



# ELECTRICITY SUPPLY INDUSTRY IN MALAYSIA

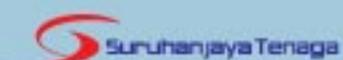
PERFORMANCE AND STATISTICAL INFORMATION

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## INTRODUCTION

Electricity demand in Peninsular Malaysia increased by 7.8 percent from 94,748 GWh in 2009 to 102,139 GWh in 2010. Sales of electricity followed the same trend with a growth of 8.8 percent from 83,411 GWh in 2009 to settle at 90,770 GWh in 2010. The positive trend in electricity demand reflects the country's situation recovering from economic turmoil in 2009. Another factor which influenced the country's electricity demand was the climate change or the weather.

The highest maximum demand for the grid system in Peninsular Malaysia was recorded on 24th of May 2010. It showed about 5.8 percent growth from 14,245 MW in 2009 to 15,072 MW in 2010. The highest daily electricity demand was recorded on the 25th of May 2011 at 311.5 GWh, an increase of 7.4 percent compared to the previous year. In 2010, there was no additional installed generation capacity in Peninsular Malaysia. Therefore, the installed generation capacity remained at 21,817 MW as in the previous year. About 7,040 MW or 32.3 percent were generated by Tenaga Nasional Berhad (TNB) while the remaining were by the Independent Power Producers (IPPs). In 2010, the reserve margin for Peninsular Malaysia stood at 45 percent.

In Sabah, the highest daily electricity demand increased by 4.2 percent, from 14.2 GWh in 2009 to 14.8 GWh in 2010. The maximum demand was recorded at 779.7 MW from only 718.8 MW in 2009, indicating an increase of 8.5 percent. Growth in sales of electricity significantly increased by 8.1 percent from 3,818 GWh in 2009 to 4,127 GWh in 2010. The growth in sales was attributed to higher electricity demand from both commercial and domestic sectors. At present, Sabah is still facing supply insufficiency issue due to low availability and reliability of some power generators, especially diesel-based generators.

In order to meet the demand for electricity, initiatives to close the gap between supply and demand have been taken, such as by planting up new generation plants. In 2010, an additional 160.5 MW generation capacity was connected to the Sabah grid through the commissioning of Ranhill Powertron II (RPII) GT1 with a capacity of 65 MW on 6 March 2010. This was followed by GT2 with the same capacity on 10 July 2010. The remaining generation capacity came from mobile generators, POIC Lahad Datu (20 MW), Teck Guan Biomass Plant (6 MW) and Mini Hydro Station, Sungai Pangapuyan, Kota Marudu (4.5 MW). In 2010, the total installed generation capacity in Sabah was 1,216.4 MW, whilst dependable capacity was 1,111.1 MW. 375 MW or 33.8 percent was generated by SESB and the remaining by IPPs. Due to low availability and reliability of oil/diesel fired power generation plants, the reserve margin calculation for Sabah is not a good benchmark for reliability.

In terms of the reporting system, in its effort towards improving the performance of electricity supply in Peninsular Malaysia, TNB has upgraded their existing system that record System Average Interruption Duration Index (SAIDI). The development of the new system, known as Enhanced TOMS involves the integration of several softwares such as TOMS (TNB Outage Management System), eCIBS (Electronic Customer Information System) and ERMS (Enterprise Resource Management System) which will provide more detailed and accurate report on SAIDI. SAIDI for 2010 based on Enhanced TOMS recorded a higher reading of 96.3 minutes/consumer/year compared with SAIDI based on TOMS at 62.9 minutes/consumer/year, a difference of 33.4 minutes/consumer/year. The higher reading of SAIDI recorded by Enhanced TOMS is due to the ability of the new system to automatically record all interruptions, hence giving more accurate information on the performance of TNB supply system. However, based on TOMS, the overall performance of TNB distribution system in 2010 has shown an improvement, as SAIDI was at 4 percent lower compared to the previous year.

Meanwhile, SAIDI for Sabah has improved significantly with a reduction of 76 percent from 2,868 minutes/consumer/year in 2009 to 687 minutes/consumer/year in 2010. This significant reduction is a result of the commitment made by the government to achieve the target of 700 minutes/consumer/year of SAIDI in Sabah for 2010. To support this effort, the Federal Government allocated a total of RM419 for SESB to carry out fast-track SAIDI improvement projects.

In its efforts to ensure sufficient supply of electricity subsequent to the cancellation of submarine cable project from Bakun Hydro Electric in Sarawak to Peninsular Malaysia, the Government decided to plant-up new generation capacities of 2 x 1,000 MW in the window of 2015 and 2016. In line with the move towards market liberalisation, the Government has taken the initiative to implement a competitive bidding process in the development of the new power plants. Worldwide, this process has resulted in optimised plant up costs. The concession for the first 1,000 MW coal-fired power plant has been awarded to TNB Janamanjung Sdn. Bhd. It is expected to be commissioned by March 2015, the development of the second 1,000 MW unit is to be awarded via a restricted competitive bidding process and is scheduled to be in operation by March 2016. The Energy Commission (EC) has been mandated by the Government to implement the first competitive bidding process. Due to the urgency to meet the targeted commissioning date, the bidding process was restricted to owners of existing brownfield power plant sites, i.e. Tanjung Bin Power Sdn. Bhd. and Jimah Energy Ventures Sdn. Bhd.

In the year 2010, crude oil price increased more steadily in comparison to the previous year. Brent Spot Price of crude oil per barrel stood at between USD 75 to USD 85, compared to between USD 45 to USD 100 in 2009. The other fuels, such as natural gas, medium fuel oil (MFO) and coal followed a similar trend. Rising price of fuels has caused the Government to bear increased subsidies. To address this issue, the Government announced its plan to undertake tariff revision every 6 months based on the market price of crude oil. However, the plan was put on hold in 2010 and the average electricity tariff for Peninsular Malaysia remained at 31.31 sen/kWh.

In its efforts to ease the burden of low-income consumers, the Government gave assistance such as:

- i) Subsidies to domestic consumers whose electricity consumption cost do not exceed RM 20 per month; and
- ii) Lifeline tariff at 21.8 sen/ kWh for the first 200 units of electricity consumed.

The Energy Commission, with roles to protect consumers' interests and to ensure commercial viability of the utility industry, undertook a comprehensive assessment of the request for tariff revision by both TNB and SESB. One of the outcomes of the 5-month comprehensive review which ended in March 2010 was a recommended mechanism for a reasonable and fair tariff that benefits all parties. The study also reviewed the existing economic regulatory framework recommendations on mechanisms to enhance efficiency in the system.

As a result of the study, an Incentive-Based Regulatory (IBR) Framework was introduced. A set of eleven (11) Regulatory Implementation Guidelines was recommended each for the electricity and the piped gas supply industries. It is expected to change the way electricity tariff is set and revised in the future. Other initiatives include the separation of accounts for TNB activities according to divisions to enhance transparency and competitiveness of the electricity supply industry in Peninsular Malaysia.

## COUNTRY PROFILE

Area	330,803 km <sup>2</sup>
Climate	<ul style="list-style-type: none"> <li>• Tropical</li> <li>• Average temperature between 20° C to 32° C</li> <li>• Average annual rainfall is 3,540 mm</li> </ul>
Population	28.3 million Multi-racial community comprising Malays, Chinese, Indians, Kadazans, Bajaus, Muruts, Kelabits, Dayaks, Ibans and others.
Labor Force	11.52 million
GDP at Current Prices	RM 765.97 billion
GDP at Constant 2000 Prices	RM 559.55 billion
GDP at Current Prices per Capita	RM 27,066
GDP at Constant 2000 Prices per Capita	RM 19,772
GNI at Current Prices	RM 739.45 billion
GNI at Constant 2000 Prices	RM 516.83 billion
GNI at Current Prices per Capita	RM 26,129
GNI at Constant 2000 Prices per Capita	RM 18,263
Balance of Payment	RM 88.08 billion
Foreign Reserves	RM 328.67 billion
Gross National Savings	34.1 (percent of GNI) <sup>1</sup>
Total Electricity Generation	125,045 GWh
Total Electricity Consumption	106,004 GWh
Electricity Consumption per Capita	3,746 kWh
Average Electricity Prices:	
<ul style="list-style-type: none"> <li>• Peninsular Malaysia</li> <li>• Sabah</li> <li>• Sarawak</li> </ul>	31.31 sen/kWh 25.54 sen/kWh 29.38 <sup>2</sup> sen/kWh

Nota :

<sup>1</sup> as of December 2010

<sup>2</sup> not including tariff for negotiated customer

## MAP OF MALAYSIA





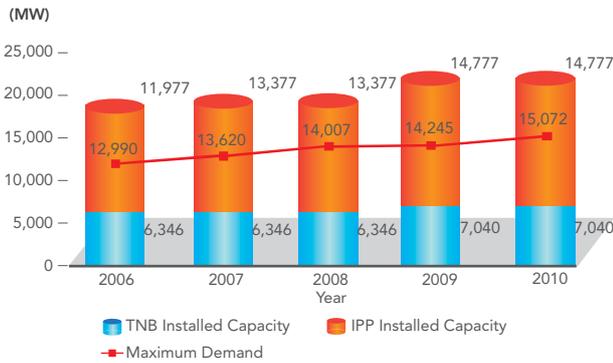


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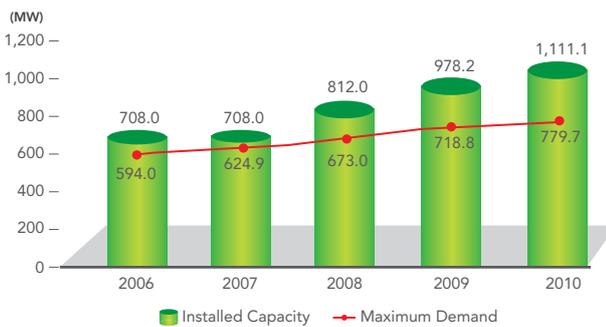
## ELECTRICITY SUPPLY AND DEMAND

Chart 1 : Installed Capacity and Maximum Demand in Peninsular Malaysia from 2006 to 2010



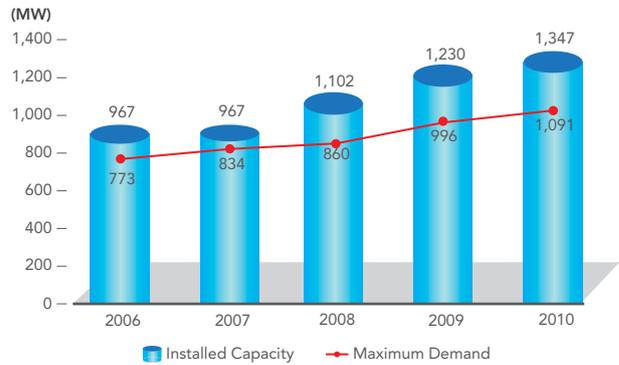
In 2010, the total installed capacity of TNB and IPP in Peninsular Malaysia remains at 7,040 MW and 14,777 MW respectively. However, the maximum demand of the grid system in Peninsular Malaysia has increased from 14,245 MW in 2009 to 15,072 MW, recorded on 24 May 2010. Due to increasing electricity demand, reserve margin has dropped from 53 percent in 2009 to 45 percent in 2010.

Chart 2 : Installed Capacity and Maximum Demand in Sabah from 2006 to 2010



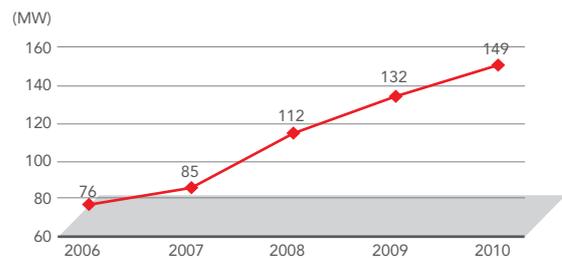
The maximum demand of the grid system in Sabah has increased by 8.5 percent from 718.8 MW in 2009 to 779.7 MW that was recorded on 23<sup>rd</sup> September 2010. The actual demand has exceeded the demand forecast in 2010 at 775 MW.

Chart 3 : Installed Capacity and Maximum Demand In Sarawak From 2006 To 2010



In Sarawak, the maximum demand of SESCO grid system has increased by 9.5 percent from 996 MW in 2009 to 1,091 MW, recorded in November 2010. Meanwhile, the total installed capacity has increased from 1,230 MW in 2009 to 1,347 MW in 2010. An additional capacity of 117 MW is due to the commissioning of new combined-cycle gas turbine in Sarawak Power Generation plant in April 2010.

Chart 4 : Maximum Demand in Kulim Hi-Tech Park (KHTP) reported by NUR Distribution Sdn. Bhd. from 2006 to 2010



Maximum demand in KHTP has increased from 76 MW in 2006 to 149 MW in 2010. The higher maximum demand in 2010 compared with the 2009 level was attributed by the entry of several large industrial users.

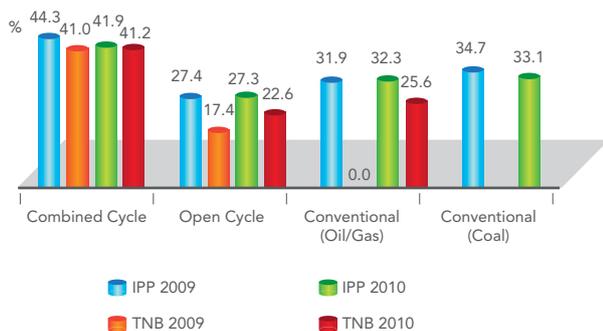
# PERFORMANCE OF ELECTRICITY SUPPLY AND SERVICES IN PENINSULAR MALAYSIA

## 1.0 PERFORMANCE OF TNB & IPP GENERATION SYSTEM

Table 1 : Average Thermal Efficiency of TNB and IPP Generation Plant from 2006 to 2010

Year	2006		2007		2008		2009		2010	
	Average IPP	Average TNB								
Combined Cycle	46.3	41.3	45.2	41.5	44.8	41.2	44.3	41.0	41.9	41.2
Open Cycle	26.6	26.0	27.6	25.9	26.1	25.6	27.4	17.4	27.3	22.6
Conventional (Oil/Gas)	32.5	29.4	32.4	27.8	32.2	18.3	31.9	0.0	32.3	25.6
Conventional (Coal)	33.9	-	33.9	-	33.8	-	34.7	-	33.1	-

Chart 5 : Average Thermal Efficiency of TNB and IPP Generation Plant from 2009 to 2010



In 2010, the yearly average thermal efficiency for TNB's combined cycle plants and open cycle plants recorded an increase of 0.2 percent and 5.2 percent respectively. The increase of average thermal efficiency was resulted from more holistic thermal measurements in 2010. Meanwhile, the average thermal efficiency of IPP's combined cycle plants dropped from 44.3 percent in 2009 to 41.9 percent in 2010. However, the efficiency of IPP's open cycle plants remain almost the same as in 2009.

For TNB's conventional thermal power plants using oil/gas, the yearly average thermal efficiency in 2010 was at 25.6 percent. Starting from 2005, all conventional generation plants using coal in the country were operated by IPPs. The average thermal efficiency for IPP's thermal power plants using coal has decreased from 34.7 percent in 2009 to 33.1 percent in 2010.

Table 2 : Average Equivalent Availability Factor (EAF) of TNB and IPP Generation Plants from 2006 to 2010

Year	2006		2007		2008		2009		2010	
	Average IPP	Average TNB								
Combined Cycle	93.1	87.1	87.0	89.4	90.7	90.7	91.2	93.2	90.6	90.5
Open Cycle	97.0	95.0	99.2	95.9	98.1	97.0	98.4	97.3	97.9	92.6
Conventional (Coal)	92.1	-	88.8	-	78.5	-	78.0	-	84.3	-
Conventional (Oil/Gas)	-	86.5	-	99.2	78.1	99.9	83.2	99.3	88.2	98.1
Hydro	-	93.3	-	82.2	-	91.3	-	95.3	-	86.0

In 2010, the average equivalent availability factor (EAF) for thermal power plants based on coal for IPP has showed an improvement when compared to the EAF in the previous year. The overall performance of both combined-cycle and open-cycle gas turbine were at the satisfactory level with the achievement of more than 90 percent EAF for IPP and TNB.

Table 3 : Average Equivalent Unplanned Outage Factor (EUOF) of TNB and IPP Generation Plant from 2006 to 2010

Year	2006		2007		2008		2009		2010	
Type of Prime Mover	Average IPP	Average TNB								
Combined Cycle	N/A	3.3	N/A	2.7	1.07	2.11	3.31	1.61	2.97	2.29
Open Cycle	N/A	2.4	N/A	1.0	0.71	1.73	0.61	0.93	0.89	3.99
Conventional (Coal)	5.2	-	3.1	-	11.17	-	12.40	-	7.77	-
Conventional (Oil/Gas)	-	4.5	-	0.2	5.12	-	11.85	-	4.38	0.33
Hydro	-	N/A	-	N/A	-	N/A	-	1.35	-	0.37

In general, the target of EUOF for both combined-cycle and open-cycle power generating plants are at 4 percent while the target of for oil/gas power generating plant is at 6 percent. It reflects the better performance of open-cycle and combined-cycle power plants compared to the conventional power plants based on oil/gas and coal.

## 2.0 PERFORMANCE OF TNB TRANSMISSION SYSTEM

Table 4 : Transmission System Tripping with Load Loss above 50 MW from 2006 to 2010

Indicators	2006	2007	2008	2009	2010
Number of tripping without load shedding	6	9	6	2	4
Unsupplied energy due to tripping (MWh)	215.4	1,246.8*	309.8	158.3	310.7
Number of tripping with load shedding	1	1	0	0	0
Unsupplied energy during load shedding (MWh)	179.1	103.5	0	0	0

Note :

\* Including Tripping Incident in Pulau Pinang on 20 November 2007

In 2010, TNB's transmission system has lower performance compared to the previous year. This is due to the increment in the number of tripping to 4 in 2010 compared to only 2 in 2009. Meanwhile, the amount of unsupplied energy has also increased to 310 MWh, an increase of 96.2 percent from the previous year.

Chart 6 : Number of Transmission System Tripping with Load Loss above 50 MW from 2006 to 2010

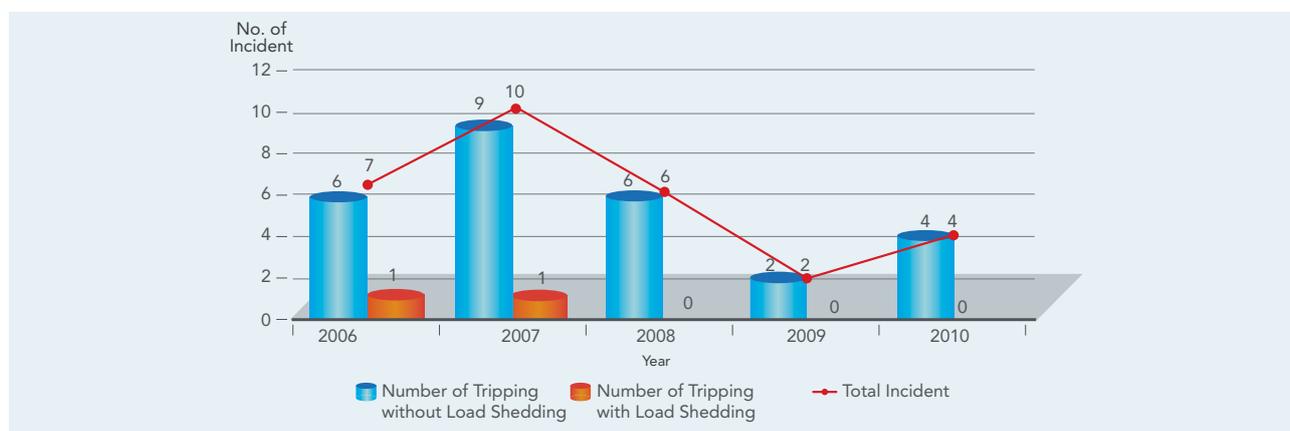
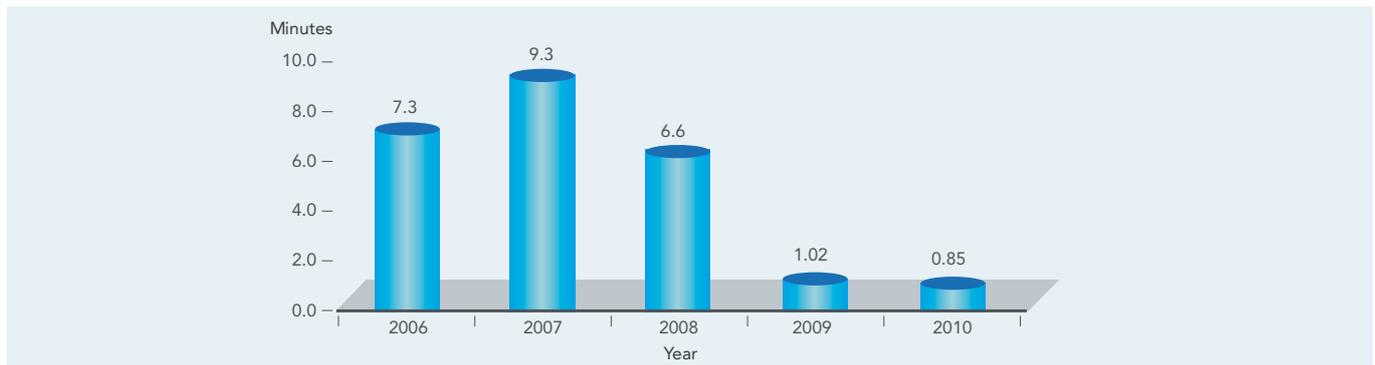


Table 5 : Monthly TNB Transmission System Tripping with Load Loss above 50 MW in 2010

Indicators	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number of tripping without load shedding	0	1	0	0	0	1	0	0	1	1	0	0
Number of tripping with load shedding	0	0	0	0	0	0	0	0	0	0	0	0
Maximum load losses (MW)	-	56	-	-	-	61.5	-	-	154	60	-	-
Unsupplied energy due to tripping (MWh)	-	112	-	-	-	57.3	-	-	5.1	136.2	-	-
Average unsupplied energy due to tripping (MWh)	-	112	-	-	-	57.3	-	-	5.1	136.2	-	-
Average duration per tripping (Hour : Minutes)	-	2:00	-	-	-	0:56	-	-	0:02	2:16	-	-
Unsupplied energy during load shedding (MWh)	-	-	-	-	-	-	-	-	-	-	-	-

Chart 7 : Delivery Point Unreliability Index (DePUI) - System Minutes TNB from 2006 to 2010



Financial year 2009/10

System minutes can be one of the indicators used to measure the performance of TNB transmission system with low system minutes indicating a better performance of TNB transmission system. The chart above showed that starting from 2007, TNB transmission system had been improving with lower system minutes being reported each year. In 2010, system minutes was reported at only 0.85 compared to 1.02 in the previous year.

Table 6 : Lines/Cables Tripping Incident per 100 cct-km from 2006 to 2010

Voltage	2006	2007	2008	2009	2010
500 kV	0.2	0.16	0.72	0.00	0.00
275 kV	1.32	0.89	1.11	0.53	0.70
132 kV	1.66	1.14	1.45	0.96	0.84

Financial year 2009/10

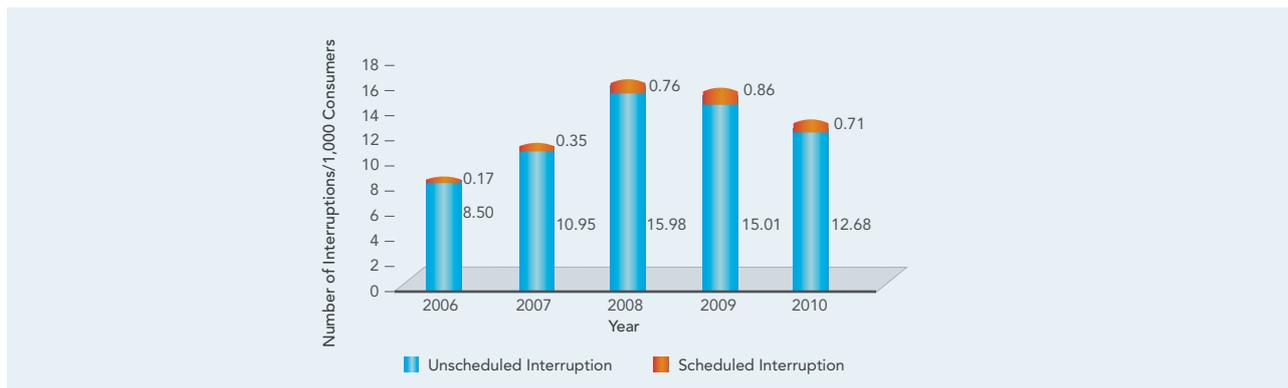
Table 7 : Profile of Lines/Cables Tripping Incident per 100 cct-km in 2010

Voltage level	Total Circuit-km	No. of Tripping	Tripping Rates/100 circuit-km
66 kV	0.9	0	0
132 kV	11,415.39	114	1
275 kV	9,657.21	47	0.49
500 kV	667.7	0	0
<b>Total</b>	<b>21,741.2</b>	<b>161</b>	<b>0.74</b>

### 3.0 PERFORMANCE OF TNB DISTRIBUTION SYSTEM

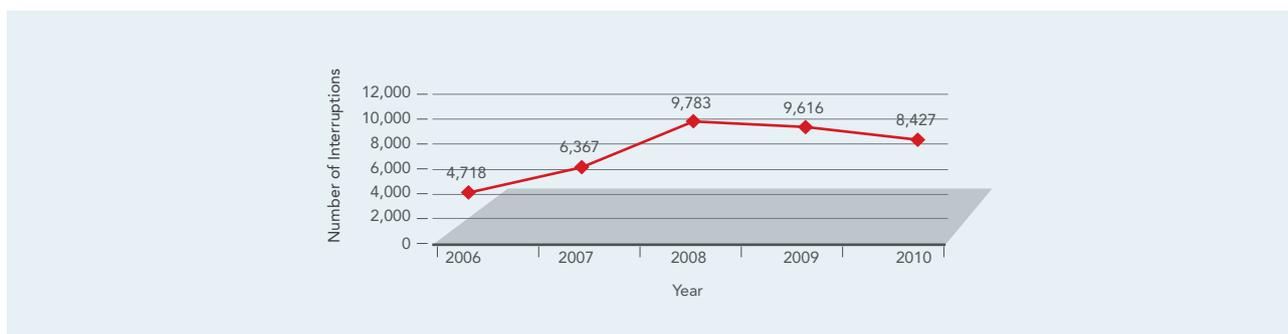
#### TNB ELECTRICITY SUPPLY INTERRUPTIONS

Chart 8 : Number of Electricity Supply Interruptions per 1,000 Consumers from 2006 to 2010



In September 2007, TNB has started using new software namely Total Outage Management System (TOMS) to monitor and report the performance of electricity supply system. Based on the report obtained, the number of electricity supply interruptions per 1,000 consumers in 2010 has reduced by 15.7 percent compared to 2009. Out of the total, the number of unscheduled interruptions remains dominating the total number of interruptions. In general, reduction in the number of interruptions per 1,000 consumers indicates a better performance of TNB distribution system.

Chart 9 : Monthly Average Electricity Supply Interruptions from 2006 to 2010

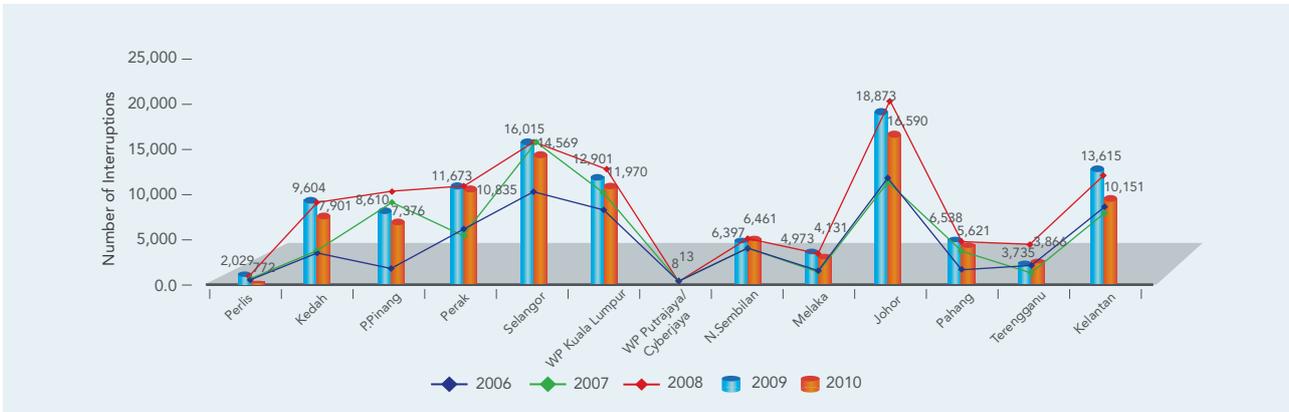


Note :

Chart 9 contains an updated 2009 figure

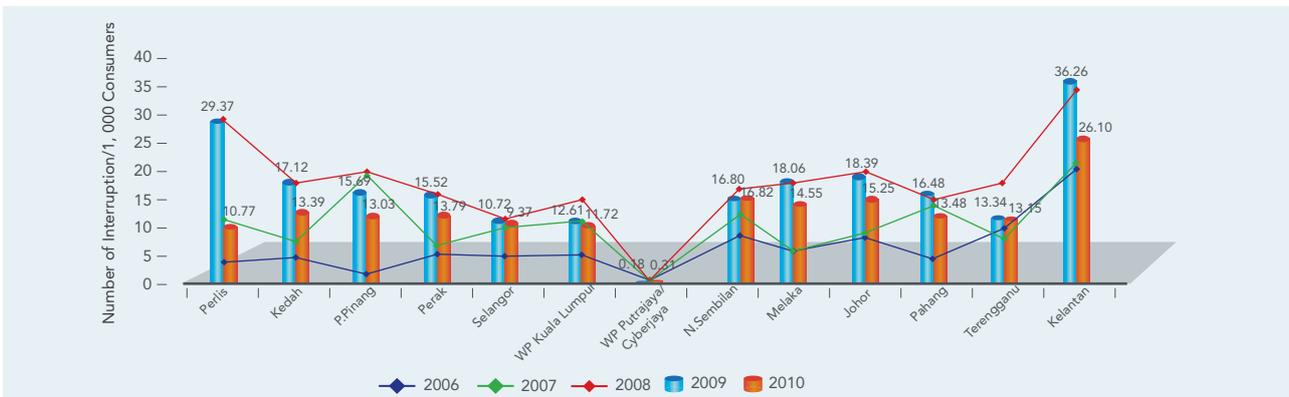
Monthly average is taken from the total number of interruption of a year divided by 12 months. From the chart, the average number of the interruptions has decreased by 12.4 percent from 9,616 number of average interruptions in 2009 to settle at 8,427 number of average interruptions in 2010.

Chart 10 : Number of Electricity Supply Interruptions by State from 2006 to 2010



In total, the overall electricity supply interruption in Peninsular Malaysia in 2010 has decreased about 12 percent from the previous year. State of Johor recorded the highest number of electricity supply interruptions while WP Putrajaya/Cyberjaya recorded otherwise for both year 2009 and 2010.

Chart 11 : Number of Electricity Supply Interruptions per 1,000 Consumers by State from 2006 to 2010



In 2010, the state of Kelantan has recorded the highest number of electricity supply interruptions per 1,000 consumers with electricity supply interruptions of 26.10 per 1000 consumers compared to other states in Peninsular Malaysia. However, this figure was lower compared to the previous year with the electricity supply interruptions of 36.26 per 1,000 consumers.

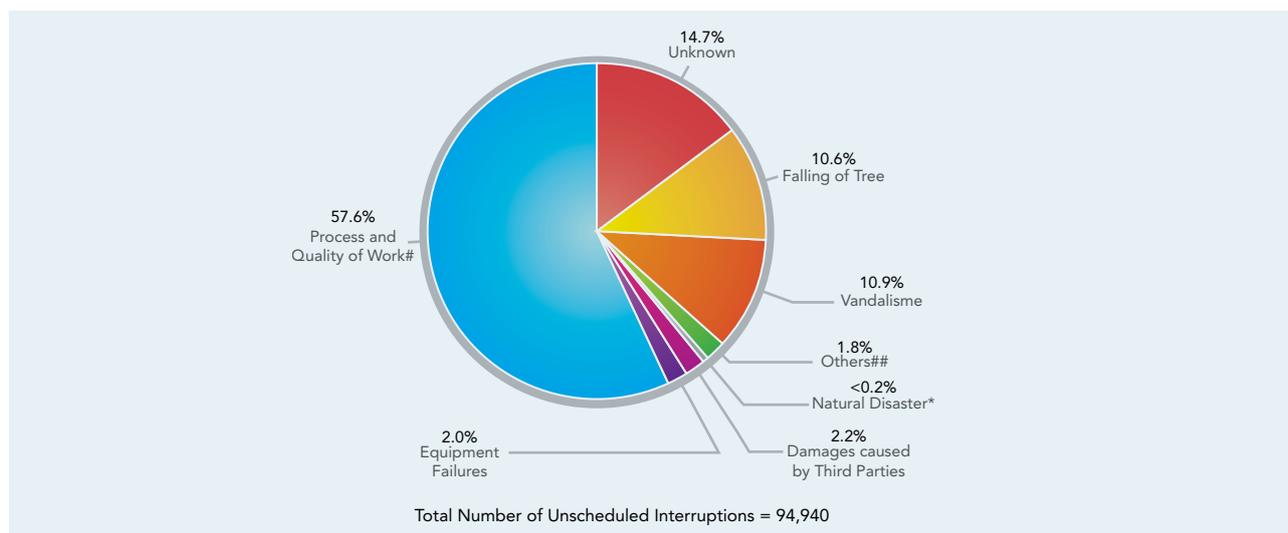
Table 8 : Percentage of Supply Interruptions by Voltage Level in 2010

Voltage level	Number of Interruptions	Percentage Share
High Voltage – HV (66 kV and above)	24	0.02
Medium Voltage – MV (6.6 kV to 33 kV)	12,170	12.03
Low Voltage – LV (1 kV and below)	88,932	87.95
<b>Total</b>	<b>101,126</b>	<b>100.00</b>

Low voltage interruptions have dominated the total of supply interruptions by 87.95 percent. However, in the case of the low voltage interruptions, it only involves a small number of consumers.

## CAUSES OF TNB ELECTRICITY SUPPLY INTERRUPTIONS

Chart 12 : Causes of Unscheduled Electricity Supply Interruptions in 2010



Nota :

\* Natural disaster caused by wind, storm, flood, landslide and others.

# Loose contact, poor quality of work, overloading and improper maintainance.

## Other causes such as damaged installation, ageing of insulation, design defects, relay malfunction, transient overload, short circuit, encroachment/vandalisme and maloperation of protection system.

Table 9 : Number of Unscheduled Interruptions from 2006 to 2010

Year	2006	2007	2008	2009	2010
Number of Unscheduled Interruptions	55,523	74,058	112,064	108,708	94,940

## SYSTEM AVERAGE INTERRUPTION DURATION INDEX (SAIDI), SYSTEM AVERAGE INTERRUPTION FREQUENCY INDEX (SAIFI) AND CUSTOMER AVERAGE INTERRUPTION DURATION INDEX (CAIDI)

Table 10 : SAIDI, SAIFI, CAIDI in Peninsular Malaysia by Voltage Level in 2010

Voltage Level	SAIDI	SAIFI	CAIDI
Low Voltage ( 1 kV and below)	6.98	0.05	136.9
Medium Voltage (6.6 kV - 33 kV)	88.10	1.17	75.5
High Voltage (66 kV and above)	1.17	0.01	114.6
<b>Total</b>	<b>96.25</b>	<b>1.23</b>	<b>78.3</b>

By using Enhanced TOMS, SAIDI recorded in 2010 was at 96.25 minutes/consumer/year. However, by using TOMS, SAIDI recorded was at 62.88 minutes/consumer/year.

SAIDI and SAIFI were contributed mainly by the medium voltage interruptions with 88.10 minutes/ consumer/ year and 1.17 interruptions/ consumer/ year respectively. On the other hand, CAIDI was contributed mainly by the low voltage interruptions with 136.9 minutes/ interrupted consumer/year.

Chart 13 : SAIDI (Minutes/Consumer/Year) in Peninsular Malaysia from 2006 to 2010

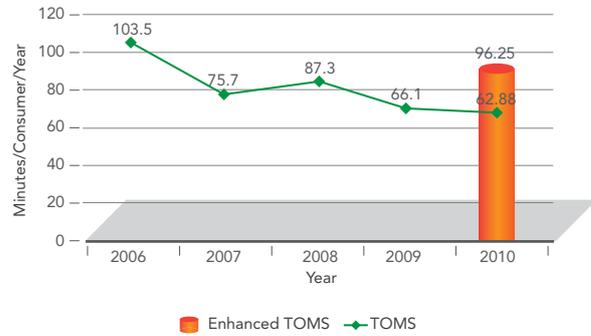


Chart 14 : SAIDI (Minutes/Consumer/Year) in Peninsular Malaysia by State in 2010



Chart 15 : SAIFI (Number of Interruptions/Consumer/Year) in Peninsular Malaysia by State in 2010

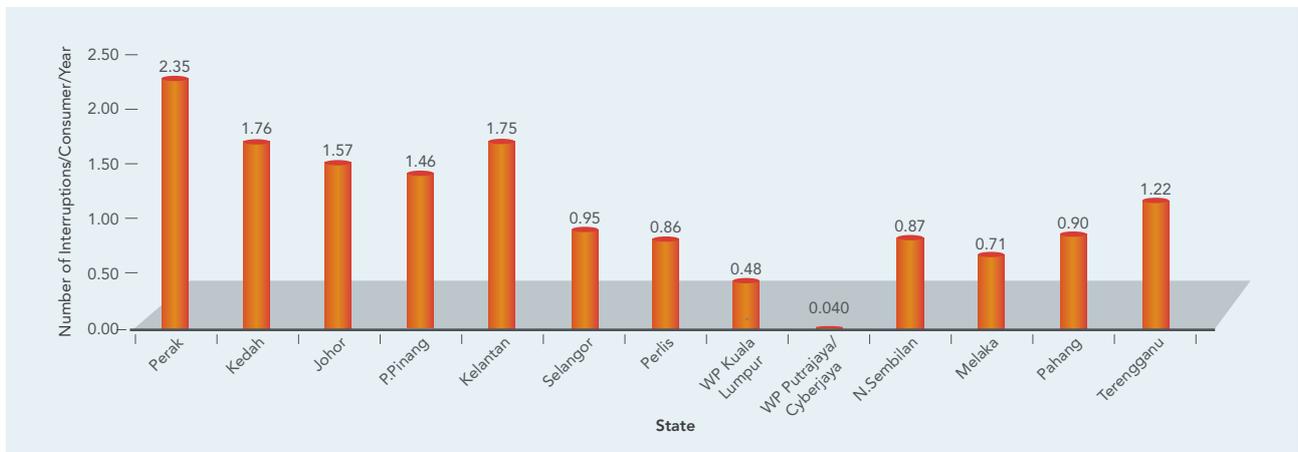


Chart 16 : SAIFI (Number of Interruptions/Consumer/Year) in Peninsular Malaysia from 2006 to 2010

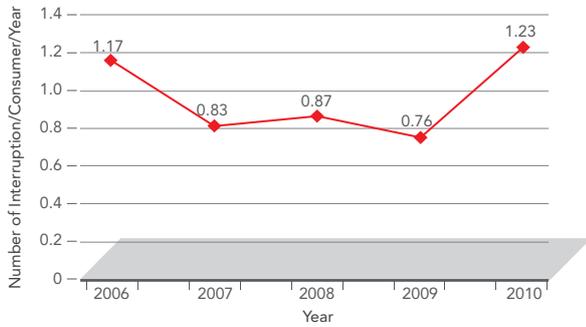


Chart 17 : CAIDI (Minutes/Interrupted Consumer/Year) in Peninsular Malaysia from 2006 to 2010

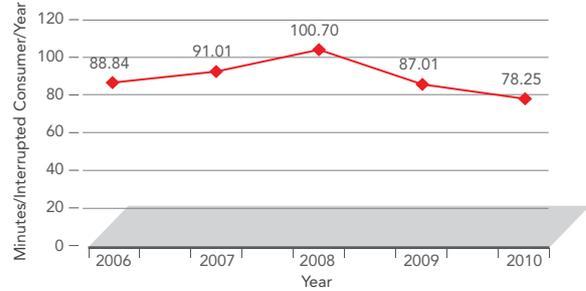
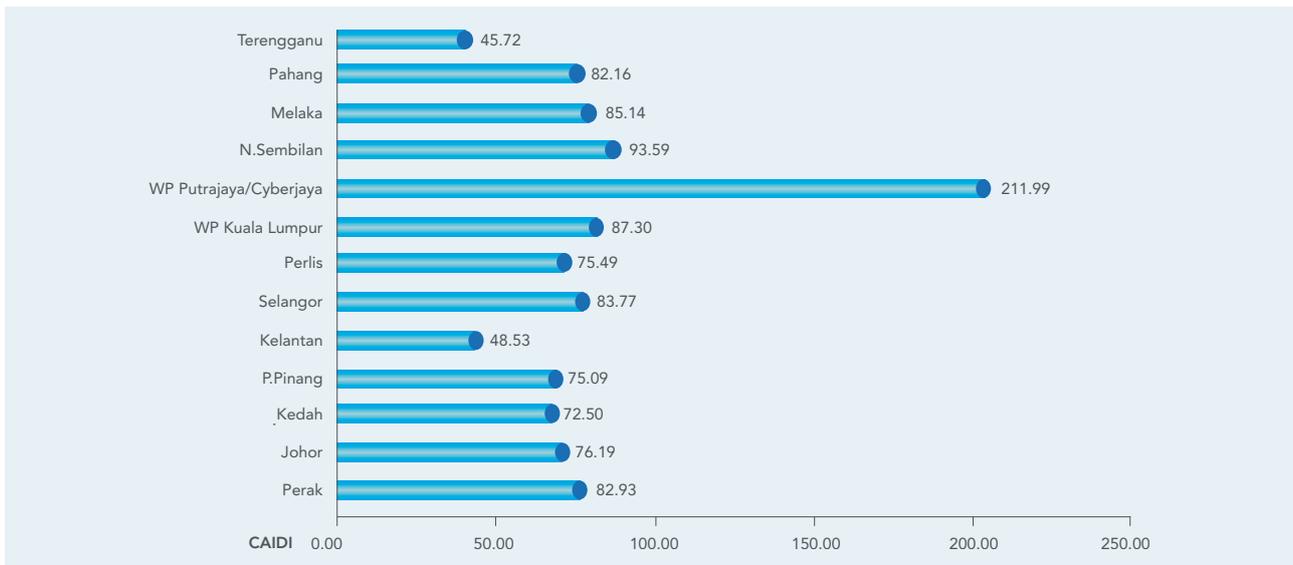


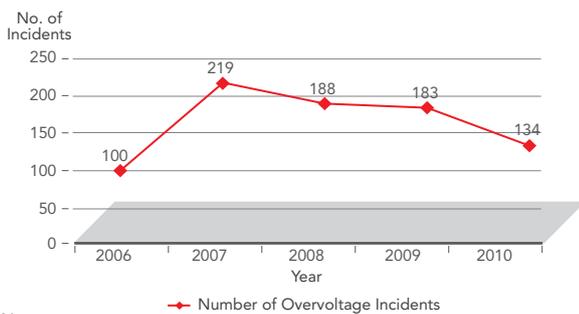
Chart 18 : CAIDI(Minutes/Interrupted Consumer/Year) in Peninsular Malaysia by State



## 4.0 POWER QUALITY

### OVERVOLTAGE INCIDENTS

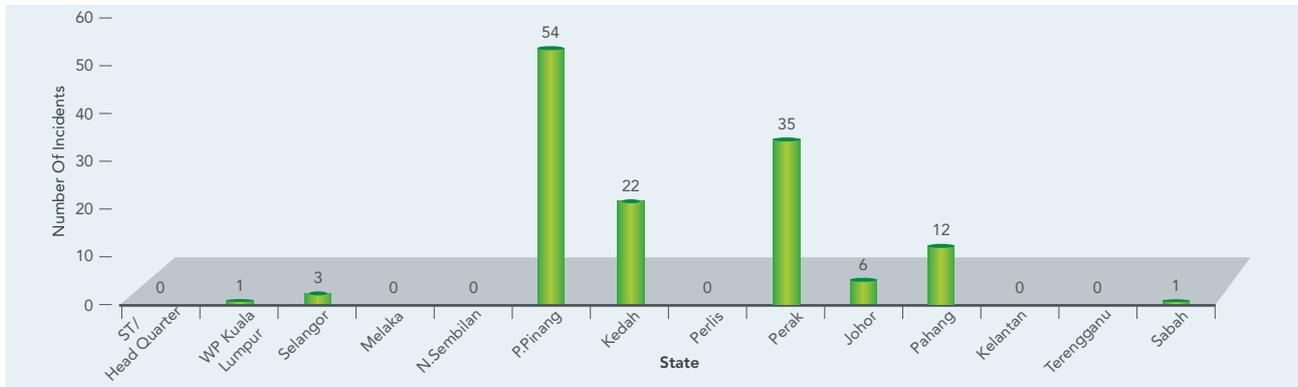
Chart 19 : Number of Overvoltage Incidents from 2006 to 2010



Note :  
Including the number of overvoltage incidents in Peninsular Malaysia and Sabah

Power quality has showed an improvement since 2007 with lower number of reported overvoltage incidents each year. In 2010, the number of overvoltage incidents has decreased by 27.7 percent from 183 incidents in 2009 to settle at 134 incidents in 2010. Most of overvoltage incidents occurred due to poor connection of neutral conductor because of loose IPC, missing of neutral busbar at substation due to theft or vandalism and neutral conductor snapped or dislodged due to tree falling on cable line.

Chart 20 : Reported Overvoltage Incidents by State in 2010



Note : Including the number of reported overvoltage incidents in Peninsular Malaysia and Sabah

**VOLTAGE DIPS INCIDENTS**

Chart 21 : Number of Voltage Dips Incidents Reported in Major Industrial Area in Peninsular Malaysia from 2006 to 2010

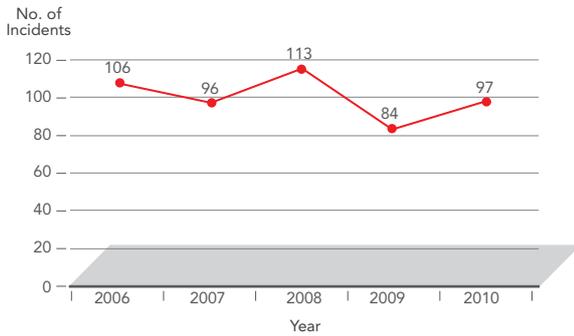
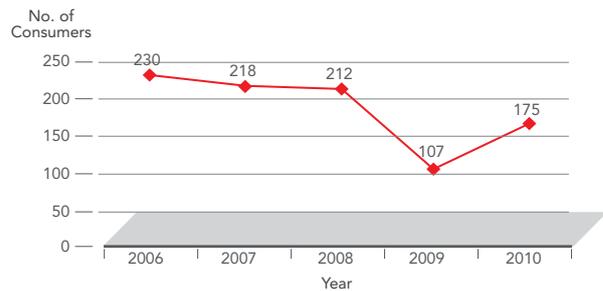


Chart 22 : Number of Consumers Involved in Voltage Dips Incidents from 2006 to 2010



Voltage dips incident rose by 15 percent from the previous year to settle at 97 incidents in 2010. Meanwhile, the number of consumers affected in voltage dips incidents has increased by 64 percent with 175 consumers involved in voltage dips incidents in 2010.

Table 11 : Profile of Voltage Dips Incidents by State in 2010

State	Number of Voltage Dips Incident	Number of Consumer Affected by Voltage Dips Incident
Pulau Pinang	2	3
Perlis	0	0
Melaka	2	2
Pahang	2	4
Terengganu	0	0
Kedah	2	2
Kelantan	9	9
Perak	14	22
WP Kuala Lumpur	11	18
WP Putrajaya / Cyberjaya	0	0
Johor	6	6
Negeri Sembilan	13	18
Selangor	36	91

**SARFI (SYSTEM AVERAGE RMS FREQUENCY INDEX) TNB**

Table 12 : SARFI (System Average RMS Frequency Index) in 2010

TNB system	SARFI <sub>90</sub>	SARFI <sub>80</sub>	SARFI <sub>70</sub>
11 kV	33	19	11
22 kV	58	43	37
33 kV	31	19	14
Overall System	36	23	16

Calendar Year 2010

Table 13 : SARFI (System Average RMS Frequency Index) Comparison among Power Utility Companies in Selected Countries in 2010

Power Company	SARFI <sub>90</sub>	SARFI <sub>80</sub>	SARFI <sub>70</sub>
Singapore Power Grid	13.2	10.6	7.8
United State DPQ Project	49.7	27.3	17.7
Europe Mixed Systems (UNIPED)	103.1	0	44
Europe Cable Systems (UNIPED)	34.6	0	11
South Africa NRS-048 Indicate Levels	153	78	47
Tenaga Nasional Berhad	34	21	15

Financial Year 2009/10



No.	Service Indicator	Performance Level	Sept 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10	Jul 10	Aug 10	Total/Average (%)
	<b>Providing Supply</b>														
	3a. Time taken to process electricity supply application and to reply to applicant														
	Total no. of contribution charge letters issued	< 14 days	5,064	6,436	6,395	6,525	7,834	5,111	7,039	6,668	6,596	6,572	7,110	7,119	78,469
	Total no. of contribution charge letters issued less than 14 days		4,418	5,822	5,876	5,996	7,099	4,545	6,415	6,125	6,062	6,000	6,757	6,777	71,892
	<b>(%) Compliance</b>		<b>87.24</b>	<b>90.46</b>	<b>91.88</b>	<b>91.89</b>	<b>90.62</b>	<b>88.93</b>	<b>91.14</b>	<b>91.86</b>	<b>91.90</b>	<b>91.30</b>	<b>95.04</b>	<b>95.20</b>	<b>91.62</b>
	3b. Time taken to implement electrification scheme requiring new substation after handing over of substation building (up to 33kV) by TNB														
	Total no. of projects given supply	< 120 days	140	207	190	186	158	133	133	90	113	166	100	83	1,699
	Total no. of projects given supply less than 120 days		136	202	186	180	97	89	105	74	87	146	96	78	1,476
	<b>(%) Compliance</b>		<b>97.14</b>	<b>97.58</b>	<b>97.89</b>	<b>96.77</b>	<b>61.39</b>	<b>66.92</b>	<b>78.95</b>	<b>82.22</b>	<b>76.99</b>	<b>87.95</b>	<b>96.00</b>	<b>93.98</b>	<b>86.87</b>
3.	3c. Waiting time at site for appointment to connect electricity supply. (Unavoidable occurrence must be followed up by returning call in not less than 1 hour before the appointment time)														
	Total appointment made	< 1 hour	21,895	27,174	27,407	28,409	31,968	26,015	28,240	27,861	28,673	26,402	30,421	23,097	327,562
	Total appointment met in not less than 1 hour of appointment date		21,895	27,174	27,407	28,408	31,968	26,015	28,240	27,861	28,673	26,402	30,421	23,097	327,561
	<b>(%) Compliance</b>		<b>100.0</b>												
	3d. Time taken to inform the developer of the connection charges to be paid upon receipt of complete application														
	No. of contribution charge letters issued	< 60 days	160	191	263	223	82	63	115	121	116	226	144	112	1,816
	No. of contribution charge letters issued less than 60 days		145	166	227	205	41	39	93	89	96	188	130	103	1,522
	<b>(%) Compliance</b>		<b>90.63</b>	<b>86.91</b>	<b>86.31</b>	<b>91.93</b>	<b>50.00</b>	<b>91.90</b>	<b>80.87</b>	<b>73.55</b>	<b>82.76</b>	<b>83.19</b>	<b>90.28</b>	<b>91.96</b>	<b>83.81</b>

No.	Service Indicator	Performance Level	Sept 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10	Jul 10	Aug 10	Total/Average (%)
<b>Consumer Contact</b>															
4.	4a. Time taken to reply to written enquiry or complaint														
	Total written enquiries/complaints received	< 7 working days	2,861	2,928	3,083	3,391	2,974	2,328	2,464	2,957	2,938	2,316	1,962	2,096	32,298
	Total written enquiries/complaints replied less than 7 working days		2,810	2,877	3,001	3,347	2,949	2,279	2,457	2,927	2,912	2,286	1,931	2,087	31,863
	<b>(%) Compliance</b>		<b>98.22</b>	<b>98.26</b>	<b>97.34</b>	<b>98.70</b>	<b>99.16</b>	<b>97.90</b>	<b>99.72</b>	<b>98.99</b>	<b>99.12</b>	<b>98.70</b>	<b>98.42</b>	<b>99.57</b>	<b>98.65</b>
4.	4b. Average queuing time at consumer service counter														
	Total consumer served	< 20 minutes	269,497	268,558	211,148	219,656	298,280	251,380	337,570	313,049	318,690	343,496	342,032	300,216	3,573,572
	Total consumer served less than 20 minutes		254,731	257,039	198,329	286,312	281,027	232,843	307,376	296,194	295,332	319,157	322,310	288,975	3,339,625
	<b>(%) Compliance</b>		<b>94.52</b>	<b>95.71</b>	<b>93.93</b>	<b>89.57</b>	<b>94.22</b>	<b>92.63</b>	<b>91.06</b>	<b>94.62</b>	<b>92.67</b>	<b>92.91</b>	<b>94.23</b>	<b>96.26</b>	<b>93.45</b>
4c.	Average time taken by consumer service officer at CMC 15454 to pick up ringing telephone														
	Total incoming calls received	< 30 seconds	186,773	189,535	190,129	184,271	182,580	173,061	213,392	204,121	222,820	203,750	214,488	208,105	2,373,025
	Total incoming calls answered less than 30 seconds		101,347	103,729	112,619	113,562	120,796	103,912	137,111	113,194	133,980	135,582	149,879	140,539	1,466,250
	<b>(%) Compliance</b>		<b>54.26</b>	<b>54.73</b>	<b>59.23</b>	<b>61.63</b>	<b>66.16</b>	<b>60.04</b>	<b>64.25</b>	<b>55.45</b>	<b>60.13</b>	<b>66.54</b>	<b>69.88</b>	<b>67.53</b>	<b>61.79</b>
<b>Metering Services</b>															
5.	5a. Time taken to attend to meter problem upon official notification/request by the consumer (appointment, site visit, meter testing, etc)														
	No. of appointments, visit, testing completed	< 2 working days	57	82	69	52	17	53	27	48	94	54	42	2	597
	No. of appointments, visit, testing completed less than 2 working days		20	20	17	13	6	3	2	6	32	23	4	2	148
	<b>(%) Compliance</b>		<b>35.09</b>	<b>24.39</b>	<b>24.64</b>	<b>25.00</b>	<b>35.29</b>	<b>5.66</b>	<b>7.41</b>	<b>12.50</b>	<b>34.04</b>	<b>42.59</b>	<b>9.52</b>	<b>100.0</b>	<b>24.79</b>
5.	5b. Time taken to respond to metering problem or dispute upon official notification/request by the consumer (replace, relocate, etc)														
	No. of meter replacement/relocation completed	< 3 working days	8	12	6	0	3	2	0	5	2	3	1	1	43
	No. of meter replacement/relocation completed less than 3 working days		7	12	3	0	3	2	0	3	1	1	1	1	34
	<b>(%) Compliance</b>		<b>87.50</b>	<b>100.0</b>	<b>50.00</b>	<b>0</b>	<b>100.0</b>	<b>100.0</b>	<b>0</b>	<b>60.00</b>	<b>50.00</b>	<b>33.33</b>	<b>100.0</b>	<b>100.0</b>	<b>79.07</b>

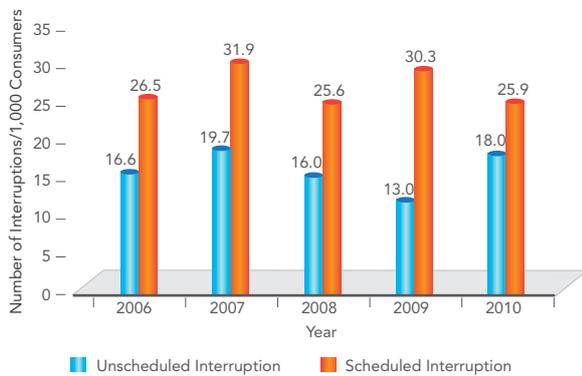
No.	Service Indicator	Performance Level	Sept 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10	Jul 10	Aug 10	Total/Average (%)
	5c. Time interval between successive rendering of bill(s)														
5.	Total no. of consumer (OPC)	1 month	7,129,356	7,150,384	7,171,484	7,193,109	7,217,950	7,238,442	7,260,311	7,280,732	7,302,205	7,321,941	7,345,706	7,036,136	86,647,756
	Total no. of billed consumer		7,127,043	7,150,157	7,171,140	7,192,738	7,216,948	7,237,865	7,258,039	7,280,236	7,301,625	7,321,479	7,343,898	7,035,820	86,636,988
	(%) Compliance		99.97	100.0	100.0	99.99	99.99	99.99	99.97	99.99	99.99	99.99	99.98	100.0	99.99
	Average Compliance (%)		85.02												

FY 2009/2010  
Source : Tenaga Nasional Berhad

## 6.0 PERFORMANCE OF NUR DISTRIBUTION SDN. BHD. IN KULIM HI-TECH PARK (KHTP)

### ELECTRICITY SUPPLY INTERRUPTIONS

Chart 23 : Number of Electricity Supply Interruptions in KHTP by NUR Distribution Sdn. Bhd. per 1,000 Consumers from 2006 to 2010



In total, the number of interruptions per 1,000 consumers in 2010 has increased slightly when compared to the previous year. This is contributed mainly by the increase in number of unscheduled interruptions per 1,000 consumers in KHTP from 13 interruptions per 1,000 consumers in 2009 to 18 interruptions per 1,000 consumers in 2010.

Chart 24 : Number of Scheduled Electricity Supply Interruptions in KHTP by NUR Distribution Sdn. Bhd. from 2006 to 2010

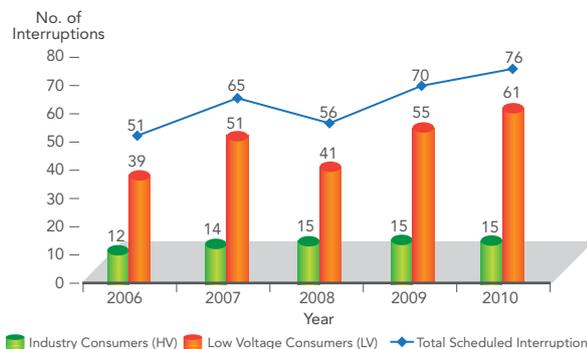
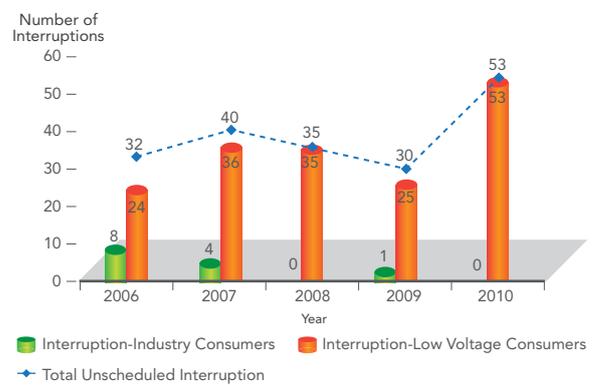
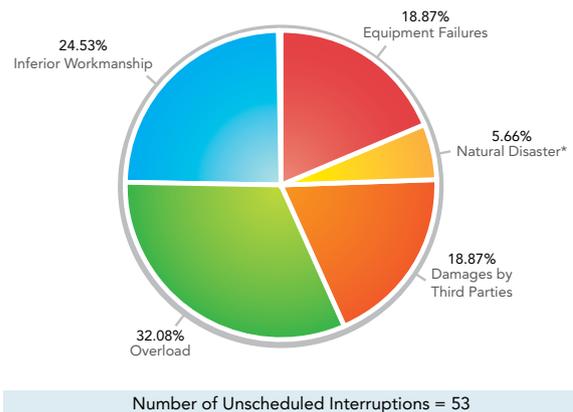


Chart 25 : Number of Unscheduled Electricity Supply Interruptions in KHTP by NUR Distribution Sdn. Bhd. from 2006 to 2010



### CAUSES OF NUR ELECTRICITY SUPPLY INTERRUPTIONS

Chart 26 : Causes of Unscheduled Supply Interruptions in KHTP by NUR Distribution in 2010

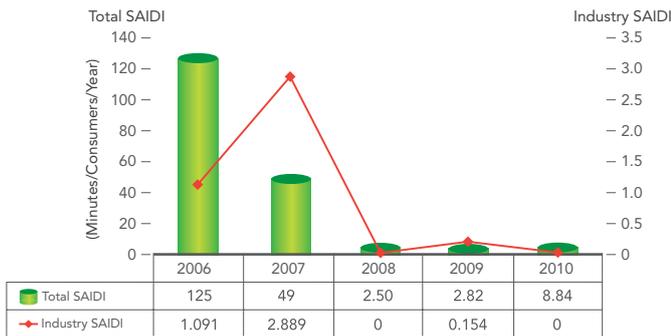


Note :

\* Natural disaster caused by wind, storm, flood, landslides, etc

### SYSTEM AVERAGE INTERRUPTION DURATION INDEX (SAIDI)

Chart 27 : SAIDI (Minutes/Consumer/Year) NUR Distribution Sdn. Bhd. from 2006 to 2010



In 2010, the overall SAIDI indicator reported a decline in the performance of electricity supply in KHTP compared to the previous year. SAIDI was recorded at 8.84 minutes/consumer/year, an increase of 213% from the previous year in 2009. However, the industrial SAIDI for 2010 showed a tremendous performance with zero incidents.

## 7.0 ELECTRICITY SUPPLY QUALITY OF NUR DISTRIBUTION SDN. BHD.

Chart 28 : Number of Voltage Dips Incidents Reported In KHTP from 2006 to 2010

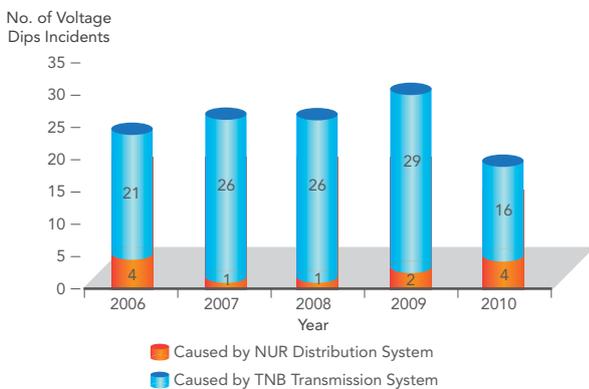


Chart 29 : Number of Consumers Involved In Voltage Dips Incidents In KHTP from 2006 to 2010

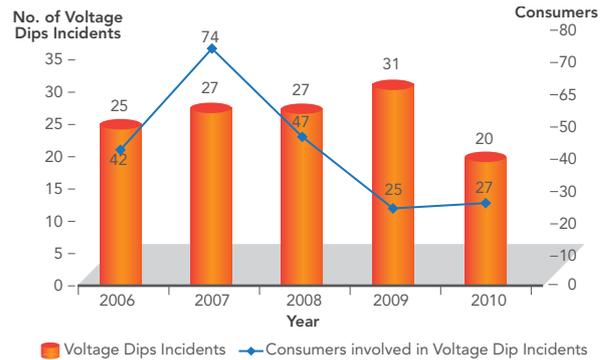
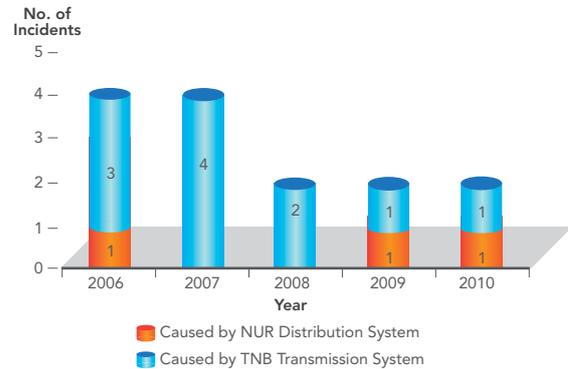


Chart 30 : SARFI<sub>70</sub> for NUR Distribution Sdn. Bhd. from 2006 to 2010



In 2010, the number of voltage dips incidents with magnitude below 70% caused by 70% of nominal voltage (SARFI<sub>70</sub>) remain unchanged as in 2009 with only 2 incidents.

## 8.0 QUALITY OF SERVICES: NUR DISTRIBUTION SDN. BHD.

### PERFORMANCE REPORT OF NUR DISTRIBUTION SDN. BHD. FROM 2007 TO 2010

Details	2007	2008	2009	2010
<b>1. Connection of Electricity Supply</b>				
<b>A. Change of Consumers</b>				
• No. of applications	20	21	6	13
• Percentage of connection within 1 working day after an appointment for connection	100%	100%	100%	100%
<b>B. New Supply (Low Voltage)</b>				
<b>i. Individual Applications Under Normal Conditions</b>				
• No. of applications	117	144	120	594
• Percentage of connection within 1 working day after an appointment for connection	100%	100%	100%	100%
<b>ii. Bulk Supply Application And Housing Schemes</b>				
• No. of applications	0	0	0	0
• Percentage of connection within 1 weeks after an appointment for connection	N/A	N/A	N/A	N/A
<b>2. Supply Restoration After Breakdowns</b>				
<b>i. Reports</b>				
• No. of complaints	0	0	0	0
• Percentage of consumers being given complaint numbers	N/A	N/A	N/A	N/A
<b>ii. Minor Breakdowns</b>				
• No. of minor breakdowns	16	20	13	33
• Percentage of breakdown rectified within 2 hours	100%	100%	86.7%	93.9%
<b>iii. Major/Extra Ordinary Breakdowns</b>				
• No. of major breakdowns	24	15	15	20
• Percentage of restoration within 24 hours	100%	100%	100%	85%
<b>3. Supply Reconnection After Disconnection</b>				
• No. of supply disconnections	152	92	85	33
• No. of consumer bills paid before 1:00 p.m. on disconnection day	152	92	85	33
• Percentage of supply reconnection on the same day for bills paid before 1:00 p.m.	100%	100%	100%	100%
<b>4. Planned / Scheduled Supply Interruptions</b>				
• No. of scheduled interruptions	39	32	40	46
• Percentage of consumers given 7 days notice before scheduled interruptions	92%	88%	95%	91.3%
<b>5. Meter Reading</b>				
• No. of consumers with estimated readings exceeding 2 consecutive months	47	59	32	73
• Percentage of consumers given notice with estimated readings exceeding 2 consecutive months	100%	100%	100%	100%

Details	2007	2008	2009	2010
<b>6. Enquiries / Written Complaints From Consumers</b>				
<b>i. Written enquiries including question regarding accounts/bills</b>				
• No. of written complaints received	54	61	115	93
• Percentage of reply within 5 working days	100%	100%	100%	100%
<b>7. Service Counter</b>				
• Percentage of consumers that the waiting time not exceeding 20 minutes	N/A	N/A	N/A	N/A
<b>8. Appointment for Meter Accuracy Check</b>				
• No. of appointments for meter accuracy check	14	14	5	8
• Percentage of meter accuracy check being carried out within 1 working day	100%	100%	100%	100%
<b>9. Meter Replacement</b>				
• No. of meter replacement	5	9	5	3
• Percentage of meter replacement within 2 working days	100%	100%	100%	100%
<b>10. Appointment With Consumers</b>				
<b>i. For appointments Outside NUR Premises</b>				
• No. of appointments where NUR officers arrived not later than 15 minutes from the agreed time	193	316	184	648
<b>ii. Postponement by NUR</b>				
• Percentage of subsequent appointment made within 1 working day	100%	100%	100%	98.5%
<b>11. Deposits</b>				
• No. of consumers found after 6 months that their deposits exceed average consumption of 2 months	0	0	0	0
• Percentage of consumers who have the excess deposits returned	N/A	N/A	N/A	N/A
<b>12. Refund of Consumer Deposits</b>				
• No. of consumers who have forwarded all required documents for refund of deposits	88	81	124	102
• Percentage of consumers who have their deposits refunded within 15 working days	88%	100%	100%	100%
<b>13. Collection</b>				
• Percentage of proof of payment sent via mail within 5 working days	98%	100%	100%	100%
<b>14. Supply Disconnection</b>				
<b>i. With 24 hours Notice</b>				
• No. of disconnections due to unsafe consumer installations	0	0	0	0
• No. of disconnections due to suspicion of electricity theft	0	0	0	0
• No. of disconnections due to electricity meter being tampered	0	0	0	0

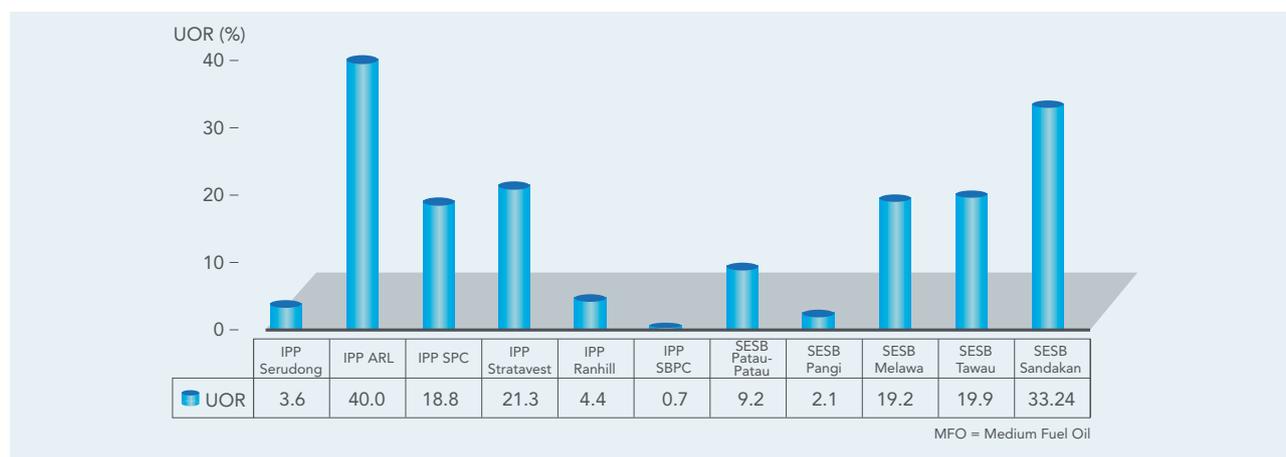
Details	2007	2008	2009	2010
<b>ii. Without Any Notice</b>				
• No. of disconnections due to failure to pay bills within 15 days after issuance of bill	0	0	0	0
• No. of disconnections due to failure to pay additional deposits within 7 days from the date of notice	162	94	86	45
• No. of disconnections due to unsafe installations	0	0	0	0
<b>15. Special Consumers Who Face Problems in Paying Electric Bills</b>				
• No of handicapped and senior consumers who face problems in paying electric bills. Special arrangement can be provided by NUR to collect bills from handicapped and senior consumers	0	0	0	0
<b>16. Voltage Outside Standard</b>				
<b>i. No Enhancement Work on Network is Required</b>				
• No. of complaints	2	1	6	3
• Percentage of complaints settled within 2 days from the date of complaints made	100%	100%	100%	100%
<b>ii. Network Enhancement Work is Required</b>				
• No. of complaints	0	0	0	0
• Percentage of complaints settled within 6 months from the date of complaints made	N/A	N/A	N/A	N/A
<b>17. Reply to New / Increase of Supply Applications</b>				
<b>i. No New Substation Required</b>				
• No. of applications	8	10	3	7
• Percentage of applications replied within 1 weeks from the date of application made	100%	100%	100%	100%
<b>ii. New Substation Required</b>				
• No. of applications	0	3	2	0
• Percentage of applications replied within 2 weeks from the date of application made	N/A	100%	100%	N/A
<b>18. Application for Meter Relocation by Consumer</b>				
• No. of application for meter relocation	1	9	2	7
• Percentage of applications settled within 7 working days	100%	100%	100%	100%
<b>19. Education on Energy Efficiency</b>				
• No. of education programmes on energy efficiency and safety, including activities near the installation and electricity line	4	4	4	4
<b>20. Power Quality Improvement</b>				
• No. of activities to improve power quality	67	49	66	49

Source : NUR Distribution Sdn. Bhd.

## PERFORMANCE OF ELECTRICITY SUPPLY AND SERVICES IN SABAH

### 1.0 PERFORMANCE OF SESB GENERATION SYSTEM

Chart 31 : Unplanned Outage Rate (UOR) in Sabah in 2010



In 2010, most of the diesel generating power plants operated by IPPs and SESB recorded a high rate of forced outage. This situation was attributed by the unwarranted breakdowns caused by several factors such as aging installations, limited window for maintenance, "overworked" power plants, low quality of fuel, etc. Despite the poor performance of the diesel generating power plants, the new gas power plants showed a better performance with a lower unscheduled forced outage rate.

### 2.0 PERFORMANCE OF SESB TRANSMISSION SYSTEM

Table 14 : Transmission System Tripping with Load Loss above 50 MW in Financial Year 2009/2010

Indicators	Sept 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	March 10	Apr 10	May 10	Jun 10	Jul 10	Aug 10
Number of tripping without load shedding	0	0	0	0	0	0	0	0	0	0	0	1
Number of tripping with load shedding	10	11	14	9	3	4	6	8	7	3	0	0
Unsupplied energy due to tripping (MWh)	-	-	-	-	-	-	-	-	-	-	-	31
Average unsupplied energy due to tripping (MWh)	-	-	-	-	-	-	-	-	-	-	-	31
Average duration per tripping (Hour : Minutes)	-	-	-	-	-	-	-	-	-	-	-	1:38
Unsupplied energy during load shedding (MWh)	4,192	4,105	5,515	5,159	1,143	1,081	2,579	2,405	3,439	1,577	0	0

In 2010, the number of tripping without load shedding for SESB transmission system has decreased by 7 from 8 in 2009. Meanwhile, the number of tripping with load shedding incidents showed otherwise with 75 incidents in 2010 compared to only 55 incidents in 2009.

Table 15 : Delivery Point Unreliability Index (DePUI) - System Minutes SESB from 2007 to 2010

Year	Including Blackout	Excluding Blackout
2007 (28 Jul - 31 Aug 2007)	-	18.99
2008	154.38*	11.89
2009	-	31.58
2010	-	20.21

Financial Year 2009/10

Note :

\* Involving 3 major incidents :

- Tripping incident of both 275 kV Kolopis-Segaliud lines, in the East Coast Sabah with 124 MW of load loss on 30 September 2007;
- HV fault at Karamunting Sub-station with 308 MW of load loss on 6 November 2011; and
- Collapsed of 132 kV transmission tower of Kayu Madang lines inside the area of Universiti Malaysia Sabah (UMS) due to theft of metal part of the tower, causing a 459.3 MW of load loss on 21 April 2008.

Table 16 : Lines/Cables Tripping Incident per 100 cct-km from 2006 to 2010

Voltage Level	2006		2007	2008	2009	2010
	East Coast	West Coast	Sabah Grid	Sabah Grid	Sabah Grid	Sabah Grid
275kV	-	-	-	-	0.20	0.20
132kV	0.46	0.7	5.35	0.28	0.44	0.12
66kV	-	20.99	4.51	5.51	4.34	16.34

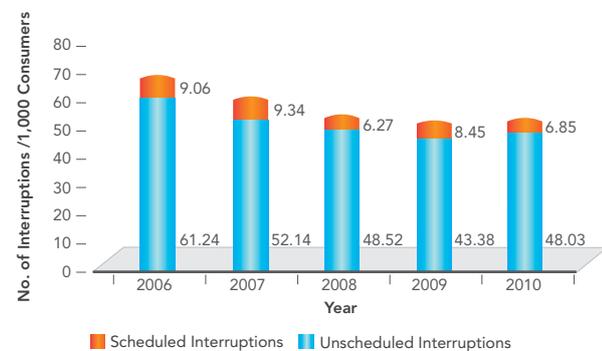
Financial Year 2009/10

In 2010, total number of tripping incidents for both cables and lines per 100 cct-km has increased significantly by 276 percent when compared to its 2009 level. Among all, the cables and lines of 66 kV contributed the highest number of tripping incidents.

### 3.0 PERFORMANCE OF SESB DISTRIBUTION SYSTEM

#### SESB ELECTRICITY SUPPLY INTERRUPTIONS

Chart 32 : Number of Electricity Supply Interruptions per 1,000 Consumers from 2006 to 2010



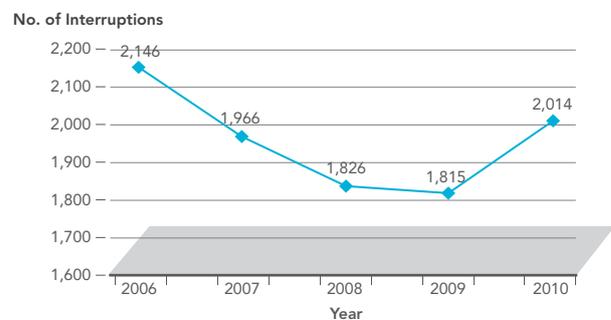
Note:

Number of Electricity Supply Interruptions per 1,000 Consumers exclude the number of interruptions in SESB transmission and generation system

In 2010, the average interruptions for every 1,000 consumers increased by 5.9 percent compared to its 2009 level.

Unscheduled interruptions contributes about 88 percent out of the total average interruptions.

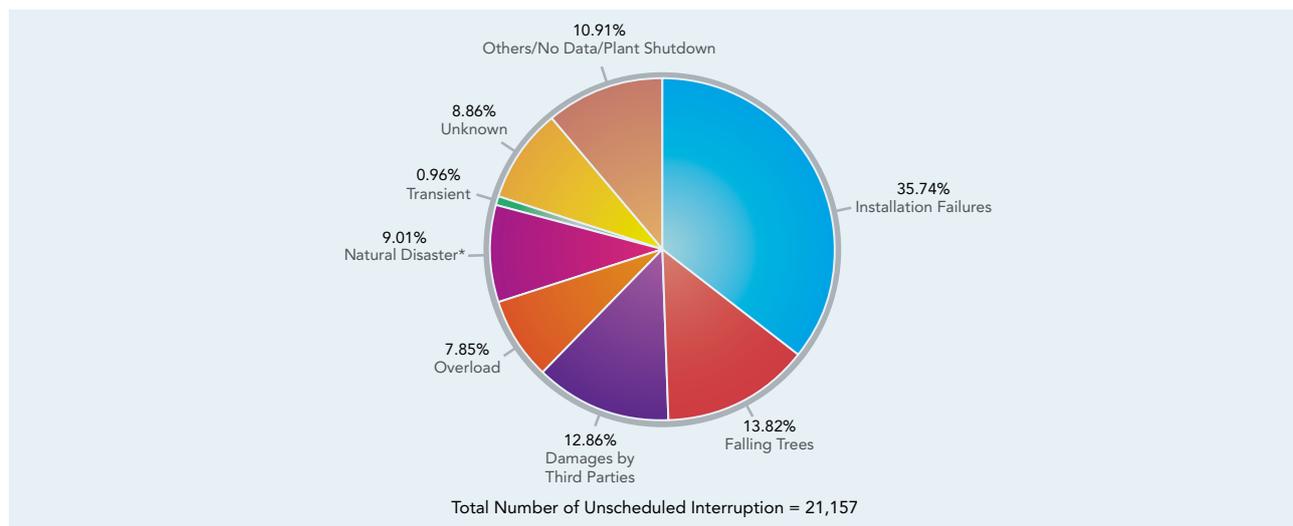
Chart 33: Monthly Average Electricity Supply Interruptions from 2006 to 2010



The monthly average of electricity supply interruptions has increased by 11 percent from 1,815 interruptions in 2009 to 2,014 interruptions in 2010.

### CAUSES OF SESB ELECTRICITY SUPPLY INTERRUPTIONS

Chart 34 : Causes of Unscheduled Supply Interruptions in 2010



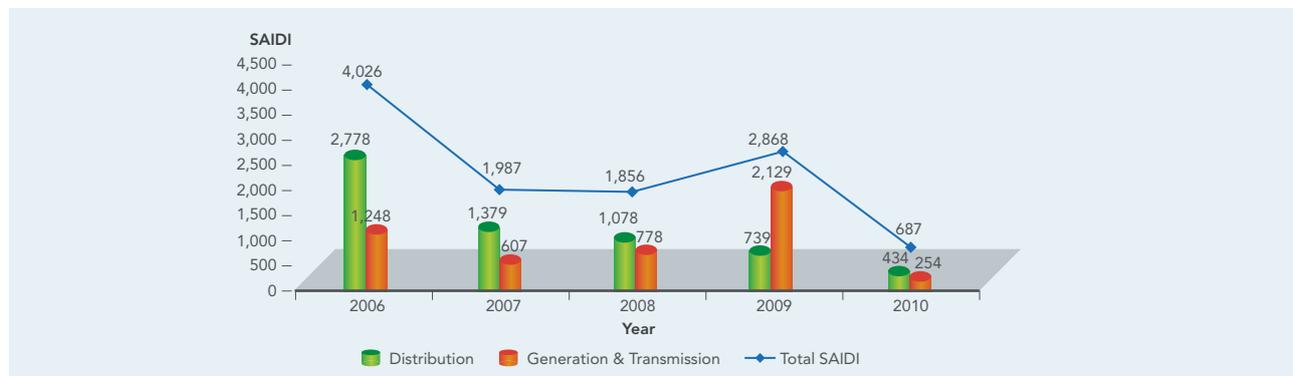
Note :  
 \* Natural disaster caused by wind, storm, flood, landslide, etc.

Table 17 : Number of Unscheduled Interruptions from 2006 to 2010

Year	2006	2007	2008	2009	2010
Number of Unscheduled Interruptions	22,436	20,006	19,484	18,228	21,157

### SYSTEM AVERAGE INTERRUPTION DURATION INDEX (SAIDI), SYSTEM AVERAGE INTERRUPTION DURATION INDEX (SAIFI) AND CUSTOMER AVERAGE INTERRUPTION INDEX (CAIDI)

Chart 35 : SAIDI (Minutes/Consumer/Year) in Sabah from 2006 to 2010



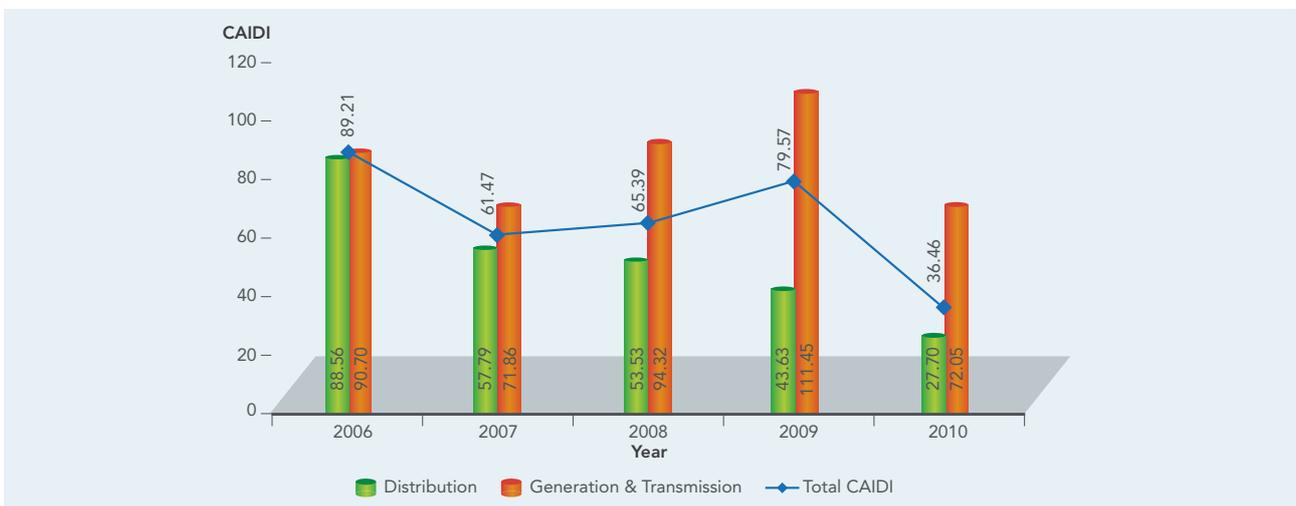
In 2010, SESB supply system showed a better performance compared to the previous year. SAIDI for distribution system has dropped by 41 percent from 739 minutes in 2009 to 434 minutes in 2010. SAIDI for generation and transmission system also showed a significant reduction about 88 percent from 2,129 minutes in 2009 to 254 minutes in 2010.

Chart 36 : SAIFI (Number of Interruptions/Consumer/Year) in Sabah from 2006 to 2010



SAIFI for distribution system in Sabah has reduced by 4.78 percent from 16.94 number of interruptions/consumer/ year in 2009 to 16.13 in 2010 while SAIFI for generation and transmission system has reduced by 79.21 percent from 19.10 number of interruptions/consumer/year in 2009 to 3.97 in 2010.

Chart 37 : CAIDI (Minutes/Interrupted Consumer/Year) in Sabah from 2006 to 2010



In 2010, the overall CAIDI for SESB has reduced by 54.18 percent. This is mainly attributed by a reduction in CAIDI for distribution system by 36.52 percent and a reduction in CAIDI for generation system by 35.35 percent.

## 4.0 QUALITY OF SERVICES: SESB

### PERFORMANCE REPORT OF SABAH ELECTRICITY SDN. BHD. FROM 2006 TO 2010

Details	2006	2007	2008	2009	2010
<b>1. Connection of Electricity Supply</b>					
<b>A. Change of Consumers</b>					
• No. of applications	11,410	13,213	7,638	6,893	7,600
• Percentage of connection within 1 working day after an appointment for connection	88.5%	90.3%	90.0%	79.0%	80.9%
<b>B. New Supply (Low Voltage)</b>					
<b>i. Individual Applications Under Normal Conditions</b>					
• No. of applications	17,130	10,466	11,741	12,491	15,742
• Percentage of connection within 2 working days after an appointment for connection	96.3%	83.0%	68.6%	62.4%	67.6%
<b>ii. Bulk Supply Application And Housing Schemes</b>					
• No. of applications	6,165	5,712	6,352	6,340	6,645
• Percentage of connection within 2 weeks after an appointment for connection	58.2%	77.6%	89.9%	96.7%	91.6%
<b>2. Supply Restoration After Breakdowns</b>					
<b>i. Complaints</b>					
• No. of complaints	260,572	247,927	248,957	190,251	209,508
• No. of consumers where the information not available at that time was contacted again within 15 minutes	3,500	2,060	2,819	3,775	5,897
• Percentage of consumers being given complaint numbers	95.9%	95.5%	95.0%	95.0%	95.5%
• Percentage of consumers where the information not available at that time was contacted again within 15 minutes	1.34%	0.83%	1.13%	1.9%	2.8%
<b>ii. Minor Breakdowns</b>					
• No. of minor breakdowns	21,584	20,857	20,268	17,981	19,513
• Percentage of breakdown rectified within 2 hours	81.5%	78.9%	92.8%	93.0%	99.0%
<b>iii. Major/Extra Ordinary Breakdowns</b>					
• No. of major breakdowns	928	2,993	404	618	452
• Percentage of restoration within 12 hours	81.9%	79.3%	96.5%	95.9%	97.1 %
<b>3. Supply Reconnection After Disconnection</b>					
• No. of supply disconnections	74,474	77,350	86,317	80,142	89,166
• Bills paid before 1:00 p.m. on disconnection day	70,510	42,681	60,421	48,330	52,393
• Percentage of supply reconnection on the same day for bills paid before 1:00 p.m.	94.7%	55.2%	70.0%	60.3%	58.8%

Details	2006	2007	2008	2009	2010
<b>4. Supply Interruptions Which Are Planned / Scheduled</b>					
<b>i. Scheduled Interruptions</b>					
• No. of scheduled interruptions	2,010	618	3,020	4,980	5,020
• Percentage of consumers being given notice within 7 days before interruptions	80.0%	66.4%	70.0%	71.0%	81.8%
<b>ii. Planning of Scheduled Interruptions</b>					
• No. of yearly and monthly planning of scheduled interruptions	154	320	332	337	339
• No. of affected consumers	120,099	164,790	78,625	6,579	73,901
• Percentage of affected consumers informed about the planning of scheduled interruptions	82.5%	100.0%	93.8%	99.7%	99.9%
<b>5. Meter Reading</b>					
• No. of consumers with estimated readings exceeding 3 consecutive months	4,398	5,525	6,762	5,177	6,843
• Percentage of notice given to consumers with estimated readings exceeding 3 consecutive months	1.32%	50.0%	50.0%	50.9%	58.4%
<b>6. Enquiries / Written Complaints From Consumers</b>					
<b>i. Written Enquiries</b>					
• No. of written enquiries received	228	310	2,695	598	708
• Percentage of reply within 5 working days	58.3%	85.5%	80.0%	71.7%	83.3%
<b>ii. Enquiries Through Telephone</b>					
• No. of unresolved complaints made through telephone	2,291	1,682	1,598	2,297	2,744
• Percentage of consumers with unresolved complaints recontacted within 24 hours	11.3%	8.0%	7.1%	8.4%	13.8%
<b>iii. Enquiries in Counter</b>					
• No. of unresolved complaints made through counter	1,457	1,158	5,009	3,565	2,821
• Percentage of consumers with unresolved complaints recontacted within 24 hours	3.55%	3.05%	11.6%	5.9%	6.8%
<b>7. Service Counter</b>					
• No. of consumers who were getting the services in counter	177,060	323,427	268,142	246,343	200,888
• Percentage of consumers that the waiting time not exceeding 15 minutes	81.9%	87.0%	75.0%	60.4%	53.5%
<b>8. Appointment For Meter Accuracy Check</b>					
• No. of appointments for meter accuracy check	1,251	2,226	1,425	1,388	1,726
• Percentage of meter accuracy check carried out within 2 working days	40.1%	49.2%	45.9%	44.8%	45.0%
<b>9. Meter Replacement</b>					
• No. of meter replacement	3,681	4,629	6,446	7,006	8,731
• Percentage of meter replacement within 2 working days from the date of application made	61.3%	51.03%	51.9%	52.0%	56.1%

Details	2006	2007	2008	2009	2010
<b>10. Appointment With Consumers</b>					
<b>i. For Appointments Outside SESB Premises</b>					
• Appointments where SESB officers arrived not later than the agreed time	83.5%	90.4%	90.5%	88.8%	84.1%
<b>ii. Postponement by SESB</b>					
• Percentage of subsequent appointment made within 1 working day	79.8%	48.9%	61.5%	67.6%	78.3%
<b>11. Deposits</b>					
• No. of consumers found after 6 months that their deposits exceed average consumption of 2 months	1,351	5,797	11,515	18,529	20,206
• Percentage of consumers who have the excess deposits returned	89.9%	27.9%	11.0%	2.6%	10.5%
<b>12. Refund of Consumer Deposits</b>					
• No. of consumers who have forwarded all required documents for refund of deposits	5,660	6,214	7,675	5,246	7,738
• Percentage of consumers who have their deposits refunded within 1 month	79.5%	86.3%	80.0%	96.5%	84.5%
<b>13. Collection</b>					
• Percentage of proof of payment sent via mail within 2 working days	75.0%	92.3%	93.0%	93.6%	93.9%
<b>14. Supply Disconnection</b>					
<b>i. With 24 hours Notice</b>					
• No. of disconnections due to unsafe consumer installations	480	286	613	38	30
• No. of disconnections due to suspicion of electricity theft	410	89	90	54	22
• No. of disconnections due to electricity meter being tampered	250	10	19	32	15
<b>ii. With More Than 24 hours Notice</b>					
• No. of disconnections due to failure to pay the bills within 30 days after issuance of bill and 7 days from the disconnections of notice	36,003	25,583	28,578	40,189	58,915
• No. of disconnections due to failure to pay additional deposits within 7 days from the date of notice	231	195	115	254	134
<b>iii. Without Any Notice</b>					
• No. of disconnections due to unsafe installations	25	162	258	1,003	1,353
<b>15. Special Consumers Who Face Problems In Paying Electric Bills</b>					
• No. of handicapped consumers who appealed to avoid disconnection	1	0	0	0	7
• No. of senior consumers who appealed to avoid disconnection	63	3	12	41	34
• No. of handicapped consumers who were assisted in payment of bills	1	26	25	30	23
• No. of senior consumers who were assisted in payment of bills	1	70	30	16	20

Details	2006	2007	2008	2009	2010
<b>16. Voltage Outside Standard</b>					
<b>i. No Enhancement Work on Network is Required</b>					
• No. of complaints	2,998	815	62	1,130	78
• Percentage of complaints settled within 2 days from the date of complaints made	95.0%	95.7%	64.5%	38.9%	43.6%
<b>ii. Network Enhancement Work Is Required</b>					
• No. of complaints	20	72	166	118	70
• Percentage of complaints settled within 3 months from the date of complaints made	35.0%	51.4%	98.2%	68.6%	75.7%
<b>17. Reply to New / Increase of Supply Application</b>					
<b>i. No New Substation Required</b>					
• No. of applications	1,744	2,797	1,897	2,087	2,274
• Percentage of applications replied within 1 week from the date of application made	76.8%	79.0%	72.9%	64.9%	76.2%
<b>ii. New Substation Required</b>					
• No. of applications	50	59	114	61	237
• Percentage of applications replied within 2 weeks from the date of application made	70.0%	81.4%	86.8%	90.2%	73.4%
<b>18. Application for Meter Relocation by Consumer</b>					
• No. of application for meter relocation	49	23	11	88	16
• Percentage of applications settled within 3 working days	34.7%	69.6%	68.8%	62.5%	68.8%
<b>19. Education on Energy Efficiency</b>					
• No. of education programmes on energy efficiency and safety, including activities near the installation and electricity line	6	10	11	19	23
<b>20. Power Quality Improvement</b>					
• No. of activities to improve power quality	214	581	379	446	454

Source : Sabah Electricity Sdn. Bhd.

# PERFORMANCE OF ELECTRICITY SUPPLY AND SERVICES IN SARAWAK

## 1.0 PERFORMANCE OF SESCO TRANSMISSION SYSTEM

Table 18 : Number of Monthly Tripping for SESCO Transmission System with Load Loss above 50 MW in 2010

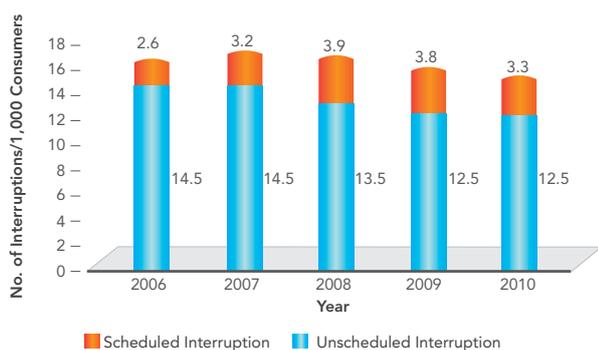
Indicators	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number of tripping without load shedding	0	0	0	1	0	2	1	2	0	0	1	0
Number of tripping with load shedding	1	5	2	5	7	2	1	3	2	0	0	1
Maximum load losses (MW)	0	0	0	92	0	10	8	36	0	0	181	0
Unsupplied energy due to tripping (MWh)	0	0	0	3	0	19	10	29	0	0	130	0
Average unsupplied energy due to tripping (MWh)	0	0	0	2	0	10	10	15	0	0	130	0
Average duration per tripping (Minutes)	0	0	0	5	0	112	78	50	0	0	67	0
Unsupplied energy during load shedding (MWh)	62	258	98	98	335	156	8	75	83	0	0	34

In 2010, the number of tripping without load shedding in SESCO transmission system has increased with 3 more incidents. Similarly with the number of tripping with load shedding in SESCO transmission system, it has increased from only 13 incidents reported in 2009 to 29 incidents being reported in 2010.

## 2.0 PERFORMANCE OF SESCO DISTRIBUTION SYSTEM

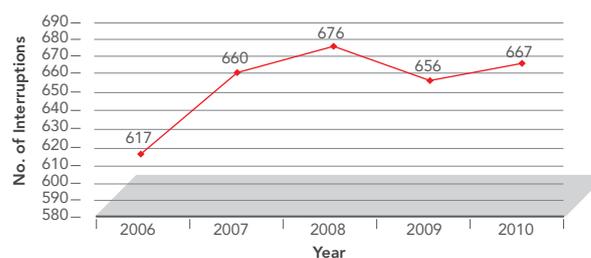
### SESCO ELECTRICITY SUPPLY INTERRUPTIONS

Chart 38 : Number of Electricity Supply Interruptions per 1,000 Consumers from 2006 to 2010



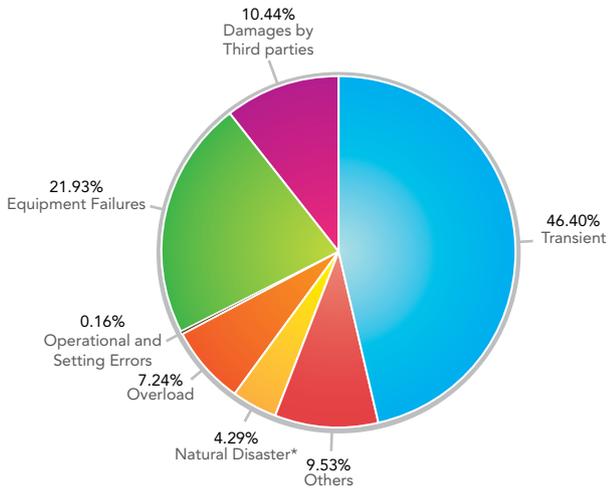
The number of electricity supply interruptions per 1,000 consumers has slightly decreased by 3.1 percent in 2010 when compared to 2009 level. The number of unscheduled interruptions dominates by 77 percent out of the total number of electricity supply interruptions.

Chart 39 : Monthly Average Electricity Supply Interruptions from 2006 to 2010



Average monthly interruptions is measured by total number of electricity supply interruptions divided by 12 months in a year. In 2010, the monthly average of interruptions has increased by 1.72 percent from 656 number of interruption in 2009.

Chart 40 : Percentage of Unscheduled Supply Interruptions by Type of Interruptions in 2010

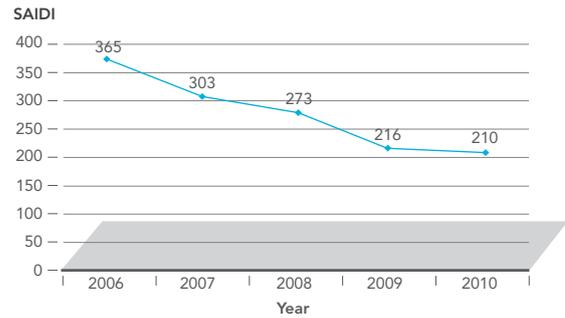


Number of Unscheduled Interruptions = 6,338

Note :  
 \* Natural disaster caused by wind, storm, flood, landslides, etc.

### SYSTEM AVERAGE INTERRUPTION DURATION INDEX (SAIDI)

Chart 41: SAIDI (Minutes/Consumers/Year) in Sarawak from 2006 to 2010



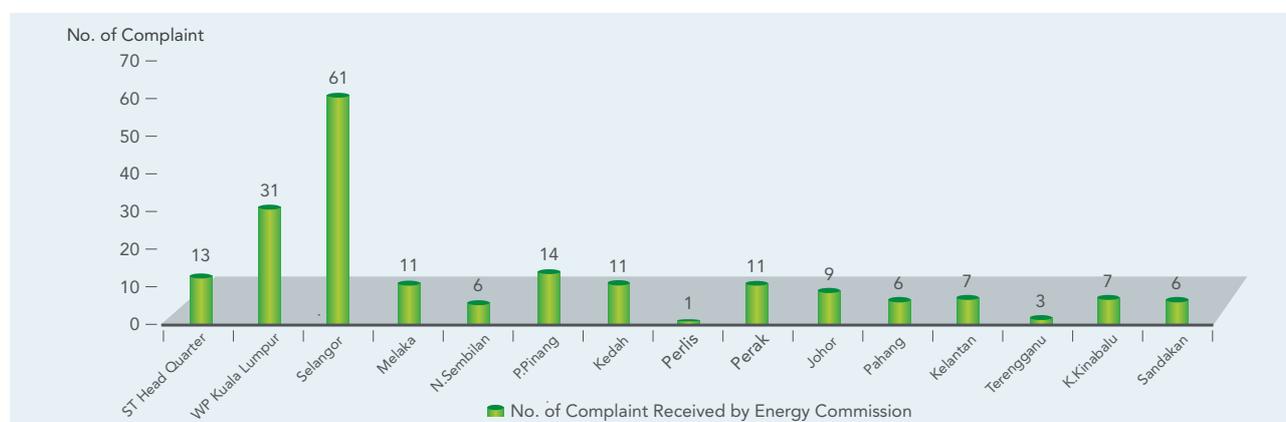
SAIDI for SESCO has improved positively from the past 5 years. In 2010, index for SAIDI in Sarawak has decreased slightly by 2.9 percent to settle at 210 minutes/consumer/year.

## NUMBER OF COMPLAINTS RECEIVED BY ENERGY COMMISSION AND STATUS OF COMPLAINTS

Table 19 : Number and Types of Complaints Received by Energy Commission from 2006 to 2010

Category / Year	2006	2007	2008	2009	2010
<b>Services of Electricity Supply</b>					
Electricity Supply Interruptions	33	31	21	20	30
Electricity Supply Application and Connection Services	18	9	13	13	8
Tariff and Charges	37	16	2	11	9
Electricity Billing, Metering, Disconnection and Reconnection of Supply	39	16	49	58	76
Safety of Wiring/Installations	10	33	22	36	31
Rentice of Transmission Line or Damage of TNB Installation by Third Party	19	19	25	22	15
Public Lighting, Other Matters on Electricity Supply and Customer Services	34	23	12	37	28
<b>Total</b>	<b>190</b>	<b>147</b>	<b>144</b>	<b>197</b>	<b>197</b>
<b>Quality of Electricity Supply</b>					
Overvoltage	100	219	188	183	134
Power Quality (Dips, Surges, etc)	4	6	2	2	3
<b>Total</b>	<b>104</b>	<b>225</b>	<b>190</b>	<b>185</b>	<b>137</b>
<b>Grand Total</b>	<b>294</b>	<b>372</b>	<b>334</b>	<b>382</b>	<b>334</b>

Chart 42 : Complaints Received by Energy Commission by State in 2010



The total number of complaints received in 2010 remains unchanged with 197 number of complaints. The state of Selangor recorded the highest number of complaints compared to other states with 61 number of complaints received in 2010. There was 33 number of complaints in Selangor in 2009.

Table 20 : Status of Resolution for Electricity Supply Complaint Cases in 2010

	Services	Quality	Total
Resolved Case	183	136	319
Pending Case	14	1	15
<b>Total</b>	<b>197</b>	<b>137</b>	<b>334</b>

In 2010, a total of 319 complaint cases resolved out of the total cases reported. Among the steps taken to overcome the problem being faced by the consumers are by organizing a dialog with TNB, conducting site investigation, issuing directives, imposing fines and penalties, etc.

## SALES OF ELECTRICITY AND AVERAGE SELLING PRICE

Table 21 : Sales of Electricity (GWh) for TNB, SESB, SESCO and NUR by Sector in 2010

	Domestic	Commercial	Industry	Public Lighting	Mining	Agriculture	Total
TNB	18,693	30,470	40,186	1,076	68	278	90,770
SESB	1,295	1,602	1,178	52	0	-	4,127
SESCO	1,335	1,735	2,593	64	0	-	5,727
NUR	7	29	1,073	2	0	-	1,110
<b>Total</b>	<b>21,330</b>	<b>33,836</b>	<b>45,030</b>	<b>1,194</b>	<b>68</b>	<b>278</b>	<b>101,734</b>

Table 22 : Comparison of Average Selling Price (sen/kWh) by Sectors for Selected Power Utilities in 2010

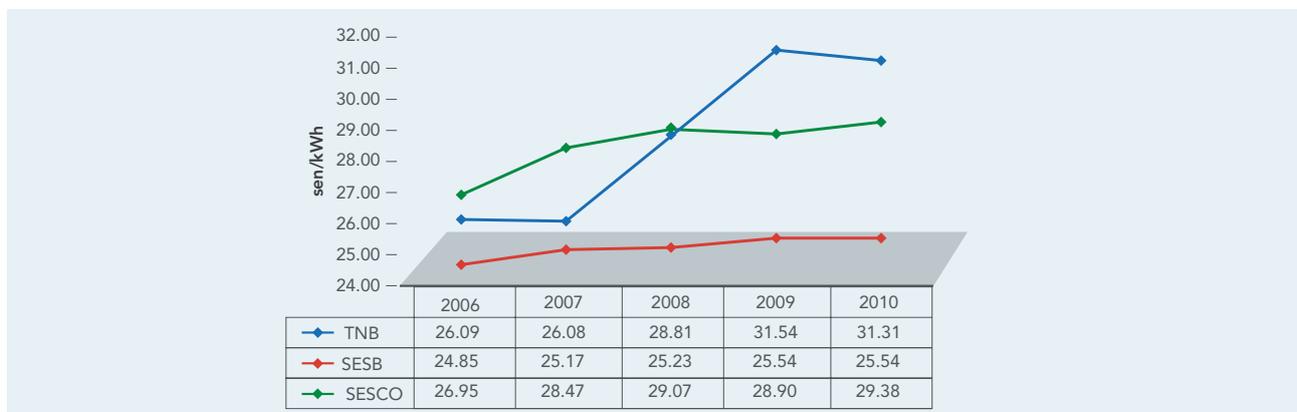
	Domestic (sen/kWh)	Commercial (sen/kWh)	Industry (sen/kWh)	Public Lighting (sen/kWh)	Agriculture (sen/kWh)	Total (sen/kWh)
TNB	27.66	37.69	28.44	20.58	37.03	31.31
SESB	22.93	28.84	23.31	-	-	25.54
SESCO	31.19	32.00	24.62 <sup>1</sup>	47.09	-	29.38 <sup>1</sup>
PLN, Indonesia	21.83	28.84	23.31	-	-	24.40
Taipower, Taiwan	29.64	35.41	25.39	-	-	28.02
EGAT, Thailand	34.58	41.88	31.08	-	-	23.58
CLP, Hong Kong	N/A	N/A	N/A	-	-	40.47
Meralco, Philippines	65.60	57.93	46.47	-	-	57.24
TEPCO, Japan	84.77	59.02	59.02	-	-	67.58
KEPCO, Korea	35.53	31.16	24.70	-	-	27.29
Singapore	57.50	52.62	49.75	-	-	56.89

Note :

<sup>1</sup>Tariff does not includes tariff for negotiated customer

Source : Tenaga Nasional Berhad

Chart 43 : Average Selling Price (sen/kWh) for TNB, SESB and SESCO from 2006 to 2010



Note :

Average Tariff for SESCO in 2010 does not includes tariff for negotiated customer

Source : Tenaga Nasional Berhad

## TARIFF RATES IN MALAYSIA

### ELECTRICITY TARIFF RATES OF TENAGA NASIONAL BERHAD IN 2010 (EFFECTIVE 1 MARCH 2009)

No.	Tariff Category	Unit	Rates (1 March 2009)
1.	<b>Tariff A – Domestic Tariff</b>		
	<b>For monthly consumption between 0 – 400 kWh per month:</b>		
	For the first 200 kWh (1 - 200 kWh) per month	sen/kWh	21.8
	For the next 200 kWh (201 - 400 kWh) per month	sen/kWh	33.4
	<b>Minimum monthly charge : RM 3.00</b>		
	<b>For Monthly Consumption More Than 400 kWh per month:</b>		
	For the first 500kWh (1-500 kWh) per month	sen/kWh	28.6
	For the next 100 kWh (501-600 kWh) per month	sen/kWh	37.8
	For the next 100 kWh (601-700 kWh) per month	sen/kWh	38.7
	For the next 100 kWh (701-800 kWh) per month	sen/kWh	39.7
For the next 100 kWh (801-900 kWh) per month	sen/kWh	41.7	
For the next kWh (901 kWh onwards) per month	sen/kWh	44.6	
<b>Minimum monthly charge : RM 3.00</b>			
2.	<b>Tariff B - Low Voltage Commercial Tariff</b>		
	<b>For Overall Monthly Consumption Between 0-200 kWh per month:</b>		
	For all kWh	sen/kWh	37.0
	<b>Minimum monthly charge : RM 7.20</b>		
	<b>For Overall Monthly Consumption More Than 200 kWh per month:</b>		
For all kWh (from 1kWh and above)	sen/kWh	39.7	
<b>Minimum monthly charge : RM 7.20</b>			
3.	<b>Tariff C1 - Medium Voltage General Commercial Tariff</b>		
	For each kilowatt of maximum demand per month	RM/kW	23.93
	For all kWh	sen/kWh	28.8
<b>Minimum monthly charge : RM 600.00</b>			
4.	<b>Tariff C2 - Medium Voltage Peak/Off-Peak Commercial Tariff</b>		
	For each kilowatt of maximum demand per month during the peak period	RM/kW	35.60
	For all kWh during the peak period	sen/kWh	28.8
	For all kWh during the off-peak period	sen/kWh	17.7
	<b>Minimum monthly charge : RM 600.00</b>		
5.	<b>Tariff D - Low Voltage Industrial Tariff</b>		
	<b>For Overall Monthly Consumption Between 0-200 kWh per month:</b>		
	For all kWh	sen/kWh	32.5
	<b>Minimum monthly charge : RM 7.20</b>		
	<b>For Overall Monthly Consumption More Than 200 kWh per month:</b>		
	For all kWh (from 1 kWh and above)	sen/kWh	34.8
<b>Minimum monthly charge : RM 7.20</b>			
	<b>Tariff Ds – Special Industrial Tariff (only for qualified consumers)</b>		
For all kWh	sen/kWh	32.7	
<b>Minimum monthly charge : RM 7.20</b>			

No.	Tariff Category	Unit	Rates (1 March 2009)
6.	<b>Tariff E1 - Medium Voltage General Industrial Tariff</b> For each kilowatt of maximum demand per month For all kWh	RM/kW sen/kWh	23.40 26.6
	<b>Minimum monthly charge : RM 600.00</b>		
	<b>Tariff E1s – Special Industrial Tariff (only for qualified consumers)</b> For each kilowatt of maximum demand per month For all kWh	RM/kW sen/kWh	18.10 25.8
	<b>Minimum monthly charge : RM 600.00</b>		
7.	<b>Tariff E2 - Medium Voltage Peak/Off-Peak Industrial Tariff</b> For each kilowatt of maximum demand per month during the peak period For all kWh during the peak period For all kWh during the off-peak period	RM/kW sen/kWh sen/kWh	29.30 28.1 17.3
	<b>Minimum monthly charge : RM 600.00</b>		
	<b>Tariff E2s – Special Industrial Tariff (only for qualified consumers)</b> For each kilowatt of maximum demand per month during the peak period For all kWh during the peak period For all kWh during the off-peak period	RM/kW sen/kWh sen/kWh	25.20 25.8 14.7
	<b>Minimum monthly charge : RM 600.00</b>		
8.	<b>Tariff E3 - High Voltage Peak/Off-Peak Industrial Tariff</b> For each kilowatt of maximum demand per month during the peak period For all kWh during the peak period For all kWh during the off-peak period	RM/kW sen/kWh sen/kWh	28.10 26.6 16.0
	<b>Minimum monthly charge : RM 600.00</b>		
	<b>Tariff E3s – Special Industrial Tariff (only for qualified consumers)</b> For each kilowatt of maximum demand per month during the peak period For all kWh during the peak period For all kWh during the off-peak period	RM/kW sen/kWh sen/kWh	22.20 24.3 13.4
	<b>Minimum monthly charge : RM 600.00</b>		
9.	<b>Tariff F - Low Voltage Mining Tariff</b> For all kWh	sen/kWh	30.1
	<b>Minimum monthly charge : RM 120.00</b>		
10.	<b>Tariff F1 - Medium Voltage General Mining Tariff</b> For each kilowatt of maximum demand per month For all kWh	RM/kW sen/kWh	16.70 24.7
	<b>Minimum monthly charge : RM 120.00</b>		
11.	<b>Tariff F2 - Medium Voltage Peak/Off-Peak Mining Tariff</b> For each kilowatt of maximum demand per month during the peak period For all kWh during the peak period For all kWh during the off-peak period	RM/kW sen/kWh sen/kWh	23.50 24.7 13.6
	<b>Minimum monthly charge : RM 120.00</b>		
	12.	<b>Tariff G - Street Lighting Tariff</b> For all kWh (including maintenance) For all kWh (excluding maintenance)	sen/kWh sen/kWh
<b>Minimum monthly charge : RM 7.20</b>			

No.	Tariff Category	Unit	Rates (1 March 2009)
13.	<b>Tariff G1 - Neon &amp; Floodlight Tariff</b> For all kWh	sen/kWh	16.4
	<b>Minimum monthly charge : RM 7.20</b>		
14.	<b>Tariff H – Low Voltage Specific Agriculture Tariff</b> For all kWh	sen/kWh	37.2
	<b>Minimum monthly charge : RM 7.20</b>		
15.	<b>Tariff H1 - Medium Voltage General Specific Agriculture Tariff</b> For each kilowatt of maximum demand per month	RM/kW	23.90
	For all kWh	sen/kWh	27.7
	<b>Minimum monthly charge : RM 600.00</b>		
16.	<b>Tariff H2 - Medium Voltage Peak/Off-Peak Specific Agriculture Tariff</b> For each kilowatt of maximum demand per month during the peak period	RM/kW	32.20
	For all kWh during the peak period	sen/kWh	28.8
	For all kWh during the off-peak period	sen/kWh	17.7
	<b>Minimum monthly charge : RM 600.00</b>		

### ELECTRICITY TARIFF RATES 'TOP-UP' AND 'STANDBY' IN 2010 FOR 'CO-GENERATORS' ONLY (EFFECTIVE 1 MARCH 2009)

No.	Tariff Category	Unit	Rates (1 March 2009)		
			Top-up	Standby	
				Firm	Non-Firm
1.	<b>Tariff C1 - Medium Voltage General Commercial Tariff</b> Maximum demand charge per month For all kWh	RM/kW	23.93	25.00	10.40
		sen/kWh	28.8		
2.	<b>Tariff C2 - Medium Voltage Peak/Off-Peak Commercial Tariff</b> For each kilowatt of maximum demand per month during the peak period For all kWh during the peak period For all kWh during the off-peak period	RM/kW	35.60	25.00	11.80
		sen/kWh	28.8		
		sen/kWh	17.7		
3.	<b>Tariff E1 - Medium Voltage General Industrial Tariff</b> Maximum demand charge per month For all kWh	RM/kW	23.40	25.00	9.90
		sen/kWh	26.6		
4.	<b>Tariff E2 – Medium Voltage Peak/Off-Peak Industrial Tariff</b> For each kilowatt of maximum demand per month during the peak period For all kWh during the peak period For all kWh during the off-peak period	RM/kW	29.30	25.00	9.70
		sen/kWh	28.1		
		sen/kWh	17.3		
5.	<b>Tariff E3 – High Voltage Peak/Off-Peak Industrial Tariff</b> For each kilowatt of maximum demand per month during the peak period For all kWh during the peak period For all kWh during the off-peak period	RM/kW	28.10	25.00	8.50
		sen/kWh	26.6		
		sen/kWh	16.0		
6.	<b>Tariff F1 – Medium Voltage General Mining Tariff</b> Maximum demand charge per month For all kWh	RM/kW	16.70	25.00	5.40
		sen/kWh	24.7		
7.	<b>Tariff F2 – Medium Voltage Peak/Off-Peak Mining Tariff</b> For each kilowatt of maximum demand per month during the peak period For all kWh during the peak period For all kWh during the off-peak period	RM/kW	23.50	25.00	7.50
		sen/kWh	24.7		
		sen/kWh	13.6		

## ELECTRICITY TARIFF RATES OF SABAH ELECTRICITY SENDIRIAN BERHAD IN 2010

No.	Tariff Category	Unit	Rates
1.	<b>Domestic</b>		
	0-40 units per month	sen/kWh	24
	41-200 units per month	sen/kWh	16
	Above 200 units per month	sen/kWh	28
Minimum monthly charge : RM 5.00			
2.	<b>Commercial Class 1</b>		
	0-1,000 units per month	sen/kWh	32
	Above 1,000 units per month	sen/kWh	27
Minimum monthly charge : RM 15.00			
3.	<b>Commercial Class 2</b>		
	(For consumers with maximum demand above 500 kW)		
	Maximum demand charge per month	RM/kW	15.00
	All units per month	sen/kWh	25
Minimum monthly charge : RM 1,000.00			
4.	<b>Industrial Class 1</b>		
	0-2,000 units per month	sen/kWh	32
	Above 2,000 units per month	sen/kWh	26
Minimum monthly charge : RM 15.00			
5.	<b>Industrial Class 2</b>		
	(For consumers with maximum demand above 500 kW)		
	Maximum demand charge per month	RM/kW	15.00
	All units per month	sen/kWh	20
Minimum monthly charge : RM 1,000.00			
6.	<b>Public Lighting</b>		
	All units per month	sen/kWh	30

## ELECTRICITY TARIFF RATES FOR LABUAN IN 2010

No.	Tariff Category	Unit	Rates
1.	<b>Domestic (DM)</b>		
	0-40 kWh per month	sen/kWh	24
	41-200 kWh per month	sen/kWh	16
	201-above kWh per month	sen/kWh	28
Minimum charge : RM 5.00			
2.	<b>Low Voltage Commercial (B)</b>		
	For all units	sen/kWh	24
Minimum charge : RM 6.00			
3.	<b>Medium Voltage General Commercial (C1)</b>		
	For each kilowatt of maximum demand per month	RM/kW	12.00
	All units	sen/kWh	18
Minimum charge : RM 500.00			
4.	<b>Medium Voltage Peak/Off Peak Commercial (C2)</b>		
	For each kilowatt of maximum demand per month during the peak period	RM/kW	19.00
	All units during the peak period	sen/kWh	18
	All units during the off-peak period	sen/kWh	8
Minimum charge : RM 500.00			
5.	<b>Low Voltage Industrial Tariff (D)</b>		
	For all units	sen/kWh	21
Minimum charge : RM 6.00			
6.	<b>Medium Voltage General Industrial (E1)</b>		
	For each kilowatt of maximum demand per month	RM/kW	12.00
	All units	sen/kWh	16
Minimum charge : RM 500.00			
7.	<b>Medium Voltage Peak / Off-Peak Industrial (E2)</b>		
	For each kilowatt of maximum demand per month during the peak period	RM/kW	17.00
	All units during the peak period	sen/kWh	16
	All units during the off-peak period	sen/kWh	8
Minimum charge : RM 500.00			
8.	<b>Public Lighting</b>		
All units	sen/kWh	30	
9.	<b>Low Voltage Mining (F)</b>		
	For all units	sen/kWh	19
Minimum charge : RM 100.00			
10.	<b>Medium Voltage Mining (F1)</b>		
	For each kilowatt of maximum demand per month	RM/kWj	12.00
	All units	sen/kWh	16
Minimum charge : RM 100.00			

## ELECTRICITY TARIFF RATES OF SYARIKAT SESCO BERHAD IN 2010 (EFFECTIVE 1 APRIL 2007)

No.	Tariff Category	Unit	Rates
1.	<b>Tariff C1 - Commercial</b>		
	For the first 100 units per month	sen/kWh	40
	For the next 4900 units per month	sen/kWh	34
	For each additional unit per month	sen/kWh	30
Minimum monthly charge : RM 10.00			
2.	<b>Tariff C2 – Commercial Demand</b>		
	For each kilowatt of maximum demand per month	RM/kW	16.00
	For each unit	sen/kWh	25
Minimum monthly charge : RM 16.00 per kilowatt X Billing Demand			
3.	<b>Tariff C3 – Commercial Peak/Off - Peak Demand</b>		
	For each kilowatt of maximum demand per month during the peak period	RM/kW	20.00
	For each unit during the peak period	sen/kWh	25
	For each unit during the off-peak period	sen/kWh	14.4
Minimum monthly charge : RM 20.00 per kilowatt X Billing Demand			
4.	<b>Tariff D - Domestic</b>		
	For the first 100 units per month	sen/kWh	34
	For the next 300 units per month	sen/kWh	29
	For each additional unit per month	sen/kWh	33
Minimum monthly charge : RM 5.00			
5.	<b>Tariff I1 - Industrial</b>		
	For the first 100 units per month	sen/kWh	40
	For the next 2900 units per month	sen/kWh	30
	For each additional unit per month	sen/kWh	27
Minimum monthly charge : RM 10.00			
6.	<b>Tariff I2 – Industrial Demand</b>		
	For each kilowatt of maximum demand per month	RM/kW	16.00
	For each unit	sen/kWh	22.2
Minimum monthly charge : RM 16.00 per kilowatt X Billing Demand			
7.	<b>Tariff I3 – Industrial Peak/Off – Peak Demand</b>		
	For each kilowatt of maximum demand per month during the peak period	RM/kW	20.00
	For each unit during the peak period	sen/kWh	23.4
	For each unit during the off peak period	sen/kWh	14.4
Minimum monthly charge : RM 20.00 per kilowatt X Billing Demand			
8.	<b>Tariff PL – Public Lighting</b>		
	For each unit	sen/kWh	47
Minimum monthly charge : RM 10.00			



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## **STATISTICS OF TENAGA NASIONAL BERHAD (TNB)**

## STATISTICS OF TENAGA NASIONAL BERHAD (TNB)

		PERFORMANCE HIGHLIGHT				
		2006	2007	2008	2009	2010
1	Maximum Demand (MW)	12,990	13,620	14,007	14,245	15,072
2	Total Unit Generated (GWh)	26,746	25,388	27,691	29,608	27,689
3	Total Unit Sold (GWh)	77,771	82,052	85,616	82,443	89,621
4	Sales of Electricity (RM million)	N/A	20,696	22,555	26,388	28,020
5	Installed Generation Capacity (MW) <sup>1</sup>	6,346	6,346	6,346	7,040	7,040
6	Number of Employee <sup>2</sup>	24,429	24,950	24,927	24,613	25,571
7	Sales of Electricity per Employee (RM million/Employee)	N/A	0.82	0.90	1.07	1.09
8	Unit Sold per Employee (GWh/Employee)	3.18	3.29	3.43	3.35	3.50
9	Installed Capacity per Employee (MW/Employee)	0.26	0.25	0.25	0.29	0.28
10	Total Unit Purchased (GWh)	61,916	67,225	68,091	63,156	73,830
11	Total Unit Exported (GWh)	2,323	2,477	1,152	166	88
12	Total Unit Imported (GWh)	3.8	2.4	0.11	0.06	0.03

Note :

<sup>1</sup> Installed Generation Capacity including TNB Generation Sdn. Bhd. and TNB Hidro Sdn. Bhd.

<sup>2</sup> TNB employees excluding TNB wholly owned subsidiaries and TNB majority owned subsidiaries

SALES OF ELECTRICITY (GWh)					
SECTOR	2006	2007	2008	2009	2010
1 Domestic	14,132	15,048	15,810	16,792	18,217
2 Commercial	23,284	25,123	26,939	27,859	29,872
3 Industry	37,142	38,320	40,511	36,261	40,071
4 Public Lighting	838	884	956	1,078	1,046
5 Mining	42	34	34	47	62
6 Export	2,323	2,477	1,152	166	88
7 Agriculture	10	166	214	240	265
<b>Total</b>	<b>77,771</b>	<b>82,052</b>	<b>85,616</b>	<b>82,443</b>	<b>89,621</b>
NUMBER OF CONSUMERS					
1 Domestic	5,397,799	5,563,951	5,750,325	5,938,095	6,128,224
2 Commercial	1,014,907	1,056,954	1,110,718	1,164,959	1,224,414
3 Industry	24,843	24,929	25,330	25,663	25,580
4 Public Lighting	39,233	41,796	45,037	47,715	50,122
5 Mining	18	14	13	15	17
6 Agriculture	481	782	906	996	1,080
7 Free Units <sup>3</sup>	-	-	-	N/A	2,218
<b>Total</b>	<b>6,477,281</b>	<b>6,688,426</b>	<b>6,932,329</b>	<b>7,177,443</b>	<b>7,431,655</b>
GENERATION MIX(GWh)					
TYPES OF FUEL					
1 Hydro	5,301	4,879	6,669	5,916	5,227
2 Natural Gas	21,293	20,473	20,979	23,658	22,337
3 Coal	-	-	-	-	-
4 Oil	111	-	-	-	6
5 Diesel	41	35.8	43	34	119
<b>Total</b>	<b>26,746</b>	<b>25,388</b>	<b>27,691</b>	<b>29,608</b>	<b>27,689</b>
INSTALLED GENERATION CAPACITY (MW)					
1 Hydro	1,911	1,911	1,911	1,911	1,911
2 Natural Gas	4,367	4,367	4,386	5,061	5,061
3 Coal	-	-	-	-	-
4 Oil	-	-	-	-	-
5 Diesel	68	68	68	68	68
<b>Total</b>	<b>6,346</b>	<b>6,346</b>	<b>6,365</b>	<b>7,040</b>	<b>7,040</b>
OVERALL AVAILABILITY (%)					
Overall Availability (%)	91	91	90	91	89
COST OF GENERATION (sen/kWh)					
1 Own Generation	9.38	8.18	13.22	11.08	14.00
2 Energy Purchased	15.32	15.30	17.50	13.77	13.41
3 Overall Cost	N/A	13.40	16.29	12.67	12.13

TRANSMISSION LINE CAPACITY					
	2006	2007	2008	2009	2010
<b>1 Transmission Lines/Cables (km)</b>					
i. 500 KV	890 <sup>4</sup>	890	890	1,209 <sup>5</sup>	1,094 <sup>6</sup>
ii. 275 KV	6,730	6,737	7,616	7,738	9,657
iii. 132 KV	10,436	11,009	11,299	11,308	11,415
iv. 66 KV	171	68.7	-	-	0.9
<b>2 Transmission Substation</b>					
i. Number of Substation	435 <sup>7</sup>	441	386	385	392
ii. Substation Capacity (MVA)	75,189 <sup>7</sup>	76,223	83,808	82,990	86,030
<b>3 Performance</b>					
i. Number of Tripping Incidents	525	66	392	333	322
ii. Unsupplied Energy (MWh)	1,586	2,121	1,532	242	254
DISTRIBUTION SYSTEM CAPACITY					
<b>1 Distribution System Lines/Cables (km)</b>					
i. Overhead Lines	159,483	161,080	191,714	341,318	475,972
ii. Underground Cables	327,238	343,665	357,267	361,763	376,226
<b>2 Distribution Substations</b>					
i. Number of Substation	58,265	58,905	61,238	62,852	63,341
ii. Substation Capacity (MVA)	48,906	48,961	66,696	68,454	69,456
<b>3 Performance</b>					
i. Number of Supply Interruption <sup>8</sup>	57,808	54,479	103,876	126,566	110,633

Financial Year 2009/10  
Source : Tenaga Nasional Berhad

Note :

<sup>3</sup> Free units are government initiative targeting the low income group from residential/domestic sector where exemptions are given for consumers with monthly electricity consumption of not more than RM20

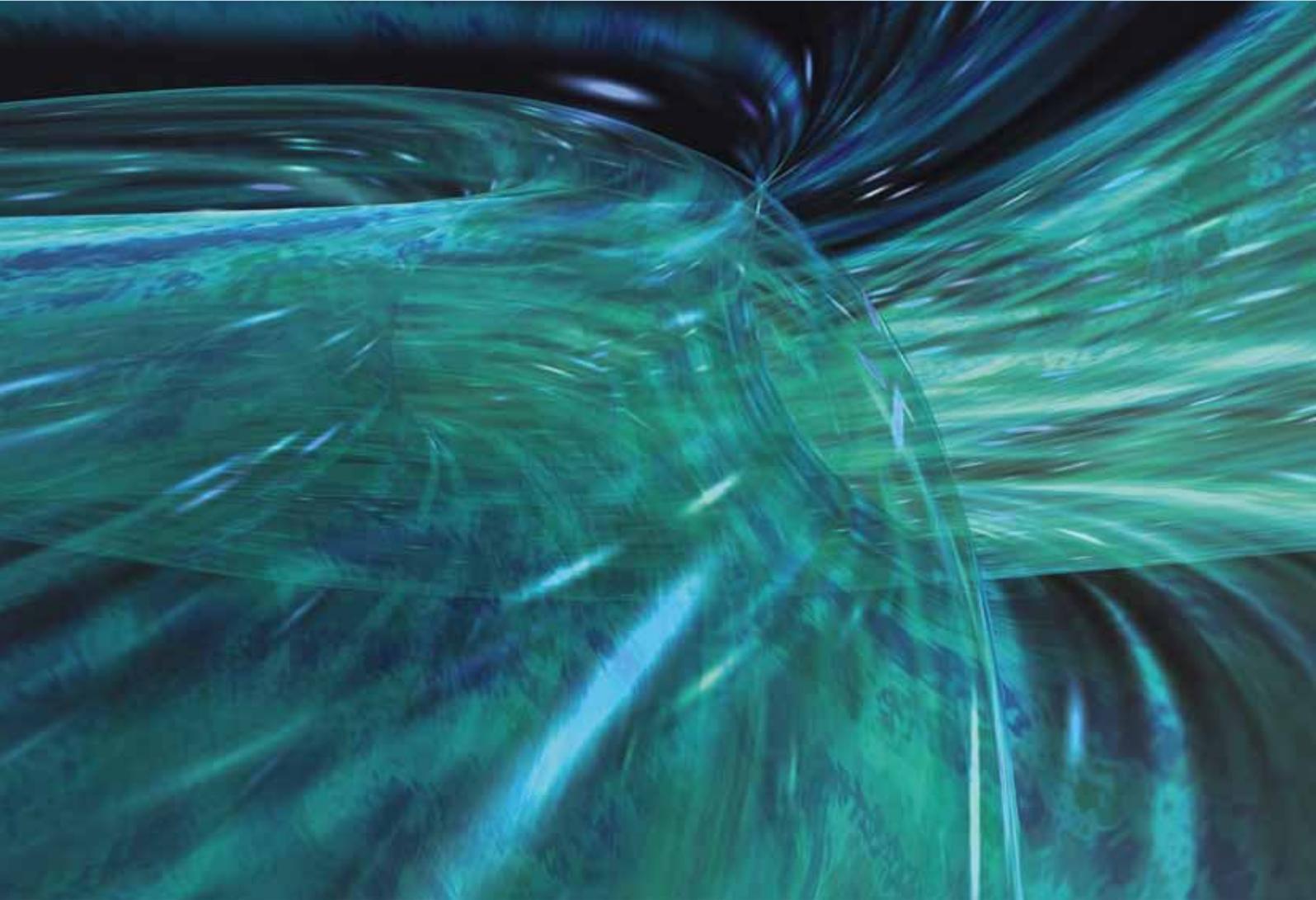
<sup>4</sup> From 2006 to 2008, 440km transmission lines at 500 kV were operated at 275 kV.

<sup>5</sup> In 2009, 541km transmission line at 500 kV were operated at 275kV

<sup>6</sup> In 2010, 426km transmission line at 500 kV were operated at 275kV

<sup>7</sup> Including 48 large power consumer substations

<sup>8</sup> This figure includes consumers with duration of interruptions of more than 1 minute



## STATISTICS OF SABAH ELECTRICITY SDN. BHD. (SESB)

## STATISTICS OF SABAH ELECTRICITY SDN. BHD. (SESB)

		PERFORMANCE HIGHLIGHT				
		2006	2007	2008	2009	2010
1	Maximum Demand (MW)	594	625	673	719	780
2	Total Unit Generated (GWh)	1,608	1,632	1,489	1,317	1,178
3	Total Unit Sold (GWh)	2,969	3,317	3,474	3,855	4,127
4	Sales of Electricity (RM million)	638	838	836	975	1,055
5	Installed Generation Capacity (MW) <sup>1</sup>	376	358	357	489	375
6	Number of Employee	2,200	2,315	2,272	2,484	2,613
7	Sales of Electricity per Employee (RM million/Employee)	0.29	0.36	0.37	0.39	0.40
8	Unit Sold per Employee (GWh/Employee)	1.35	1.43	1.53	1.55	1.58
9	Installed Capacity per Employee (MW/Employee)	0.16	0.14	0.15	0.20	0.14
10	Total Unit Purchased (GWh)	2,058	2,363	2,788	3,235	3,648
11	Total Unit Exported (GWh)	-	-	-	-	-
12	Total Unit Imported (GWh)	-	-	-	-	-

Note :

<sup>1</sup> Installed Generation Capacity SESB not including IPP Sabah

SALES OF ELECTRICITY (GWh)					
SECTOR	2006	2007	2008	2009	2010
1 Domestic	937	1,039	1,090	1,204	1,295
2 Commercial	1,104	1,240	1,321	1,504	1,602
3 Industry	889	993	1,017	1,099	1,178
4 Public Lighting	39	45	47	49	52
5 Mining	-	-	-	-	-
<b>Total</b>	<b>2,969</b>	<b>3,317</b>	<b>3,475</b>	<b>3,856</b>	<b>4,127</b>
NUMBER OF CONSUMERS					
1 Domestic	305,527	318,955	332,861	347,640	364,376
2 Commercial	54,843	58,345	62,012	65,551	68,877
3 Industry	2,653	2,706	2,799	2,870	2,971
4 Public Lighting	3,357	3,710	3,918	4,117	4,302
5 Mining	-	-	-	-	-
<b>Total</b>	<b>366,380</b>	<b>383,716</b>	<b>401,590</b>	<b>420,178</b>	<b>440,526</b>
GENERATION MIX (GWh)					
TYPES OF FUEL					
1 Hydro	547	538	489	393	482
2 Natural Gas	591	664	675	530	260
3 Coal	-	-	-	-	-
4 Oil	159	123	123	159	173
5 Diesel	311	307	202	235	263
<b>Total</b>	<b>1,608</b>	<b>1,632</b>	<b>1,489</b>	<b>1,317</b>	<b>1,178</b>
INSTALLED GENERATION CAPACITY (MW)					
1 Hydro	74	74	74	74	74
2 Natural Gas	106	106	107	162	101
3 Coal	-	-	-	-	-
4 Oil	108	81	79	90	80
5 Diesel	88	97	97	163	120
<b>Total</b>	<b>376</b>	<b>358</b>	<b>357</b>	<b>489</b>	<b>375</b>
OVERALL AVAILABILITY (%)					
Overall Availability (%)	85.20	82.90	73.30	64.90	57.00
COST OF GENERATION (sen/kWh)					
1 Own Generation	12.90	12.20	12.80	15.23	17.42
2 Energy Purchased	20.40	20.60	17.80	16.44	22.33
3 Overall Cost	16.90 <sup>2</sup>	17.00	16.00	16.15	21.21

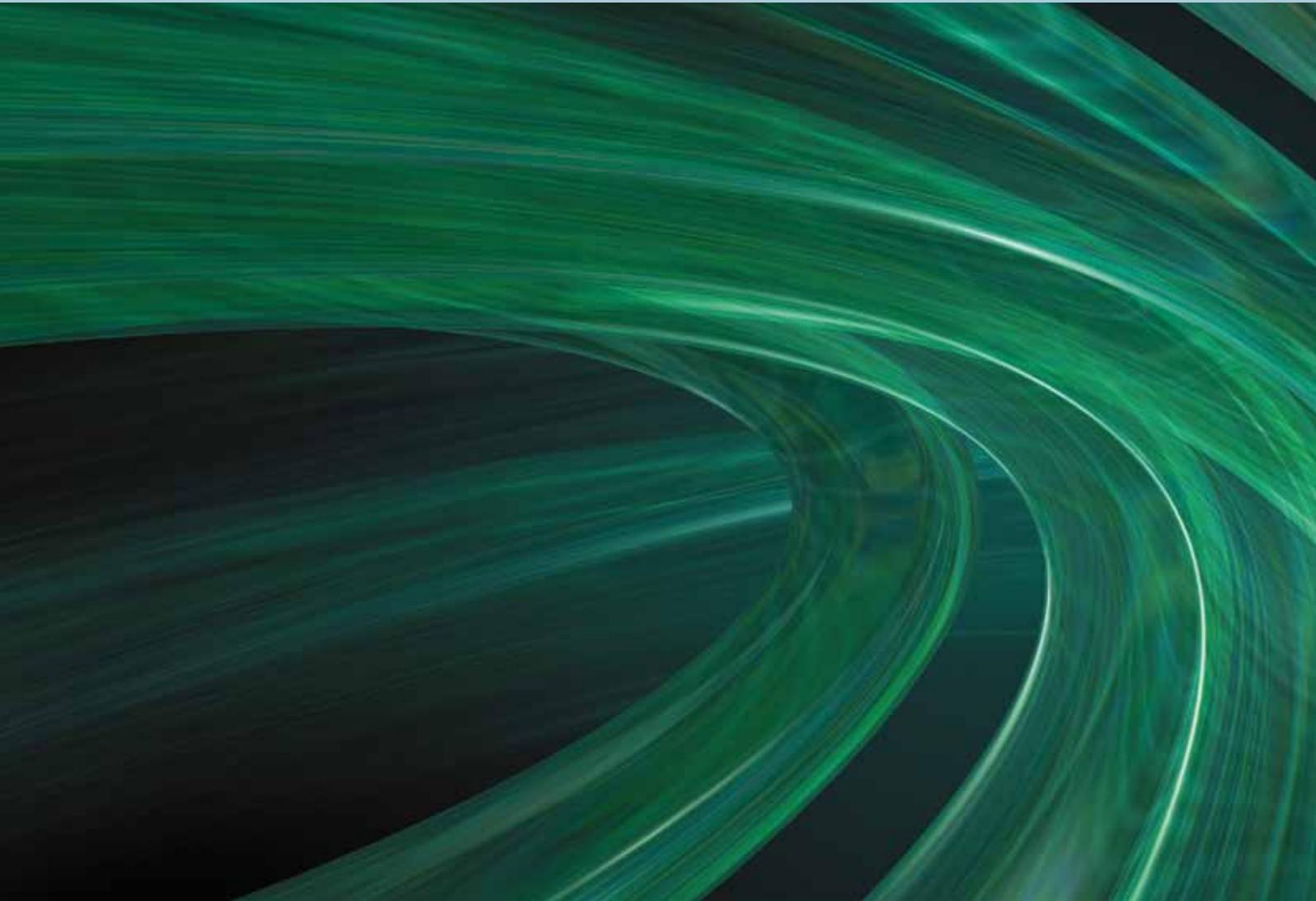
TRANSMISSION LINE CAPACITY					
	2006	2007	2008	2009	2010
<b>1 Transmission Lines/Cables (km)</b>					
i. 500 KV	-	-	-	-	-
ii. 275 KV	640	492	492	492	492
iii. 132 KV	927	1,587	1,672	1,674	1,721
iv. 66 KV	123	123	123	123	123
<b>2 Transmission Substation</b>					
i. Number of Substation	30	34	34	36	39
ii. Substation Capacity (MVA)	2,299	3,603	3,793	3,913	4,517
<b>3 Performance</b>					
i. Number of Tripping Incidents	36	136	12	18	26
ii. Unsupplied Energy (MWh)	866	763	162	318	513
DISTRIBUTION SYSTEM CAPACITY					
<b>1 Distribution System Lines/Cables (km)</b>					
i. Overhead Lines <sup>3</sup>	5,180	5,893	6,431	7,420	7,490
ii. Underground Cables <sup>3</sup>	468	623	762	1,035	1,418
<b>2 Distribution Substations</b>					
i. Number of Substation	4,929	5,008	5,214	5,614	5,815
ii. Substation Capacity (MVA)	3,852	3,937	4,179	4,235	4,618
<b>3 Performance</b>					
i. Number of Supply Interruption	25,778	23,590	21,911	24,969	24,169

Financial Year 2009/10  
Source : Sabah Electricity Sdn. Bhd.

Note :

<sup>2</sup> Low Total Generation Cost from 2006 to 2009 due to subsidised fuel prices

<sup>3</sup> Distribution system lines/cables only at 33kV and 11 kV



## STATISTICS OF SYARIKAT SESCO BERHAD (SESCO)

## STATISTICS OF SYARIKAT SESCO BERHAD (SESCO)

		PERFORMANCE HIGHLIGHT				
		2006	2007	2008	2009	2010
1	Maximum Demand (MW)	773	834	860	996	1,091
2	Total Unit Generated (GWh)	2,319	2,552	2,555	2,234	2,321
3	Total Unit Sold (GWh)	4,045	4,272	4,421	4,540	5,728
4	Sales of Electricity (RM million)	1,090	1,216	1,289	1,342	1,518
5	Installed Generation Capacity (MW) <sup>1</sup>	547	549	546	530	530
6	Number of Employee	2,037	2,054	2,143	2,212	2,242
7	Sales of Electricity per Employee (RM million/Employee)	0.54	0.59	0.60	0.61	0.68
8	Unit Sold per Employee (GWh/Employee)	1.99	2.08	2.06	2.05	2.55
9	Installed Capacity per Employee (MW/Employee)	0.27	0.27	0.25	0.24	0.24
10	Total Unit Purchased (GWh)	2,537	2,639	2,851	3,643	4,672
11	Total Unit Exported (GWh)	-	-	-	-	-
12	Total Unit Imported (GWh)	-	-	-	-	-

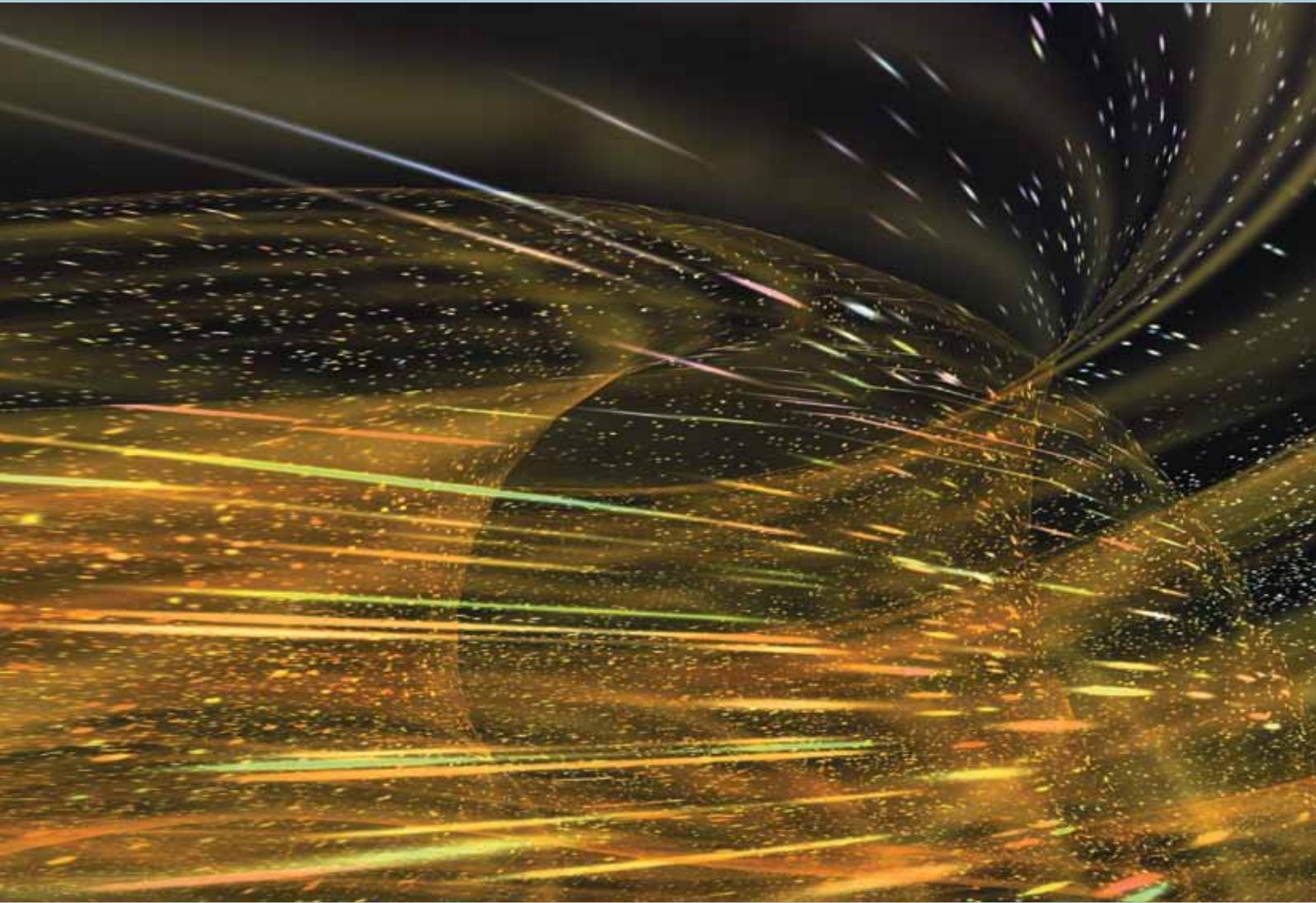
Note :

<sup>1</sup> Installed Generation Capacity SESCO not including IPP Sarawak

SALES OF ELECTRICITY (GWh)					
SECTOR	2006	2007	2008	2009	2010
1 Domestic	1,040	1,098	1,132	1,249	1,335
2 Commercial	1,324	1,421	1,497	1,623	1,735
3 Industry	1,627	1,691	1,726	1,606	2,593
4 Public Lighting	54	62	66	62	64
5 Mining	-	-	-	-	-
<b>Total</b>	<b>4,045</b>	<b>4,272</b>	<b>4,421</b>	<b>4,540</b>	<b>5,728</b>
NUMBER OF CONSUMERS					
1 Domestic	364,586	376,137	391,875	406,119	424,550
2 Commercial	62,399	64,787	67,480	70,040	72,921
3 Industry	882	889	900	905	923
4 Public Lighting	5,534	5,937	6,149	6,507	6,811
5 Mining	-	-	-	-	-
<b>Total</b>	<b>433,401</b>	<b>447,750</b>	<b>466,404</b>	<b>483,571</b>	<b>505,205</b>
GENERATION MIX (GWh)					
TYPES OF FUEL					
1 Hydro	363	428	527	461	542
2 Natural Gas	1,665	1,790	1,672	1,479	1,516
3 Coal	-	-	-	-	-
4 Oil	-	-	-	-	-
5 Diesel	291	334	356	294	263
<b>Total</b>	<b>2,319</b>	<b>2,552</b>	<b>2,555</b>	<b>2,234</b>	<b>2,321</b>
INSTALLED GENERATION CAPACITY (MW)					
1 Hydro	101	101	101	101	101
2 Natural Gas	271	271	271	271	271
3 Coal	-	-	-	-	-
4 Oil	-	-	-	-	-
5 Diesel	175	177	174	158	158
<b>Total</b>	<b>547</b>	<b>549</b>	<b>546</b>	<b>530</b>	<b>530</b>
OVERALL AVAILABILITY (%)					
Overall Availability (%)	N/A	N/A	N/A	N/A	N/A
COST OF GENERATION (sen/kWh)					
1 Own Generation	16.6	14.9	19.2	15.6	14.6
2 Energy Purchased	12.7	12.5	13.6	15.4	14.2
3 Overall Cost	14.6	13.6	16.2	15.5	14.3

TRANSMISSION LINE CAPACITY					
	2006	2007	2008	2009	2010
<b>1 Transmission Lines/Cables (km)</b>					
i. 500 KV	-	-	-	-	-
ii. 275 KV	765	765	765	765	765
iii. 132 KV	138	138	138	225	225
iv. 66 KV	-	-	-	-	-
<b>2 Transmission Substation</b>					
i. Number of Substation	21	20	22	23	24
ii. Substation Capacity (MVA)	4,166	4,166	4,726	4,806	4,886
<b>3 Performance</b>					
i. Number of Tripping Incidents	9	1	9	4	7
ii. Unsupplied Energy (MWh)	289	9.6	661.7	56.7	191.1
DISTRIBUTION SYSTEM CAPACITY					
<b>1 Distribution System Lines/Cables (km)</b>					
i. Overhead Lines	17,002	17,126	18,565	19,147	19,803
ii. Underground Cable	4,753	5,040	5,422	5,709	6,087
<b>2 Distribution Substations</b>					
i. Number of Substation	7,588	7,926	8,290	8,500	8,685
ii. Substation Capacity (MVA)	5,295	5,642	6,217	3,218	3,321
<b>3 Performance</b>					
i. Number of Supply Interruption	7,409	7,915	8,124	7,868	8,003

Financial Year 2009/10  
Source : Sarawak Energy Berhad



## STATISTICS OF SELF-GENERATION

## STATISTICS OF SELF GENERATION 2010

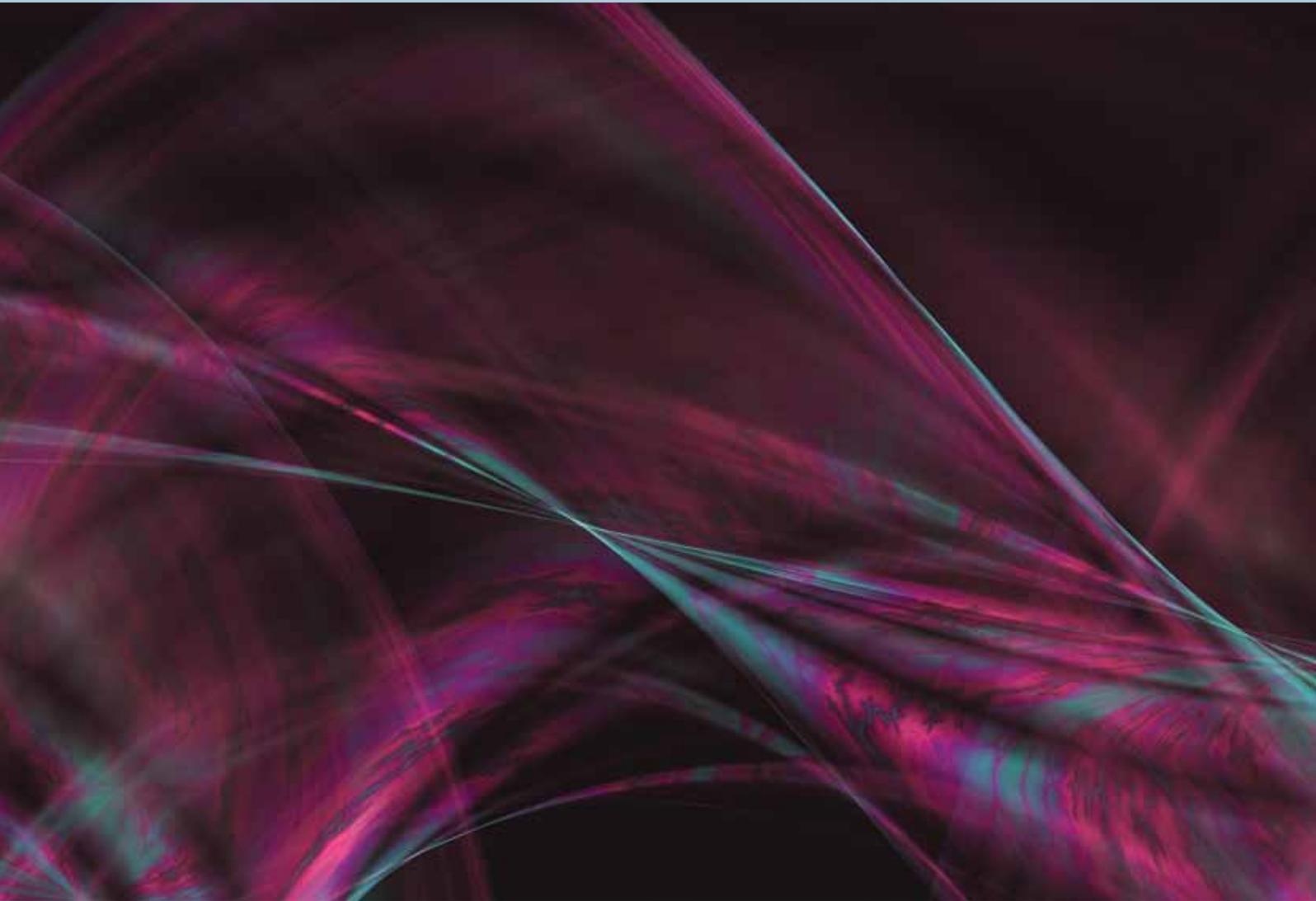
No. of Self-Generation License	1,764				
	Gas	Diesel	Biomass	Others	Total
Installed Capacity (MW)	36	878	454	16	1,384
Unit Generated (MWh)	120,419	786,375	683,237	508	1,590,539

## STATISTICS OF SELF GENERATION 2009

No. of Self-Generation License	1,734				
	Gas	Diesel	Biomass	Others	Total
Installed Capacity (MW)	9	900	446	10	1,365
Unit Generated (MWh)	17,644	896,139	903,975	1,584	1,819,343

Note :

1. Data obtained from Energy Commission Regional Offices include the data of Self-Generation and Co-Generation licences with a capacity of 5 MW and below.
2. The figure for biomass in 2009 are based on the revised figure provided by regional offices.



## **LIST OF INDEPENDENT POWER PRODUCERS (IPPs)**

## LIST OF INDEPENDENT POWER PRODUCERS (IPPs)

No.	Licensee	Type of Plant / Prime Mover	Licensed Capacity (MW)	Unit Generated (GWh)	Unit Sold (GWh)	Date of License Issued
1.	YTL Power Generation Sdn. Bhd. (a) Paka, Terengganu (b) Pasir Gudang, Johor	2x390MW (Combined-Cycle) 1x390MW (Combined-Cycle)	780 390	7,606	6,660	07-04-1993
2.	Genting Sanyen Power Sdn. Bhd. Kuala Langat, Selangor	1x762MW (Combined-Cycle)	762	4,895	4,797	01-07-1993
3.	Segari Energy Ventures Sdn. Bhd. Lumut, Perak	2x651.5MW (Combined-Cycle)	1,303	2,102	2,073	15-07-1993
4.	Powertek Bhd. Alor Gajah, Melaka	4x110MW (Gas Turbine)	440	22	22	01-12-1993
5.	Port Dickson Power Bhd. Tanjung Gemuk, Port Dickson	4x110MW (Gas Turbine)	440	45	45	01-12-1993
6.	ARL Tenaga Sdn. Bhd. Melawa, Sabah	4x12.5MW (Diesel Engine)	50	94	88	14-06-1994
7.	Musteq Hydro Sdn. Bhd. Sg. Kenerong, Kelantan	2x10MW (Mini Hydro)	20	101	101	18-11-1994
8.	Serudong Power Sdn. Bhd. Tawau, Sabah	3x12MW (Diesel Engine)	36	241	227	01-04-1995
9.	Stratavest Sdn. Bhd. Sandakan, Sabah	4x15MW (Diesel Engine)	60	291	281	01-10-1996
10.	Sandakan Power Corporation Sdn. Bhd., Sandakan, Sabah	4x8.5MW (Diesel Engine)	34	175	168	29-11-1997
11.	TNB Janamanjung Sdn. Bhd. <sup>1</sup>	3x700MW (Coal)	2,100	15,144	13,961	21-05-1998
12.	Teknologi Tenaga Perlis Consortium Sdn. Bhd., Kuala Sungai Baru, Perlis	1x650MW (Combined Cycle)	650	4,983	4,906	26-08-1998
13.	Nur Generation Sdn. Bhd. Kulim High-Tech Industrial Park, Kedah	2x220MW (Combined Cycle)	440	1,143	1,114	17-09-1998
14.	Pahlawan Power Sdn. Bhd. Stesen Janakuasa Melaka, Tanjung Keling, Melaka.	1x334MW (Combined Cycle)	334	1,786	1,757	26-05-1999
15.	Prai Power Sdn. Bhd. Daerah Seberang Perai Tengah, Pulau Pinang	1x350MW (Combined Cycle)	350	2,108	2,059	20-02-2001
16.	GB3 Sdn. Bhd., Lumut, Perak	1x640MW (Combined Cycle)	640	3,182	3,110	07-08-2001
17.	Panglima Power Sdn. Bhd. Alor Gajah, Melaka	1x720MW (Combined Cycle)	720	4,880	4,784	07-08-2001
18.	Tanjung Bin Power Sdn. Bhd. Tanjung Bin, Mukim Serkat, Daerah Pontian, Johor	3x700MW (Coal)	2,100	13,969	13,264	26-09-2003
19.	Kapar Energy Ventures Sdn. Bhd. Mukim Kapar, Daerah Klang Selangor	2x300MW (Thermal) 2x300MW 2x500MW (Coal) 2x110MW (Gas Turbine)	2,420	9,375	8,708	01-07-2004
20.	Jimah Energy Ventures Sdn. Bhd. Mukim Jimah, Port Dickson, Negeri Sembilan	2x700MW (Coal)	1,400	7,732	7,271	22-03-2005

No.	Licensee	Type of Plant / Prime Mover	Licensed Capacity (MW)	Unit Generated (GWh)	Unit Sold (GWh)	Date of License Issued
21.	Sepangar Bay Corporation Sdn. Bhd. Kota Kinabalu Industrial Park Kota Kinabalu, Sabah	1x100MW (Combined Cycle)	100	743	719	18-05-2006
22.	Ranhill Powertron Sdn. Bhd. Karambunai, Sabah	2x95MW (Combined Cycle)	190	1,368	1,329	13-06-2006
23.	Ranhill Powertron II Sdn. Bhd. <sup>2</sup> Lot 35 (IZ4), Kota Kinabalu Industrial Park, Kota Kinabalu, Sabah	190MW (Combined Cycle)	190	584	584	11-09-2009
24.	Sejingkat Power Corporation Sdn. Bhd. Kuching, Sarawak <sup>3</sup>	100MW (Coal)	100	726	643	N/A
25.	Sarawak Power Generation Sdn. Bhd. Bintulu, Sarawak <sup>3</sup>	337MW (Combined Cycle)	337	1,844	1,806	N/A
26.	PPLS Power Generation Sdn. Bhd.	110MW (Coal)	110	786	718	N/A
27.	Mukah Power Generation Sdn. Bhd.	270MW (Coal)	270	1,669	1,507	N/A

Note :

<sup>1</sup> Wholly Owned Subsidiaries of TNB

<sup>2</sup> Ranhill Powertron II: GT1 (65 MW) & GT2 (65 MW) have been commissioned. The station will be fully operated in March 2011

<sup>3</sup> Wholly Owned Subsidiaries of SESCO



## **SMALL RENEWABLE ENERGY POWER PROGRAMME (SREP)**

## LIST OF SMALL RENEWABLE ENERGY POWER PROGRAMME (SREP)

No.	Licensee & Location	Type of Plant / Prime Mover	Licensed Capacity (MW)	Source	Unit Generated (MWh)	Unit Sold (MWh)	Date of License Issued
1.	<b>Jana Landfill Sdn. Bhd.</b> Air Hitam Sanitary Landfill, Seri Kembangan, Selangor.	Gas Turbine	2.0	Landfill Gas	948.9	948.9	13-10-2001
2.	<b>TSH Bio Energy Sdn. Bhd.</b> Km 65, Jalan Tawau-Kunak Tawau, Sabah.	Steam Turbine	14.0	Palm Waste	79,246	65,440	14-10-2003
3.	<b>Alaf Ekspresi Sdn. Bhd.</b> Km 35, Locked Bag 28 Borneo Samudra 91009 Tawau, Sabah.	Steam Turbine	8.4	Palm Waste	N/A	N/A	14-10-2003 Revocation of license on 9/7/2010
4.	<b>Naluri Ventures Sdn. Bhd.</b> Kaw Perindustrian Pasir Gudang, 81700 Pasir Gudang, Johor.	Steam Turbine	11.5	Palm Waste	N/A	N/A	17-03-2005 Revocation of license on 9/7/2010
5.	<b>Seguntor Bioenergy Sdn. Bhd.</b> Mukim Seguntor 90736 Sandakan, Sabah.	Steam Turbine	11.5	Empty Fruit Bunch	67,543	54,603	30-11-2007
6.	<b>Kina Biopower Sdn. Bhd.</b> Lot 16359, Mukim Seguntor 90736 Sandakan, Sabah.	Steam Turbine	11.5	Empty Fruit Bunch	67,570	56,481	30-11-2007
7.	<b>Recycle Energy Sdn. Bhd.</b> Lot 3041 & 3042 Mukim Semenyih, Kajang Selangor.	Steam Turbine	8.9	Municipal Waste	7,032	3,427	11-12-2007
8.	<b>Syarikat Esajadi Power Sdn. Bhd.</b> Sungai Pangpuyan, Kota Marudu, Sabah.	Mini Hydro	4.5	Water	*	*	31-03-2008
9.	<b>Syarikat Esajadi Power Sdn. Bhd.</b> Sungai Kaingaran, Tambunan, Sabah.	Mini Hydro	2.5	Water	*	*	31-03-2008
10.	<b>Syarikat Esajadi Power Sdn. Bhd.</b> Sungai Kadamaian, Kota Belud, Sabah.	Mini Hydro	2.0	Water	2,100	2,100	31-03-2008
11.	<b>MHES Asia Sdn. Bhd.</b> Mukim Serting Ilir, Jempol, Negeri Sembilan.	Steam Turbine	13.0	Palm Waste	*	*	05-05-2008
12.	<b>Sunquest Sdn. Bhd.</b> Lot 227, Mukim Jimah Daerah Port Dickson, Negeri Sembilan.	Steam Turbine	6.5	Palm Waste	*	*	16-10-2008
13.	<b>AMDB Perting Hydro Sdn. Bhd.</b> Mukim Bentong II, Daerah Bentong, Pahang.	Mini Hydro	4.2	Water	27,754	27,754	25-02-2009
14.	<b>I.S.Energy Sdn. Bhd.</b> Sungai Rek, Daerah Kuala Krai, Kelantan.	Mini Hydro	2.8	Water	*	*	14-05-2009

No.	Licensee & Location	Type of Plant / Prime Mover	Licensed Capacity (MW)	Source	Unit Generated (MWh)	Unit Sold (MWh)	Date of License Issued
15.	<b>Renewable Power Sdn. Bhd.</b> Kompartmen 52 & 53 Hutan Simpan Gading, Mukim Kerling, Daerah Hulu Selangor, Selangor.	Mini Hydro	2.2	Water	5,441	4,576	14-09-2009
16.	<b>Bell Eco Power Sdn. Bhd.</b> Lot No. 4960, Parit Ju Mukim Simpang Kiri, Daerah Batu Pahat, Johor.	Gas Turbine	2.0	Palm Oil Mill Effluent	1,436	1,195	05-10-2009
17.	<b>Achi Jaya Plantations Sdn. Bhd.</b> Lot 682 dan 1066 Mukim Chaah Derah Segamat, Johor.	Biogas	1.25	Palm Oil Mill Effluent	N/A	N/A	02-03-2010
18.	<b>Pesaka Technologies Sdn. Bhd.</b> Sungai Brooke, Mukim Loging Gua Musang, Kelantan.	Mini Hydro	11.44	Water	*	*	30-09-2010

Note :

\*Not in operation

## STATISTICS OF APPROVED PROJECTS BY SCORE IN 2010

No.	Source	Application Approved	Generation Capacity (MW)	Grid Connected Capacity (MW)	% Grid Connected
1.	Biomass				
	Empty Fruit Bunch	1	12.0	10.0	27
	Wood Waste	1	6.0	5.0	14
	Paddy Husk	-	-	-	-
	Municipal Solid Waste	-	-	-	-
2.	Landfill Gas	-	-	-	-
3.	Biogas	-	-	-	-
4.	Mini Hydro	2	23.0	22	59
5.	Wind & Solar	-	-	-	-
<b>Total</b>		<b>4</b>	<b>41.0</b>	<b>36.9</b>	<b>100</b>



## **LIST OF ELECTRICITY DISTRIBUTORS**

## LIST OF ELECTRICITY DISTRIBUTORS

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
1.	<b>C3 Power Sdn. Bhd.</b> Block F, Lot 51, Ground Floor, Jati Commercial Centre, P.O. Box 80737, 87017 F.T. Labuan, Sabah. Tel : 087 - 411 175 Fax : 087 - 419 731	Temporary settlement in some areas in W. Persekutuan Labuan, Daerah Kota Kinabalu and Sandakan.	5.85	15-03-1995
2.	<b>Gas District Cooling (KLIA) Sdn. Bhd.</b> Jalan KLIA S5 (KLIA Selatan), Southern Support Zone 64000 KLIA, Sepang, Selangor. Tel : 03 - 8787 4326 Fax : 03 - 8787 4282	Kuala Lumpur International Airport Daerah Sepang, Selangor.	60.00 *	01-01-1996
3.	<b>Port Klang Authority</b> Beg Berkunci 202, Jalan Pelabuhan Utara, 42005 Pelabuhan Klang, Selangor. Tel : 03 - 3168 8211 Fax : 03 - 3167 0211 / 3168 9117	Kelang Port Authority Premis Jalan Pelabuhan, 42005 Port Klang, Selangor.	5.80	25-03-1997
4.	<b>Pengkalan Bekalan Kemaman Sdn. Bhd.</b> P.O Box 64, Kemaman Supply Base, 24007 Kemaman, Terengganu. Tel : 09 - 863 1566 Fax : 09 - 863 1716	Kawasan Pangkalan Bekalan Kemaman Kemaman, Terengganu.	3.31	01-12-1997
5.	<b>Malaysia Airports (Sepang) Sdn. Bhd.</b> 3 <sup>rd</sup> & 4 <sup>th</sup> Floor, Airport Management Centre, KL International Airport, 64000 KLIA, Selangor. Tel : 03 - 8776 2000 Fax : 03 - 8926 5510 / 8926 5209	Kuala Lumpur International Airport	46.00	14-02-1998
6.	<b>Petronas Gas Bhd.</b> Centralized Utility Facilities(CUF) Integrated Petrochemical Complex, KM 105 Jalan Kuantan/Kuala Terengganu, 24300 Kertih, Kemaman, Terengganu Tel : 09 - 830 5000 Fax : 09 - 830 5514	Petrochemical Complex Kerteh Industrial Area, Terengganu.	210.00 *	28-05-1998
7.	<b>Petronas Gas Bhd.</b> Centralized Utility Facilities(CUF) Integrated Petrochemical Complex, Lot 139A Gebeng Industrial Area, Phase III, 26080 Kuantan, Pahang. Tel : 09 - 583 6200 Fax : 09 - 583 9949	Petrochemical Complex Gebeng Industrial Area Pahang.	105.00*	28-05-1998

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
8.	<b>K.K.I.P. Power Sdn. Bhd.</b> Lot A7, Salut Commercial Centre Kota Kinabalu Industrial Park, Jalan Politeknik, 88460 Kota Kinabalu, Sabah. Tel : 088 - 471 801 / 471 802 Fax : 088 - 498 177	Kota Kinabalu Industrial Park (KKIP), Sabah.	210	15-06-1998
9.	<b>NUR Distribution Sdn. Bhd.</b> (Receivers and Managers Appointed) Central Control Building (CCB), Lot 30, Jalan Hi-Tech 4, Kulim Hi-Tech Park, 09000 Kulim, Kedah. Tel : 04 - 401 0100 Fax : 04 - 401 0344 / 401 0319	Kulim Hi-Tech Industrial Park, Kedah.	440.00	17-09-1998
10.	<b>Gas District Cooling (KLCC) Sdn. Bhd.</b> Level 1, Bangunan DCCI, Persiaran KLCC Off Jalan, Ampang, 50088 Kuala Lumpur. Tel : 03 - 2380 5660 Fax : 03 - 2381 7086	Bangunan DCC 1 / DCC 2 KLCC DCS/Co Generation Plant Persiaran KLCC, Jalan Ampang, 50088 Kuala Lumpur.	40.00 *	30-08-2000
11.	<b>Jaya Jusco Stores Sdn. Bhd.</b> Jusco Taman Maluri, Shopping Centre, 1 <sup>st</sup> Floor, Jalan Jejaka, Taman Maluri, Cheras, 55100 Kuala Lumpur. Tel : 03 - 9285 5222 Fax : 03 - 9285 9999	Lot 33, 2386, 2595, 2596 dan 2388, Jalan Jejaka, Taman Maluri, Cheras, Seksyen 90A, Kuala Lumpur.	3.40	2-10-2000
12.	<b>Genting Utilities &amp; Services Sdn. Bhd.</b> Tingkat 24, Wisma Genting, Jalan Sultan Ismail, 50250 Kuala Lumpur. Tel : 03 - 2161 2288 Fax : 03 - 2161 5304	Genting Highlands Area, Negeri Pahang/Selangor.	48.00	17-10-2000
13.	<b>TCL Industries (Malaysia) Sdn. Bhd.</b> Plot No: 4248, Teluk Kalong Industrial Estate, 24007 Kemaman, Terengganu. Tel : 09 - 863 3029 Fax : 09 - 863 3085	Plot No. 4248 Telok Kalong Industrial Estate, 24007 Kemaman, Terengganu.	7.00 *	15-09-2003
14.	<b>Ikano Corporation Sdn. Bhd.</b> No. 2, Jalan PJU 7/2, Mutiara Damansara, 47800 Petaling Jaya, Selangor. Tel : 03 - 7726 9999 Fax : 03 - 7726 6277	Lot PT 400038, Mutiara Damansara, 47800 Petaling Jaya, Selangor.	7.936	23-12-2003
15.	<b>Jaya Jusco Stores Berhad</b> Jusco Taman University Shopping Centre, No. 4, Jalan Pendidikan, Taman University, 81300 Skudai, Johor. Tel : 07 - 520 8700 Fax : 07 - 521 3000	PTD 62861, Jalan Pendidikan, Taman Universiti, Mukim Pulau, Daerah Johor Bahru, Johor.	3.11	28-02-2004

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
16.	<b>Institute of Technology Petronas Sdn. Bhd.</b> Bandar Seri Iskandar, 31750 Tronoh, Perak. Tel : 05 - 368 8000 Fax : 05 - 365 4075	Kampus Universiti Teknologi Petronas, Tronoh, Perak.	8.40 *	26-01-2006
17.	<b>Eng Lian Enterprise Sdn. Bhd.</b> 9, Jalan Ampang #05-00, 50450 Kuala Lumpur. Tel : 03 - 2056 0600 Fax : 03 - 2056 0700	Lot 51533, Mukim Kuala Lumpur, Kuala Lumpur.	2.29	01-03-2006
18.	<b>AEON Co. (M) Bhd.</b> Jusco Metro Prima Shopping Centre, 1 <sup>st</sup> . Floor, No. 1, Jalan Metro Prima, 52100 Kepong, Kuala Lumpur. Tel : 03 - 6259 1122 Fax : 03 - 6259 2805	Lot 20954, Mukim Batu, Kuala Lumpur.	4.83	15-3-2006
19.	<b>Fawanis Sdn. Bhd.</b> 13 <sup>th</sup> Floor, Wisma Denmark, 86, Jalan Ampang, 50450 Kuala Lumpur. Tel : 03 - 2032 2111 Fax : 03 - 2078 4679	Queen's Park Retail Centre, Lot 392, Batu 2 - 2 ½, Jalan Cheras, Kuala Lumpur.	0.94	11-5-2006
20.	<b>Evergreen Intermerge Sdn. Bhd.</b> 318, Teck Guan Regency, Jalan St Patrick, Off Jalan Belunu, P.O. Box No. 33, 91007 Tawau, Sabah. Tel : 089 - 772 275 Fax : 089 - 769 955	Cacao Paramount Sdn. Bhd. Lot CL 1053 23797, Km 3 Tanjung Batu Laut, Tawau, Sabah.	6.00 **	10-10-2006
21.	<b>Seo Energy Sdn. Bhd.</b> KM 8, Jalan Batu Sapi, Karamunting, P.O. Box 2605, 90729 Sandakan, Sabah. Tel : 089 - 611 011 / 611 012 Fax : 089 - 611 014	Sandakan Edible Oils Sdn. Bhd. KM 8, Jalan Batu Sapi, Karamunting, Sandakan, Sabah.	1.20 **	10-10-2006
22.	<b>Wirazone Sdn. Bhd.</b> Level 13A, Block 3B, Plaza Sentral, Jalan Stesen Sentral 5, 50470 Kuala Lumpur. Tel : 03 - 2263 3388 Fax : 03 - 2263 3366	Kaw. Pembangunan Kuala Lumpur Sentral, Kuala Lumpur.	100.00	15-10-2006
23.	<b>Sunway Carnival Sdn. Bhd.</b> No. 1, Persiaran Mahsuri, 1/3, Sunway Tunas, 11900 Bayan Lepas, Pulau Pinang. Tel : 04 - 643 9898 Fax : 04 - 644 1313	Lot 5497, 5498 dan 5499, Daerah Seberang Perai Tengah, Pulau Pinang.	5.00	01-11-2006
24.	<b>Asian Supply Base Sdn. Bhd.</b> Ranca-Ranca Industrial Estate, P.O. Box 80751, 87017 Labuan F.T., Sabah. Tel : 087 - 411 611 Fax : 087 - 415 477	Asian Supply Base, Lot 206291581, Daerah Labuan, Wilayah Persekutuan Labuan, Sabah.	12.00	13-11-2006

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
25.	<b>ASM Properties Sdn. Bhd.</b> Level 21, Maju Tower, 1001 Jalan Sultan Ismail, 50250 Kuala Lumpur. Tel : 03 - 2772 8500 Fax : 02 - 2772 8501	Maju Junction Mall Lot PT 19, Seksyen 46, Kuala Lumpur.	10.80	24-11-2006
26.	<b>Profound Heritage Sdn. Bhd.</b> 1 <sup>st</sup> Floor, Lorong Grace Square, Jalan Pantai Sembulan, 88100 Kota Kinabalu, Sabah. Tel : 088 - 318 801 / 318 802 Fax : 088 - 233 362	Sutera Harbour Resort Lot2, LA. 93010260, Kota Kinabalu, Sabah.	38.00 *	1-10-2006
27.	<b>Lembaga Tabung Haji</b> Tingkat 7, Bangunan TH Perdana, 1001, Jalan Sultan Ismail, 50250 Kuala Lumpur. Tel : 03 - 2781 9020 Fax : 03 - 2781 9023	Menara TH Perdana Lot 101, Mukim Kuala Lumpur, Kuala Lumpur.	3.00	29-12-2006
28.	<b>Bio Fuel Asia Sdn. Bhd.</b> d/a TSH-Wilmar (BF) Sdn. Bhd., TB9, KM 7 Apas Road, TSH Industrial Estate, 91000 Tawau, Sabah. Tel : 089 - 912 020 / 911 056 Fax : 089 - 913 000	TSH Edible Oils Sdn. Bhd. PL 26166110 & 246290228, Kunak, Lahad Datu, Sabah.	10.00	29-12-2006
29.	<b>AEON Co. (M) Bhd.</b> AEON Cheras Selatan Shopping Centre, Aras 1, Lebuhraya Tun Hussien Onn, 43200 Balakong, Selangor. Tel : 03 - 9080 3498 Fax : 03 - 9080 3598	AEON Cheras Selatan Shopping Centre PT 41977 (Sebahagian Lot 2225), Mukim Cheras, Daerah Hulu Langat, Selangor.	8.16	05-02-2007
30.	<b>Bahagaya Sdn. Bhd.</b> TB 4327, Block 31, 2 <sup>nd</sup> Floor, Fajar Complex, Jalan Haji Karim, 91000 Tawau, Sabah. Tel : 089 - 757 911 Fax : 089 - 761 022	Rajang Plywood (Sabah) Sdn. Bhd. CLS 105486762, 105486771 dan PT2000100538 Sungai Umas, Umas, Mukim Merotai, Tawau 91000 Sabah.	3.00	07-03-2007
31.	<b>Urusharta Cemerlang Sdn. Bhd.</b> Level 10 Pavilion Kuala Lumpur, 168, Jalan Bukit Bintang, 55100 Kuala Lumpur. Tel : 03 - 2118 8888 / 23118 8880 Fax : 03 - 2118 8889 / 8911	Pavilion Kuala Lumpur Lot 174, 185, 187, 188, 281, (Lot Baru : 332) dan 260, Jalan Bukit Bintang/Jalan Raja Chulan, Seksyen 67, Kuala Lumpur.	22.10	14-03-2007
32.	<b>AEON Co. (M) Bhd.</b> Jusco Seremban 2 Shopping Centre, 112, Persiaran S2 B1, Seremban 2, 70300 Seremban, Negeri Sembilan. Tel : 06 - 601 5643 Fax : 06 - 601 5645	AEON Seremban 2 Lot PT 10787 HS(D) 97966 & PT 10790 HS(D) 97969, Mukim Rasah, Daerah Seremban, Negeri Sembilan.	7.05	30-03-2007

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
33.	<b>Mid Valley City Energy Sdn. Bhd.</b> Level 32, The Gardens South Tower, Mid Valley City, Lingkar Syed Putra, 59200 Kuala Lumpur. Tel : 03 - 2289 8302 Fax : 03 - 2938 3230 / 2289 8981	The Gardens (Phase 2), Lot PT13, Mukim Kuala Lumpur, Daerah Kuala Lumpur, 59200 Wilayah Persekutuan.	40.00	03-05-2007
34.	<b>Bandar Utama City Corporation Sdn. Bhd.</b> 1, Persiaran Bandar Utama, 47800 Petaling Jaya, Selangor. Tel : 03 - 7728 8878 Fax : 03 - 7728 9978	Kawasan Pembangunan Bandar Utama Lot PT 37649, 37650, 17970-17974, 17976 dan 15366, Mukim Sungai Buloh, PT 18 dan 17968 Bandar Petaling Jaya dan PT 22, 23, 44, 45, 83, Lot 27657- 27659, 27962, 27669, 27671, 27673- 27676, 27679, 27680 Seksyen 39, Bandar Petaling Jaya, Daerah Petaling, 47800 Selangor.	100.00	10-05-2007
35.	<b>Perbadanan Memajukan Iktisad Negeri Terengganu</b> Tingkat 14, Menara Permint, Jalan Sultan Ismail, 20200 Kuala Terengganu, Terengganu. Tel : 09 - 627 8000 Fax : 09 - 623 3880	Pulau Kapas, Mukim Rusila, Daerah Marang, 21600 Terengganu.	0.45 &	01-06-2007
36.	<b>Fusion Energy Sdn. Bhd.</b> Lot 2319, Kaw. Perindustrian Olak Lempit, Mukim Tanjung 12, 42700 Banting, Selangor. Tel : 03 - 3182 2000 Fax : 03 - 3182 2382 / 3182 2279	Lion Group Complex, Lot 2319, 2320, 2321, 2323, 2582, 2823 dan 2824, Mukim Tanjung Dua Belas, Daerah Kuala Langat, 42700 Selangor.	418.00 #	12-06-2007
37.	<b>Petronas Methanol (Labuan) Sdn. Bhd.</b> Kawasan Perindustrian Ranca-Ranca, P.O. Box No. 80079, 87010 Wilayah Persekutuan, Labuan. Tel : 087 - 411 211 Fax : 088 - 413 921 / 425 831	Kawasan Perindustrian Ranca-Ranca, 87010 Wilayah Persekutuan, Labuan.	41.80	18-07-2007
38.	<b>Eng Lian Enterprise Sdn. Bhd.</b> 9 Jalan Ampang #05-00, 50450 Kuala Lumpur. Tel : 03 - 2056 0600 Fax : 03 - 2056 0700	Bangsar Village II Lot 43872, 43873 dan 43874 Mukim Kuala Lumpur, Daerah Kuala Lumpur, 59100 Wilayah Persekutuan.	3.12	03-09-2007
39.	<b>Y.S. Tang Holdings Sdn. Bhd.</b> 1-888, KB Mall, Jalan Hamzah, 15050 Kota Bharu, Kelantan. Tel : 09 - 747 6622 Fax : 09 - 747 5900	KB Mall, PT 101, Jalan Hamzah, Seksyen 16, Bandar Kota Bharu, 15050 Kelantan.	3.16	18-09-2007
40.	<b>Jurus Kota Sdn. Bhd.</b> 2-888, M Floor, Alor Star Mall, Kawasan Perusahaan Tandop Baru, 05400 Alor Star, Kedah. Tel : 04 - 772 9233 Fax : 04 - 771 2033	Alor Star Mall, Lot 801 & 802 Dalam Kawasan Perniagaan Dan Industri, Kecil Sri Tandop 1, Mukim Pengkalan Kundor, Daerah Kota Setar, Kedah.	3.59	18-09-2007

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
41.	<b>Astral Realty Sdn. Bhd.</b> East Coast Mall, Level 3, Jalan Putra Square 6, Putra Square, 25200 Kuantan, Pahang. Tel : 09 - 560 9595 Fax : 09 - 560 9597	PUTRA Square Lot 423 (PN 5596), Mukim Kuantan, 25000 Kuantan, Pahang.	4.79	10-10-2007
42.	<b>C. S. Khin Developments Sdn. Bhd.</b> 6 <sup>th</sup> Floor, Wisma Mirama, Jalan Wisma Putra, 50460 Kuala Lumpur. Tel : 03 - 2142 1666 Fax : 03 - 2148 1229	Wisma Mirama Lot 888, Section 69, 50460 Kuala Lumpur, Wilayah Persekutuan.	0.85	10-10-2007
43.	<b>Wisma Central Management Corporation</b> Lot 2.142, 1 <sup>st</sup> Floor, Wisma Central, Jalan Ampang, Box #198, 50450 Kuala Lumpur. Tel : 03 - 2161 7522 Fax : 03 - 2161 9721	Wisma Central Geran 10015, Lot 150, Seksyen 58, Bandar Kuala Lumpur, 50450 Wilayah Persekutuan.	2.20	31-10-2007
44.	<b>AEON Co. (M) Bhd.</b> AEON Bukit Tinggi Shopping Centre, Management Office Level 1, No. 1, Persiaran Batu Nilam 1/ks 6, Bandar Bukit Tinggi, 41200 Klang, Selangor. Tel : 03 - 3326 2370 Fax : 03 - 3326 23712	AEON Co. (M) Bhd. Mall Lot PT 2042 HS(D) 105957 dan PT 2043, HS(D) 105958, Mukim Klang, Daerah Klang, Selangor.	12.00	11-12-2007
45.	<b>Tradewinds Properties Sdn. Bhd.</b> 21 <sup>st</sup> Floor, Wisma Zelan, Bandar Tun Razak, Cheras, 56000 Kuala Lumpur. Tel : 03 - 9106 3166 Fax : 03 - 9106 3177	Kompleks Antarabangsa Lot 1158, Seksyen 57, Mukim Bandar Kuala Lumpur, Daerah Kuala Lumpur, 50250 Wilayah Persekutuan.	4.97	11-12-2007
46.	<b>GCH Retail (Malaysia) Sdn. Bhd.</b> Giant Hypermarket Kuala Terengganu Complex Division, Lot PT 1485, Jalan Padang Hiliran, 21100 Kuala Terengganu, Terengganu. Tel : 09 - 631 9220 Fax : 09 - 631 9230	GCH Retail (Malaysia) Sdn. Bhd. Mall HS(D) 5917, PT 1485, Mukim Cabang Tiga, Daerah Kuala Terengganu, 21100 Terengganu.	3.30	09-01-2008
47.	<b>Pusat Tenaga Malaysia</b> No. 2, Jalan 9/10, Persiaran Usahawan, Seksyen 9, 43650 Bandar Baru Bangi, Selangor. Tel : 03 - 8921 0800 Fax : 03 - 8921 0801 / 8921 0802	No. 2, Jalan 9/10, Persiaran Usahawan, Seksyen 9, Bandar Baru Bangi, 43650 Kajang, Selangor.	0.09 &	29-02-2008
48.	<b>Awona Land Sdn. Bhd.</b> Suite 4.09.03, 4 <sup>th</sup> Floor, Central Square, No. 23, Jalan Kampung Baru, 08000 Sungai Petani, Kedah. Tel : 04 - 423 9288 / 423 8288 Fax : 04 - 422 4552	Central Square Shopping Centre Lot 134 HS(D) 759/95, Mukim Sungai Petani, Daerah Kuala Muda, 08000 Kedah.	4.10	14-03-2008

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
49.	<b>AEON Co. (M) Bhd.</b> Jusco Kinta City Shopping Centre No. 2, Jalan The Lean Swee Off Jalan Sultan Azlan Shah Utara, 31400 Ipoh, Perak. Tel : 05 - 548 4668 Fax : 05 - 546 0899	AEON Kinta City Shopping Centre, Lot 51150, Mukim Ulu Kinta, Daerah Kinta, 31400 Ipoh, Perak.	7.65	18-03-2008
50.	<b>Rakyat Holdings Sdn. Bhd.</b> Ground Floor, No. 155, Wisma PERKESO, Jalan Tun Razak, 50400 Kuala Lumpur. Tel : 03 - 2681 6255 Fax : 03 - 2681 9155	Bangunan Angkasa Raya, Lot 149, Seksyen 58, Mukim Kuala Lumpur, Daerah Kuala Lumpur.	2.44	19-03-2008
51.	<b>Menara Hap Seng Sdn. Bhd.</b> 19th Floor, Menara Hap Seng, Letter Box No. 83, Jalan P. Ramlee, 50250 Kuala Lumpur. Tel : 03 - 2145 1363 / 2145 9363 Fax : 03 - 2145 7818	Menara Hap Seng, Lot 593 & 594, Mukim Bandar Kuala Lumpur, Daerah Kuala Lumpur, 50250 Wilayah Persekutuan Kuala Lumpur.	4.82	19-03-2008
52.	<b>1Borneo Management Corporation Sdn. Bhd.</b> G-600A, Ground Floor, 1Borneo Hypermall, Jalan Sulaman, 88400 Kota Kinabalu, Sabah. Tel : 088 - 447 744 Fax : 088 - 447 748	Kompleks Beli-Belah 1Borneo Hypermall, CL 015607057, Mukim Kuala Menggatal, Daerah Kota Kinabalu, 88450 Sabah.	20.00	08-04-2008
53.	<b>GCH Retail (Malaysia) Sdn. Bhd.</b> Giant Hypermarket Kuantan, Lot 5197, Jalan Tanah Putih, Seksyen 124, 25150 Kuantan, Pahang. Tel : 09 - 515 6999 Fax : 09 - 515 6466	Lot 5197 Mukim Kuantan, Daerah Kuantan, 25100 Pahang.	2.96	10-04-2008
54.	<b>AEON Co. (M) Bhd.</b> Aeon Seberang Prai City Shopping Centre, 1 <sup>st</sup> Floor, Management Office Perdana Wawasan Trade Centre, Jalan Perda Timur, 14000 Bukit Mertajam, Seberang Prai Tengah, Pulau Pinang. Tel : 04 - 537 8055 Fax : 04 - 537 9022	Lot H.S.(M): 378 / PT 802, Mukim 6 & 7, Daerah Seberang Perai Tengah, 14000 Pulau Pinang.	14.00	28-04-2008
55.	<b>Malaysia Airline System Berhad</b> 33 <sup>rd</sup> Floor, Bangunan Mas, Jalan Sultan Ismail, 50250 Kuala Lumpur. Tel : 03 - 2161 0555 Fax : 03 - 2161 3472	Kompleks Kampus MAS Lot PT 19, Mukim Dengkil, Daerah Sepang, 64000 Selangor.	25.00	29-04-2008

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
56.	<b>GCH Retail (Malaysia) Sdn. Bhd.</b> Giant Superstore Ulu Klang -Complex Division, Lot 13793 & 13796, Jalan Changkat Permata, Taman Permata, 53300 Kuala Lumpur. Tel : 03 - 4106 2275 / 4105 3194 Fax : 03 - 4106 7414	Lot 13793 dan 13796, Mukim Setapak, Daerah Gombak, 53300 Selangor.	2.68	20-05-2008
57.	<b>Amtrustee Berhad.</b> Amtrustee Bhd. For Hektar Reit, 22 <sup>nd</sup> Floor, Bangunan Ambank Group, 55, Jalan Raja Chulan, 50200 Kuala Lumpur. Tel : 03 - 2078 2633 / 2078 2644 Fax : 03 - 2032 4303	Subang Parade, Lot 14193, Mukim Bandar Subang Jaya, Daerah Petaling, 47500 Selangor.	10.00	07-05-2008
58.	<b>Reliable Capacity Sdn. Bhd.</b> Suite 3.03, Block B, HP Towers, No. 12, Jalan Gelenggang, Bukit Damansara, 50490 Kuala Lumpur. Tel : 03 - 2711 0077 Fax : 03 - 2711 1762	Parcel 1 Perdagangan 'Axis Atrium' No. Lot 27985, Mukim Ampang, Daerah Hulu Langat, Selangor.	3.60	13-06-2008
59.	<b>GCH Retail (Malaysia) Sdn. Bhd.</b> Complex Management Division - Giant Tampoi Lot 54, Jalan Skudai, 81200 Tampoi, Johor Bahru, Johor. Tel : 07 - 238 2353 Fax : 07 - 238 2354	Lot 54, Mukim Tampoi, Daerah Johor Bharu, 81200 Johor.	5.10	08-07-2008
60.	<b>GCH Retail (Malaysia) Sdn. Bhd.</b> (Complex Division - Plentong) 3 Jalan Masai Lama, Mukim Plentong, 81750 Johor Bharu. Tel : 07 - 358 1402 Fax : 07 - 352 6532	Lot P.T.D. 116058 dan 116059 Mukim Plentong, Daerah Johor Bharu, Johor.	4.20	17-07-2008
61.	<b>GCH Retail (Malaysia) Sdn. Bhd.</b> Giant Hypermarket Skudai, Lot 3066 & 3067, Mukim Tebrau, 81200 Johor Bharu, Johor. Tel : 07 - 554 7233 Fax : 07 - 554 7229	Lot 3066 & 3067 Mukim Tebrau, Daerah Johor Bharu, 81200 Johor.	3.70	12-08-2008
62.	<b>Lianbang Ventures Sdn. Bhd.</b> F4-40, Level 4, Dataran Pahlawan Melaka Megamall, Jalan Merdeka, 75000 Bandar Hilir, Melaka. Tel : 06 - 282 1828 Fax : 06 - 283 1827	Dataran Pahlawan Melaka Megamall Lot 14, 141 dan 142, Mukim Kawasan Bandar XXVII, Daerah Melaka Tengah, Melaka.	5.52	29-10-2008
63.	<b>PanGlobal Insurance Berhad</b> Bangunan PanGlobal, No. 1A, Jalan Tandang 204, 46050 Petaling Jaya, Selangor. Tel : 03 - 2078 2090 Fax : 03 - 2072 5534	PanGlobal Building Lot 53 Section 20, Bandar Petaling Jaya, Daerah Petaling Jaya, Selangor.	1.70	24-10-2008

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
64.	<b>GCH Retail (Malaysia) Sdn. Bhd.</b> Giant Mall Kelana Jaya, No. 33, Jalan SS 6/12, SS 6, Kelana Jaya, 47301 Petaling Jaya, Selangor. Tel : 03 - 7880 4714 Fax : 03 - 7803 7858	Giant Mall Kelana Jaya, Lot PT 67 Seksyen 40, Mukim Bandar Petaling Jaya, Daerah Petaling, 47301 Selangor.	6.11	05-11-2008
65.	<b>GCH Retail (Malaysia) Sdn. Bhd.</b> Giant Hypermarket Shah Alam, Lot 2, Persiaran Sukan, Seksyen 13, 40100 Shah Alam, Selangor. Tel : 03 - 5544 8888 / 5511 8530 Fax : 03 - 5511 9681	Lot 2, Seksyen 13, Daerah Shah Alam, Selangor.	4.20	05-11-2008
66.	<b>Dijaya Land Sdn. Bhd.</b> Tropicana City Sdn. Bhd., Management Office, B1-01, basement 1, Tropicana City Mall, 3 Jalan SS20/27, 47400 Petaling Jaya, Selangor. Tel : 03 - 7710 1818 Fax : 03 - 7710 0202	Tropicana City Lot 45821, Mukim Damansara Utama, Daerah Petaling Jaya, Selangor.	11.03	05-11-2008
67.	<b>GCH Retail (Malaysia) Sdn. Bhd.</b> Giant Superstore Sandakan, Lot 3, Jalan IJM Bandar Utama, Batu 6, Off Jalan Utara, 90000 Sandakan, Sabah. Tel : 089 - 214 219 Fax : 089 - 214 207	Lot CL075477584, Mukim Sandakan, Daerah Sandakan, Negeri Sabah.	1.70	17-11-2008
68.	<b>BR Property Holdings Sdn. Bhd.</b> G128 Bangsar Shopping Centre, 285 Jalan Maarof, Bukit Bandar Raya, 59000 Kuala Lumpur. Tel : 03 - 2094 7700 Fax : 03 - 2094 1022	Bangsar Shopping Centre, Lot 41274, Daerah Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur.	8.51	18-11-2008
69.	<b>Dream Property Sdn. Bhd.</b> 2-12, 2 <sup>nd</sup> Floor, Batu Pahat Mall, Jalan Kluang, 83000 Batu Pahat, Johor. Tel : 07 - 433 7733 Fax : 07 - 438 7773	Batu Pahat Mall, Lot 2566, Mukim Simpang Kanan, Daerah Batu Pahat, Johor.	7.35	18-11-2008
70.	<b>AEON Co. (M) Bhd.</b> AEON Bukit Indah Shopping Centre, 1 <sup>st</sup> Floor, Management Office, No. 8, Jalan Indah 15/2 Bukit Indah, 51200 Johor Bahru, Johor. Tel : 07 - 2368 071 Fax : 07 - 2368 076	AEON Nusajaya, LOT PTD 90606, Mukim Pulai, Daerah Johor Bahru, Johor.	8.00	26-11-2008
71.	<b>TESCO Stores (M) Sdn. Bhd.</b> Melaka Branch No. 1 Jalan Tun Abdul Razak, Peringgiti, 74500 Melaka. Tel : 06 - 288 3078 Fax : 06 - 288 2028	Kompleks Perniagaan TESCO Lot 1 PT 1053 dan Lot 2 PT 111, Mukim Peringgiti, Lot 3 PT2 Mukim Town Area XXXII dan Lot 4 PT70, Mukim Town AreaXXXIII, Daerah Melaka Tengah, 75400 Negeri Melaka.	3.01	26-11-2008

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
72.	<b>GCH Retail (Malaysia) Sdn. Bhd.</b> Complex Management, Giant Hypermarket Klang, Lot 83191 & 83192, Persiaran Batu Nilam, Bandar Bukit Tinggi 1, 41200 Klang, Selangor. Tel : 03 - 3323 5518 Fax : 03 - 3323 5863	Lot PT 62366(HSD 63350), PT 62367(HSD 63351) dan PT 75234A (HSD 68651), Mukim Kelang, Daerah Kelang, Selangor.	3.30	03-12-2008
73.	<b>Tanah Sutera Development Sdn. Bhd.</b> No. 2, Jalan Sutera Merah 2, Taman Sutera, 81200 Johor Bharu. Tel : 07 - 289 9009 Fax : 07 - 289 9119	Kompleks Perniagaan Sutera Mall, Lot Sebahagian PTD 67962, Mukim Pulau, Daerah Johor Bharu, Johor.	5.98	03-12-2008
74.	<b>GCH Retail (Malaysia) Sdn. Bhd.</b> Giant Hypermarket Senawang, Lot 1571 Jalan Senawang, 70450 Seremban, Negeri Sembilan. Tel : 06 - 678 0719 / 678 0720 Fax : 06 - 678 2360	Lot PT 1571 HS(D) 133690, Pekan Senawang, Daerah Seremban, Negeri Sembilan.	2.12	03-12-2008
75.	<b>Malaysia Airports Sdn. Bhd.</b> Lapangan Terbang Sultan Ismail Petra, 16100 Kota Bharu, Kelantan. Tel : 09 - 773 7400 Fax : 09 - 773 2852	Kompleks Lapangan Terbang Sultan Ismail Petra Lot 833 (Sek 40), Mukim Pengkalam Chepa, Dan lot 2209 (Sek 39), Mukim Baung, Daerah Kota Bharu, Kelantan.	2.56	19-12-2008
76.	<b>GCH Retail (Malaysia) Sdn. Bhd.</b> Giant Hypermarket Southern City, Ground Floor, Southern City, No. 3, Jalan Suria 19, Taman Suria, 81100 Johor Bahru, Johor. Tel : 07 - 334 7214 Fax : 07 - 334 6762	Lot HS(D)247769 PTB 20274, Daerah Bandar Johor Bahru, Johor.	1.95	14-01-2009
77.	<b>Permodalan Nasional Berhad</b> Building Management Office, 19 <sup>th</sup> Floor, Menara Tun Ismail Mohamed Ali, No. 25, Jalan Raja Laut, 50350 Kuala Lumpur. Tel : 03 - 2694 2213 Fax : 03 - 2691 3791	Menara Tun Ismail Mohamed Ali, Lot 1406, Mukim Bandar Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur.	5.95	04-02-2009
78.	<b>AEON Co. (M) Bhd.</b> Aeon AU2 Shopping Centre (Setiawangsa), No. 6, Jalan Setiawangsa (Jln. 37/56), AU2 Keramat, 54200 Kuala Lumpur. Tel : 03 - 4257 2533 Fax : 03 - 4257 2633	Lot PT 1019 (HSD 83614), Mukim Hulu Kelang, Wilayah Persekutuan Kuala Lumpur.	3.89	16-02-2009
79.	<b>Ivory Gleneary Sdn. Bhd.</b> 77-4B-1, Penang Times Square, Jalan Dato Keramat, 10150 George Town, Penang. Tel : 04 - 210 9020 Fax : 04 - 210 9021	Penang Times Square, Lot 73, 96, 98, 101, 102, 145, 146, 150, 159, 160, 163, 278, 279, 735 hingga 753 dan 767, Seksyen 10, Georgetown, 10150 Pulau Pinang.	15.80	16-02-2009

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
80.	<b>Bronze Towers Sdn. Bhd.</b> No. B 60, 1 <sup>st</sup> Floor, Lorong Tun Ismail 5, 25000 Kuantan, Pahang. Tel : 09 - 515 9303 Fax : 09 - 515 9304	Plaza Kuantan Lot PT 6727/12 dan PT 6727/13, Mukim Kuala Kuantan, Daerah Kuantan, Pahang.	2.50	16-02-2009
81.	<b>Magic Coast Sdn. Bhd.</b> No. 2-2, Jalan SS 6/6, Kelana Jaya, 47301 Petaling Jaya, Selangor. Tel : 03 - 7805 2022 Fax : 03 - 7804 7668	Lot 582, Mukim Jalan Tun Sambanthan, Seksyen 55, Daerah Kuala Lumpur, Negeri Persekutuan Kuala Lumpur.	13.00	23-02-2009
82.	<b>Floral E-Joy Sdn. Bhd.</b> No : 36A (1 <sup>st</sup> Floor), Jalan Persiaran Flora Utama, Taman Flora Utama, 83000 Batu Pahat, Johor. Tel : 07 - 432 7899 Fax : 07 - 432 6899	Square 1, Lot PTD 48031, Mukim Simpang Kanan, Daerah Batu Pahat, Johor.	1.99	25-02-2009
83.	<b>Legend Advance Sdn. Bhd.</b> M - IOI, Jalan Alor Bukit, Taman Legenda Putra, 81000 Kulai, Johor. Tel : 07 - 662 6101 Fax : 07 - 662 2510	IOI Mart, Lot 5592 – 5595, Mukim Senai, Daerah Kulai, Johor	0.92	12-03-2009
84.	<b>MSL Properties Sdn. Bhd.</b> No. 18 & 20, Jalan Wangsa Delima 10, D'Wangsa, Bandar Wangsa Maju, 53300 Kuala Lumpur. Tel : 03 - 4142 8888 Fax : 03 - 4149 7441	Wangsa Walk Mall, Lot PT 8282 (HSD 111811), Mukim Setapak, Daerah Kuala Lumpur, Wilayah Persekutuan.	8.63	20-03-2009
85.	<b>Salak Park Sdn. Bhd.</b> No. 3-1-1, Block A, Megan Salak Park, Jalan 2/125E, Taman Desa Petaling, 57100 Kuala Lumpur. Tel : 03 - 9057 5733 Fax : 03 - 9058 7481	Lot No. 38606 and 38603, Taman Desa Petaling, Mukim Petaling, Daerah Wilayah Persekutuan, 57100 Kuala Lumpur.	2.27	27-04-2009
86.	<b>Tenaga Nusantara Sdn. Bhd.</b> Lot 2-18, 2 <sup>nd</sup> Floor, Kluang Mall, Jalan Rambutan, Bandar Kluang, 86000 Kluang, Johor. Tel : 07 - 776 1240 Fax : 07 - 776 1202	Lot 6113, Mukim Bandar Kluang, Daerah Kluang, 86000 Johor.	4.50	13-05-2009
87.	<b>Technology Park Malaysia Corporation Sdn. Bhd.</b> Level 5, Enterprise 4, Lebuhraya Puchong - Sg. Besi, Bukit Jalil, 57000 Kuala Lumpur. Tel : 03 - 8998 2260 Fax : 03 - 8998 2226	Taman Teknologi Malaysia, Lot PT 5517, Mukim Petaling, Daerah Kuala Lumpur, Wilayah Persekutuan.	4.65	18-05-2009
88.	<b>Lion Mutiara Parade Sdn. Bhd.</b> 3rd Floor, Burma House, 403, Jalan Burma, 10350 Pulau Pinang. Tel : 04 - 229 1999 Fax : 04 - 229 6999	Lot 386, Mukim Seksyen 17, Daerah Georgetown, Pulau Pinang.	6.08	22-05-2009

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
89.	<b>Mydin Mohamed Holdings Berhad</b> Mydin Subang Jaya Mall, Lot 675 & 676, Persiaran Subang Permai USJ 1, 47500 Subang Jaya, Selangor. Tel : 03 - 8073 6000 Fax : 03 - 8073 6395	MYDIN Wholesale Hypermarket, Lot 675 & 676, Mukim Damansara, Daerah Petaling Jaya, Selangor.	5.62	02-06-2009
90.	<b>TESCO Stores (Malaysia) Sdn. Bhd.</b> TESCO Seri Alam, Lot PTD 111515, Jalan Seri Alam, Bandar Seri Alam, 81750 Masai, Johor. Tel : 07 - 388 5164 Fax : 07 - 388 6709	TESCO Seri Alam, Lot PTD 111515, Mukim Plentong, Daerah Johor Bharu, Johor.	3.40	16-06-2009
91.	<b>TESCO Stores (Malaysia) Sdn. Bhd.</b> No.3 Jalan Batu Nilam 6/ks6, Bandar Bukit Tinggi, 41200 Klang, Selangor. Tel : 03 - 3323 1100 Fax : 03 - 3323 8802	TESCO Kelang, Lot 83595, Mukim Pekan Pandamaran, Daerah Kelang, Selangor.	3.40	16-06-2009
92.	<b>TESCO Stores (Malaysia) Sdn. Bhd.</b> 148-149 Pusat Bandar Puchong, Jalan Bandar 3, Off Jalan Puchong, 47100 Puchong, Selangor. Tel : 03 - 8076 2166 Fax : 03 - 8076 1525	TESCO Puchong, Lot PT 2, Mukim Pekan Desa, Puchong, Daerah Petaling, Selangor.	3.40	16-06-2009
93.	<b>TESCO Stores (Malaysia) Sdn. Bhd.</b> TESCO Ipoh, No. 2, Jalan Jambu, Taman Teh Teng Seng, 31400 Ipoh, Perak. Tel : 05 - 546 3352 Fax : 05 - 548 4159	TESCO Ipoh, Lot PT 217003, Mukim Hulu Kinta, Perak.	3.40	16-06-2009
94.	<b>TESCO Stores (Malaysia) Sdn. Bhd.</b> Lot PT 37820 & 11196, Mukim Kajang Saujana Impian, 43000 Kajang, Selangor. Tel : 03 - 8734 1369 Fax : 03 - 8734 1297	TESCO Kajang, Lot PT 37820, Mukim Kajang dan Lot PT 66452 & 44628, Seksyen 9, Mukim Bandar Kajang, Daerah Ulu Langat, Selangor.	3.40	16-06-2009
95.	<b>Kumpulan Wang Simpanan Pekerja</b> Jabatan Pengurusan Harta, Tingkat 14, Bangunan KWSP, Jalan Raja Laut, 50350 Kuala Lumpur. Tel : 03 - 2694 7566 Fax : 03 - 2693 8704	Lot PT 144258, Bandar Ipoh, Daerah Kinta, Perak.	2.44	16-06-2009
96.	<b>See Sen Chemical Bhd.</b> PT 3940, Kawasan Perindustrian Teluk Kalong, 24000 Kemaman, Terengganu. Tel : 09 - 863 2142 / 863 2304 Fax : 09 - 863 2143	Malay-Sino Chemical Industries Sdn. Bhd. Lot 2989, 3558, 3557 dan 4524, Mukim Teluk Kalong, Daerah Kemaman, Terengganu.	6.00*	17-06-2009
97.	<b>Crest Worldwide Resources Sdn. Bhd.</b> Wisma SKN, No. 5, Persiaran Lidco 1, Off Jalan Yap Kwan Seng, 50450 Kuala Lumpur. Tel : 03 - 2162 1929 Fax : 03 - 2162 0929	Lot 134, PT 32, Seksyen 44, Mukim Bandar Kuala Lumpur, Daerah Kuala Lumpur, Wilayah Persekutuan.	7.00	17-06-2009

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
98.	<b>IJM Biofuel Sdn. Bhd.</b> Wisma IJM Plantations, Lot 1, Jalan Bandar Utama, Batu 6, Jalan Utara, 90000 Sandakan, Sabah. Tel : 089 - 667 721 Fax : 089 - 674 810	IJM Edible Oils Sdn. Bhd. IJM Integrated Downstream Processing Complex, Lot NT. 073019299, Mukim Sungai Mowtas, Daerah Sandakan, 90009, Sabah.	3.60	18-06-2009
99.	<b>Westports Malaysia Sdn. Bhd.</b> 8th Floor, Tower Block, Pulau Indah, 42009 Port Klang. Tel : 03 - 3169 4000 Fax : 03 - 3169 4101	Lot PT 65746, Mukim Klang, Daerah Klang, Selangor.	83.00	26-06-2009
100.	<b>TESCO Stores (Malaysia) Sdn. Bhd.</b> TESCO Extra Ipoh, No. 2, Laluan Tasek Timur 6, Taman Tasek Indra, Off Jalan Kg. Bercham, 31400 Ipoh, Perak. Tel : 05 - 546 3352 Fax : 05 - 548 4159	TESCO Extra Ipoh, Lot PT 128421, Mukim Hulu Kinta, Daerah Kinta, Perak.	2.76	02-07-2009
101.	<b>TESCO Stores (Malaysia) Sdn. Bhd.</b> Ground Floor, AIM Point Plaza, Jalan Emas 15, Bandar Sungai Emas, 42700 Banting, Selangor. Tel : 03 - 3187 2909 Fax : 03 - 3187 2141	TESCO Banting, Ground Floor, AIM Point Plaza, Bandar Sungai Emas, Mukim Tanjung Dua Belas, 42700 Banting, Kuala Langat, Selangor.	1.30	02-07-2009
102.	<b>TESCO Stores (Malaysia) Sdn. Bhd.</b> TESCO Extra Sungai Dua, No. 657, Jalan Sg Dua, 11700 Sungai Dua, Pulau Pinang. Tel : 04 - 656 9888 Fax : 04 - 659 1188	TESCO Extra Sungai Dua, Lot 10252, Mukim 13, Daerah Timur laut (DTL), Jalan Sungai Dua, Pulau Pinang.	1.70	02-07-2009
103.	<b>TESCO Stores (Malaysia) Sdn. Bhd.</b> No 1, Persiaran Sukan, Peti Surat 7427, Seksyen 13, 40714 Shah Alam, Selangor. Tel : 603 - 5512 2600 Fax : 03 - 5510 2305	TESCO Extra Shah Alam, Lot 1107, Mukim Bandar Shah Alam, Daerah Petaling, Selangor.	2.98	02-07-2009
104.	<b>TESCO Stores (Malaysia) Sdn. Bhd.</b> No. 2, Jalan Midah 2, Taman Midah Cheras, Cheras, 56000 Kuala Lumpur. Tel : 03 - 9133 5100 Fax : 03 - 9132 3641	TESCO Extra Cheras, Lot PT 4476, Mukim Kuala Lumpur, Daerah Kuala Lumpur, Wilayah Persekutuan.	2.98	02-07-2009
105.	<b>TESCO Stores (Malaysia) Sdn. Bhd.</b> Tesco Extra Seremban, Kawasan Perindustrian Oakland, 70300 Seremban 2, Negeri Sembilan. Tel : 06 - 762 3227 Fax : 06 - 762 3241	TESCO Extra Seremban, Lot PT 452, Pekan Bukit Kepayan, Daerah Seremban, Negeri Sembilan.	2.13	02-07-2009
106.	<b>MRCB Selborn Corporation Sdn. Bhd.</b> MRCB Central Properties Sdn. Bhd. Lot 402 & 403, Level 4, Plaza Alam Sentral, Jalan Majlis 14/10, Seksyen 14, Shah Alam, 40000 Selangor. Tel : 03 - 2612 5511 Fax : 03 - 5513 4266	Plaza Alam Sentral, Lot 58, Seksyen 14, Mukim Bandar Shah Alam, Daerah Petaling, Selangor.	11.00	08-07-2009

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
107.	<b>GCH Retail (Malaysia) Sdn. Bhd.</b> Giant Complex Tawau, CL105466055, KM 5 1/2, Jalan Chong Thien Yun Off Jalan Apas, 91000 Tawau, Sabah. Tel : 089 - 911 890 Fax : 089 - 911 891	Giant Hypermarket, Lot CL105466055, Jalan Datuk Chong Fuen Yun, 91000 Tawau, Sabah.	3.00	10-07-2009
108.	<b>Malaysia Airports Sdn. Bhd.</b> Lapangan Terbang Antarabangsa Langkawi, 07100 Padang Mat Sirat, Langkawi, Kedah. Tel : 04 - 955 1311 / 955 1312 Fax : 04 - 955 1314	Lapangan Terbang Antarabangsa Langkawi, TK1 Mukim Bohor & TK2 Mukim Padang Mat Sirat, & TK3, TK4 Mukim Kedawang, Daerah Langkawi, Kedah.	2.29	17-07-2009
109.	<b>Amtrustee Berhad</b> PT 487, Mahkota Parade, Jalan Banda Hilir, Kg. Banda Hilir, 75000 Melaka. Tel : 06 - 282 6151 Fax : 06 - 282 7305	Mahkota Parade, Lot PT 487, Mukim Melaka Tengah, Daerah Melaka, Melaka.	10.80	17-07-2009
110.	<b>Malaysia Airports Sdn. Bhd.</b> Lapangan Terbang Sultan Ahmad Shah, 25150 Kuantan, Pahang. Tel : 09 - 531 2150 Fax : 09 - 538 4017	Lapangan Terbang Sultan Ahmad Shah, Lot PT 86418, Mukim Kuala Kuantan, Daerah Kuantan, Pahang.	0.33	17-07-2009
111.	<b>Malaysia Airports Sdn. Bhd.</b> Lapangan Terbang Antarabangsa Pulau Pinang, 11900 Bayan Lepas, Pulau Pinang. Tel : 04 - 643 4411 Fax : 04 - 643 5399	Lapangan Terbang Antarabangsa Pulau Pinang, Lot 7565 dan PT 230, 231, 232, 228, 229, 3096, 1610, TK1 dan TK2, Mukim 12, Daerah Barat Daya, Pulau Pinang.	4.00	17-07-2009
112.	<b>ABI Construction Sdn. Bhd.</b> No. 332A, Lorong Serawak Melawati Urban 1, Pusat Bandar Melawati, 53100 Kuala Lumpur. Tel : 03 - 4147 3733 Fax : 03 - 4147 4733	Plaza Paya Bunga, Lot PT 3073K, Bandar Kuala Terengganu, Daerah Kuala Terengganu, Terengganu.	3.83	31-07-2009
113.	<b>Makamewah Sdn. Bhd.</b> 1, Lorong Margosa 3, Luyang Phase 8, 88300 Kota Kinabalu, Sabah. Tel : 088 - 238 949 Fax : 088 - 239 040	Suria Sabah Shopping Mall, Lot T.L. 017539810, Mukim Kota Kinabalu, Daerah Kota Kinabalu, Sabah.	13.00	27-08-2009
114.	<b>Mydin Mohamed Holdings Berhad</b> Lot No. 675 & 676, Persiaran Subang Permai USJ 1, 47500 Subang Jaya, Selangor. Tel : 03 - 8073 6000 Fax : 03 - 8073 6391	MYDIN Wholesale Hypermarket MITC Melaka, Lot 15060, 15061 & 15062, Mukim Bukit Katil, Daerah Melaka Tengah, Melaka.	4.30	14-09-2009
115.	<b>Pembinaan Titis Jaya Sdn. Bhd.</b> TJ Mart, Lot 5035, Batu 17 ½, Jalan Air-Hitam, Saleng, 81400 Senai, Johor. Tel : 07 - 598 4323 Fax : 07 - 598 5323	T.J. Mart, Lot 5035, Mukim Kulai, Daerah Kulajaya, Johor.	0.55	11-09-2009

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
116.	<b>Shell Refining Company (Federation Of Malaya), Berhad</b> Batu 1, Jalan Pantai, 71000 Port Dickson, Negeri Sembilan. Tel : 06 - 647 1311 Fax : 06 - 647 4622	71000 Port Dickson, Negeri Sembilan.	35.00 *	05-10-2009
117.	<b>AEON Co. (M) Bhd.</b> AEON Bandaraya Melaka Shopping Centre, 1st Floor, Management Office, No. 2, Jalan Lagenda, Taman 1 - Lagenda, 75400 Melaka. Tel : 06 - 281 6498 Fax : 06 - 281 6398	Jusco Shopping Mall, Lot PT 1 Kawasan Bandar 32 dan PT 69 Kawasan Bandar 33, Daerah Melaka Tengah, Melaka.	22.50	05-10-2009
118.	<b>Kuantan Port Consortium Sdn. Bhd.</b> Wisma KPC, KM. 25, Tanjung Gelang, P.O Box 199, 25720 Kuantan, Pahang Tel : 09 - 586 3888 Fax : 09 - 586 3849	Kuantan Port, Lot 1863, Mukim Sungai Karang, Daerah Kuantan, Pahang.	3.49	05-10-2009
119.	<b>Couture Homes Sdn. Bhd.</b> A-12-02, Empire Office, Empire Subang, Jalan SS 16/1, 47500 Subang Jaya, Selangor. Tel : 03 - 5638 9888 Fax : 03 - 5631 9888	Lot 6 dan PT 20912, Mukim Bandar Subang Jaya, Daerah Petaling, Selangor.	8.67	22-12-2009
120.	<b>IOI Bio-Energy Sdn. Bhd.</b> Two IOI Square, IOI Resort, 62502 Putrajaya, Tel : 03 - 8947 8888 Fax : 03 - 8943 2266	IOI Edible Oils Sdn. Bhd. IOI Integrated Edible Oils Processing Complex, Mukim Sungai Mowtas, Daerah Sandakan, 90738, Negeri Sabah.	15.00	20-01-2010
121.	<b>Kumpulan Wang Simpanan Pekerja</b> Jabatan Pengurusan Harta, Tingkat 14, Bangunan KWSP, Jalan Raja Laut, 50350 Kuala Lumpur. Tel : 03 - 2616 2269 Fax : 03 - 2693 8704	Lot 842, Seksyen 14, Mukim Bandar Georgetown, Daerah Timur Laut, Pulau Pinang.	3.40	25-01-2010
122.	<b>TSH Bio-Gas Sdn. Bhd.</b> Bangunan TSH, TB 9, KM7, Apas Road, 91000 Tawau, Sabah. Tel : 089 - 912 020 / 911 056 Fax : 089 - 913 000	Lot CL 105392989, Mukim Kalumpang, Daerah Tawau, 91000 Sabah.	3.00	11-03-2010
123.	<b>SEH Power Sdn. Bhd.</b> Lot 1 (DBKK No. 1.1), 1 <sup>st</sup> Floor, Wisma Kolombong, Jalan Kolombong, Mile 5 1/2, Off Jalan Tuaran, 88450 Kota Kinabalu, Sabah. Tel : 088 - 426 008 Fax : 088 - 424 215	Sandakan Education Hub, Lot 01 to 25, Mukim Sungai Batang, Daerah Sandakan, Sabah.	45.00	11-03-2010
124.	<b>FELDA Engineering Services Sdn. Bhd.</b> Tingkat 6, Balai Felda, Jalan Gurney Satu, 54000 Kuala Lumpur. Tel : 03 - 2693 5211 Fax : 03 - 2693 6717	Gugusan Felda Umas, Umas 1, 2, 3 & 4, Mukim Umas, Daerah Tawau, Sabah.	2.60	31-03-2010

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
125.	<b>FELDA Engineering Services Sdn. Bhd.</b> Tingkat 6, Balai Felde, Jalan Gurney Satu, 54000 Kuala Lumpur. Tel : 03 - 2693 5211 Fax : 03 - 2693 6717	Gugusan Felde Sahabat, Lot Sahabat 01-54, Mukim Sahabat, Daerah Lahad Datu, Sabah.	23.94	31-03-2010
126.	<b>FELDA Engineering Services Sdn. Bhd.</b> Tingkat 6, Balai Felde, Jalan Gurney Satu, 54000 Kuala Lumpur. Tel : 03 - 2693 5211 Fax : 03 - 2693 6717	Gugusan Felde Kalabakan, Kalabakan Tengah 01 & 02, Kalabakan Utara Dan Kalabakan Selatan, Mukim Kalabakan, Daerah Tawau, Sabah.	1.6	31-03-2010
127.	<b>Ipoh Tower Sdn. Bhd.</b> Unit No. 2FO-1, Ipoh Tower, Jalan Dato' Seri Ahmah Said Greentown, 30450 Ipoh, Perak. Tel : 05 - 241 4662 Fax : 05 - 242 4563	Complex Ipoh Tower Sdn. Bhd. Lot 23628 Mukim Bandar Ipoh (S) & 23629, 8701U, 9570U, Mukim Bandar Ipoh (U), Daerah Kinta, Perak.	4.25	03-05-2010
128.	<b>Untung Ria Sdn. Bhd.</b> 11 <sup>th</sup> Floor, Wisma Perindustrian, Jalan Istiadat, Likas, 88400 Kota Kinabalu, Sabah. Tel : 088-242257 /8/9 Fax : 088-242169	Lot No. CL 135193752 dan CL 135366139, Kg. Ulu Patikang, Keningau, Sabah.	4.00	09-08-2010
129.	<b>Jasa Imani Sdn. Bhd.</b> AIM Point Plaza, Aras Podium, Jalan Emas 15, Bandar Sungai Emas, 42700 Banting, Selangor. Tel : 03 - 3181 3703 Fax : 03 - 3187 8003	Menara Pejabat Putra Square, Lot 423, Seksyen 20(PN5596), Jalan Bukit Sekilau, Bandar Kuantan, Pahang.	4.25	27-09-2010
130.	<b>Suara Wira Sdn. Bhd.</b> Ground Floor, Lot 3 Blk. E, Donggongan New Township, Penampang, 89500 Kota Kinabalu, Sabah. Tel : 088 - 712 792 Fax : 088 - 710 792	Lot TL 217501874 & TL 217502086, Mukim Donggongan New Township, Daerah Penampang, Sabah.	4.05	27-09-2010
131.	<b>Malaysia Airports Sdn. Bhd.</b> Lapangan Terbang Antarabangsa Kota Kinabalu, Beg Berkunci 134, Aras 5 Bangunan Terminal, 88740 Kota Kinabalu, Sabah. Tel : 088 - 238 555 Fax : 088 - 219 081	Lapangan Terbang Antarabangsa Kota Kinabalu, Lot PT 92010207, TK1, TK2 & TK3, Mukim Kota Kinabalu dan PT 92210081, Mukim Penampang, Daerah Kota Kinabalu, Sabah.	5.50	03-11-2010
132.	<b>Malaysia Airports Sdn. Bhd.</b> Lapangan Terbang Tawau, P.O. Box 60132, 91011 Tawau, Sabah. Tel : 089 - 950 777 Fax : 089 - 950 781	Lapangan Terbang Tawau, Lot TK1, Mukim Apas Balong, Daerah Tawau, Sabah.	2.50	03-11-2010
133.	<b>Malaysia Airports Sdn. Bhd.</b> Lapangan Terbang Sandakan, P.O. Box 730, 90009 Sandakan, Sabah. Tel : 089 - 667 784 Fax : 089 - 667 778	Lapangan Terbang Sandakan, Lot TK1, Mukim Sandakan, Daerah Sandakan, Sabah.	2.50	03-11-2010

No.	Licensee & Address	Area of Supply	Licensed Capacity (MW)	Date of License Issued
134.	<b>Sepang Goldcoast Sdn. Bhd.</b> No. 30B 1 <sup>st</sup> & 2 <sup>nd</sup> Floor Jalan Pekedai U1/36, Section U1, Hicom Glenmarie Industrial Park, 40150 Shah Alam, Selangor. Tel : 03 - 5569 0800 Fax : 03 - 5569 0900 / 5569 2488	Lot PT 5247 (PKT 67), Pantai Bagan Lalang, Mukim Sepang, Daerah Sepang, Selangor.	9.50	13-12-2010
135.	<b>Setia Haruman Sdn. Bhd.</b> The Lodge, Persiaran Multimedia Cyber 7, 63000 Cyberjaya, Selangor. Tel : 03 - 8312 8000 Fax : 03 - 8312 8100	The Lodge, Persiaran Multimedia Cyber 7, 63000 Cyberjaya, Selangor.	15.50	22-12-2010
136.	<b>GCH Retail (M) Sdn. Bhd.</b> Giant Superstore Lukut, Lot 12532, Jalan Dataran Segar Batu 3, Jalan Seremban, 71010 Port Dickson, Negeri Sembilan.	Giant Superstore Lukut Complex, Lot No. 12532 (Old Lot 1058), Mukim Port Dickson, Daerah Port Dickson, Negeri Sembilan.	2.55	22-12-2010
137.	<b>Sunway Pyramid Sdn. Bhd.</b> Centre Management, Level CP6, Blue Atrium, No. 3, Jalan PJS 11/15, Bandar Sunway, 46150 Petaling Jaya. Tel : 03 - 7494 3000 Fax : 03 - 7492 6333	Sunway Pyramid Shopping Centre	22.00	22-12-2010
138.	<b>MTBE Malaysia Sdn. Bhd.</b> Lot 111, Kawasan Perindustrian Gebeng, Peti Surat 1, 26080 Balok, Kuantan, Pahang. Tel : 09 - 583 4301 Fax : 09 - 583 4743 / 583 4090	Polypropylene Malaysia Sdn. Bhd. No. Lot 111 dan 112 Mukim Gebeng, Daerah Kuantan, 26080 Kuantan, Pahang.	40.0	24-12-2010

## Note :

- # Not in Operation
- \* Electricity Generation via Co-Gen
- \*\* Electricity Generation
- & Electricity Generation via Hybrid



## LIST OF MAJOR CO-GENERATORS

## INSTALLED CAPACITY OF CO-GENERATION PROJECTS

Type of License	Installed Capacity for Co-gen Projects in Operation (MW)	Installed Capacity for Co-gen Projects in Planning (MW)	Total Installed Capacity (MW)
Public	575.00	433.00	1,008 MW
Private	511.03	-	511.03 MW
<b>Total</b>	<b>1,086.03</b>	<b>433.00</b>	<b>1,519.03 MW</b>

Note :

1. Public Licensee - A license to generate electricity for own consumption and for supply to others.

2. Private Licensee - A license to generate electricity for own consumption only.

## LIST OF CO-GENERATORS

### PUBLIC LICENSEE

No.	Licensee & Location	Address	Capacity (MW)	Source	Generation (MWh)
1	<b>TCL Industries (Malaysia) Sdn. Bhd.</b> Plot No : 4248, Teluk Kalong Industrial Estate, 24007 Kemaman, Terengganu.	Plot No : 4248, Teluk Kalong Industrial Estate,24007 Kemaman, Terengganu. Tel : 09 - 863 3029 Fax : 09 - 863 3085	7.0	Heat Waste from Industrial Process	3,361
2	<b>Gas District Cooling (KLCC) Sdn. Bhd.</b> Bangunan DCC 1/DCC 2, KLCC DCS/Cogeneration Plant, Persiaran KLCC, Jalan Ampang, KL.	Level 1, Bangunan DCCI, Persiaran KLCC Off Jalan Ampang, 50088 KL Tel : 03 - 2380 5660 Fax : 03 - 2381 7086	40.0	Natural Gas	105,102
3	<b>Gas District Cooling (KLIA) Sdn. Bhd.</b> Kuala Lumpur International Airport, Daerah Sepang, Selangor.	Jalan KLIAS5 (KLIA Selatan), Southern Support Zone, 64000 KLIA, Sepang, Selangor. Tel : 03 - 8787 4326 Fax : 03 - 8787 4282	60.0	Natural Gas	199,266
4	<b>See Sen Chemical Bhd.</b> Malay-Sino Chemical Industries Sdn. Bhd. Lot 2989, 3558, 3557 dan 4525, Mukim Kalong, Daerah Kemaman, Terengganu.	PT 3940, kawasan Perindustrian Teluk Kalong, 24000 Kemaman, Terengganu. Tel : 09 - 863 2142 Fax : 09 - 863 2143	6.0	Heat Waste from Industrial Process	44,637
5	<b>Shell Refining Company (Federation Of Malaya) Berhad</b> Port Dickson, Negeri Sembilan.	Batu 1, Jalan Pantai, 71000 Port Dickson, Negeri Sembilan. Tel : 06 - 647 1311 Fax : 06 - 647 4622	35.0	Heat Waste from Industrial Process	148,192
6	<b>Petronas Gas Bhd.</b> Petrochemical Complex, Kerteh Industrial Area, Terengganu.	Centralised Utility Facilities (CUF), Integrated Petrochemical Complex, KM 105 Jln. Kuantan/K. Terengganu, 24300 Kertih, Kemaman, Terengganu. Tel : 09 - 830 5000 Fax : 09 - 830 5514	210.0	Natural Gas	1,438,969
7.	<b>Petronas Gas Bhd.</b> Petrochemical Complex, Gebeng Industrial Area, Kuantan, Pahang.	Centralised Utility Facilities (CUF), Integrated Petrochemical Complex, Lot 139 A Gebeng Industrial Area, Phase III, 26080 Kuantan, Pahang. Tel. : 09 - 583 6200 Fax : 09 - 583 9949	105.0	Natural Gas	750,306

No.	Licensee & Location	Address	Capacity (MW)	Source	Generation (MWh)
8	<b>Institute of Technology Petronas Sdn. Bhd.</b> Kampus Universiti Teknologi Petronas, Tronoh, Perak.	Bandar Seri Iskandar, 31750 Tronoh, Perak. Tel : 05 - 368 8000 Fax : 05 - 365 4075	8.4	Natural Gas	39,998
9	<b>Fusion Energy Sdn. Bhd.</b> Lion Group Complex, Lot 2319, 2320, 2431, 2323, 2582, 2823 dan 2824, Mukim Tanjung 12, Banting, Selangor.	Lot 2319, Kaw. Perindustrian Olak Lempit, Mukim Tanjung 12, 42700 Banting, Selangor. Tel : 03 - 3182 2000 Fax : 03 - 3182 2382 / 3182 2279	418.0	Heat Waste from Industrial Process	Not In Operation
10	<b>Bahagaya Sdn. Bhd.</b> Rajang Plywood (Sabah) Sdn. Bhd. CLS 105486762, 105486771 dan PT2000100538, Sg. Umas, Umas Mukim Merotai, Tawau, Sabah.	TB 4327 Block 31, 2nd Floor, Fajar Complex, Jalan Haji Karim, 91000 Tawau, Sabah. Tel : 089 - 757 911 Fax : 089 - 761 022	3.0	EFB	20,130
11	<b>Bio Fuel Asia Sdn. Bhd.</b> TSH Edible Oils Sdn. Bhd. PL26166110 & 246290228, Kunak, Lahad Datu, Sabah	Tsh-Wilmar (BF) Sdn. Bhd. TB 9, KM 7, Apas Road, TSH Industrial Estate, 91000 Tawau, Sabah. Tel : 089 - 853 601 / 853 602 Fax : 089 - 853 605	10.0	Wood Waste	306
12	<b>Evergreen Intermerge Sdn. Bhd.</b> Cacao Paramount Sdn. Bhd. Lot CI 105323797, KM 3, Tanjung Batu Laut, Tawau, Sabah	318, Teck Guan Regency, Jalan St Patrick, Off Jalan Belunu, P.O. Box No. 33, 91007 Tawau, Sabah. Tel : 089 - 772 275 Fax : 089 - 769 955	6.0	EFB	10,289
13	<b>Seo Energy Sdn. Bhd.</b> Sandakan Edible Oils Sdn. Bhd. KM 8, Jalan Batu Sapi, Karamunting, Sandakan, Sabah.	Km 8, Jalan Batu Sapi, Karamunting, P.O. Box 2605, 90729 Sandakan, Sabah. Tel : 089 - 611 011 / 611 012 Fax : 089 - 611 014	1.2	EFB	2,565
14	<b>Petronas Methanol (Labuan) Sdn. Bhd.</b> Kawasan Perindustrian Ranca-Ranca, Labuan, 87010 Wilayah Persekutuan Labuan, Sabah	Kawasan Perindustrian Ranca-Ranca, Peti Surat No. 80079, 87010 W.P. Labuan. Tel : 087 - 411 211 Fax : 088 - 413 921 / 425 831	41.8	Natural Gas	37,011
15	<b>Profound Heritage Sdn. Bhd.</b> Sutera Harbour Resort, Lot 2, LA. 93010260, Kota Kinabalu, Sabah.	1 Lorong Grace Square, Jalan Pantai Sembulan, 88100 Kota Kinabalu, Sabah. Tel : 088 - 318 801 / 318 802 Fax : 088 - 233 362	38.0	Diesel	84,380
16	<b>IJM Biofuel Sdn. Bhd.</b> IJM Edible Oils Sdn. Bhd. IJMP Integrated Downstream Processing Complex, Lot NT. 073019299, Mukim Sungai Mowtas, Daerah Sandakan, Poskod 90009, Sabah	IJM Edible Oils Sdn. Bd. Wisma IJM Plantation Lot 1, Jalan Bandar Utama, Batu 6, Jalan Utara, 90000 Sandakan, Sabah. Tel : 089 - 667 721 Fax : 089 - 674 810	3.6	EFB	N/A
17	<b>IOI Bio-Energy Sdn. Bhd.</b> IOI Edible Oil Sdn. Bhd. IOI Integrated Edible Oil Processing Complex, Mukim Sungai Mowtas, Daerah Sandakan, 90738 Sabah	Two IOI Square, IOI Resort, 62502 Putrajaya. Tel : 03 - 8947 8888 Fax : 03 - 8943 2266	15.0	Biomass	Not In Operation

## PRIVATE LICENSEE

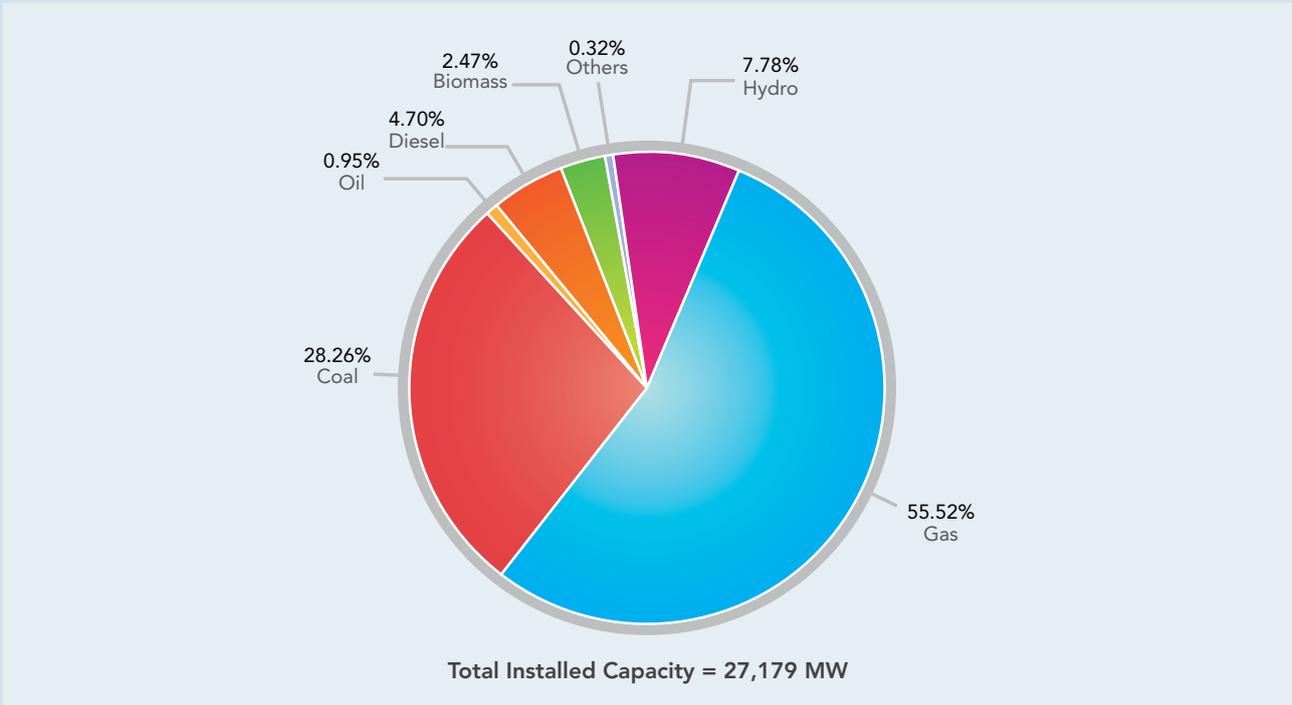
No.	Licensee & Location	Address	Capacity (MW)	Source	Generation (MWh)
1	<b>Perwaja Steel Sdn. Bhd.</b> Loji Besi Penurunan Terus, Tanjung Berhala, Kemaman, Terengganu.	Kawasan Perindustrian Telok Kalong, P.O. Box 61, 24007 Kemaman, Terengganu. Tel : 09 - 863 1435 Fax : 09 - 863 1877	9.5	Heat Waste from Industrial Process	31,345
2	<b>Bernas Production Setia Sdn. Bhd.</b> Kompleks Mengering dan Mengilang Padi LPN, 45400 Sekinchan, Selangor.	Kompleks Bernas Sekinchan, 45400 Sekinchan, Selangor. Tel : 03 - 3241 0001 Fax : 03 - 3241 1300	0.2	Agricultural Waste	N/A
3	<b>PadiBeras Nasional Bhd.</b> Kompleks Bernas Sg. Ranggam (Ulu Dedap), 36800 Kampong Gajah, Perak.	Lembaga Padi dan Beras Negara, Kompleks Bernas Sg. Ranggam Ulu Dedap, Kg. Gajah, 36000 Teluk Intan, Perak. Tel : 05 - 655 1528 / 655 1520 Fax : 05 - 655 1608	0.7	Agricultural Waste	106
4	<b>Sime Darby Plantations Sdn. Bhd.</b> Tennamaran Palm Oil Mill, Batang Berjuntai, Selangor.	Tennamaran Oil Mill, 45600 Bestari Jaya, Selangor. Tel : 03 - 3271 9062 / 9701 Fax : 03 - 3271 9557	3.4	Agricultural Waste	3,845
5	<b>Sime Darby Plantations Sdn.Bhd.</b> Seri Intan Palm Oil Mill, Locked Bag 23, Batu 5, Jalan Maharaja Lela, 36009 Teluk Intan, Perak.	Seri Intan Palm Oil Mill, Bt. 5, Jalan Maharaja Lela, 36009 Teluk Intan, Perak. Tel : 05 - 622 1911 / 622 1777 Fax : 05 - 621 4091	1.5	Agricultural Waste/ Diesel	4,070
6	<b>Malaysian Newsprint Industries Sdn. Bhd.</b> Lot 3771, Jalan Lencongan Mentakab- Temerloh, Temerloh Industrial Park, 28400 Mentakab, Pahang.	P.O. Box 29 Mentakab, Lot 3771, Jalan Lencongan Mentakab- Temerloh, Temerloh Industrial Park, 28400 Mentakab, Pahang. Tel : 09 - 277 9898 Fax : 09 - 277 9800	79.2	Agricultural Waste	27,628
7	<b>Titan Petchem (M) Sdn. Bhd.</b> PLO 257, 312, 425 dan 426, Jalan Tembaga 4, Pasir Gudang Industrial Estate, 81700 Pasir Gudang, Johor.	PLO 312, Jalan Tembaga 4, Pasir Gudang Industrial Estate, 81700 Pasir Gudang, Johor. Tel : 07 - 253 8744 Fax : 07 - 251 7881	56.0	Natural Gas	240,437
8	<b>Titan Petrochemicals (M) Sdn. Bhd.</b> PLO 8, Tanjung Langsung Industrial Park, Mukim Sg. Tiram, Johor Bharu, Johor.	Titan Petchem (M) Sdn. Bhd. PLO 312, Jalan Tembaga 4, Pasir Gudang Industrial Estate, 81700 Pasir Gudang, Johor. Tel : 07 - 253 8744 Fax : 07 - 251 7881	42.6	Natural Gas	151,757
9	<b>Tian Siang Oil Mill (Perak) Sdn. Bhd.</b> Lot 2161-2162, Batu 21, Jalan Taiping ke Bruas, 32700 Beruas, Perak.	Lot 2161-2162 Batu 21, Jalan Taiping Ke Bruas, Padang Gajah, 34800 Trong, Perak. Tel : 05 - 854 5869 Fax : 05 - 854 5872	4.8	Agricultural Waste	371
10	<b>Central Sugars Refinery Sdn. Bhd.</b> Batu Tiga, 40150 Shah Alam, Selangor.	Batu Tiga, 40000 Shah Alam, Selangor. Tel : 03 - 5519 1414 / 5519 1417 Fax : 03 - 5519 8792	8.2	Natural Gas/ Diesel	44,817
11	<b>BASF Petronas Chemicals Sdn. Bhd.</b> Lot 139, Kawasan Perindustrian Gebeng, 26080 Kuantan, Pahang.	Kuantan Integrated Chemicals Sdn. Bhd. Jalan Gebeng 2/1, Kawasan Perindustrian Gebeng, 26080 Kuantan, Pahang. Tel : 09 - 585 5000 Fax : 09 - 583 6198	27.4	Natural Gas	N/A

No.	Licensee & Location	Address	Capacity (MW)	Source	Generation (MWh)
12	<b>Nibong Tebal Paper Mill Sdn. Bhd.</b> 886, Jalan Bandar Baru, Sg. Kechil, 14300 Nibong Tebal, Pulau Pinang.	886, Jalan Bandar Baru, Sungai Kecil, 14300 Nibong Tebal, SPS, Penang. Tel : 04 - 593 1296 / 593 1326 Fax : 04 - 593 3373	0.8	Wood Waste	N/A
13	<b>Gas District Cooling (Putrajaya) Sdn. Bhd.</b> Plot 2U1, Putrajaya Precint 2 Wilayah Persekutuan Putrajaya.	Aras 7, Blok 1 Menara PjH, No. 2, Persiaran Perdana, Presint 2, 62100 W.P. Putrajaya. Tel : 03 - 8883 8741 Fax : 03 - 8889 3079	10.7	Natural Gas	31,389
14	<b>Petronas Penapisan (Melaka) Sdn. Bhd.</b> Kompleks Petronas Penapisan Melaka, Mukim Sungai Udang, 76300 Melaka.	Persiaran Penapisan, 76300 Sungai Udang, Melaka. Tel : 06 - 352 2020 Fax : 06 - 352 2574	145.0	Natural Gas	464,814
15	<b>Gas District Cooling (Putrajaya) Sdn. Bhd.</b> Plot 12371, Precint 1 WP Putrajaya, Lebuhraya Perdana Timur, Pusat Pentadbiran Kerajaan Persekutuan Putrajaya, 62000 Putrajaya.	Aras 7, Blok 1, Menara PjH, No. 2, Persiaran Perdana, Persint 2, 62100 Putrajaya. Tel : 03 - 8883 8741 Fax : 03 - 8889 3079	6.5	Natural Gas	43,512
16	<b>Muda Paper Mills Sdn. Bhd.</b> Lot 11207, Mukim Kajang, Daerah Hulu Langat, Selangor.	1 1/2 Miles, Off Jalan Sungai Chua, 43000 Kajang, Selangor. Tel : 03 - 8736 1245 Fax : 03 - 8736 6869	14.4	Natural Gas	55,508
17	<b>Ban Heng Bee Rice Mill (1952) Sdn. Bhd.</b> Lot 2171, Jalan Bukit Raya, Mukim Bukit Raya Pendang, Kedah.	Jalan Bukit Raya, Mukim Bukit Raya, 06700 Pendang, Kedah. Tel : 04 - 759 6620 / 759 6045 Fax : 04 - 759 0264	0.5	Agricultural Waste	2,837
18	<b>Petronas Fertilizer (Kedah) Sdn. Bhd.</b> Lot 10750, Bandar Gurun, Daerah Kuala Muda, Kedah.	KM 3, Jalan Jeniang, P.O. Box 22, 08300 Gurun, Kedah. Tel : 04 - 468 5202 Fax : 04 - 468 5208	18.3	Natural Gas	89,786
19	<b>Felda Palm Industries Sdn. Bhd.</b> Kompleks Sahabat, Mukim Tungku, Lahad Datu, Sabah.	Loji Janakuasa Biomass Sahabat, Peti Surat 246, Cenderawasih, 91150 Lahad Datu, Sabah. Tel : 089 - 812 909 / 812 928 Fax : 089 - 812 905	7.5	EFB / Diesel	19,640
20	<b>Palm Energy Sdn. Bhd.</b> Kwantas Oil Sdn. Bhd. Lot CL 115311138, Mukim Lahad Datu, Lahad Datu, Sabah.	Ground Floor - 3rd Floor, Lot 1-6, Bangunan Fordeco, Jalan Singamata, Peti Surat 60006, 91100 Lahad Datu, Sabah. Tel : 089 - 885 050 / 882 118 Fax : 089 - 882 399	6.5	Agricultural Waste	11,103
21	<b>Sabah Forest Industries Sdn. Bhd.</b> Mukim Kg. Sebbuh, Daerah Sipitang, Sabah.	Kompleks S.F.I. No. 10, Jalan Jeti, WDT No. 31, 89859 Sipitang, Sabah. Tel : 087 - 801 018 Fax : 087 - 801 067	57.0	Wood Waste/ Diesel	282,613
22	<b>Gula Padang Terap Sdn. Bhd.</b> Lot 2143 dan 2142, Mukim Terap Kiri, Daerah Padang Terap, 06300 Kedah.	45 KM, Jalan Padang Sanai, 06300 Kuala Nerang, Kedah. Tel : 04 - 786 5008 Fax : 04 - 786 4149	10.3	Agricultural Waste / Diesel	24,804

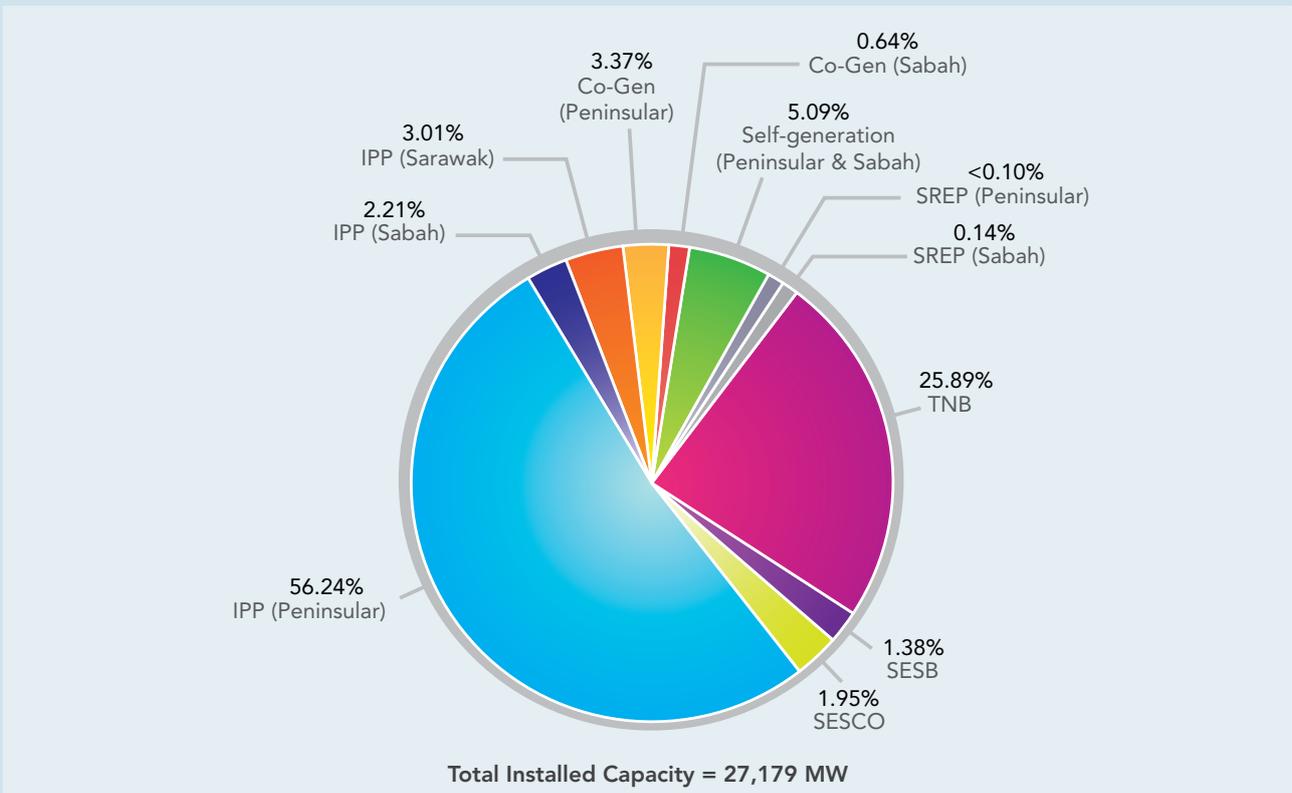


## **SUMMARY OF ELECTRICITY SUPPLY INDUSTRY IN MALAYSIA**

### INSTALLED CAPACITY BY FUEL TYPE

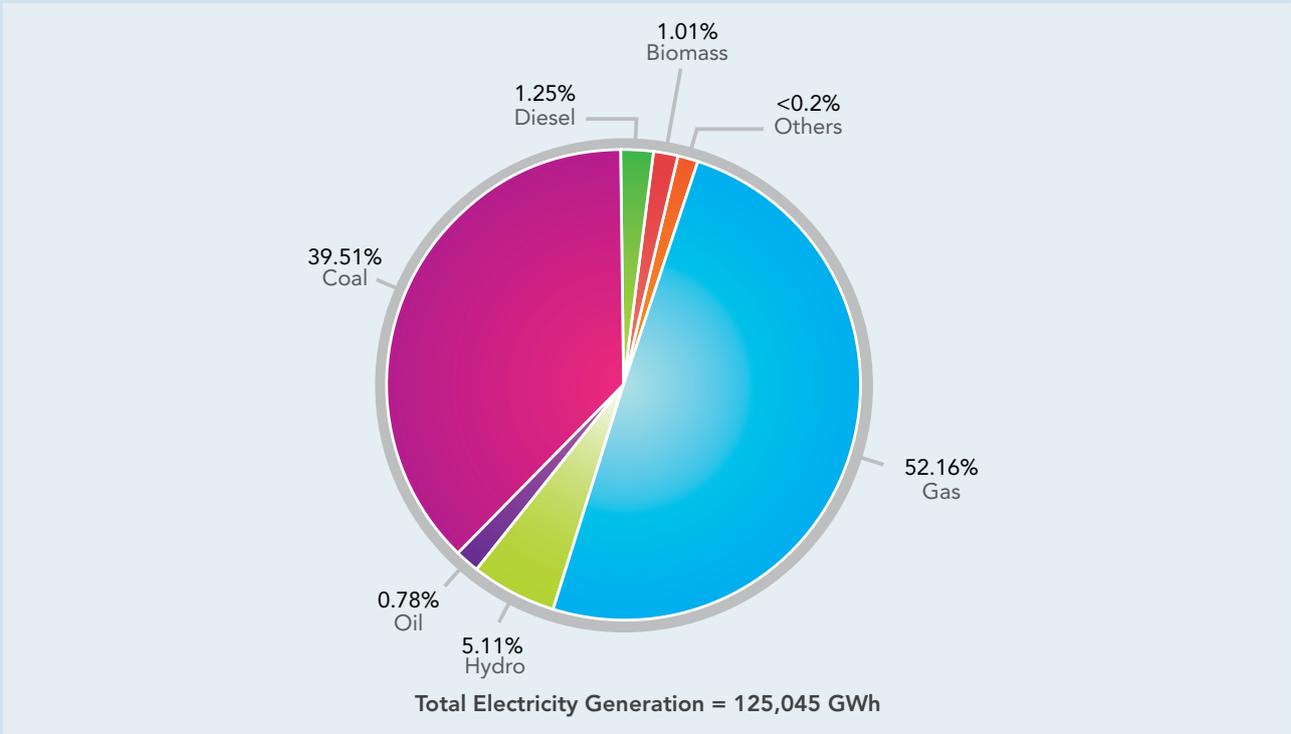


### INSTALLED CAPACITY BY MAJOR POWER PRODUCERS

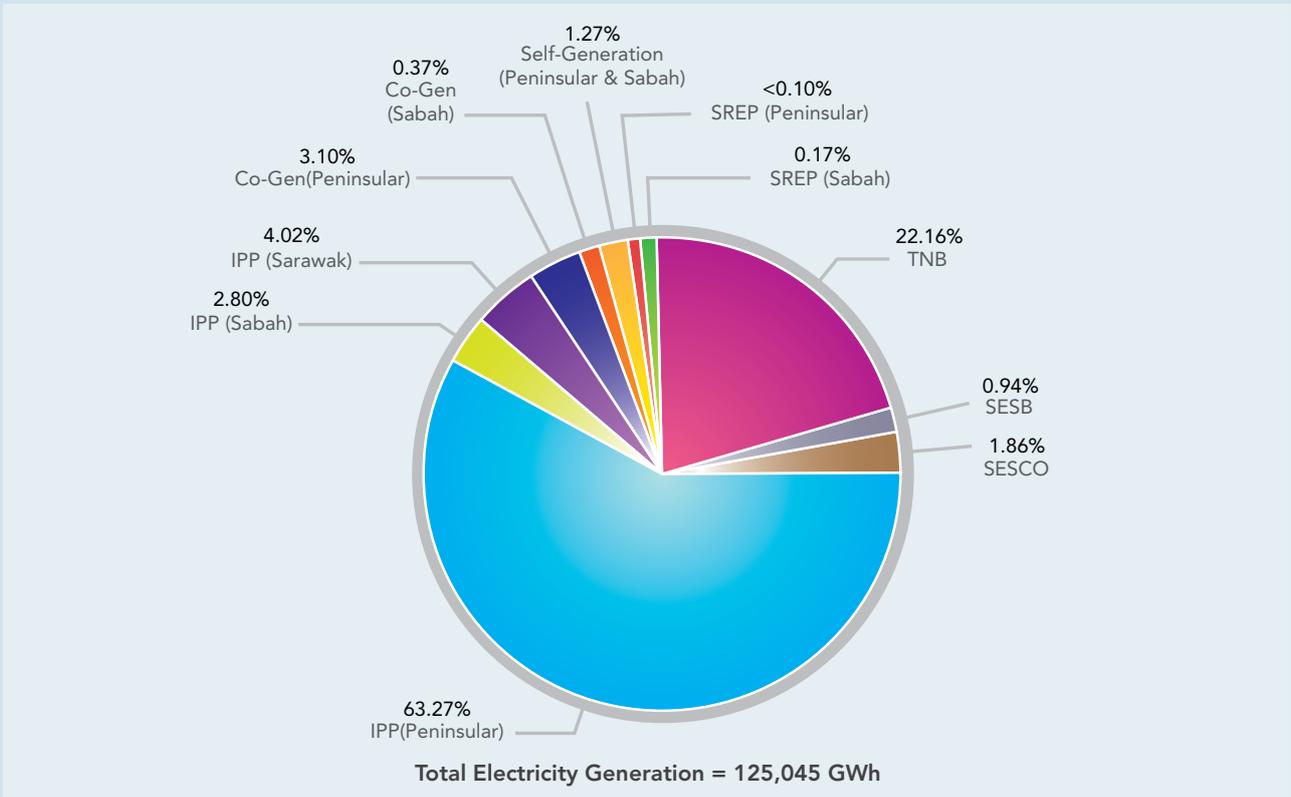


Note :  
 Generation Installed Capacity (MW) including Generation Capacity of Small Renewable Energy Power Programme (SREP), Co-Generation and Self-Generation.

### GENERATION MIX BY FUEL TYPE

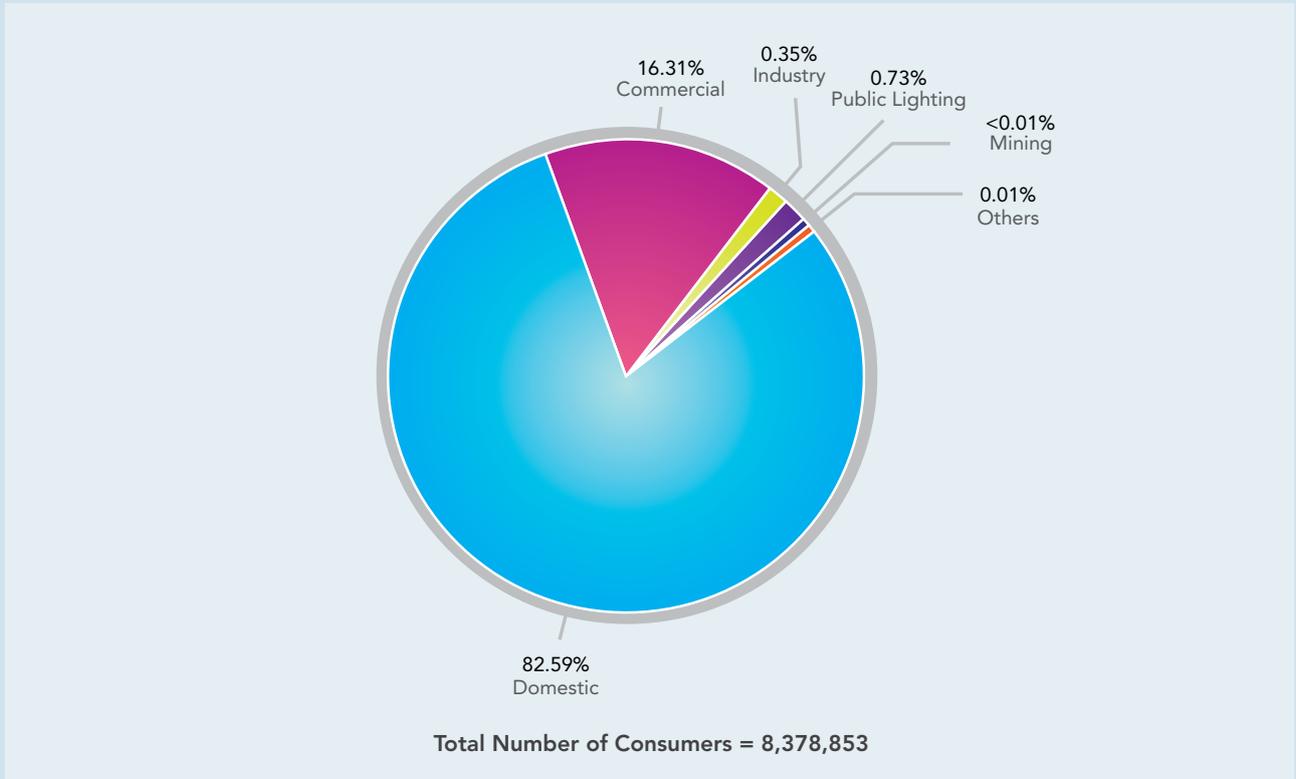


### ELECTRICITY GENERATION BY MAJOR POWER PRODUCERS



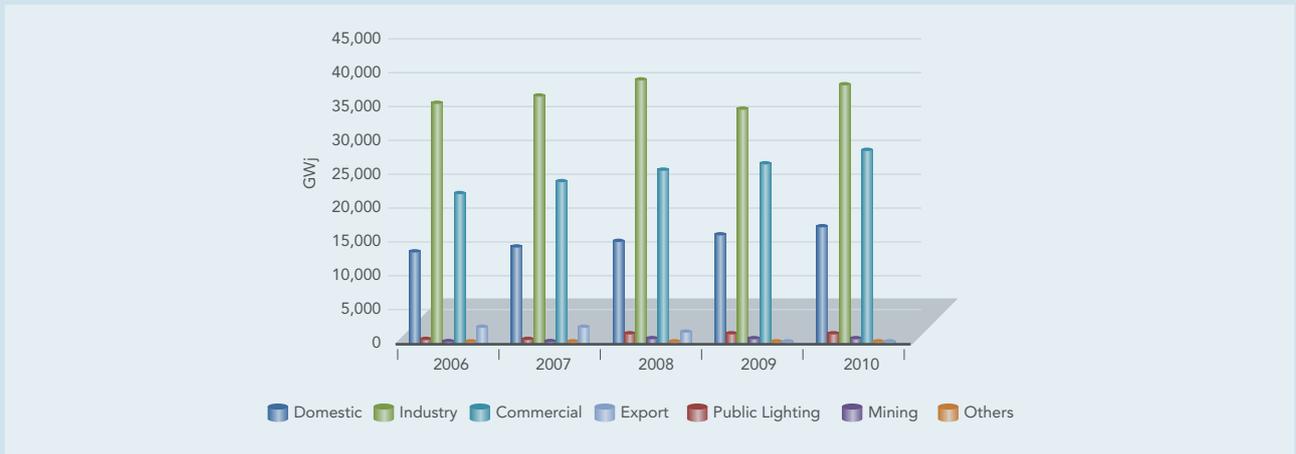
Note : Generation Mix (GWh) including the amount of electricity generated from Small Renewable Energy Power Programme (SREP), Co-Generation and Self-Generation.

## NUMBER OF CONSUMERS BY SECTOR



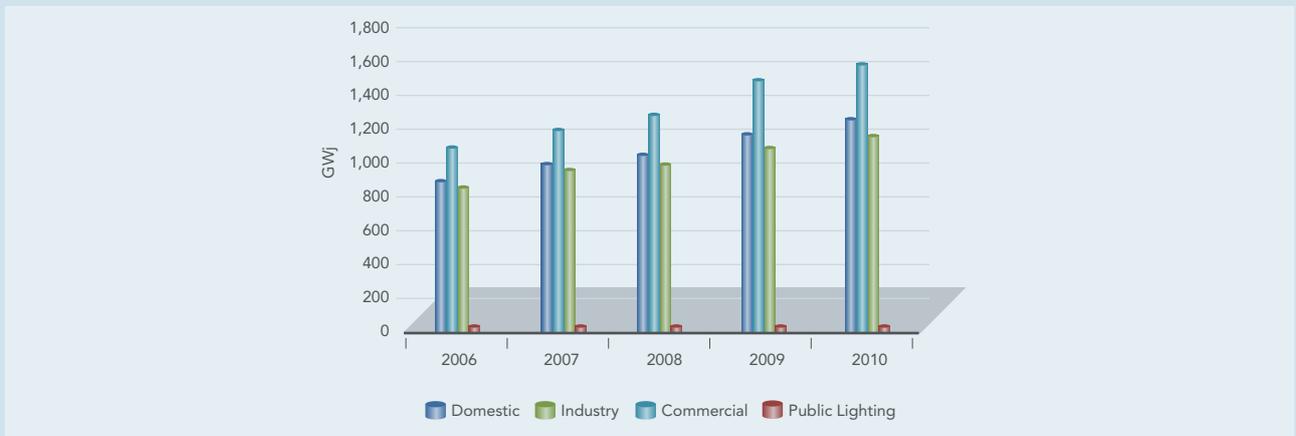
Calendar Year 2010

### SALES OF ELECTRICITY - TENAGA NASIONAL BERHAD



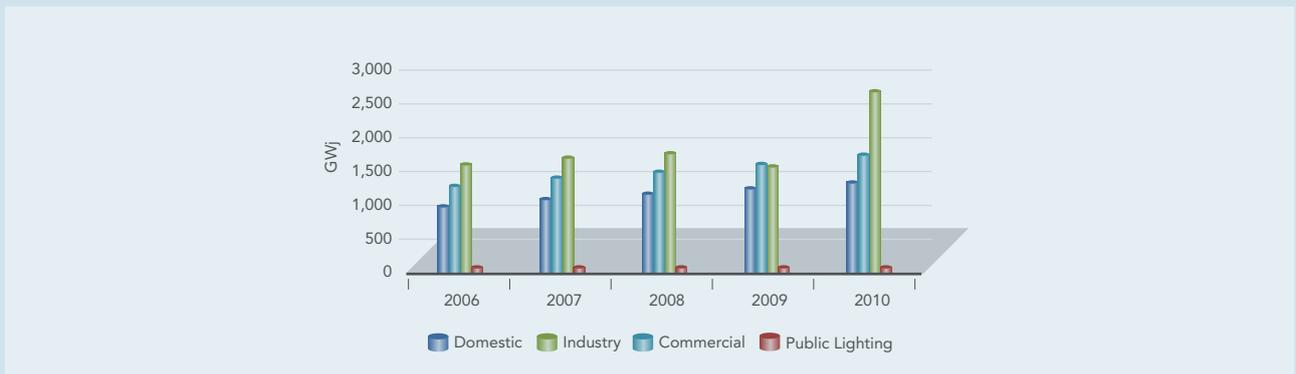
Financial Year 2009/10

### SALES OF ELECTRICITY - SABAH ELECTRICITY SDN. BHD.



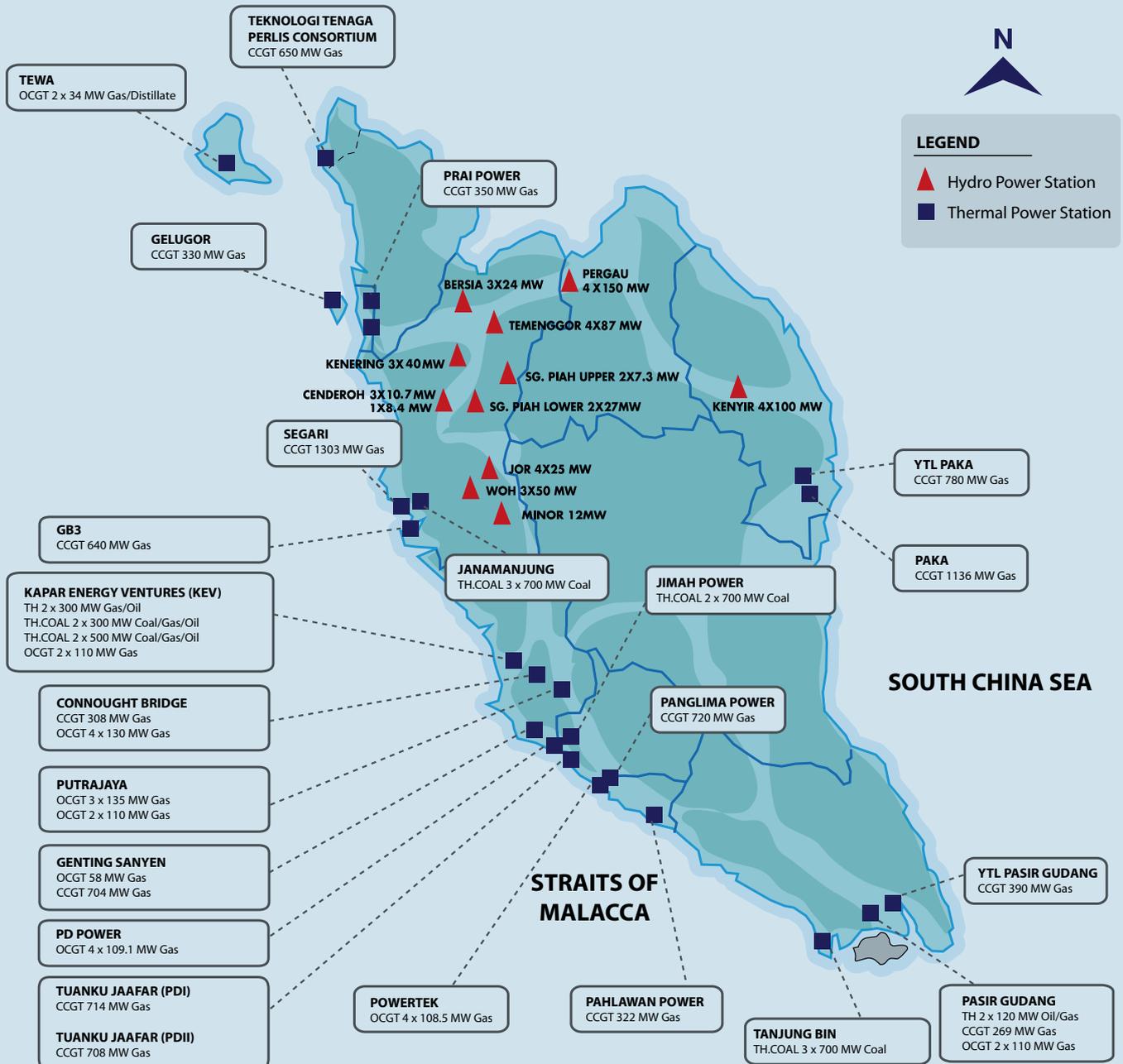
Financial Year 2009/10

### SALES OF ELECTRICITY - SARAWAK ENERGY BERHAD



Financial Year 2009/10

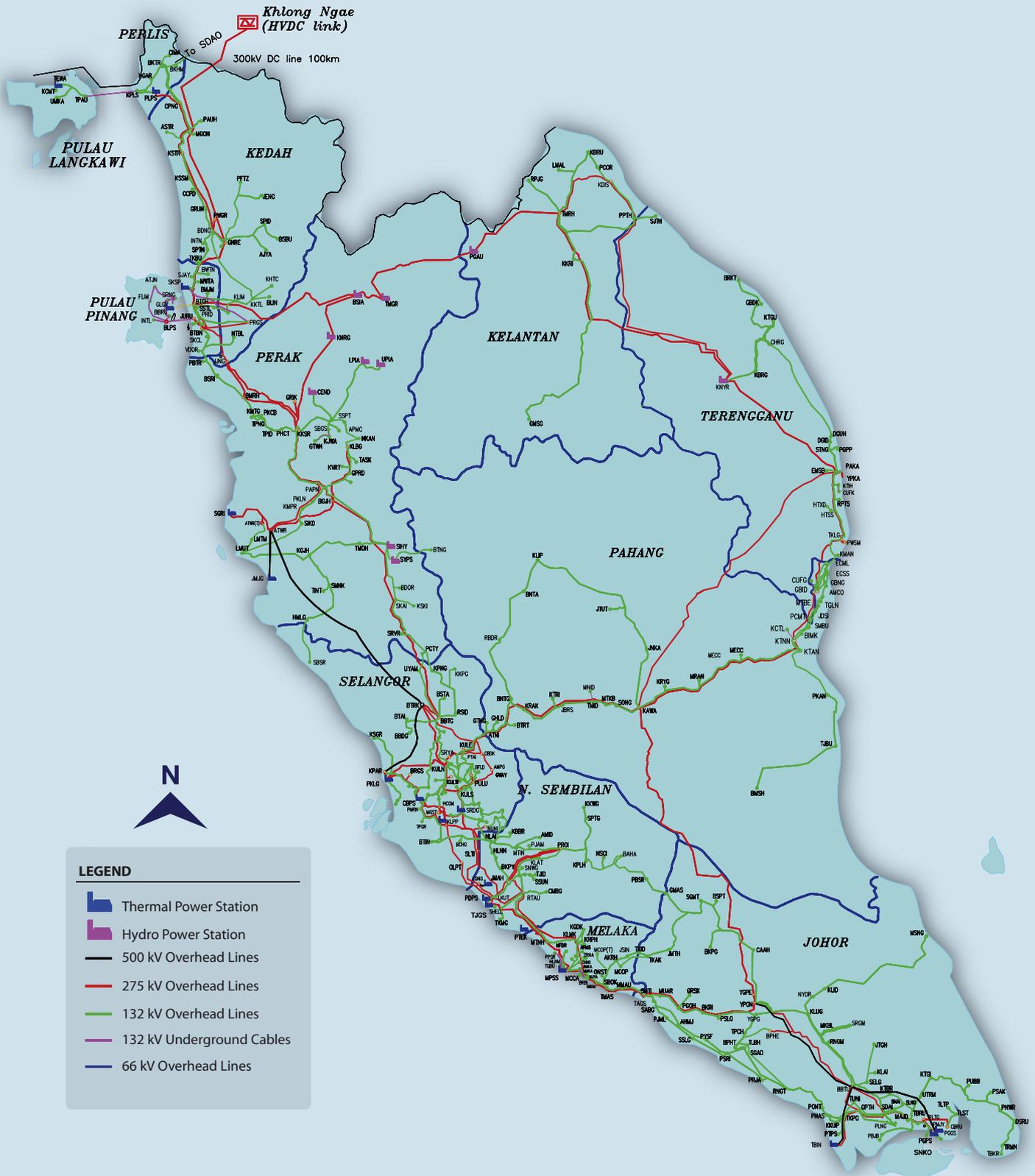
# MAJOR POWER STATION IN PENINSULAR MALAYSIA



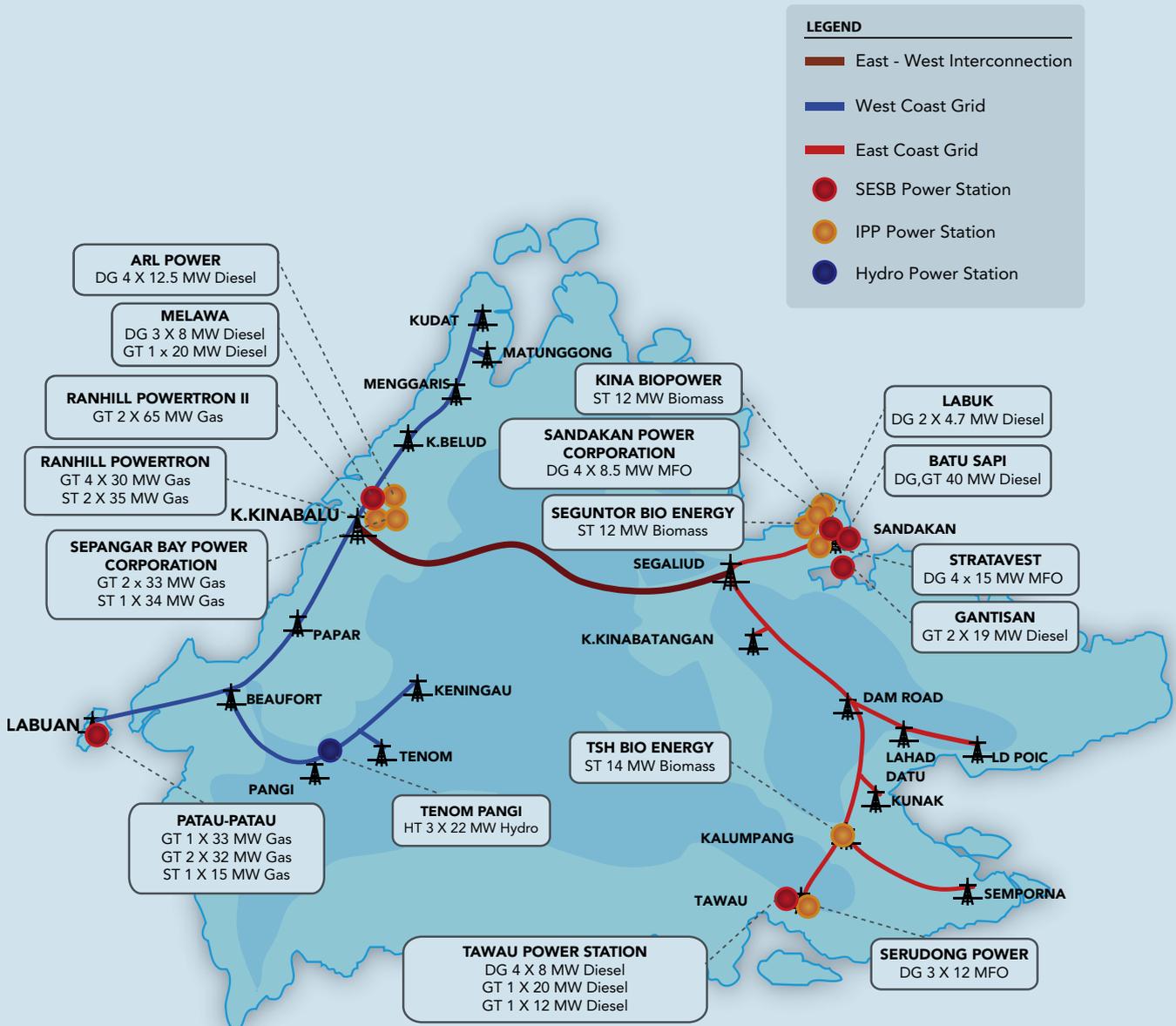
Notes :

- TH : Conventional Thermal
- TH.COAL : Thermal Coal
- CCGT : Combine Cycle Gas Turbine
- OCGT : Open Cycle Gas Turbine

# TNB GRID SYSTEM 2010



# MAJOR POWER STATION AND GRID SYSTEM IN SABAH



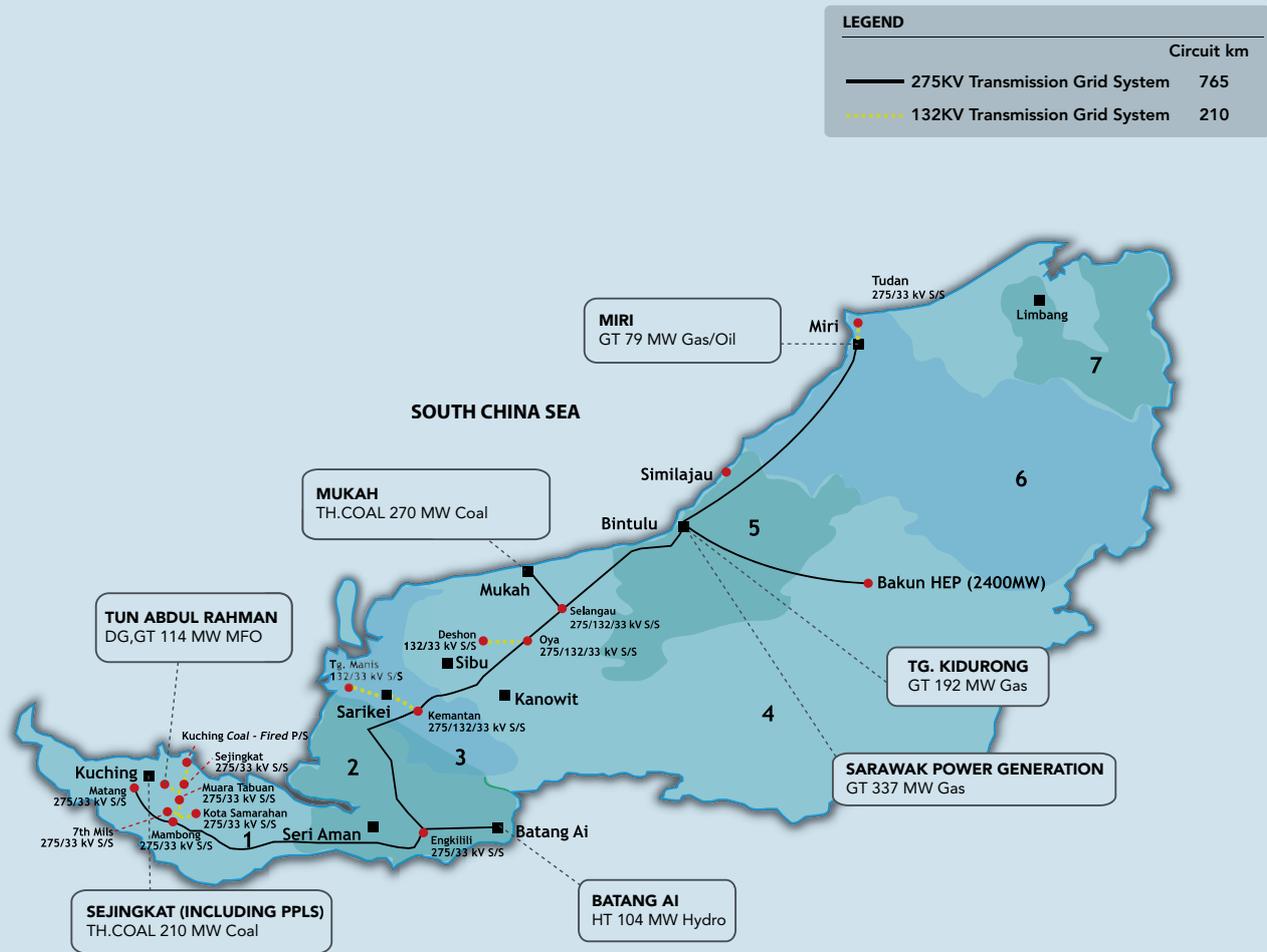
Legend :

- ST : Steam Turbine
- GT : Gas Turbine
- DG : Diesel Generator
- HT : Hydro Turbine

Notes :

- Installed generation capacity (MW) excluding the total generation capacity of :
  - Small Power Stations = 13.5 MW
  - Mini Hydro = 7.2 MW
  - Rural Power Stations = 2.6 MW
- Additional of 60 MW generation capacity by RPII is expected to be in operation by end of March 2011

# MAJOR POWER STATION AND GRID SYSTEM IN SARAWAK



Notes :

- 1 Western Region
- 2 Sri Aman Region
- 3 Sarikei Region
- 4 Central Region
- 5 Bintulu Region
- 6 Northern Region
- 7 Limbang Region

Legend :

- TH.COAL : Conventional Coal
- HT : Hydro Turbine
- GT : Gas Turbine
- DG : Diesel Generator

## NOTE

## NOTE

[www.st.gov.my](http://www.st.gov.my)

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