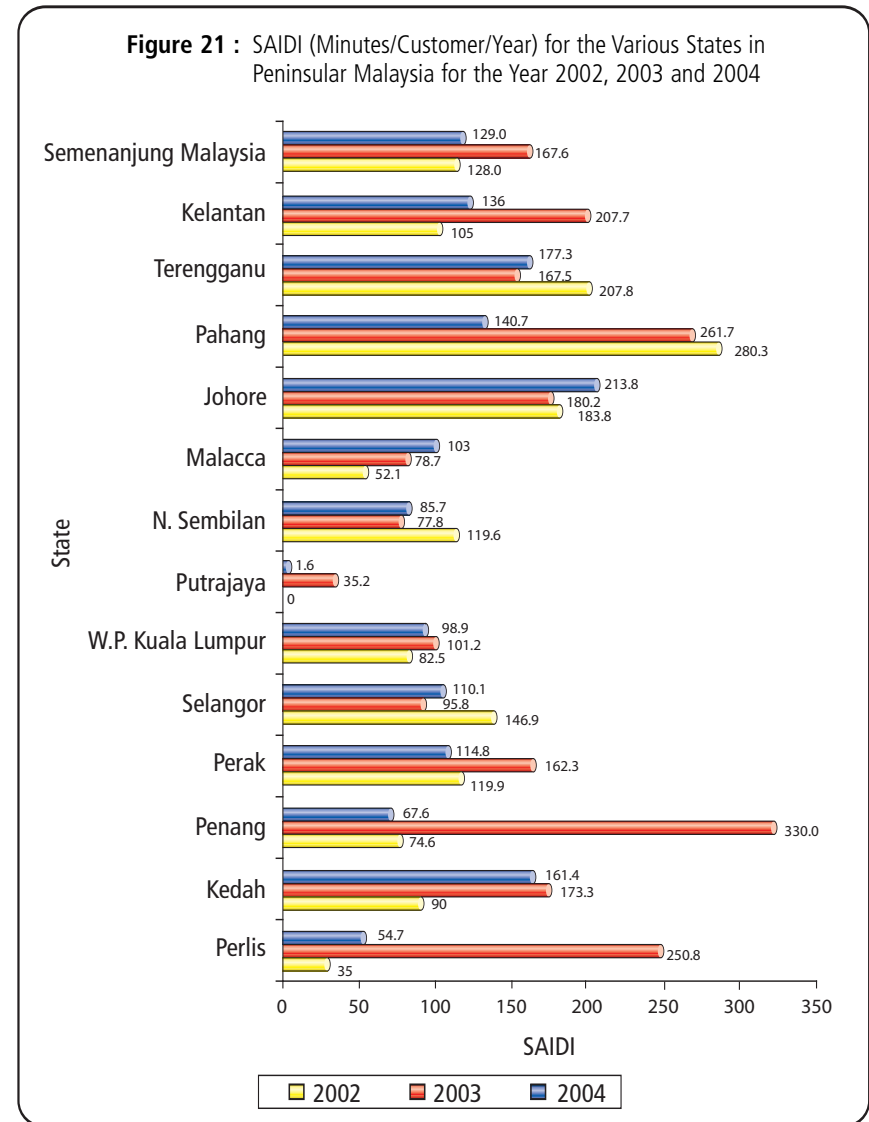
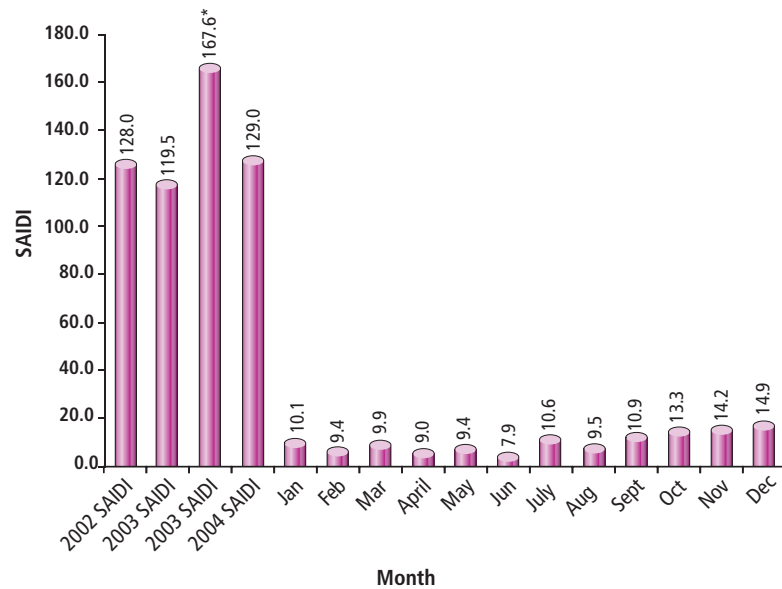


Figure 22 : Monthly SAIDI in Peninsular Malaysia for the Year 2004



N.B.: * With incident of tripping on 1st September 2003

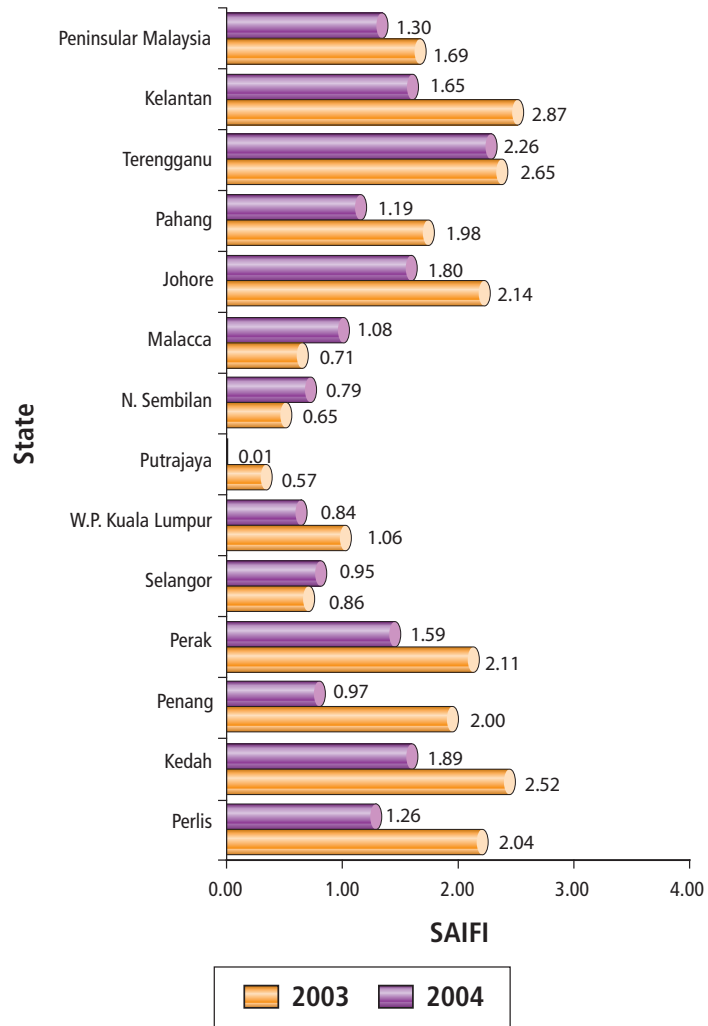
5.2.2 System Average Interruption Frequency Index (SAIFI)

The System Average Interruption Frequency Index (SAIFI) represents the number of occasions per year a customer experienced supply interruption. The SAIFI for the various states in Peninsular Malaysia in the year 2004 are as shown in Figure 23 while Figure 24 shows the monthly SAIFI in Peninsular Malaysia in the year 2004.

In the year 2004, the overall SAIFI in Peninsular Malaysia had dropped to 1.30 compared with 1.69 in the previous year. Terengganu, Kedah and Johor recorded higher SAIFI compared with the other states.

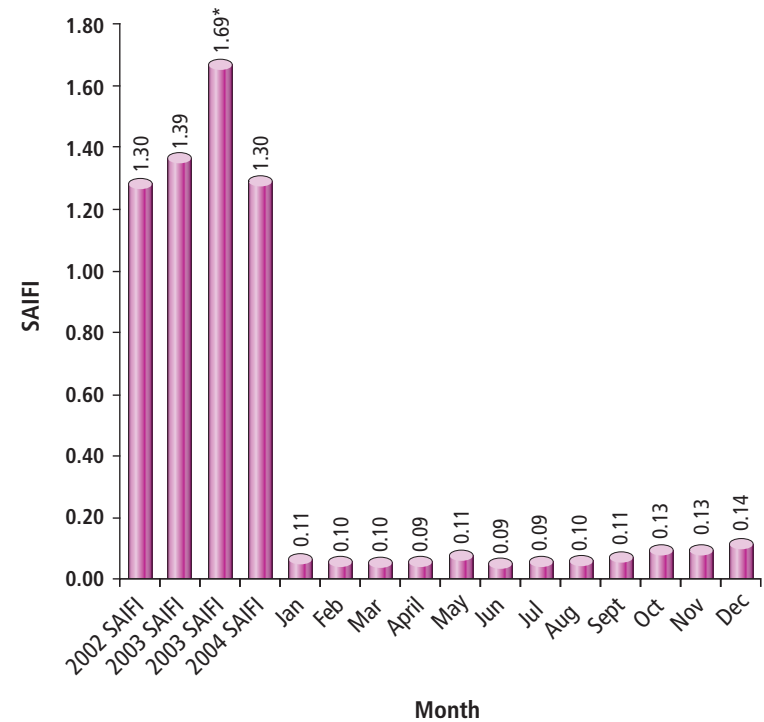
D. PERFORMANCE OF DISTRIBUTION SYSTEM

Figure 23 : SAIFI for the Various States in Peninsular Malaysia for the Year 2003 and 2004



D. PERFORMANCE OF DISTRIBUTION SYSTEM

Figure 24 : Monthly SAIFI in Peninsular Malaysia for the Year 2004



N.B.: * With incident of tripping on 1st September 2003

5.2.3 Customer Average Interruption Duration Index (CAIDI)

Apart from the SAIDI and SAIFI, the performance of the electricity supply system is also measured using the Customer Average Interruption Duration Index (CAIDI), which represents the average time taken for supply to be restored to a customer after an interruption has occurred.

Figure 25 shows the CAIDI for the various states in Peninsular Malaysia in the year 2004 whereas Figure 26 shows the monthly CAIDI in Peninsular Malaysia. The overall CAIDI in Peninsular Malaysia for the year 2004 was 99.3 minutes, which is almost the same as the previous year of 99.2 minutes. Putrajaya, Johore, Pahang and W.P. Kuala Lumpur recorded higher CAIDI compared with other states.

Figure 25 : CAIDI for the Various States in Peninsular Malaysia for the Year 2003 and 2004

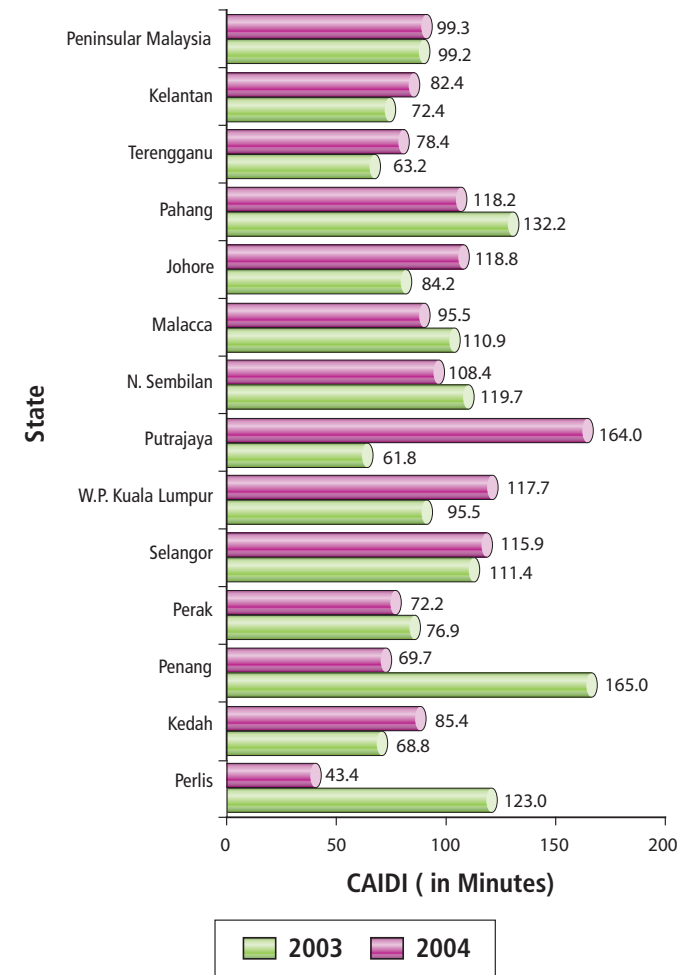
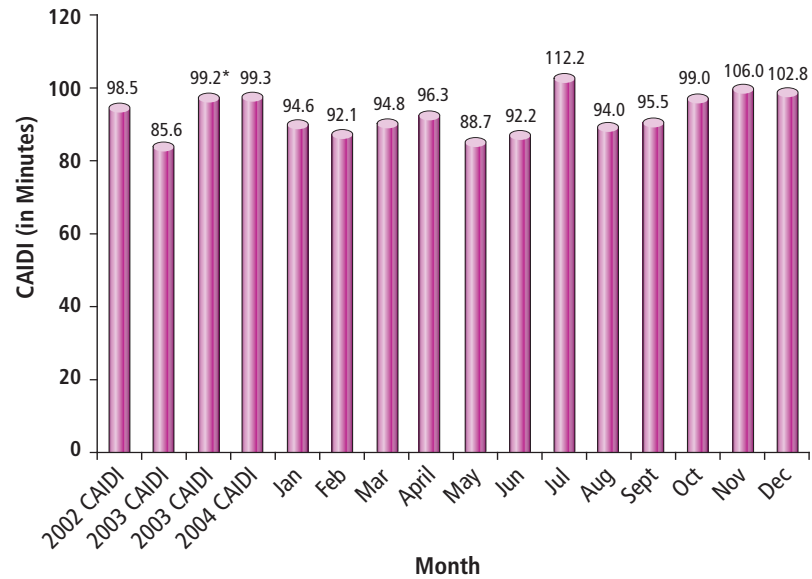


Figure 26 : Monthly CAIDI in Peninsular Malaysia for the Year 2004



N.B.: * With incident of tripping on 1st September 2003

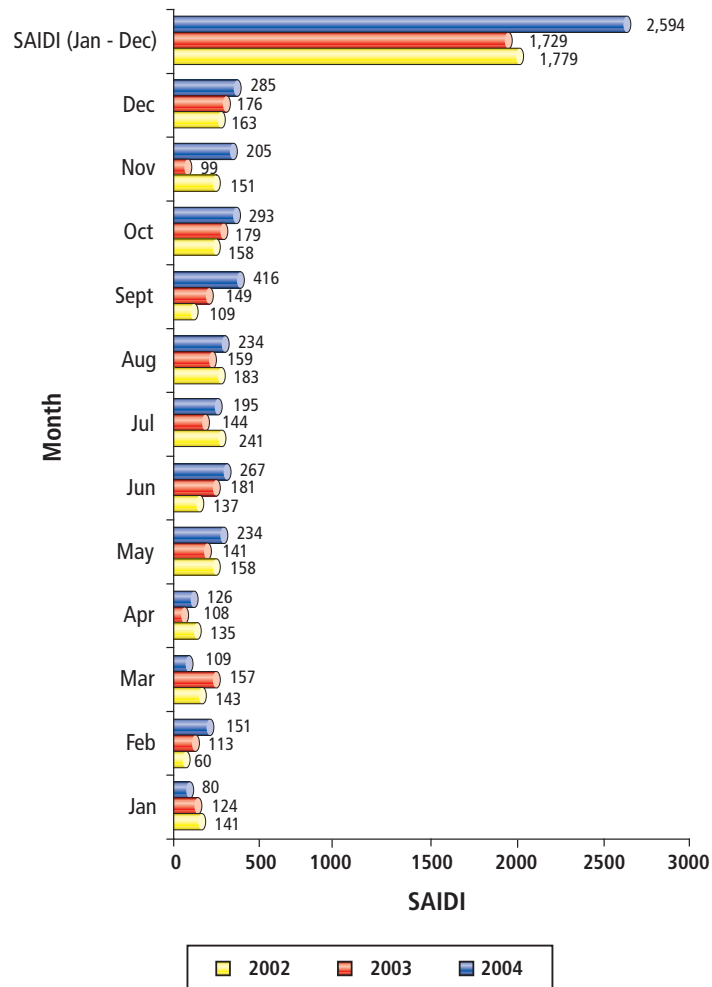
5.3 Distribution System of SESB

5.3.1 System Average Interruption Duration Index (SAIDI)

In Sabah, the SAIDI in the year 2004 had increased by 50.0% from 1,729 minutes in the year 2003 to 2,594 minutes. This reflects a drop in the performance of the supply system of SESB in the year 2004 compared with the previous year.

The SAIDI for SESB in Sabah in the year 2004 and the previous 2 years are as shown in Figure 27.

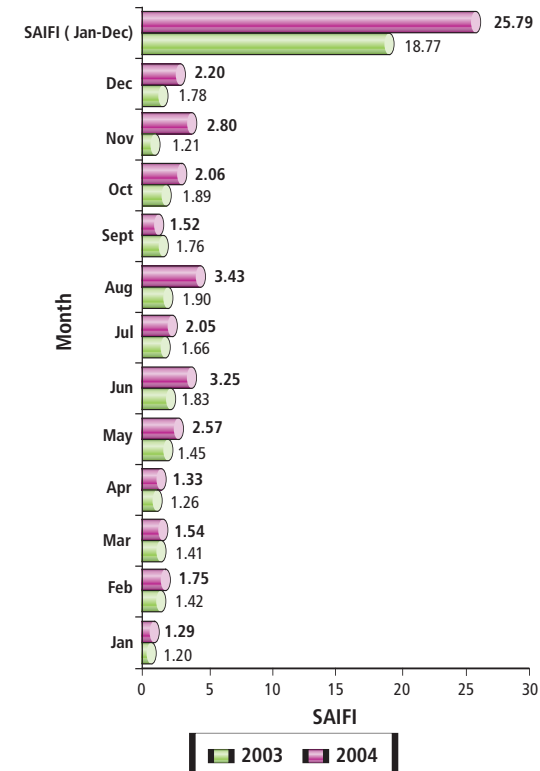
Figure 27 : SAIDI (Minutes/Customer/Year) for the State of Sabah for the Year 2002, 2003 and 2004



5.3.2 System Average Interruption Frequency Index (SAIFI)

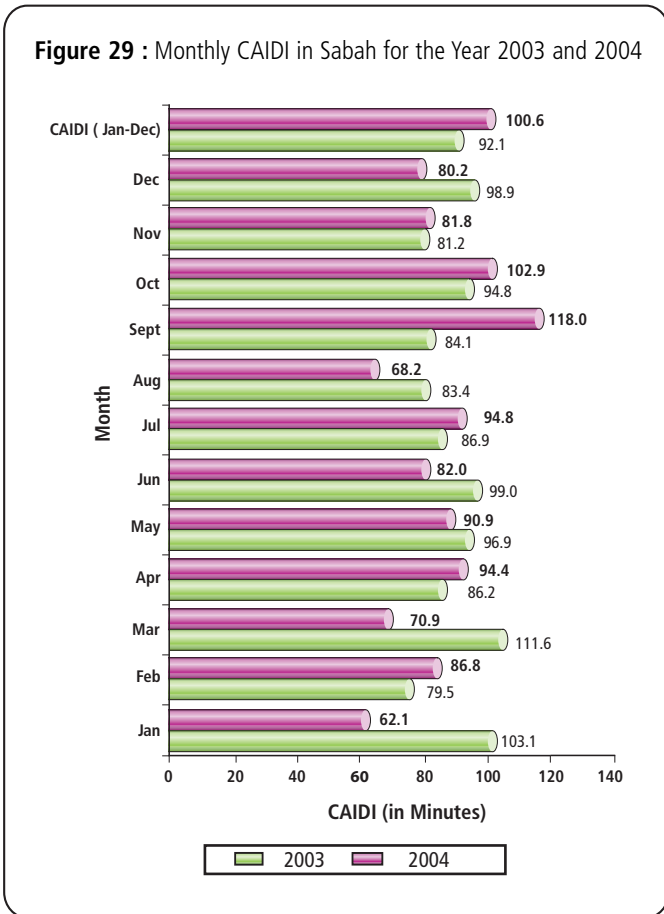
The monthly System Average Interruption Frequency Index (SAIFI) of SESB in the year 2003 and 2004 are as shown in Figure 28. The overall SAIFI for the state in Sabah had also increased from 18.77 in the year 2003 to 25.79 in the year 2004. The SAIFI in the months of June and August were higher compared with other months.

Figure 28 : Monthly SAIFI in Sabah for the Year 2003 and 2004



5.3.3 Customer Average Interruption Duration Index (CAIDI)

Figure 29 shows the monthly CAIDI for the supply system of SESB in the year 2003 and 2004. The overall CAIDI for the state of Sabah in the year 2004 had increased to 100.6 minutes from 92.1 minutes in the year 2003. The CAIDI in the months of September and October were higher compared with other months in the year.



5.4 Distribution System of SESCO

5.4.1 System Average Interruption Duration Index (SAIDI)

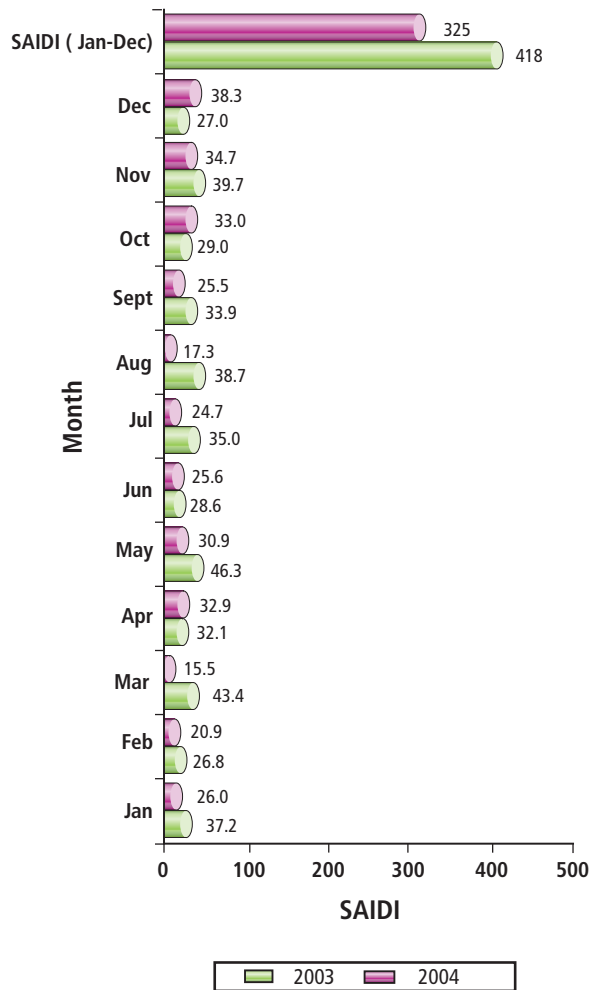
The SAIDI of SESCO's supply system in Sarawak in the year 2004 had reduced by 22.2% to 325 minutes from 418 minutes in the year 2003. This reflects an improved performance over the previous few years.

Table 7 shows the SAIDI of SESCO in the year 2004 compared with the previous years, while Figure 30 shows the monthly SAIDI in the year 2003 and 2004.

Table 7 : SAIDI (Minutes/Customers/Year) of SESCO for the year 2001 to 2004

Year	SAIDI (Minutes)
2001	731
2002	610
2003	418
2004	325

Figure 30 : SAIDI (Minutes/Customer/Year) in Sarawak for the Year 2003 and 2004



5.5 Distribution System of NUR

5.5.1 System Average Interruption Duration Index (SAIDI)

Table 8 and Figure 31 show the yearly and monthly SAIDI of the supply system in Kulim Hi-Tech Park respectively.

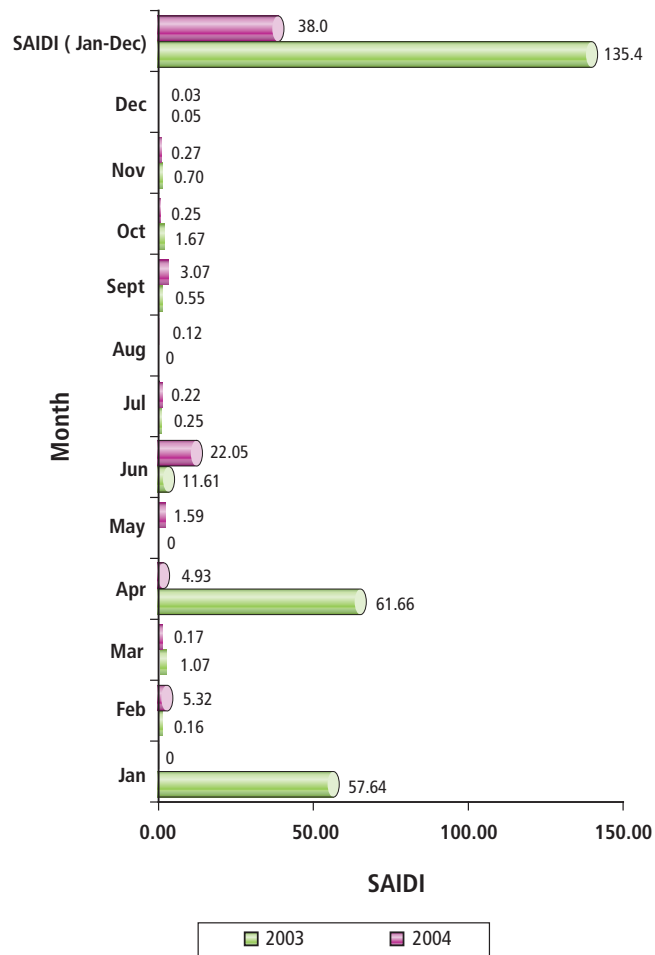
The SAIDI had reduced by 71.9% from 135 minutes in the year 2003 to 38 minutes in the year 2004. This reduction reflects significant improvement in the performance of the electricity supply in a high technology industrial park in the last few years.

Table 8 : SAIDI (Minutes/Customers/Year) of NUR Distribution Sdn. Bhd. for the Year 2001 to 2004

Year	SAIDI (Minutes)
2001	627
2002	189
2003	135
2004	38

D. PERFORMANCE OF DISTRIBUTION SYSTEM

Figure 31 : SAIDI (Minutes/Customer/Year) of NUR Distribution for the Year 2003 and 2004



D. PERFORMANCE OF DISTRIBUTION SYSTEM

Table 9 shows a comparison of the SAIDI of TNB, SESB, SESCO, and NUR with several utilities in other countries. It can be seen that over the years the SAIDI of the utilities in Malaysia had improved and are comparable with the utilities in the same region. Nevertheless, the SAIDI of SESB had increased showing a decline in performance.

Table 9 : SAIDI for the Supply System of TNB, SESB, SESCO, NUR and Other Utilities

Utilities	Year	SAIDI (Minutes/Customer/Year)
TNB, Semenanjung Malaysia	2001	266
	2002	128
	2003	168
	2004	129
SESB, Sabah	2001	2,279
	2002	1,779
	2003	1,729
	2004	2,594
SESCO, Sarawak	2001	731
	2002	610
	2003	418
	2004	325
NUR	2001	627
	2002	189
	2003	135
	2004	38
Victoria, Australia	2002	151
	2003	161
South Australia	2002	143
	2003	179
	2004	159
New Zealand	2001	124
	2002	111
	2003	148
Metropolitan Electricity Authority, Thailand	1999	72
	2000	66
	2001	100
Provincial Electricity Authority, Thailand	1999	1,298
	2000	1,188
	2001	1,050
United Kingdom (England & Wales)	2002	83.7
	2003	86.2
	2004	82.6

5.6 Causes of Electricity Supply Interruptions

5.6.1 Causes of Interruptions - TNB

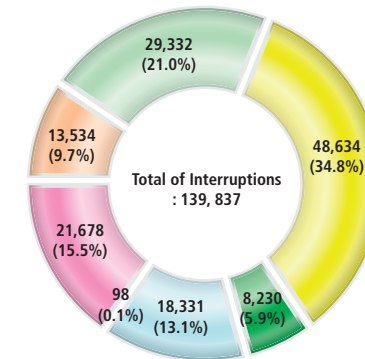
The main causes of unscheduled electricity supply interruptions in Peninsular Malaysia for the year 2002 to 2004 are as shown in Table 10. For the year 2004 the number of unscheduled interruptions had increased to 52,514 from 26,075 in the year 2003. Out of the total number unscheduled interruptions, 18,192 interruptions or 34.6% was due to nature related events.

Table 10 : Causes of Unscheduled Electricity Supply Interruptions in Peninsular Malaysia from the Year 2000 to 2004

Unscheduled Causes of Interruptions	Number of Interruptions				
	2000	2001	2002	2003	2004
Natural Disasters (wind, storm, flood, land slides, etc.)	18,268 (37.6%)	13,914 (38.3%)	7,953 (31.9%)	8,575 (32.9%)	18,192 (34.6%)
Inferior Workmanship	6,198 (12.8%)	5,038 (13.9%)	3,192 (12.8%)	-	-
Overloading	5,106 (10.5%)	4,243 (11.7%)	4,953 (19.8%)	4,429 (17.0%)	4,706 (9.0%)
Incorrect Operation / Settings	91 (0.2%)	72 (0.2%)	26 (0.1%)	-	-
Equipment Failures	8,582 (17.7%)	5,798 (16.0%)	2,312 (9.3%)	2,626 (10.1%)	10,942 (20.8%)
Caused by Third Parties	4,050 (8.3%)	3,045 (8.4%)	2,754 (11.0%)	3,199 (12.3%)	4,536 (8.6%)
Miscellaneous	6,266 (12.9%)	4,185 (11.5%)	3,763 (15.1%)	7,246 (27.8%)	14,138 (26.9%)
Total	48,561	36,295	24,953	26,075	52,514

It can be seen that in the last 4 years, the major causes of electricity supply interruptions were due to nature-related events. This is followed by miscellaneous causes (21.0%), equipment failures (15.5%) and overloading (13.1%) respectively.

Figure 32 : Causes of Unscheduled Electricity Supply Interruptions in Peninsular Malaysia from the Year 2001 to 2004



- Natural Disasters (wind, storm, flood, land slides, etc)
- Inferior Workmanship
- Overloading
- Incorrect Operation/Settings
- Equipment Failures
- Caused by Third Parties
- Miscellaneous

5.6.2 Causes of Interruptions - SESB

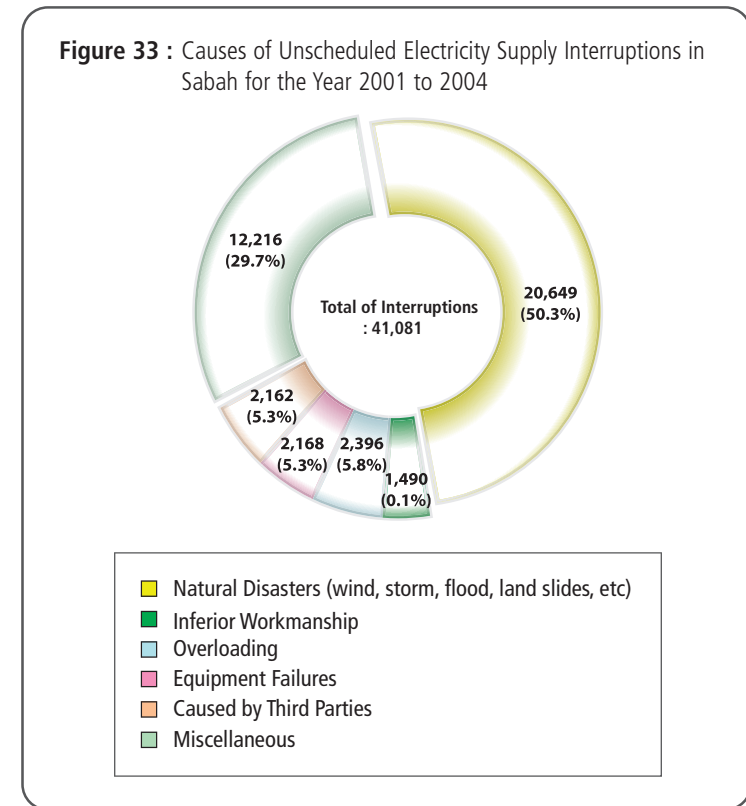
The causes of unscheduled electricity supply interruptions reported in SESB's system in Sabah in the year 2000 to 2004 are as shown in Table 11. For the year 2004, the unscheduled interruptions increased by 54.6% to 14,236 from 9,208 in the year 2003. Out of the total unscheduled interruptions, 5,924 interruptions or 41.6% were caused by miscellaneous causes.

Table 11 : Causes of Unscheduled Electricity Supply Interruptions in SESB's System from the Year 2000 to 2004

Unscheduled Causes of Interruptions	Number of Interruptions				
	2000	2001	2002	2003	2004
Natural Disasters (wind, storm, flood, land slides, etc.)	6,242 (68.1%)	5,935 (64.4%)	4,668 (55.4%)	4,533 (49.2%)	5,513 (38.7%)
Inferior Workmanship	986 (10.8%)	718 (7.8%)	231 (2.7%)	257 (2.8%)	284 (2.0%)
Overloading	196 (2.1%)	339 (3.7%)	337 (4.0%)	646 (7.0%)	1,074 (7.5%)
Equipment Failures	439 (4.8%)	564 (6.1%)	413 (4.9%)	485 (5.3%)	706 (5.0%)
Caused by Third Parties	348 (3.8%)	432 (4.7%)	442 (5.2%)	553 (6.0%)	735 (5.2%)
Miscellaneous	956 (10.4%)	1,226 (13.3%)	2,332 (27.7%)	2,734 (29.7%)	5,924 (41.6%)
Total	9,167	9,214	8,423	9,208	14,236

For SESB, in the last 4 years, the major causes of electricity supply interruptions were due to nature-related events (50.3%) and miscellaneous causes (29.7%). This is followed by interruptions overloading (5.8%), equipment failures (5.3%), damages by third parties (5.3%) and inferior workmanship (0.1%).

Figure 33 : Causes of Unscheduled Electricity Supply Interruptions in Sabah for the Year 2001 to 2004



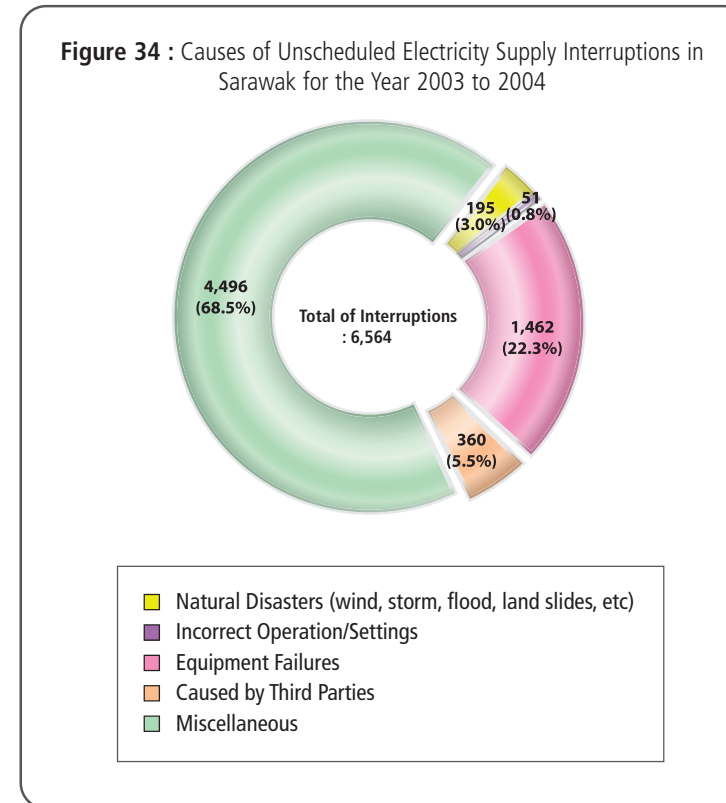
5.6.3 Causes of Interruptions - SESCO

In the year 2004, 2,266 interruptions or 69.0% of the total unscheduled interruptions in Sarawak were due to miscellaneous causes. This was followed by interruptions due to equipment failures (21.2%), damages by third parties (5.7%), natural disasters (3.0%) and incorrect operation/settings (1.0%). Table 12 shows the causes of unscheduled electricity supply interruptions in SESCO's system in Sarawak in the year 2003 and 2004.

Table 12 : Causes of Unscheduled Electricity Supply Interruptions in SESCO's system for the Year 2003 and 2004

Unscheduled Causes of Interruptions	Number of Interruptions	
	2003	2004
Natural Disasters (wind, storm, flood, land slides, etc.)	95 (2.9%)	100 (3.0%)
Incorrect Operation / Settings	17 (0.5%)	34 (1.0%)
Equipment Failures	766 (23.3%)	696 (21.2%)
Caused by Third Parties	173 (5.3%)	187 (5.7%)
Miscellaneous	2,230 (68.0%)	2,266 (69.0%)
Total	3,281	3,283

Figure 34 : Causes of Unscheduled Electricity Supply Interruptions in Sarawak for the Year 2003 to 2004



5.6.4 Causes of Interruptions - Other Electricity Distributors

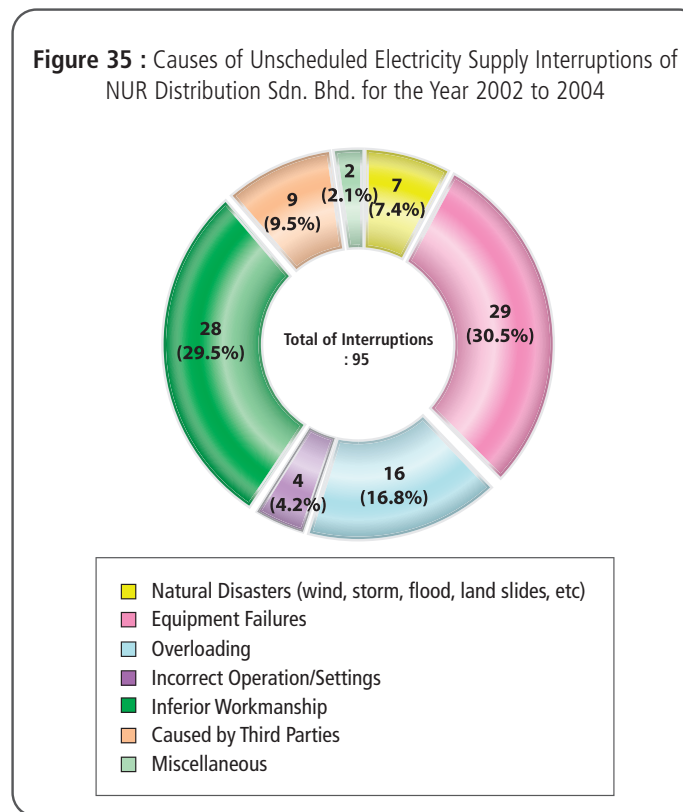
Apart from the TNB and SESB, the causes of unscheduled electricity supply interruptions as reported by other electricity distribution licensees in Peninsular Malaysia are as shown in Table 13.

Table 13 : Causes of Unscheduled Electricity Supply Interruptions Reported by Electricity Distribution Licensees Apart from TNB and SESB for the Year 2002 to 2004

Unscheduled Causes of Interruptions	Malaysia Airports (Sepang) Sdn Bhd			Petronas Gas Berhad (CUF Kerteh)			Petronas Gas Berhad (CUF Gebeng)			K.K.I.P Power Sdn. Bhd.			NUR Distribution Sdn. Bhd.		
	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004
Natural Disasters (wind, storm, flood, land slides, etc.)	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3
Equipment Failures	0	0	0	0	0	0	0	0	0	0	0	0	9	12	8
Overloading	0	0	0	0	0	0	0	1	0	0	0	0	4	4	8
Incorrect Operation / Settings	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1
Inferior Workmanship	0	0	0	0	0	0	0	0	0	0	0	0	9	6	13
Caused by Third Parties	0	0	0	1	0	0	0	0	0	0	0	16	3	0	6
Miscellaneous	2	0	1	0	0	0	0	0	0	7	1	0	2	0	0
Total Number	2	0	1	1	0	0	0	1	0	7	1	16	28	28	39

For NUR Distribution Sdn. Bhd., from the year 2002 to 2004, the major causes of electricity supply interruptions were due to equipment failures (30.5%), inferior workmanship (29.5%) and overloading (16.8%). This is followed by damages by third parties (9.5%), natural disasters (7.4%), incorrect operation/settings (4.2%) and miscellaneous causes (2.1%).

Figure 35 : Causes of Unscheduled Electricity Supply Interruptions of NUR Distribution Sdn. Bhd. for the Year 2002 to 2004



6.0 Voltage Quality

Voltage quality refers to the characteristics of the supply voltage relating to the frequency, magnitude, waveform and symmetry of the phases. This report presents the numbers of complaints on the voltage violations and power quality problem received by the Energy Commission.

6.1 Incidents of Overvoltage

In the year 2004, the number of overvoltage incidents reported to the Energy Commission had slightly increased to 94 incidents from the 91 incidents in the year 2003. The numbers of complaints on overvoltage in Peninsular Malaysia for the year 2004 and the last few years are as shown in Figure 36.

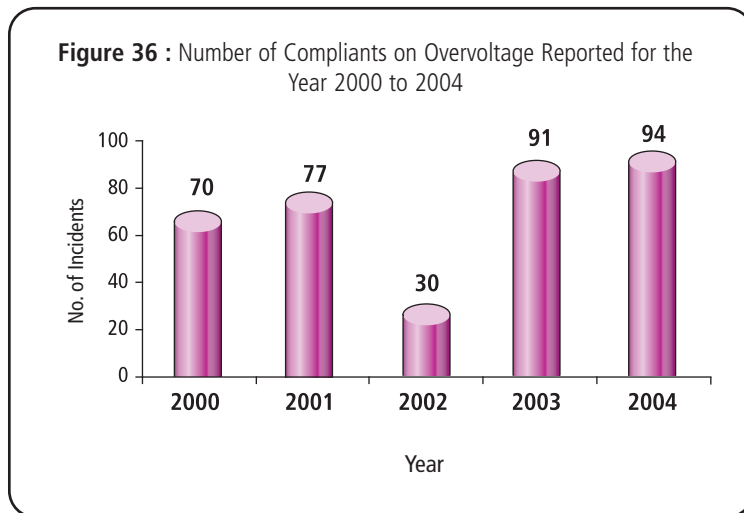
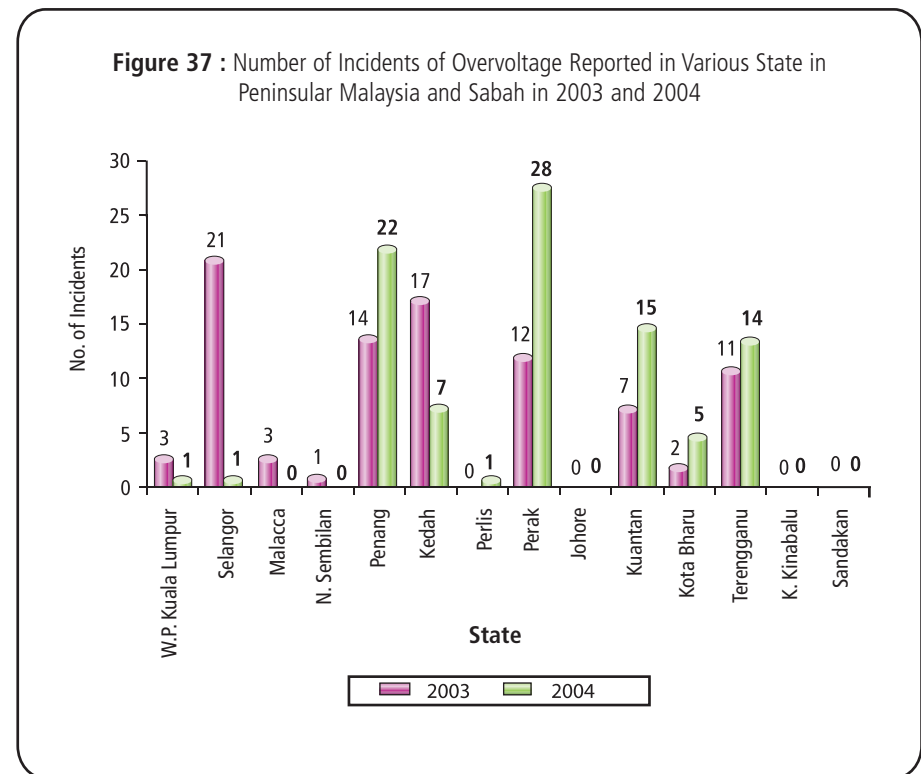


Figure 37 shows the number of overvoltage incidents as reported in various states in Peninsular Malaysia and Sabah in the year 2003 and 2004. In the year 2004, Perak recorded the highest number i.e. 28 incidents or 30.0% of the total number of incidents. Among the causes of overvoltage incidents were loose neutral connection in aerial lines, lack of maintenance, deficiency in connection accessories and others.



6.2 Power Quality Problems

6.2.1 Voltage Dips in TNB's Supply System

Supply reliability, in particular frequency and duration of power supply interruptions, remains the primary determinant of quality of supply. Nevertheless, the impact of voltage dips, surges and voltage waveform distortion in the supply network will have detrimental effect to the industrial and commercial customers. Incidents of voltage dips often cause interruptions to industrial process resulting in loss of production to the manufacturing industry. Over the years, voltage dips have been a major concern to industrial and commercial customers in Malaysia. Among the causes of the dips are transmission system trippings, faults on the supply system, transient faults, connection or switching of large loads, lightning and others. The numbers of incidents of voltage dip as recorded by TNB in the major industrial areas in Peninsular Malaysia are as shown in Figure 38.

In the year 2004, the total number of voltage dip incidents as recorded in some major industrial areas had decreased by 3.7% to 129 from 134 in the previous year. However, the number of consumers affected had slightly increased to 251 in the year 2004 from 247 in the year 2003. Figure 39 shows the number of customers in the major industrial areas in Peninsular Malaysia affected by voltage dips in the last 3 years.

In order to increase the awareness on power quality issues as well as assisting the industrial customers to mitigate the problem, TNB has set up a special unit to provide advisory services to the customers. Among the various initiatives taken by TNB are:

- i) publishing a guide book on power quality to provide information to the customers on power quality and the measures to mitigate the problems;
- ii) monitoring power quality problems in major industrial areas and strategic locations.

Figure 38 : Number of Voltage Dips Incidents Reported in Major Industrial Estates in Peninsular Malaysia in the Year 2002, 2003 and 2004

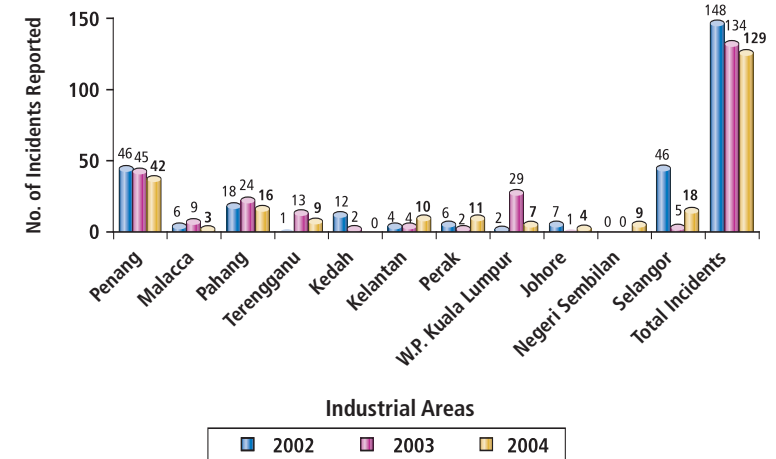
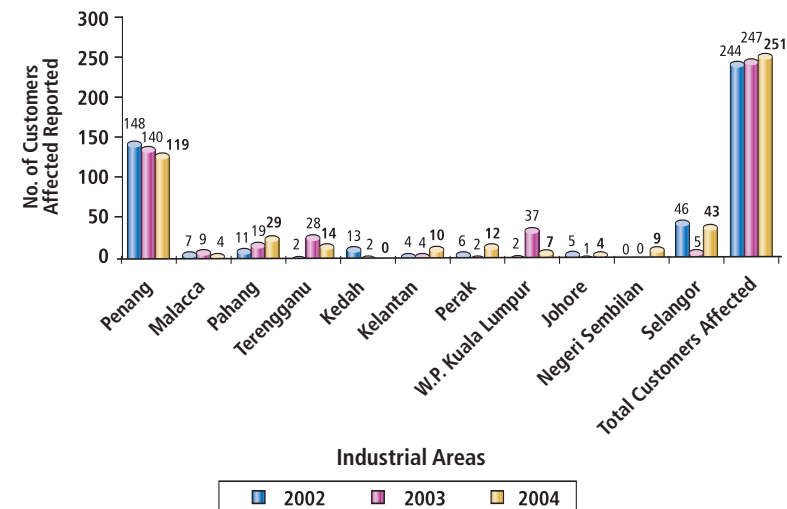


Figure 39 : Number of Customers in Major Industrial Estates Affected by Voltage Dips in the Year 2002, 2003 and 2004



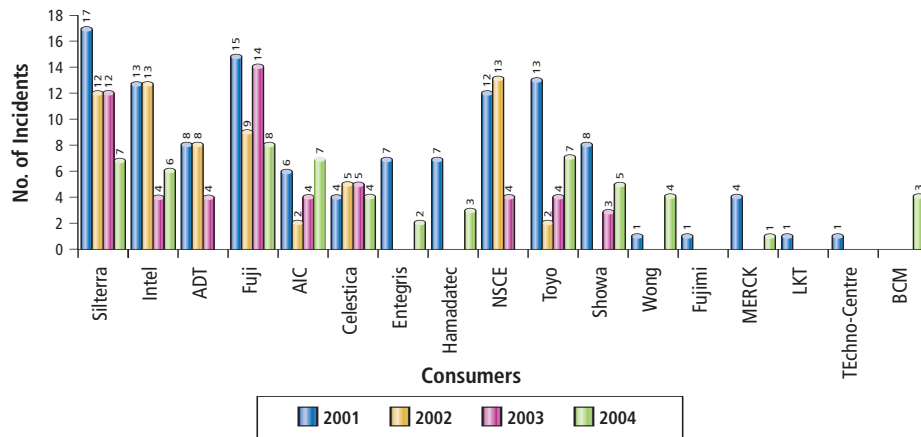
D. PERFORMANCE OF DISTRIBUTION SYSTEM

6.2.2 Voltage Dips in NUR's Supply System

Kulim Hi-Tech Park (KHTP), as a high technology industrial area, requires high quality of electricity supply. As such the electricity distributor NUR Distribution Sdn. Bhd., is continuously monitoring the quality of supply in the park using SCADA to provide better services to the customers.

Figure 40 shows the numbers of incidents of voltage dip affecting the operation of the major industrial customers in Kulim Hi-Tech Park (KHTP) in the last 4 years. Figure 41 and Figure 42 shows the number of voltage dip incidents and the number of customers affected by the dips in the year 2004 compared with the previous 2 years.

Figure 40 : The Number of Voltage Dip Incidents Affecting the Operations of the Major Industrial Customers in KHTP



D. PERFORMANCE OF DISTRIBUTION SYSTEM

Figure 41 : Number of Voltage Dip Incidents in Kulim Hi-Tech Park in the Year 2002, 2003 and 2004

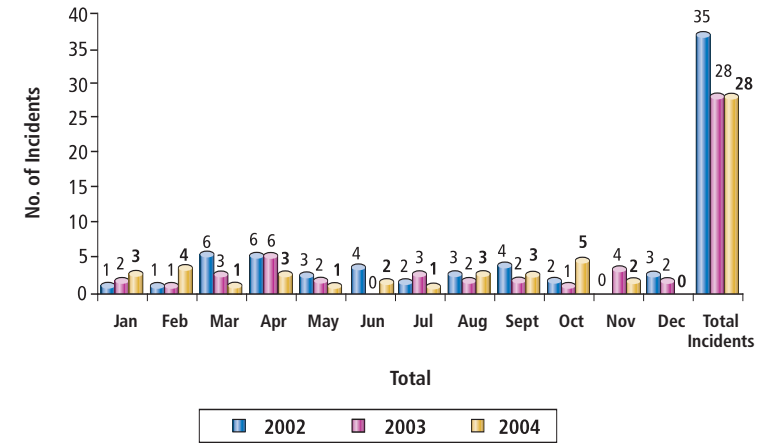
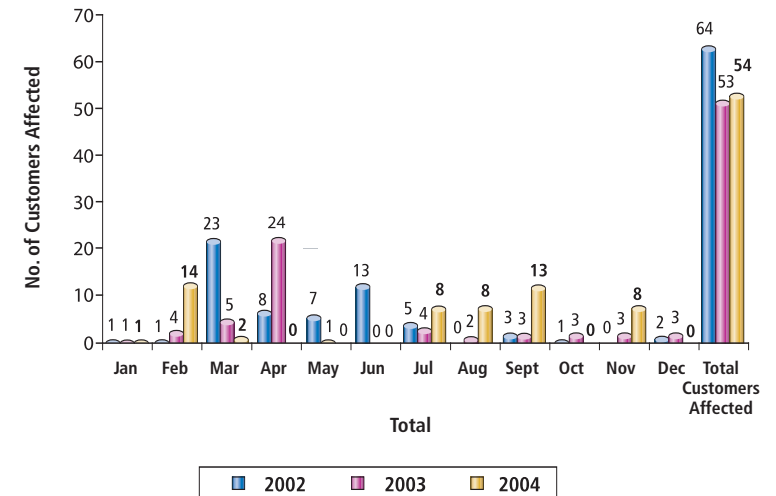


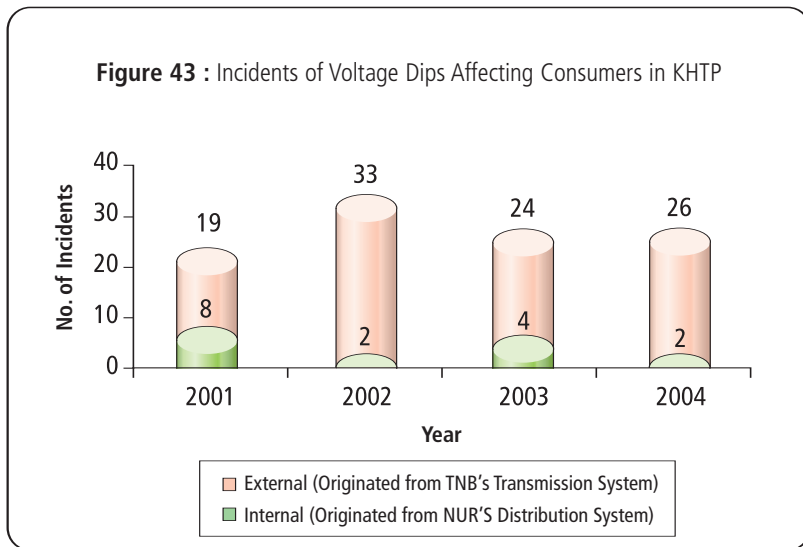
Figure 42 : Number of Customers in Kulim Hi-Tech Park Affected by Voltage Dips in the Year 2002, 2003 and 2004



D. PERFORMANCE OF DISTRIBUTION SYSTEM

Figure 43 shows the numbers of incidents of voltage dip originating from the TNB's transmission system and those from the local NUR's distribution system in the last 4 years. It can be seen that most of the voltage dips in KHTP was originated from the transmission system.

The SEMI F47 - 1999 standard (Specifications for Semiconductor Processing Equipment Voltage Sag Immunity) is a guideline established by the electronic industry to determine the responsibility of the supply company or the consumers in handling the voltage dip problem. The SEMI F47 scattered plots of the incidents of voltage dips in the year 2001, 2002, 2003 and 2004 are as shown Figure 44, Figure 45, Figure 46 and Figure 47 respectively. Figure 48 shows the numbers of voltage dip incidents which are below 70% magnitude of the nominal supply voltage in KHTP and in others countries in the last 4 years, while Figure 49 shows the numbers of voltage dip incidents in KHTP below the SEMI F47 curve.



D. PERFORMANCE OF DISTRIBUTION SYSTEM

Figure 44 : Incidents of Voltage Dips in KHTP for the Year 2001 Plotted on the SEMI F47 Curve

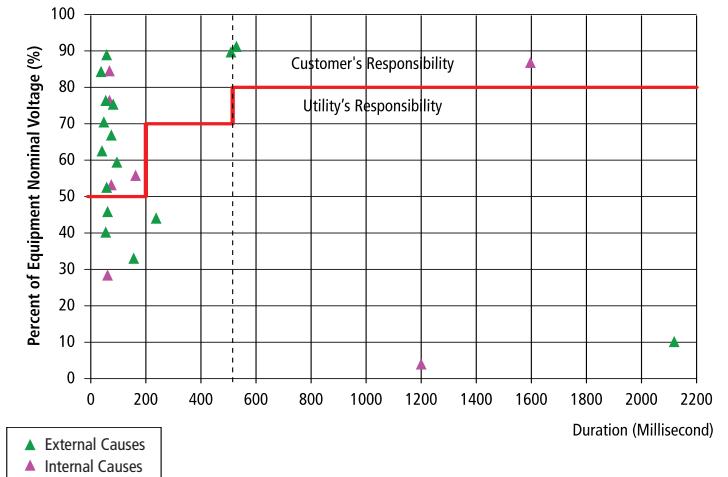
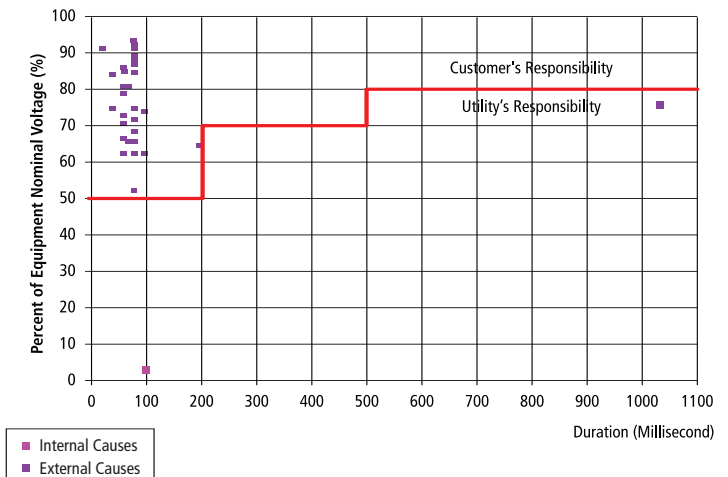


Figure 45 : Incidents of Voltage Dips in KHTP for the Year 2002 Plotted on the SEMI F47 Curve



7.0 Quality of Service

This section covers the performance of customer services of TNB, SESB and NUR, result of the surveys on customer satisfaction and statistics of complaints received by the Commission.

7.1 Annual Performance Report on Customer Services

Under the licence conditions, TNB, SESB and NUR are required to submit annual reports on performance of customer services to the Energy Commission. These reports cover 15 types of services. The performance of the three utilities for the last few years are as shown in Appendix 1, II and III. Based on the reports submitted by TNB, SESB and NUR, it can be seen that the overall performance in customer services of the utilities is improving.

7.2 Complaints Received by the Energy Commission

A total of 201 complaints were received by the Energy Commission in the year 2004. Most of the complaints were received through the Commission's regional offices and the website.

Table 14 shows the number and types of complaints received in the year 2003 and 2004.

Various efforts were taken by the Energy Commission to resolve the complaints such as investigation into the complaints, having meetings with the relevant parties and issuing directives to the utilities etc.

Table 14 : Number and Types of Complaints Received by the Energy Commission in the Year 2003 and 2004

Complaints on Services		
Issues	No. of Complaints Received	
	2003	2004
Application and connection of electricity supply	11	19
Tariff and charges	17	13
Electricity billing, metering, disconnection and reconnection of supply	7	10
Safety of installations	23	18
Encroachment into the transmission line wayleave or damage to TNB installations by third parties	13	10
Public lighting, other matter on supply and customer services	19	16
TOTAL	90	86
Complaints on Supply		
Electricity Supply Interruptions	27	15
Overvoltage	91	94
Power quality (dips, surges etc)	4	6
TOTAL	122	115

Figure 50 : Statistics of Complaints of Electricity Supply Services Reported in Various States in Peninsular Malaysia in the Year 2003 and 2004

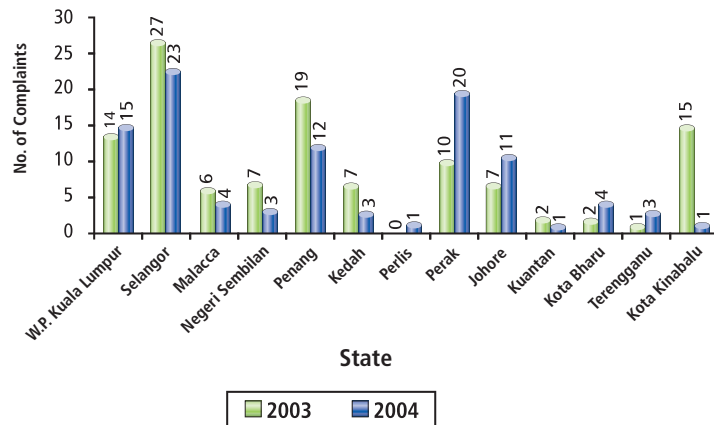


Table 15 : Status of Resolution of Complaints in the Year 2004

	Services	Supply
No. of Cases resolved	95	93
No. of Cases not Resolved Yet	6	7
Total Cases	101	100

7.3 Survey On Customer Satisfaction Level

In the year 2004, a customer survey was carried by Energy Commission on the satisfaction level of the services provided by TNB. NUR Distribution Sdn Bhd had also conducted a similar survey in KHTP to gauge the satisfaction level of its customers.

7.3.1 Customer Satisfaction Level of TNB

The survey was carried out for about 6 month from July to December 2004 and a total of 1,065 responses were received. Of the total responses received, 512 responses were from domestic customers while 553 responses were from industrial/commercial customers. The results of the survey is as shown in Table 16.

Table 16 : Percentage of Customers Satisfied with the Services of TNB

Scope of Survey	Percentage of Responses of Satisfied Customers		
	Overall	Domestic	Industrial / Commercial
Reliability of supply	79.9%	77.1%	82.5%
Customer Services	84.9%	81.7%	86.8%
Information about electricity supply interruptions	79.8%	78.0%	81.6%
Meter and billing	90.7%	89.5%	91.8%
Street lighting	70.5%	70.5%	-
Safety	67.0%	67.0%	-
Other issues on supply	77.4%	-	77.4%

7.3.2 Customer Satisfaction Level of NUR Distribution Sdn. Bhd.

NUR Distribution Sdn. Bhd. had conducted the survey between 11th March and 15th April 2004 by distributing the survey forms to its industrial, commercial and domestic customers. A total of 153 responses were received out of 1,501 survey forms distributed. The number of response from each category of customers are as shown in Table 17.

Table 17 : Number of Responses Received by NUR Distribution Sdn. Bhd. in the year 2004

Customer Categories	No. of Responses Received
Industrial	17
Commercial	17
Domestic	119
Total	153

Figure 51 and Table 18 show the summary of the results of the customer survey.

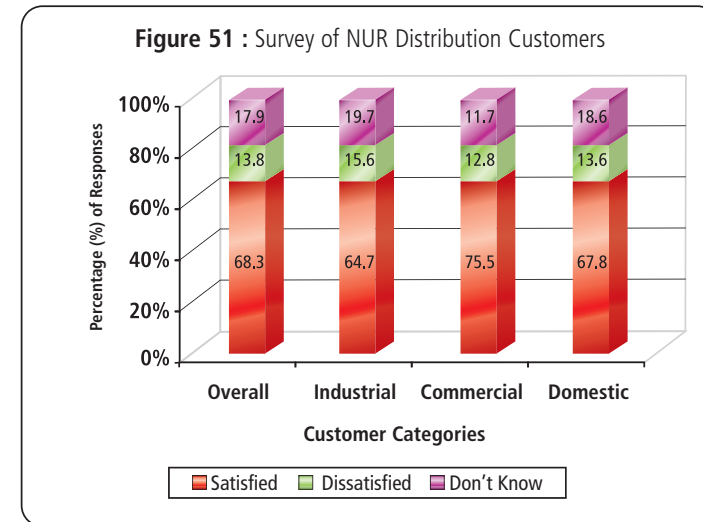


Figure 18 : Percentage of Customers Satisfied with the Services of NUR Distribution

Activities	Percentage of Responses of Customers Satisfied with the Services			
	Overall	Industrial	Commercial	Domestic
Reliability and quality of supply	76.1%	44.1%	91.2%	78.6%
Meter reading, billing and refund of deposit	66.2%	61.8%	76.5%	65.3%
Notice of electricity supply interruptions	69.9%	76.5%	70.6%	68.9%
Application of connection and timelines of connection of supply	59.8%	41.2%	64.7%	61.8%
Handling of breakdown complaint of supply	60.8%	67.7%	73.5%	58.0%
Tariff and charges	62.1%	64.7%	70.6%	60.5%
Condition of utility's installation	72.6%	76.5%	76.5%	71.4%
Advice and customer education	72.6%	64.7%	64.7%	74.8%
Customer services	78.1%	94.1%	82.4%	75.2%

8.0 Electricity Prices

In the year 2004, the average electricity prices of TNB, SESB and SESCO were 23.5 sen/kWh, 25.3 sen/kWh and 26.5 sen/kWh respectively.

8.1 Electricity Prices of TNB, SESB, SESCO and Other Utilities

The average selling prices of TNB, SESB and SESCO in 2004 compared with some countries in this region are as shown in Table 19 and Figure 52 to Figure 56. The average prices in Table 19 were derived from total units of energy sold and total revenue from sales of electricity for the period from January to December 2004 after taking into consideration the currency exchange rates.

Table 19 : Average Selling of Electricity in Malaysia and Some Countries in Asia in the year 2004

Utility / Country	Domestic (sen/kWh)	Commercial (sen/kWh)	Industrial (sen/kWh)	Public Lighting (sen/kWh)	Overall (sen/kWh)
TNB	23.3	27.5	21.5	15.6	23.5
SESB	22.4	29.0	23.5	29.1	25.3
SESCO	31.1	32.1	19.1	47.1	26.5
Singapore	36.9	35.7	31.8	N/A	35.9
Thailand	27.8	29.0	24.6	N/A	27.0
Indonesia	23.6	29.3	23.7	N/A	24.6
Philippines	41.9	43.1	36.8	35.8	40.9
Korea	30.5	30.6	20.1	21.8	24.9
Hong Kong*	42.2	47.2	32.7	N/A	42.9
Taiwan	28.5	29.0	19.7	11.1	23.4
Japan	77.3	57.4	57.4	30.0	65.8

Nota : (*) January to June 2004
(N/A) Not Available

F. ELECTRICITY PRICES

Figure 52 : Comparison of Average Selling of Electricity for Domestic Customers in the Year 2004

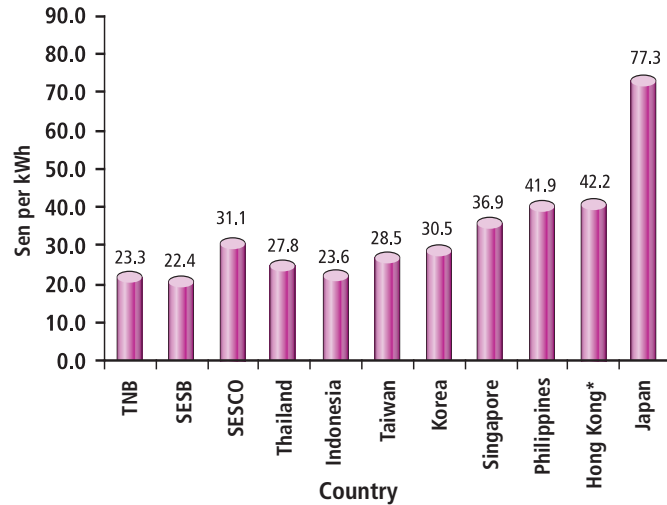
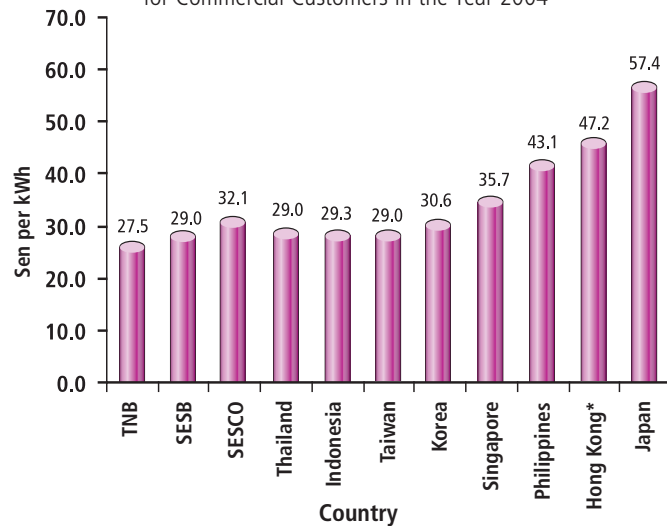


Figure 53 : Comparison of Average Selling Prices of Electricity for Commercial Customers in the Year 2004



F. ELECTRICITY PRICES

Figure 54 : Comparison of Average Selling Prices of Electricity for Industrial Customers in the Year 2004

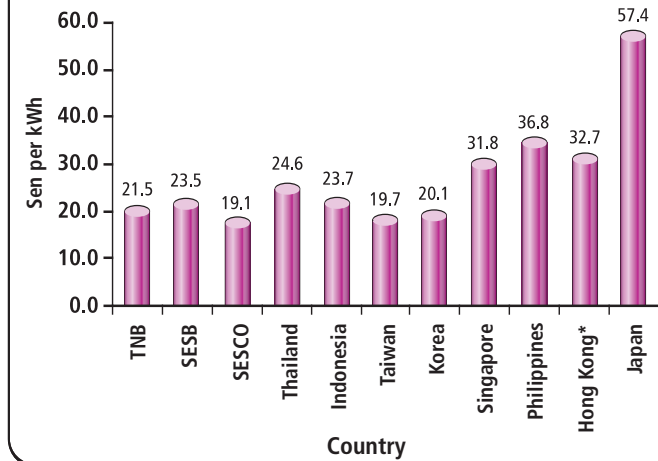


Figure 55 : Comparison of Average Selling Prices of Electricity for Street Lighting in the Year 2004

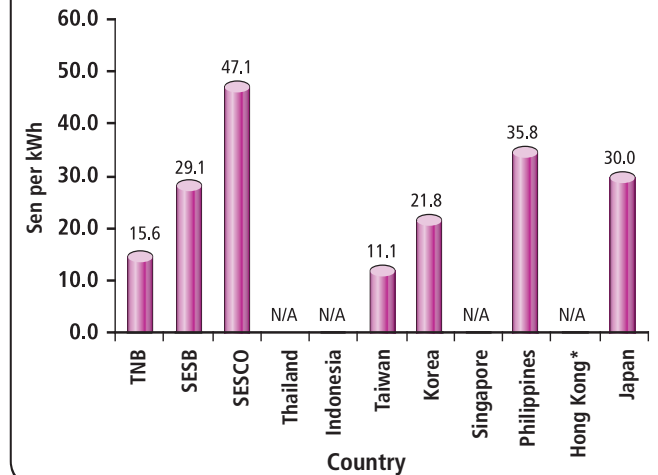
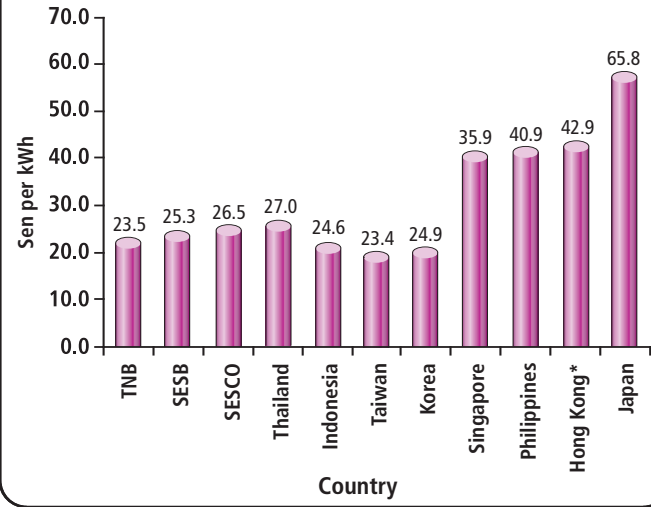


Figure 56 : Comparison of Average Selling Prices of Electricity in the Year 2004



The overall performances of the electricity supply services of the utilities in Malaysia have improved over the years.

In the year 2004, the SAIDI of TNB, SESCO and NUR Distribution had reduced even though the number of interruptions had increased. This is due to improvement in time taken for restoration of supply. The number of voltage dip incidents had dropped compared with the previous year.

Nevertheless, efforts must be taken by the utilities to improve asset management, to reduce response time for restoration of supply and to undertake appropriate measures to mitigate the problem of voltage dips faced by the industrial sector.

Prepared by : Electricity Supply Department
Energy Commission

APPENDIX I

REPORT ON THE PERFORMANCE OF CUSTOMER SERVICES OF TNB FOR FINANCIAL YEARS 1998/99 TO 2003/04

Details	Performance in 1998/99	Performance in 1999/00	Performance in 2000/01	Performance in 2001/02	Performance in 2002/03	Performance in 2003/04
1. Connection of Electricity Supply						
A. Change Of Consumers						
No. of applications	109,485	114,309	119,724	124,302	127,648	131,723
Percentage connected within 2 working days	86%	96%	99%	100%	99%	97%
B. New Supply (Low Voltage)						
i) Individual Applications Under Normal Conditions						
No. of applications	177,983	168,827	201,894	217,289	248,267	247,984
Percentage connected within 2 working days after appointment for testing installation	84%	95%	99%	100%	99%	96%
ii) Individual Applications Under Abnormal Conditions						
No. of applications	7,263	2,348	2,007	4,795	8,929	12,174
Percentage connected within 2 weeks after appointment for testing installation	73%	92%	99%	100%	98%	100%
iii) Bulk Supply Application And Housing Schemes						
No. of applications	146,120	108,903	95,737	145,915	120,936	106,819
Percentage connected within 1 month after appointment for testing installation	89%	93%	97%	100%	99%	100%

Details	Performance in 1998/99	Performance in 1999/00	Performance in 2000/01	Performance in 2001/02	Performance in 2002/03	Performance in 2003/04
2. Supply Restoration After Breakdowns						
i) Reports						
No. of consumers who have reported	1,895,558	1,479,752	1,666,775	1,243,326	1,114,240	1,156,186
Percentage of such consumers being given report numbers	53%	67%	90%	94%	82%	84%
ii) Minor Breakdowns						
No. of minor breakdowns	82,796	63,925	66,818	67,405	66,321	84,203
Percentage of breakdown rectified within 4 hours	85%	95%	97%	93%	96%	96%
iii) Major/Extra Ordinary Breakdowns						
No. of major breakdowns	60,430	28,001	7,963	7,138	7,476	8,440
Percentage of restoration within 2 working days	84%	93%	91%	95%	99%	97%
3. Supply Reconnection After Disconnection						
No. of supply disconnections	1,002,946	1,009,243	998,659	990,354	983,017	654,946
No. of consumers paying bills before 1:00 p.m. on disconnection day	588,943	598,705	590,141	589,734	555,666	355,150
Percentage of supply reconnection on the same day for those who paid the bills before 1:00 p.m.	93%	98%	99%	99%	99%	100%
4. Supply Interruptions Which Were Planned / Scheduled						
No. of scheduled interruptions	13,122	11,634	15,774	8,969	6,673	8,831
Percentage of consumers given 24 hours notice	69%	77%	92%	96%	95%	90%
Percentage not given notice	6.8%	4%	1%	2%	2%	2%

Details	Performance in 1998/99	Performance in 1999/00	Performance in 2000/01	Performance in 2001/02	Performance in 2002/03	Performance in 2003/04
5. Meter Reading						
No. of consumers with estimated readings exceeding 3 consecutive months	754,529	515,062	407,390	420,870	360,160	355,318
Percentage of customers with estimated readings exceeding 3 consecutive months been given notice	52%	89%	97%	96%	97%	97%
6. Enquiries / Written Complaints From Consumers						
i) Written enquiries including questions regarding accounts/bills						
No. of written complaints received	8,116	5,057	5,799	4,659	5,067	7,009
Percentage being replied within 7 working days	86%	93%	99%	100%	100%	98%
7. Complaints Through Telephone						
No. of complaints through telephone which could not be settled at the same moment	36,126	20,861	26,314	37,735	35,694	29,145
Percentage of such complaints who were recontacted within 24 hours	64%	84%	98%	100%	99%	99%
8. Appointment For Meter Accuracy Check						
No. of appointments for meter accuracy check	17,965	16,454	14,183	10,099	6,645	10,057
Percentage of meter accuracy check carried out within 2 working days	85%	93%	98%	99%	100%	99%

Details	Performance in 1998/99	Performance in 1999/00	Performance in 2000/01	Performance in 2001/02	Performance in 2002/03	Performance in 2003/04
9. Meter Replacement						
No. of meters replaced	324,487	403,654	257,245	179,413	275,353	97,935
Percentage of meter replacement within 2 working days	85%	94%	98%	100%	100%	98%
10. Appointment With Consumers						
i) For Appointments Outside TNB Premises						
Appointments where TNB officers arrived not later than 30 minutes from the agreed time.	77%	92%	96%	100%	100%	100%
ii) Postponement by TNB						
Percentage of subsequent appointment made within 2 working days	22%	83%	96%	100%	99%	97%
11. Deposits						
No. of consumers who were found after 6 months that their deposits exceeded average consumption of 2 months	1,787,972	881,863	42,513	30,476	26,955	28,239
Percentage of such consumers who had the excess deposits returned.	56%	84%	96%	100%	100%	94%
12. Refund of Consumer Deposits						
No. of consumers who forwarded all required documents for refund of deposits	80,277	80,086	86,041	82,097	94,041	87,330
Consumers who had their deposits refunded within 2 months	83%	94%	99%	99%	98%	97%

Details	Performance in 1998/99	Performance in 1999/00	Performance in 2000/01	Performance in 2001/02	Performance in 2002/03	Performance in 2003/04
13. Collection						
Percentage of consumers who paid through the post and proof of payment been send within 7 working days	61%	96%	100%	100%	97%	97%
14. Supply Disconnection						
i) With 24 hours Notice						
No. of disconnections due to dangerous consumer installations	14,017	17,991	6,726	12,045	6,077	1,714
No. of disconnections due to suspicion of theft of electricity	7,197	17,158	5,696	11,544	3,854	1,103
No. of disconnections due to electricity meter being damaged	853	136	989	35	317	609
ii) Without Any Notice						
No. of disconnections due to failure to pay the bills within 15 days after issuance of bill	5,967	697	41	466	1,906	2
No. of disconnections due to failure to pay additional deposits within 7 days from the date of notice.	466,789	347,659	335,277	378,933	365,494	235,338
No. of disconnections of installations which were dangerous.	444,017	346,996	329,762	364,269	353,168	211,032
	22,644	657	5,098	12,422	12,323	22,136
	128	6	417	2,242	3	2,170

Details	Performance in 1998/99	Performance in 1999/00	Performance in 2000/01	Performance in 2001/02	Performance in 2002/03	Performance in 2003/04
15. Special Consumers Who Face Problems In Paying Electric Bills	1,445	410	501	436	448	599
No. of handicapped consumers who appealed to avoid disconnection.	963	31	55	48	40	65
No. of senior consumers who appealed to avoid disconnection.	167	64	79	64	56	77
No. of handicapped consumers who were assisted in payment of bills.	129	91	141	150	164	195
No. of senior consumers who were assisted in payment of bills.	186	224	226	174	188	262

APPENDIX II

REPORT ON THE PERFORMANCE OF CUSTOMER SERVICES OF SESB FOR FINANCIAL YEARS 2000/01 TO 2002/03

Details	Performance in 2000/01	Performance in 2001/02	Performance in 2002/03
1. Connection of Electricity Supply			
A. Change of Consumers			
No. of applications	4,388	6,240	6,401
Percentage connected within 2 working days	97.8%	91.3%	85.9%
B. New Supply (Low Voltage)			
i) Individual Applications Under Normal Conditions			
No. of applications	6,543	8,461	14,166
Percentage connected within 4 working days after appointment for testing installation	84.1%	94.7%	71.7%
ii) Individual Applications Under Abnormal Conditions			
No. of applications	39	35	N/A
Percentage connected within 2 weeks after appointment for testing installation	64.1%	85.7%	N/A
iii) Bulk Supply Application And Housing Schemes			
No. of applications	156	2,437	525
Percentage connected within 1 month after appointment for testing installation	85.9%	99.9%	80%
2. Supply Restoration After Breakdowns			
i) Reports			
No. of consumers who have reported	38,305	58,263	149,172
Percentage of such consumers being given report numbers	94.7%	99.7%	100%
ii) Minor Breakdowns			
No. of minor breakdowns	8,139	6,341	8,597
Percentage of breakdown rectified within 6 hours	85.1%	92.8%	100%
iii) Major/Extra Ordinary Breakdowns			
No. of major breakdowns	2,597	2,051	1,271
Percentage of restoration within 4 days	100%	100%	83.6%
3. Supply Reconnection After Disconnection			
No. of supply disconnections	25,840	47,673	63,480
No. of consumers paying bills before 1:00 p.m. on disconnection day	9,360	25,379	30,674

Details	Performance in 2000/01	Performance in 2001/02	Performance in 2002/03
Percentage of supply reconnection on the same day for those who Paid the bills before 1:00 p.m.	96%	98.8%	48.3%
4. Supply Interruptions Which Were Planned / Scheduled			
No. of scheduled interruptions	521	449	802
Percentage of consumers given 24 hours notice	89.8%	93.6%	100%
5. Meter Reading			
No. of consumers with estimated readings exceeding 3 consecutive months	4,194	11,614	8,389
Percentage of customers with estimated readings exceeding 3 consecutive months been given notice	21.7%	26.2%	25.5%
6. Enquiries / Written Complaints From Consumers			
i) Written enquiries including questions regarding accounts/bills			
No. of written complaints received	416	148	176
Percentage being replied within 7 working days	98.8%	91.9%	52.8%
7. Complaints Through Telephone			
No. of complaints through telephone which could not be settled at the same moment.	190	304	1,246
Percentage of such complaints who were recontacted within 24 hours.	93.2%	96.1%	15.9%
8. Appointment For Meter Accuracy Check			
No. of appointments for meter accuracy check	461	693	989
Percentage of meter accuracy check carried out within 7 working days.	90.2%	95.4%	88.9%
9. Meter Replacement			
No. of meters replaced	3,115	2,246	3,956
Percentage of meter replacement within 2 weeks	83.1%	87.2%	74.2%

Details	Performance in 2000/01	Performance in 2001/02	Performance in 2002/03
10. Appointment With Consumers			
i) For Appointments Outside TNB Premises			
Appointments where TNB officers arrived not later than the agreed time.	94.2%	93.6%	95.9%
ii) Postponement by TNB			
Percentage of subsequent appointment made within 2 working days	90.3%	100%	52.4%
11. Deposits			
No. of consumers who were found after 6 months that their deposits exceeded average consumption of 2 months	15	9	12,798
Percentage of such consumers who had the excess deposits returned	100%	100%	6.5%
12. Refund of Consumer Deposits			
No. of consumers who forwarded all required documents for refund of deposits	2,173	4,630	4,744
Consumers who had their deposits refunded within 2 months	86.4%	86.7%	69.4%
13. Collection			
Percentage of consumers who paid through the post and proof of payment been send within 7 working days	46.8%	59.9%	58.6%
14. Supply Disconnection			
i) With 24 hours Notice			
No. of disconnections due to dangerous consumer installations	28,135	25,766	4,619
No. of disconnections due to suspicion of theft of electricity	518	529	228
No. of disconnections due to electricity meter being damaged	93	8	160
ii) Without Any Notice			
No. of disconnections due to failure to pay the bills within 15 days after issuance of bill	4,669	29,373	25,983
No. of disconnections due to failure to pay additional deposits within 7 days from the date of notice	3	1	1,021

Details	Performance in 2000/01	Performance in 2001/02	Performance in 2003/04
No. of disconnections of installations which were dangerous	2	0	14
15. Special Consumers Who Face Problems In Paying Electric Bills			
No. of handicapped consumers who appealed to avoid disconnection.	7	34	24
No. of senior consumers who appealed to avoid disconnection.	35	53	51
No. of handicapped consumers who were assisted in payment of bills.	8	42	23
No. of senior consumers who were assisted in payment of bills	34	39	30

Note : (N/A) Not Available

APPENDIX III

REPORT ON THE PERFORMANCE OF CUSTOMER SERVICES OF NUR DISTRIBUTIONS SDN. BHD. FOR THE YEAR 2003 AND 2004

Details	Performance in 2003	Performance in 2004
1. Connection of Electricity Supply		
A. Change of Consumers		
No. of applications	9	17
Percentage connected within 1 working day	100%	100%
B. New Supply (Low Voltage)		
i) Individual Applications Under Normal Conditions		
No. of applications	351	221
Percentage connected within 1 working day after appointment for testing installation	100%	100%
ii) Bulk Supply Application And Housing Schemes		
No. of applications	9	43
Percentage connected within 1 weeks after appointment for testing installation	100%	100%
2. Supply Restoration After Breakdowns		
i) Reports		
No. of consumers who have reported	N/A	N/A
Percentage of such consumers being given report numbers	N/A	N/A
ii) Minor Breakdowns		
No. of minor breakdowns	20	27
Percentage of breakdown rectified within 2 hours	75%	85%
iii) Major/Extra Ordinary Breakdowns		
No. of major breakdowns	8	10
Percentage of restoration within 24 hours	100%	90%
3. Supply Reconnection After Disconnection		
No. of supply disconnections	23	138
No. of consumers paying bills before 1:00 p.m. on disconnection day	23	136
Percentage of supply reconnection on the same day for those who Paid the bills before 1:00 p.m	100%	99%
4. Supply Interruptions Which Were Planned / Scheduled		
No. of scheduled interruptions	34	61
Percentage of consumers given 7 days notice	100%	90%

Details	Performance in 2003	Performance in 2004
5. Meter Reading		
No. of consumers with estimated readings exceeding 2 consecutive months	54	140
Percentage of customers with estimated readings exceeding 2 consecutive months been given notice	96.3%	99%
6. Enquiries / Written Complaints From Consumers		
i) Written enquiries including question regarding accounts/bills		
No. of written complaints received	8	45
Percentage being replied within 5 working days	100%	100%
7. Complaints Through Telephone		
No. of complaints through telephone which could not be settled at the same moment	8	45
Percentage of such complaints who were recontacted within 24 hours	100%	100%
8. Appointment for Meter Accuracy Check		
No. of appointments for meter accuracy check	1	9
Percentage of meter accuracy check carried out within 1 working day	100%	100%
9. Meter Replacement		
No. of meter replaced	N/A	4
Percentage of meter replacement within 2 working days	N/A	100%
10. Appointment With Consumers		
i) For appointments Outside NUR Premises		
No. of appointments where NUR officers arrived not less than 15 minutes from the agreed time	105	299
ii) Postponement by NUR		
Percentage of subsequent appointment made within 1 working day	100%	100%
11. Deposits		
No. of consumers who were found after 6 months that their deposits exceeded average consumption of 2 months	0	0
Percentage of such consumers who had the excess deposits returned	N/A	N/A

Details	Performance in 2003	Performance in 2004
12. Refund of Consumer Deposits		
No. of consumers who forwarded all required documents for refund of deposits	19	79
Consumers who had their deposits refunded within 15 working days	100%	2.5%
13. Collection		
Percentage of consumers who paid through the post and proof of payment been send within 5 working days	100%	N/A
14. Supply Disconnection		
i) With 24 hours Notice		
No. of disconnections due to dangerous consumer installations	N/A	N/A
No. of disconnections due to suspicion of theft of electricity	N/A	N/A
No. of disconnections due to electricity meter being damaged	N/A	N/A
ii) Without Any Notice		
No. of disconnections due to failure to pay bills within 15 days after issuance of bil	N/A	N/A
No. of disconnections due to failure to pay additional deposits within 7 days from the date to notice	36	153
No. of disconnections of installations which were dangerous	1	6
15. Special Consumers Who Face Problems in Paying Electric Bills		
The handicapped and senior consumers were assisted in payment of bills, NUR will make special arrangement or collect from consumers premises	0	0

Nota : (N/A) Not Available

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