

**Disediakan oleh:**  
**Jabatan Perbekalan Elektrik**  
**Suruhanjaya Tenaga**

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## Forward

There are three main electricity supply utilities in Malaysia operating in different parts of the country: Tenaga Nasional Berhad (TNB) in Peninsular Malaysia, Sabah Electricity Supply Berhad (SESB) in the State of Sabah and Sarawak Electricity Supply Corporation (SESCO) in the State of Sarawak. These utility companies undertake generation, transmission, distribution and supply activities in their respective areas of supply. Besides generating electricity from their own power stations, they also purchase power from the independent power producers and to a lesser extent, from co-generators. The Federal Government of Malaysia is the biggest shareholder of TNB while majority of the shares of SESCO is owned by the Sarawak State Government and SESB is the wholly owned subsidiary of TNB. Since the concept of privatization was first introduced in the power sector in Malaysia in 1990, to date there are over twenty investor-owned independent power producers in the country supplying power to the utilities through long term power purchase agreements. The model of privatization of the power sector in Malaysia has been seen by many as a successful measure in reducing the burden of the government in financing electricity supply infrastructure projects, in attracting private investment to the power sector, in promoting competition and efficiency in the industry and in improving quality of supply and customer services of the utilities but yet has enabled the country to maintain electricity at competitive and affordable prices.

Apart from these three utilities there are several small distributors who buy electricity from the utilities or generate their own power, mostly by co-generation, and distribute to customers within certain specific areas such as industrial complexes. Typical examples are Petronas Gas who generates electricity by co-generation and distribute power to the consumers in the two integrated petrochemical complexes i.e. the Central Utility Facilities in Gebeng, Pahang and Kerteh in Terengganu and KKIP Power Sdn. Bhd. who purchases power from SESB to distribute to the customers in the Kota Kinabalu Industrial Park in Sabah. There are also suppliers such as owners or management of big commercial complexes who buy electricity in bulk at higher voltage levels and provide supply to the tenants within the complexes such as Malaysia Airport Sdn. Bhd. who buys power and chilled water from an on site co-generator of electricity and chilled water and supplies electricity to the tenants within the Kuala Lumpur International Airport complex and Jaya Jusco Stores Sdn. Bhd. who purchases power from TNB and supplies to the tenants within its shopping complex.

The spate of blackouts stretching from north America across the Atlantic Ocean to Europe plaguing some of the most developed countries in the world where the power sectors have been reformed or are in an advanced stage of restructuring has raised the concerns of many on the security of supply. Coincidentally, a power interruption had also occurred in the northern part



of Peninsular Malaysia on 1<sup>st</sup> September 2003. However, the result of the study conducted on the security of the grid system in the Peninsula reveals that the transmission system is of world class and the reserved margin for generation is better than many other countries.

The grid system in the Peninsula, which consists of 132/275/500 kV transmission lines spanning from the Singapore border in the south to the Thailand interconnection points in the north, is able to meet the transmission requirement up to the next decade and beyond. In the Peninsula, 3571 MW of new generation capacities had been added to the grid in the year 2003 consisting of a 3 x 700 MW coal fired power station, two new combined cycle power stations with their respective capacities of 650 MW and 350 MW and the completion of two combined cycle blocks with the addition of a 211 MW steam turbine in one of the power stations and a 260 MW steam turbine in another power station. With the existing peak demand of 12,000 MW and a generation capacity of 17,000 MW, the projected demands in the next 2 to 3 years can be easily satisfied. Further more, several thousand megawatts of new generation capacities are now under construction or have been scheduled to be implemented and will be commissioned in the next few years. In short, the generation and transmission facilities have been properly planned to meet future demands in the country. However, in the coming years, there will be more emphasis on further improving the efficiency of the industry, the security of supply, the quality of supply and

customer services while at the same time appropriate measures will be taken to ensure competitive and affordable electricity prices to the consumers.

In the year 2003, the total electricity generated in the country was 83,300 GWh of which 72.8% was by gas, 16.3% by coal, 6.2% by hydro, 4.0% by oil products and 0.7% by biomass and others. Out of the 78,900 GWh produced by the utilities and IPPs, 45,450 GWh or 57.6% was contributed by IPPs.

At the end of 2003, the total installed generation capacity of the utilities and IPPs in the country was 18,800 MW with a plant mix of 58.2% gas turbine and combined cycle, 19.3% coal, 11.3% hydro, 7.5% oil, 3.4% diesel and the remaining others. The total capacity of co-generation in operation was 800 MW producing 3,500 GWh of electricity.

The total number of customers for the three utilities was 6.46 millions of which 83.3% was residential, 15.5% commercial, 0.4% industrial and 0.8% others. The industrial sector consumed 50.8% of the 70,030 GWh of electricity supplied by the three utilities, the commercial sector 29.0% and the residential sector 19.0%.

In line with the objective of the government to promote renewable energy as the fifth fuel in addition to gas, coal, hydro and oil, the Small Renewable Energy Program (SREP) was launched in 2001 to encourage the private sector to undertake small power generation projects using renewable

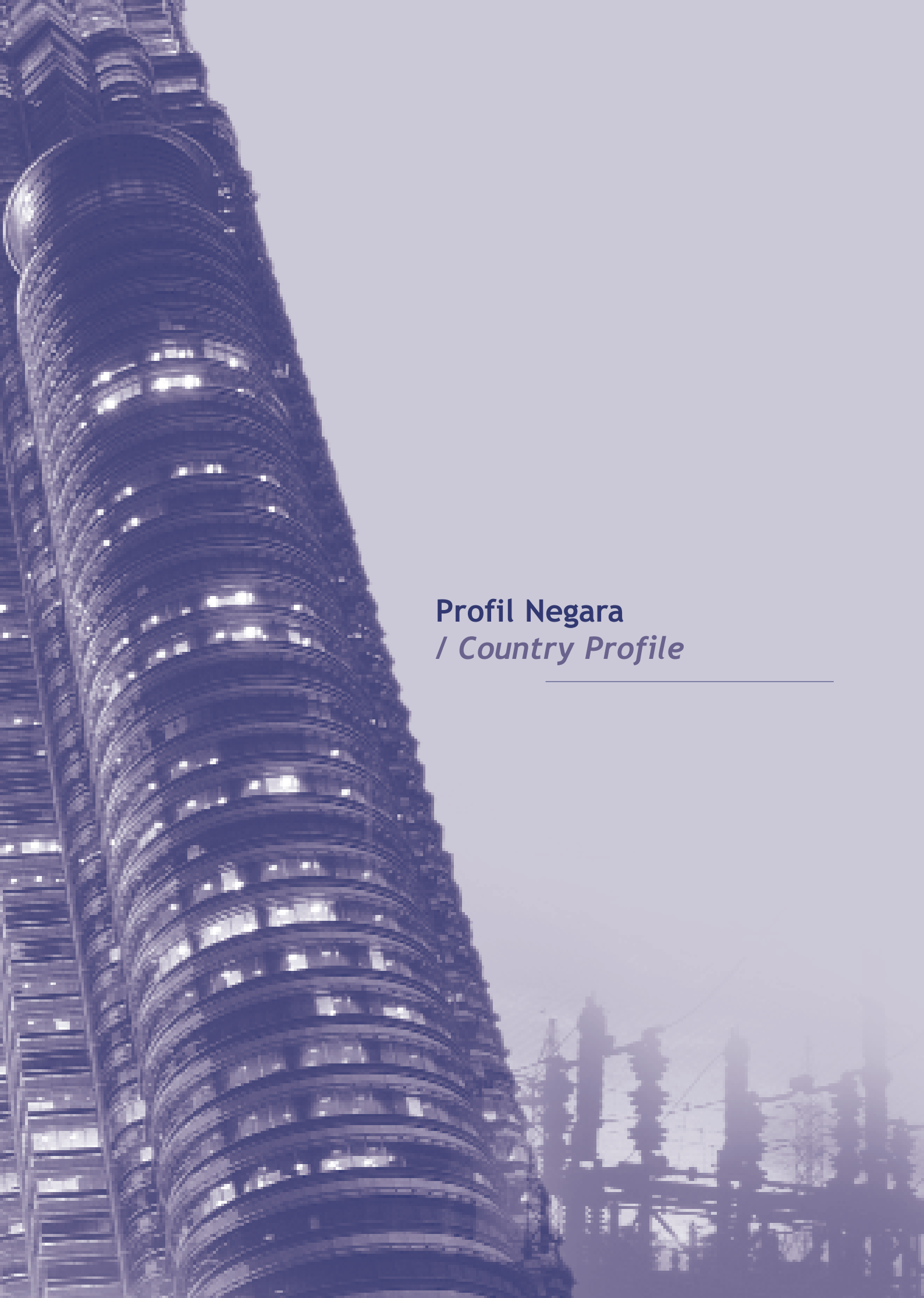
resources, especially the biomass residues which are abundant in the agriculture sector such as oil palm plantations. However, the progress has not been very encouraging. Out of a total of 52 projects approved until the end of 2003, only 6 projects are in physical implementation stage. Some of the barriers faced by the project developers include: risks in long term fuel supply, difficulties in securing project finance and challenges in negotiating power purchase

agreements. Better incentives and more favourable environment are required to be provided for the investors if the target and objective of the government in promoting renewable energy is to be met.

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Electricity Supply Department





**Profil Negara**  
*/ Country Profile*

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Area	329,733 sq.km
Climate	- Tropical Type - Average temperature between 20°C to 32°C - Average rainfall of about 3540 mm per annum
Population	25.1 <sup>P</sup> million with a multi racial community comprising Malays, Chinese, Indians, Kadazans, Bajaus, Muruts, Kelabits, Dayaks, Ibans and others
Labour force	10.5 million <sup>P</sup>
Real GDP	RM230.7 billion <sup>P</sup> (+5.2% <sup>P</sup> )
Nominal Per Capita Income	RM14,592 <sup>P</sup>
Real GNP	RM215.4 billion <sup>P</sup> (+6.6% <sup>P</sup> )
Nominal GNP	RM 369.4 billion <sup>P</sup> (+10.1% <sup>P</sup> )
Current Account Balance	50.8 billion <sup>P</sup> (+13.7% <sup>P</sup> of GNP)*
Foreign Reserves	RM 170.5 billion <sup>P</sup> (6.8 months of retained imports)*
Gross National savings	36.9 <sup>P</sup> (as % of GNP)*
Total Electricity Generation	83,300 GWh
Total Electricity Consumption	74,100 GWh
Per Capita Electricity Consumption	2,950 kWh
Average Price of Electricity:	
Peninsular Malaysia	23.4 sen per kWh
Sabah	26.5 sen per kWh
Sarawak	26.7 sen per kWh

<sup>P</sup> : Preliminary

\* At end of December 2003





**Peta Malaysia**  
*/ Map of Malaysia*

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## Peta Malaysia Map of Malaysia





**Kadar Tarif Di Malaysia**  
*/ Tariff Rates in Malaysia*

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## TARIFF RATES OF TENAGA NASIONAL BERHAD

No	Tariff Category	Unit	Rates	Promotional Discount*
1.	<b>Tariff A - Domestic Tariff</b>			
	For the first 200 units per month	sen/kWh	21.80	Nil
	For the next 800 units per month	sen/kWh	25.80	Nil
	For additional units per month	sen/kWh	27.80	Nil
	Minimum monthly charge	RM	2.50	
2.	<b>Tariff B - Low Voltage Commercial Tariff</b>			
	For all units	sen/kWh	28.80	-4
	Minimum monthly charge	RM	6.00	
3.	<b>Tariff C1 - Medium Voltage General Commercial Tariff</b>			
	For each kilowatt of maximum demand per month	RM/kW	17.30	Nil
	For all units	sen/kWh	20.80	-4
	Minimum monthly charge	RM	500.00	
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	25.70	Nil
	For all units during the Peak Period	sen/kWh	20.80	-4
	For all units during the Off-Peak Period	sen/kWh	12.80	Nil
	Minimum monthly charge	RM	500.00	
5.	<b>Tariff D - Low Voltage Industrial Tariff</b>			
	For all units	sen/kWh	25.80	-4
	<i>Specially for customers who qualify</i>			
	For all units	sen/kWh	23.80	-4
	Minimum monthly charge	RM	6.00	
6.	<b>Tariff E1 - Medium Voltage General Industrial Tariff</b>			
	For each kilowatt of maximum demand per month	RM/kW	17.30	Nil
	For all units	sen/kWh	19.80	-4
	<i>Specially for customers who qualify</i>			
	For each kilowatt of maximum demand per month	RM/kW	3.20	Nil
	For all units	sen/kWh	18.80	-4
	Minimum monthly charges	RM	500.00	
7.	<b>Tariff E2 - Medium Voltage Peak / Off-Peak Industrial Tariff</b>			
	For each kilowatt of maximum demand per month during the Peak Period	RM/kW	21.70	Nil
	For all units during the Peak Period	sen/kWh	20.80	-4
	For all units during the Off-Peak Period	sen/kWh	12.80	Nil
	<i>Specially for customers who qualify</i>			
		For each kilowatt of maximum demand per month during the Peak Period	RM/kW	18.40
	For all units during the Peak Period	sen/kWh	18.80	
	For all units during the Off-Peak Period	sen/kWh	10.80	-4
	Minimum monthly charges	RM	500.00	Nil

## TARIFF RATES OF TENAGA NASIONAL BERHAD

No	Tariff Category	Unit	Rates	Promotional Discount*
8.	<b>Tariff E3 - High Voltage Peak / Off-Peak Industrial Tariff</b>			
	For each kilowatt of maximum demand per month during the Peak Period	RM/kW	20.80	Nil
	For all units during the Peak Period	sen/kWh	19.80	-4
	For all units during the Off-Peak Period	sen/kWh	11.80	Nil
	<i>Specially for customers who qualify</i>			
	For each kilowatt of maximum demand per month during the Peak Period	RM/kW	16.20	Nil
	For all units during the Peak Period	sen/kWh	17.80	-4
	For all units during the Off-Peak Period	sen/kWh	9.80	Nil
	Minimum monthly charges	RM	500.00	
9.	<b>Tariff F - Low Voltage Mining Tariff</b>			
For all units	sen/kWh	21.80	-4	
Minimum monthly charge	RM	100.00		
10.	<b>Tariff F1 - Medium Voltage General Mining Tariff</b>			
For each kilowatt of maximum demand per month	RM/kW	12.00	Nil	
For all units	sen/kWh	17.80	-4	
Minimum monthly charge	RM	100.00		
11.	<b>Tariff F2 - Medium Voltage Peak / Off-Peak Mining Tariff</b>			
For each kilowatt of maximum demand per month during the Peak Period	RM/kW	17.00	Nil	
For all units during the Peak Period	sen/kWh	17.80	-4	
For all units during the Off-Peak Period	sen/kWh	9.80	Nil	
Minimum monthly charge	RM	100.00		
12.	<b>Tariff G - Public &amp; Street Lighting Tariff</b>			
For all units (including maintenance)	sen/kWh	17.30	Nil	
For all units (excluding maintenance)	sen/kWh	10.80	Nil	
13.	<b>Tariff G1 - Neon Light &amp; Floodlight Tariff</b>			
For all units	sen/kWh	11.80	Nil	

N.B

- Consumers, whose consumption for the month exceed 10 percent of the average monthly consumptions over the previous 6 months, are eligible for the promotional discount for that particular month.
- 'Specially for consumers who qualify' means industrial customers with electricity cost exceeding 5% of the total cost of production of their products.
- Low Voltage : Below 6.6kV  
Medium Voltage : 6.6KV to 66kV  
High Voltage : Exceeding 66kV
- Peak Period : 0800 hours to 2200 hours  
Off-Peak Period : 2200 hours to 0800 hours



## TARIFF RATES OF TENAGA NASIONAL BERHAD

### Rates for Top Up and Standby Services

	Tariff Class	Unit	Top up	Rates	
				Standby	
				Firm	Non-Firm
1.	<b>Tariff C1 - Medium Voltage General Commercial Tariff</b>				
	Maximum Demand Charge For all Units	RM/kW/month sen/unit	17.30 20.80	25.00	9.30
2.	<b>Tariff C2 - Medium Voltage Peak/Off-Peak Commercial Tariff</b>				
	Maximum Demand Charge For all units during the Peak Period For all units during the Off-Peak Period	RM/kW/month sen/unit sen/unit	25.70 20.80 12.80	25.00	10.50
3.	<b>Tariff E1 - Medium Voltage Peak/Off-Peak Industrial Tariff</b>				
	Maximum Demand Charge For all Units	RM/kW/month sen/unit	17.30 19.80	25.00	8.80
	<i>Special for customers who qualify</i> Maximum Demand Charge For all Units	RM/kW/month sen/unit	13.20 18.80	25.00	6.70
4.	<b>Tariff E2 - Medium Voltage Peak/Off-Peak Industrial Tariff</b>				
	Maximum Demand Charge For all units during the Peak Period For all units during the Off-Peak Period	RM/kW/month sen/unit sen/unit	21.70 20.80 12.80	25.00	8.70
	<i>Special for customers who qualify</i> Maximum Demand Charge For all units during the Peak Period For all units during the Off-Peak Period	RM/kW/month sen/unit sen/unit	18.40 18.80 10.80	25.00	7.30
5.	<b>Tariff E3 - High Voltage Peak/Off-Peak Industrial Tariff</b>				
	Maximum Demand Charge For all units during the Peak Period For all units during the Off-Peak Period	RM/kW/month sen/unit sen/unit	20.80 19.80 11.80	25.00	7.60
	<i>Special for customers who qualify</i> Maximum Demand Charge For all units during the Peak Period For all units during the Off-Peak Period	RM/kW/month sen/unit sen/unit	16.20 17.80 9.80	25.00	5.90

## TARIFF RATES OF TENAGA NASIONAL BERHAD

### *Rates for Top Up and Standby Services*

Tariff Class	Unit	Top up	Rates	
			Standby	
			Firm	Non-Firm
6. <b>Tariff F1 - Medium Voltage General Mining Tariff</b>				
Maximum Demand Charge For all Units	RM/kW/month sen/unit	12.00 17.80	25.00	4.80
7. <b>Tariff F2 - Medium Voltage Peak/Off-Peak Mining Tariff</b>				
Maximum Demand Charge For all units during the Peak Period For all units during the Off-Peak Period	RM/kW/month sen/unit sen/unit	17.00 17.80 9.80	25.00	6.70



## TARIFF RATES FOR SABAH ELECTRICITY SENDIRIAN BERHAD (SESB)

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



## TARIFF RATES FOR WILAYAH PERSEKUTUAN LABUAN

### Tariff Structure and Rates

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



## TARIFF RATES FOR SARAWAK ELECTRICITY SUPPLY CORPORATION (SESCO)

No	Tariff Category	Unit	Rates
	<b>COMMERCIAL</b>		
1.	<b>Tariff C1</b> (Applicable to consumer taking commercial supply whose estimated monthly consumption does not exceeds 100,000 kWh) 0-100 units per month 101-5000 units per month Above 5000 units per month Minimum monthly charge	sen/kWh sen/kWh sen/kWh RM	40 34 30 10.00
2.	<b>Tariff C2</b> (Generally available on application to consumer taking commercial supply whose estimated monthly consumption exceeds 100,000 kWh) Maximum demand price Energy Price Minimum monthly charge	RM/kW sen/kWh RM/kW	12.00 25 12.00
3.	<b>Tariff C3</b> (Generally available on application to consumer taking commercial supply whose estimated monthly consumption exceeds 100,000 kWh)  PEAK PERIOD (0700 hours-2400 hours) Maximum demand price Energy Price  OFF-PEAK PERIOD (0000 hours-0700 hours) Energy Price Minimum monthly charge	RM/kW sen/kWh  sen/kWh RM/kWh	20.00 25  10 20.00
	<b>INDUSTRIAL</b>		
4.	<b>Tariff I1</b> (Applicable to consumer taking industrial supply whose estimated monthly consumption does not exceeds 100,000 kWh) 0-100 units per month 101-3000 units per month Above 3000 units per month Minimum monthly charge	sen/kWh sen/kWh sen/kWh RM	40 30 21 10.00
5.	<b>Tariff I2</b> (Industrial available on application to consumer taking industrial supply whose estimated monthly consumption exceeds 100,000 kWh) Maximum demand price Energy Price Minimum monthly charge	RM/kW sen/kWh RM/kW	12.00 17 12.00

## TARIFF RATES FOR SARAWAK ELECTRICITY SUPPLY CORPORATION (SESCO)

No	Tariff Category	Unit	Rates
6.	<b>Tariff I3</b> (Generally available on application to consumer taking industrial supply whose estimated monthly consumption exceeds 100,000 kWh)  PEAK PERIOD (0700 hours-2400 hours) Maximum demand Price Energy Price  OFF-PEAK PERIOD (0000 hours-0700 hours) Energy Price Minimum monthly charge	   RM/kW sen/kWh   sen/kWh RM/kW	   20.00 17   10 20.00
7.	<b>DOMESTIC</b>  <b>Tariff D</b> (Applicable to consumer taking domestic supply) 0-100 units per month 101-400 units per month Above 400 units per month Minimum monthly charge	   sen/kWh sen/kWh sen/kWh RM	   34 29 33 5.00
8.	<b>PUBLIC LIGHTING</b>  <b>Tariff PL</b> (Applicable to consumer taking lighting supply) Energy Price Minimum monthly charge	   sen/kWh RM	   47 10.00





**Statistik Tenaga Nasional  
Berhad (TNB)**

*Statistics of Tenaga  
Nasional Berhad (TNB)*

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## Tenaga Nasional Berhad (TNB)

Tahun Kewangan ( <i>Financial Year</i> )		2000	2001	2002	2003
<b>A.</b>	<b>Jualan Tenaga (GWj) (<i>Sales of Energy (GWh)</i>)</b>				
(1)	Domestik ( <i>Domestic</i> )	9,093	10,315	10,939	11,765
(2)	Komersial ( <i>Commercial</i> )	14,747	16,196	17,032	18,367
(3)	Industri ( <i>Industrial</i> )	29,818	30,754	31,371	33,440
(4)	Lampu Awam ( <i>Public Lighting</i> )	527	590	629	663
(5)	Perlombongan ( <i>Mining</i> )	69	67	64	56
(6)	Eksport ( <i>Export</i> )	7	5	19	193
(7)	Lain-lain ( <i>Others</i> )	-	-	-	-
	<b>Jumlah (<i>Total</i>)</b>	<b>54,261</b>	<b>57,927</b>	<b>60,054</b>	<b>64,484</b>

<b>B.</b>	<b>Campuran Penjanaan (GWj) (<i>Generation Mix (GWh)</i>)</b>				
(1)	Hidro ( <i>Hydro</i> )	5,971	4,992	4,444	4,032
(2)	Gas ( <i>Gas</i> )	23,223	22,826	* 21,636	* 16,719
(3)	Arangbatu ( <i>Coal</i> )	4,038	6,238	8,953	7,599
(4)	Minyak ( <i>Oil</i> )	1,424	1,600	3,573	330
(5)	Distillate ( <i>Distillate</i> )	29	235	-	-
(6)	Disel ( <i>Diesel</i> )	-	-	-	-
(7)	Lain-lain ( <i>Others</i> )	-	-	-	-
	<b>Jumlah (<i>Total</i>)</b>	<b>34,685</b>	<b>35,891</b>	<b>38,606</b>	<b>28,680</b>

\* Termasuk penjanaan menggunakan distillate  
*Inclusion of generation using distillate*

## Tenaga Nasional Berhad (TNB)

Tahun Kewangan ( <i>Financial Year</i> )		2000	2001	2002	2003
<b>C.</b>	<b>Bilangan Pengguna (<i>No. of Consumers</i>)</b>				
(1)	Domestik ( <i>Domestic</i> )	4,186,799	4,354,125	4,569,628	4,788,255
(2)	Komersial ( <i>Commercial</i> )	792,887	821,801	862,826	903,981
(3)	Industri ( <i>Industrial</i> )	21,235	21,483	21,382	21,317
(4)	Lampu Awam ( <i>Public Lighting</i> )	26,158	26,439	27,793	37,391
(5)	Perlombongan ( <i>Mining</i> )	49	42	45	32
(6)	Lain-lain ( <i>Others</i> )	-	-	-	-
	<b>Jumlah (<i>Total</i>)</b>	<b>5,027,128</b>	<b>5,223,890</b>	<b>5,481,674</b>	<b>5,750,976</b>

<b>D.</b>	<b>Kapasiti Penjanaan (MW) (<i>Generation Capacity (MW)</i>)</b>				
(1)	Hidro ( <i>Hydro</i> )	1,891	1,874	1,910	1,910
(2)	Gas Turbine & Combined Cycle	3,266	3,427	3,302	3,430
(3)	Arangbatu ( <i>Coal</i> )	600	1,524	1,447	1,421
(4)	Conventional Thermal ( <i>Oil/Gas</i> )	1,426	1,405	1,396	1,402
(5)	Disel ( <i>Diesel</i> )	-	-	-	-
(6)	Lain-lain ( <i>Others</i> )	-	-	-	-
(7)	<b>Jumlah Penjanaan (<i>Total Generation</i>)</b>	<b>7,183</b>	<b>8,230</b>	<b>8,055</b>	<b>8,163</b>
(8)	Kebolehdapatan Keseluruhan ( <i>Overall Availability (%)</i> )	85.8	N/A	N/A	85
(9)	Kos Penjanaan (sen/kWj) ( <i>Cost Of Generation (sen/kWh)</i> )				
	a) Penjanaan Sendiri ( <i>Own Generation</i> )	10.60	10.89	11.25	10.20
	b) Tenaga Dibeli ( <i>Energy Purchased</i> )	15.55	14.84	15.26	14.95
	c) Kos Keseluruhan- (a) & (b) ( <i>Overall Cost - (a) &amp; (b)</i> )	12.76	12.70	13.05	11.69



## Tenaga Nasional Berhad (TNB)

Tahun Kewangan ( <i>Financial Year</i> )		2000	2001	2002	2003
<b>E.</b>	<b>Keupayaan Sistem Penghantaran</b> ( <i>Transmission System Capacity</i> )				
(1)	<b>Talian/Kabel Sistem Penghantaran (km)</b> ( <i>Transmission System Lines/Cables (km)</i> )				
	i. 500 KV	* 715	* 890	* 890	* 890
	ii. 275 KV	5,425	5,574	5,736	6,103
	iii. 132 KV	8,420	9,576	9,164	9,943
	iv 66 KV	316	346	346	171
(2)	<b>Pencawang Penghantaran</b> ( <i>Transmission Substations</i> )				
	i. Bilangan ( <i>Number</i> )	366	374	349	407
	ii. Keupayaan (MVA) ( <i>Capacity (MVA)</i> )	48,973	51,033	56,673	61,335
(3)	<b>Prestasi (<i>Performance</i>)</b>				
	a) Sistem Minit ( <i>System Minutes</i> )	19	17	20	14
	b) Bilangan Kejadian Pelantikan ( <i>Number of Incidents of Trippings</i> )	176	117	118	418
	c) Tenaga Yang Tidak Dibekal ( <i>Unsupplied Energy (MWh)</i> )	3,129	2,789	3,662	2,734
<b>F.</b>	<b>Keupayaan Sistem Pengagihan</b> ( <i>Distribution System Capacity</i> )				
(1)	<b>Talian/Kabel Sistem Pengagihan (km)</b> ( <i>Distribution System Lines/Cables</i> )				
	i. Talian ( <i>Overhead Lines</i> )	# 6,371	174,479	359,920	328,731
	ii. Kabel ( <i>Underground Cables</i> )	175,762	220,536	228,804	273,700
(2)	<b>Pencawang Pengagihan (<i>Distribution Substations</i>)</b>				
	i. Bilangan ( <i>Number</i> )	45,948	45,987	47,483	48,916
	ii. Keupayaan (MVA) ( <i>Capacity (MVA)</i> )	35,083	38,191	41,231	41,954
(3)	<b>Prestasi (<i>Performance</i>)</b>				
	Bilangan Gangguan Bekalan ( <i>Number of Interruption of Supply</i> )	51,964	47,296	31,328	27,047



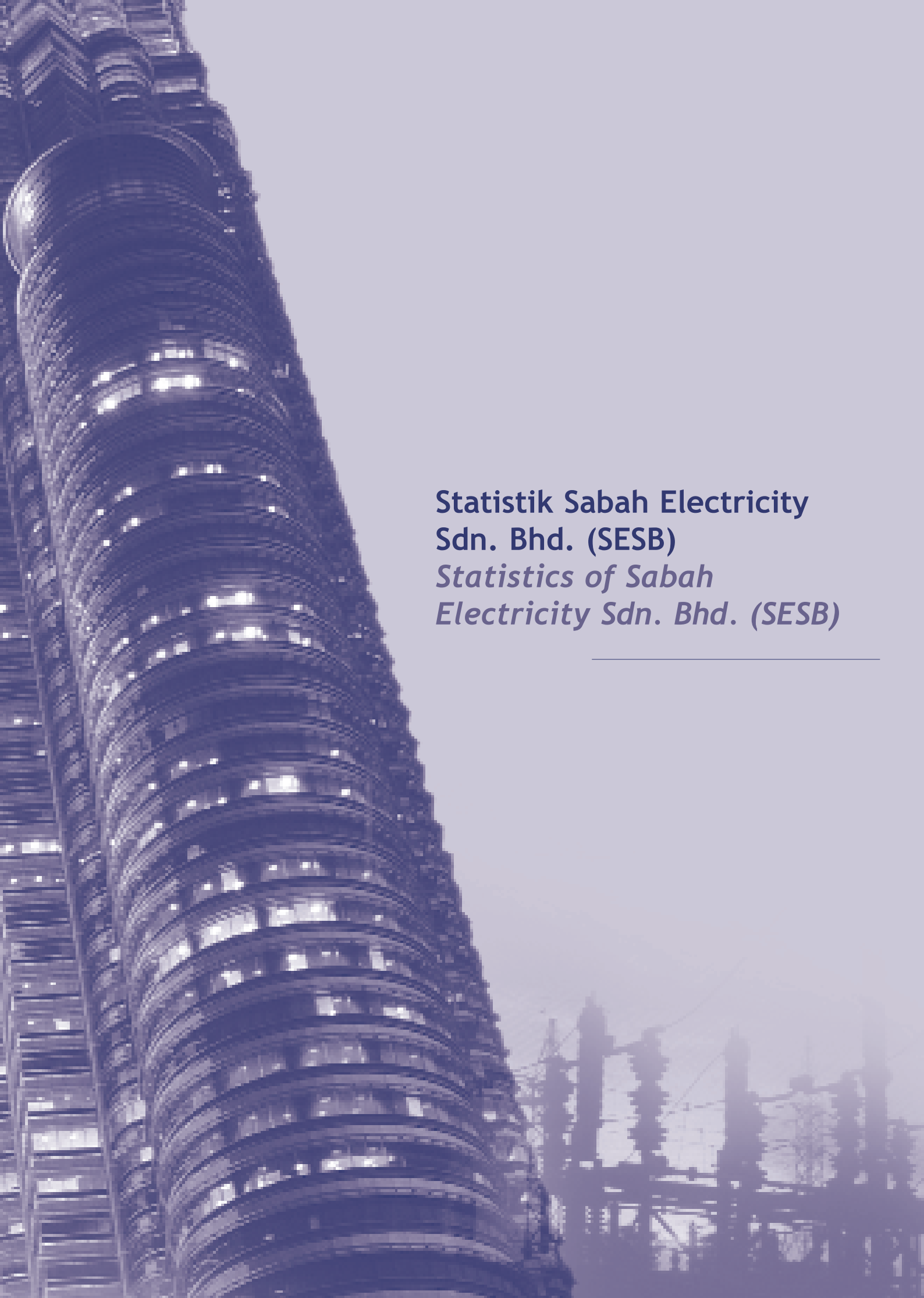
## Tenaga Nasional Berhad (TNB)

Tahun Kewangan ( <i>Financial Year</i> )		2000	2001	2002	2003
<b>G.</b>	<b>Pencapaian Prestasi (<i>Performance Highlights</i>)</b>				
(1)	<b>Kehendak Maksimum (MW)</b> <i>Maximum Demand (MW)</i>	9,712	10,060	10,783	11,329
(2)	<b>Jumlah Unit Penjanaan (GWj)</b> <i>Total Units Generated (GWh)</i>	34,685	35,891	38,606	28,680
(3)	<b>Jumlah Unit Jualan (GWj)</b> <i>Total Units Sold (GWh)</i>	54,261	57,927	60,054	64,484
(4)	<b>Hasil Jualan Elektrik (RM Juta)</b> <i>Sales of Electricity (RM million)</i>	12,751	13,453	14,097	15,050
(5)	<b>Kapasiti Penjanaan Terpasang (MW)**</b> <i>Installed Generation Capacity (MW)</i>	7,183	8,230	8,055	8,163
(6)	<b>Jumlah Kakitangan</b> <i>Total Number of Employees</i>	22,301	23,063	23,589	24,124
(7)	<b>Hasil Jualan Setiap Kakitangan (RM Juta)</b> <i>Revenue Per Employee (RM million)</i>	0.57	0.58	0.6	0.62
(8)	<b>Unit Jualan Setiap Kakitangan (GWj)</b> <i>Units Sold Per Employee (GWh)</i>	2.43	2.51	2.55	2.67
(9)	<b>Kapasiti Penjanaan Setiap Kakitangan (MW)</b> <i>Generation Capacity Per Employee (MW)</i>	0.32	0.36	0.34	0.34
(10)	<b>Jumlah Unit Pembelian (GWj)</b> <i>Total Units Purchased (GWh)</i>	27,740	28,817	31,391	43,200
(11)	<b>Jumlah Unit Eksport(GWj)</b> <i>Total Units Exported (GWh)</i>	7	5	19	193
(12)	<b>Jumlah Unit Impot(GWj)</b> <i>Total Units Imported(GWh)</i>	13	5	9	0.4
(13)	<b>Overall System Average Interruption Duration Index (SAIDI)(minutes/customer/year)</b>	351	281	149	114

N.B.

1. \* 693.6km dikendalikan pada voltan 275kV  
693.6km operated at 275kV
2. \*\* Kapasiti penjanaan TNB Generation Sdn. Bhd. dan TNB Hidro Sdn. Bhd.  
Generation capacities of TNB Generation Sdn. Bhd. and TNB Hidro Sdn. Bhd.
3. # Tidak termasuk talian rendah atas  
# Excluding LV overhead lines





**Statistik Sabah Electricity  
Sdn. Bhd. (SESB)**  
*Statistics of Sabah  
Electricity Sdn. Bhd. (SESB)*

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## Sabah Electricity Sdn. Bhd. (SESB)

Tahun Kewangan ( <i>Financial Year</i> )		2000	2001	2002	2003
<b>A.</b>	<b>Jualan Tenaga (GWj) (<i>Sales of Energy (GWh)</i>)</b>				
(1)	Domestik ( <i>Domestic</i> )	643	646	691	725
(2)	Komersial ( <i>Commercial</i> )	740	766	839	874
(3)	Industri ( <i>Industrial</i> )	499	564	622	699
(4)	Lampu Awam ( <i>Public Lighting</i> )	31	29	30	34
(5)	Perlombongan ( <i>Mining</i> )	-	-	-	-
(6)	Eksport ( <i>Export</i> )	-	-	-	-
(7)	Lain-lain ( <i>Others</i> )	-	-	-	-
	<b>Jumlah (<i>Total</i>)</b>	<b>1,913</b>	<b>2,005</b>	<b>2,182</b>	<b>2,332</b>

<b>B.</b>	<b>Campuran Penjanaan (GWj) (<i>Generation Mix (GWh)</i>)</b>				
(1)	Hidro ( <i>Hydro</i> )	491	461	437	453
(2)	Gas ( <i>Gas</i> )	159	258	388	471
(3)	Arangbatu ( <i>Coal</i> )	-	-	-	-
(4)	Minyak ( <i>Oil</i> )	-	-	-	-
(5)	Distillate ( <i>Distillate</i> )	-	-	-	-
(6)	Disel ( <i>Diesel</i> )	414	420	427	477
(7)	Lain-lain ( <i>Others</i> )	-	-	-	-
	<b>Jumlah (<i>Total</i>)</b>	<b>1,064</b>	<b>1,139</b>	<b>1,252</b>	<b>1,401</b>

## Sabah Electricity Sdn. Bhd. (SESB)

Tahun Kewangan ( <i>Financial Year</i> )		2000	2001	2002	2003
<b>C.</b>	<b>Bilangan Pengguna (<i>No. of Consumers</i>)</b>				
(1)	Domestik ( <i>Domestic</i> )	242,309	252,869	261,447	265,795
(2)	Komersial ( <i>Commercial</i> )	43,198	45,142	46,797	47,550
(3)	Industri ( <i>Industrial</i> )	2,681	2,628	2,613	2,598
(4)	Lampu Awam ( <i>Public Lighting</i> )	2,224	2,342	2,524	2,672
(5)	Perlombongan ( <i>Mining</i> )	-	-	-	-
(6)	Lain-lain ( <i>Others</i> )	-	-	-	-
	<b>Jumlah (<i>Total</i>)</b>	<b>290,412</b>	<b>302,981</b>	<b>313,381</b>	<b>318,585</b>

<b>D.</b>	<b>Kapasiti Penjanaan (MW) (<i>Generation Capacity (MW)</i>)</b>				
(1)	Hidro ( <i>Hydro</i> )	66	66	66	66
(2)	Gas ( <i>Gas</i> )	104	104	104	104
(3)	Arangbatu ( <i>Coal</i> )	-	-	-	-
(4)	Minyak ( <i>Oil</i> )	-	-	-	-
(5)	Distillate ( <i>Distillate</i> )	-	-	-	-
(6)	Disel ( <i>Diesel</i> )	300	311	302	290
(7)	Lain-lain[Bekalan Elektrik Luar Bandar-Disel & Hidro-Mini] ( <i>Others[Rural Electrifications - Diesel &amp; Mini-Hydro]</i> )	*2	*6	*6	*6
(8)	Jumlah Penjanaan ( <i>Total Generation</i> )	472	487	478	466
(9)	Kebolehdapatan Keseluruhan ( <i>Overall Availability(%)</i> )	N/A	N/A	82.32	83.50
(10)	Kos Penjanaan(sen/kWj) ( <i>Cost Of Generation)(sen/kWh)</i> )				
	a) Penjanaan Sendiri ( <i>Own Generation</i> )	16.50	13.90	18.10	17.62
	b) Tenaga Dibeli ( <i>Energy Purchased</i> )	30.78	26.70	26.70	23.35
	c) Kos Keseluruhan- (a) & (b) ( <i>Overall Cost - (a) &amp; (b)</i> )	24.16	21.04	21.04	20.9

\*Hidro-mini (Mini-hydro)



## Sabah Electricity Sdn. Bhd. (SESB)

Tahun Kewangan ( <i>Financial Year</i> )		2000	2001	2002	2003
<b>E.</b>	<b>Keupayaan Sistem Penghantaran</b> ( <i>Transmission System Capacity</i> )				
(1)	<b>Talian/Kabel Sistem Penghantaran (km)</b> ( <i>Transmission System Lines/Cables (km)</i> )				
	i. 500 KV	-	-	-	-
	ii. 275 KV	-	-	-	-
	iii. 132 KV	497	542	542	1,870
	iv. 66 KV	123	123	123	122
(2)	<b>Pencawang Penghantaran</b> ( <i>Transmission Substations</i> )				
	i. Bilangan ( <i>Number</i> )	17	17	17	23
	ii. Keupayaan (MVA) ( <i>Capacity (MVA)</i> )	1,005	1,005	1,005	1,410
(3)	<b>Prestasi (<i>Performance</i>)</b>				
	a) Sistem Minit ( <i>System Minutes</i> )	209	N/A	122	134
	b) Bilangan Kejadian Pelantikan ( <i>Number of Incidents of Trippings</i> )	46	N/A	31	22
	c) Tenaga Yang Tidak Dibekal ( <i>Unsupplied Energy (MWh)</i> )	1,000	2,153	548	660
<b>F.</b>	<b>Keupayaan Sistem Pengagihan</b> ( <i>Distribution System Capacity</i> )				
(1)	<b>Talian/Kabel Sistem Pengagihan (km)</b> ( <i>Distribution System Lines/Cables</i> )				
	i. Talian ( <i>Overhead Lines</i> )	11,593	12,056	13,020	13,500
	ii. Kabel ( <i>Underground Cables</i> )	1,184	1,220	1,281	1,400
(2)	<b>Pencawang Pengagihan (<i>Distribution Substations</i>)</b>				
	i. Bilangan ( <i>Number</i> )	4,012	4,411	4,453	4,196
	ii. Keupayaan (MVA) ( <i>Capacity (MVA)</i> )	1,496	1,433	2,296	2,265
(3)	<b>Prestasi (<i>Performance</i>)</b>				
	Bilangan Gangguan Bekalan ( <i>Number of Interruption of Supply</i> )	10,361	10,442	9,457	10,083

## Sabah Electricity Sdn. Bhd. (SESB)

Tahun Kewangan ( <i>Financial Year</i> )		2000	2001	2002	2003
<b>G.</b>	<b>Pencapaian Prestasi (<i>Performance Highlights</i>)</b>				
(1)	<b>Kehendak Maksimum (MW)</b> ( <i>Maximum Demand (MW)</i> )	391	421	447	477
(2)	<b>Jumlah Unit Penjanaan (GWj)</b> ( <i>Total Units Generated (GWh)</i> )	1,064	1,139	1,252	1,401
(3)	<b>Jumlah Unit Jualan (GWj)</b> ( <i>Total Units Sold (GWh)</i> )	1,913	2,005	2,182	2,332
(4)	<b>Hasil Jualan Elektrik (RM Juta)</b> ( <i>Sales of Electricity (RM million)</i> )	474	496	598	591
(5)	<b>Kapasiti Penjanaan Terpasang (MW)</b> ( <i>Installed Generation Capacity (MW)</i> )	472	487	478	466
(6)	<b>Jumlah Kakitangan</b> ( <i>Total Number of Employees</i> )	2,033	2,062	2,097	2,096
(7)	<b>Hasil Jualan Setiap Kakitangan (RM Juta)</b> ( <i>Revenue Per Employee (RM million)</i> )	0.23	0.24	0.29	0.28
(8)	<b>Unit Jualan Setiap Kakitangan (GWj)</b> ( <i>Units Sold Per Employee (GWh)</i> )	0.94	0.97	1.04	1.11
(9)	<b>Kapasiti Penjanaan Setiap Kakitangan (MW)</b> ( <i>Generation Capacity Per Employee (MW)</i> )	0.23	0.24	0.23	0.22
(10)	<b>Jumlah Unit Pembelian (GWj)</b> ( <i>Total Units Purchased (GWh)</i> )	1,235	1,365	1,457	1,583
(11)	<b>Jumlah Unit Eksport (GWj)</b> ( <i>Total Units Exported (GWh)</i> )	-	-	-	-
(12)	<b>Jumlah Unit Impot (GWj)</b> ( <i>Total Units Imported (GWh)</i> )	-	-	-	-
(13)	<b>Overall System Average Interruption Duration Index (SAIDI)</b>	2,048	2,279	1,779	1,729







**Statistik Perbadanan  
Pembekalan Letrik Sarawak  
(SESCO)**

*Statistics of Sarawak  
Electricity Supply  
Corporation (SESCO)*

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## Perbadanan Pembekalan Letrik Sarawak (SESCO) Sarawak Electricity Supply Corporation (SESCO)

Tahun Kewangan ( <i>Financial Year</i> )		2000	2001	2002	2003
<b>A.</b>	<b>Jualan Tenaga (GWj) (<i>Sales of Energy (GWh)</i>)</b>				
(1)	Domestik ( <i>Domestic</i> )	669	742	805	864
(2)	Komersial ( <i>Commercial</i> )	918	972	1,025	1,107
(3)	Industri ( <i>Industrial</i> )	1,257	1,321	1,381	1,463
(4)	Lampu Awam ( <i>Public Lighting</i> )	30	32	37	37
(5)	Perlombongan ( <i>Mining</i> )	-	-	-	-
(6)	Eksport ( <i>Export</i> )	-	-	-	-
(7)	Lain-lain ( <i>Others</i> )	-	-	-	-
	<b>Jumlah (<i>Total</i>)</b>	<b>2,874</b>	<b>3,067</b>	<b>3,248</b>	<b>3,471</b>

<b>B.</b>	<b>Campuran Penjanaan (GWj) (<i>Generation Mix (GWh)</i>)</b>				
(1)	Hidro (Hydro)	479	503	388	454
(2)	Gas (Gas)	1,249	1,175	1,460	1,449
(3)	Arangbatu (Coal)	-	-	-	-
(4)	Minyak (Oil)	266	249	124	-
(5)	Distillate (Distillate)	-	-	-	-
(6)	Disel (Diesel)	109	176	319	499
(7)	Lain-lain (Others)	-	-	-	-
	<b>Jumlah (<i>Total</i>)</b>	<b>2,103</b>	<b>2,103</b>	<b>2,291</b>	<b>2,402</b>

## Perbadanan Pembekalan Letrik Sarawak (SESCO) Sarawak Electricity Supply Corporation (SESCO)

Tahun Kewangan ( <i>Financial Year</i> )		2000	2001	2002	2003
<b>C.</b>	<b>Bilangan Pengguna (<i>No. of Consumers</i>)</b>				
(1)	Domestik ( <i>Domestic</i> )	270,299	284,711	302,571	323,659
(2)	Komersial ( <i>Commercial</i> )	49,631	51,899	53,993	56,069
(3)	Industri ( <i>Industrial</i> )	775	814	831	838
(4)	Lampu Awam ( <i>Public Lighting</i> )	3,468	3,800	4,150	4,437
(5)	Perlombongan ( <i>Mining</i> )	-	-	-	-
(6)	Lain-lain ( <i>Others</i> )	-	-	-	-
	<b>Jumlah (<i>Total</i>)</b>	<b>324,173</b>	<b>341,224</b>	<b>361,545</b>	<b>385,003</b>

<b>D.</b>	<b>Kapasiti Penjanaan (MW) (<i>Generation Capacity (MW)</i>)</b>				
(1)	Hidro ( <i>Hydro</i> )	101	101	101	101
(2)	Gas ( <i>Gas</i> )	291	291	289	288
(3)	Arangbatu ( <i>Coal</i> )	-	-	-	-
(4)	Minyak ( <i>Oil</i> )	68	75	50	-
(5)	Distillate ( <i>Distillate</i> )	-	-	-	-
(6)	Disel ( <i>Diesel</i> )	91	92	117	171
(7)	Lain-lain ( <i>Others</i> )	-	-	-	-
(8)	<b>Jumlah Penjanaan (<i>Total Generation</i>)</b>	<b>551</b>	<b>559</b>	<b>557</b>	<b>560</b>
(9)	Kebolehdapatan Keseluruhan ( <i>Overall Availability(%)</i> )	N/A	N/A	N/A	N/A
(10)	Kos Penjanaan(sen/kWj) ( <i>Cost Of Generation)(sen/kWh)</i>				
	a) Penjanaan Sendiri ( <i>Own Generation</i> )	7.6	7.7	8.2	8.2 *
	b) Tenaga Dibeli ( <i>Energy Purchased</i> )	4.8	5.0	5.0	4.3 *
	c) Kos Keseluruhan- (a) & (b) ( <i>Overall Cost - (a) &amp; (b)</i> )	12.4	12.7	13.2	12.5 *

\* Unit production cost apportioned to own generation and purchase energy



## Perbadanan Pembekalan Letrik Sarawak (SESCO) Sarawak Electricity Supply Corporation (SESCO)

Tahun Kewangan ( <i>Financial Year</i> )		2000	2001	2002	2003
<b>E.</b>	<b>Keupayaan Sistem Penghantaran</b> ( <i>Transmission System Capacity</i> )				
(1)	<b>Talian/Kabel Sistem Penghantaran (km)</b> ( <i>Transmission System Lines/Cables (km)</i> )				
	i. 500 KV	-	-	-	-
	ii. 275 KV	765	765	765	765
	iii. 132 KV	128	135	136	136
	iv. 66 KV			-	
(2)	<b>Pencawang Penghantaran</b> ( <i>Transmission Substations</i> )				
	i. Bilangan ( <i>Number</i> )	15	17	17	17
	ii. Keupayaan (MVA) ( <i>Capacity (MVA)</i> )	3,240	3,251	3,251	3,251
(3)	<b>Prestasi (<i>Performance</i>)</b>				
	a) Sistem Minit ( <i>System Minutes</i> )	N/A	26	37	2
	b) Bilangan Kejadian Pelantikan ( <i>Number of Incidents of Trippings</i> )	53	30	34	21
	c) Tenaga Yang Tidak Dibekal ( <i>Unsupplied Energy (MWh)</i> )	N/A	225	517	17.5
<b>F.</b>	<b>Keupayaan Sistem Pengagihan</b> ( <i>Distribution System Capacity</i> )				
(1)	<b>Talian/Kabel Sistem Pengagihan (km)</b> ( <i>Distribution System Lines/Cables</i> )				
	i. Talian ( <i>Overhead Lines</i> )	13,958	14,525	15,208	16,072
	ii. Kabel ( <i>Underground Cables</i> )	3,111	3,353	3,553	3,757
(2)	<b>Pencawang Pengagihan (<i>Distribution Substations</i>)</b>				
	i. Bilangan ( <i>Number</i> )	5,256	5,532	5,554	6,249
	ii. Keupayaan (MVA) ( <i>Capacity (MVA)</i> )	3,596	3,855	3,933	4,200
(3)	<b>Prestasi (<i>Performance</i>)</b>				
	Bilangan Gangguan Bekalan ( <i>Number of Interruption of Supply</i> )	N/A	6,004	4,167	6,590

## Perbadanan Pembekalan Letrik Sarawak (SESCO) Sarawak Electricity Supply Corporation (SESCO)

Tahun Kewangan ( <i>Financial Year</i> )		2000	2001	2002	2003
<b>G.</b>	<b>Pencapaian Prestasi (<i>Performance Highlights</i>)</b>				
(1)	<b>Kehendak Maksimum (MW)</b> <i>Maximum Demand (MW)</i>	554	574	604	643
(2)	<b>Jumlah Unit Penjanaan (GWj)</b> <i>Total Units Generated (GWh)</i>	2,103	2,103	2,291	2,402
(3)	<b>Jumlah Unit Jualan (GWj)</b> <i>Total Units Sold (GWh)</i>	2,874	3,067	3,248	3,471
(4)	<b>Hasil Jualan Elektrik (RM Juta)</b> <i>Sales of Electricity (RM million)</i>	759	812	864	927
(5)	<b>Kapasiti Penjanaan Terpasang (MW)</b> <i>Installed Generation Capacity (MW)</i>	551	559	557	560
(6)	<b>Jumlah Kakitangan</b> <i>Total Number of Employees</i>	2,046	2,029	2,025	2,028
(7)	<b>Hasil Jualan Setiap Kakitangan (RM Juta)</b> <i>Revenue Per Employee (RM million)</i>	0.37	0.40	0.43	0.46
(8)	<b>Unit Jualan Setiap Kakitangan (GWj)</b> <i>Units Sold Per Employee (GWh)</i>	1.40	1.51	1.60	1.71
(9)	<b>Kapasiti Penjanaan Setiap Kakitangan (MW)</b> <i>Generation Capacity Per Employee (MW)</i>	0.27	0.28	0.28	0.28
(10)	<b>Jumlah Unit Pembelian (GWj)</b> <i>Total Units Purchased (GWh)</i>	1,245	1,451	1,506	1,657
(11)	<b>Jumlah Unit Eksport (GWj)</b> <i>Total Units Exported (GWh)</i>	-	-	-	-
(12)	<b>Jumlah Unit Impot (GWj)</b> <i>Total Units Imported (GWh)</i>	-	-	-	-
(13)	<b>Overall System Average Interruption Duration Index (SAIDI)</b>	859	731	611	421





**Senarai Penjana Kuasa Bebas**  
*List of Independent Power  
Producers (IPPs)*

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## Senarai Penjana Kuasa Bebas

### List of Independent Power Producers (IPPs)

Bil (No.)	Nama Pelesen (Licensee)	Jenis Loji (Type of Plant)	Kapasiti Berlesen (MW) (Licensed Capacity (MW))	Unit Penjanaan (GWj) (Units Generated (GWh))	Unit Jualan (GWj) (Units Sold (GWh))	Tarikh Lesen Dikeluarkan (Date of Issue of Licence)
1.	<b>YTL Power Generation Sdn. Bhd.</b> (a) Paka, Terengganu  (b) Pasir Gudang, Johor	2x404MW (Combined Cycle)  1x404MW (Combined Cycle)	808  404	8,504	8,344	7-4-1993
2.	<b>Genting Sanyen Power Sdn. Bhd.</b> Kuala Langat, Selangor	1x762MW (Combined Cycle)	762	5,231	4,945	1-7-1993
3.	<b>Segari Energy Ventures Sdn. Bhd.</b> Lumut, Perak	2x651.5MW (Combined Cycle)	1,303	8,025	7,295	15-7-1993
4.	<b>Powertek Bhd.</b> Alor Gajah, Melaka	4x110MW (Gas Turbines)	440	170	169	1-12-1993
5.	<b>Port Dickson Power Bhd.</b> Tanjung Gemuk, Port Dickson	4x110MW (Gas Turbines)	440	206	200	1-12-1993
6.	<b>Projass Engineering Sdn. Bhd.</b>	17MW (Mini Hydro)	17	21	20	1-4-1994
7.	<b>ARL Tenaga Sdn. Bhd.</b> Melawa, Sabah	4x12.5MW (Diesel Engines)	50	139	130	14-6-1994
8.	<b>Musteq Hydro Sdn. Bhd.</b> Sg. Kenerong, Kelantan	2x10MW (Mini Hydro)	20	130	130	18-11-1994
9.	<b>Serudong Power Sdn. Bhd.</b> Tawau, Sabah	3x12MW (Diesel Engines)	36	261	248	31-3-1995
10.	<b>Stratavest Sdn. Bhd.</b> Sandakan, Sabah	4x16MW (Diesel Engines)	64	348	336	1-10-1996



## Senarai Penjana Kuasa Bebas

### List of Independent Power Producers (IPPs)

Bil (No.)	Nama Pelesen (Licensee)	Jenis Loji (Type of Plant)	Kapasiti Berlesen (MW) (Licensed Capacity (MW))	Unit Penjanaan (GWj) (Units Generated (GWh))	Unit Jualan (GWj) (Units Sold (GWh))	Tarikh Lesen Dikeluarkan (Date of Issue of Licence)
11.	Powertron Resources Sdn. Bhd. Karambunai, Sabah	4x30MW (Gas Turbines)	120	726	719	6-2-1997
12.	TNB Generation Sdn. Bhd. **	6,145MW (Various types of thermal plants)	6,145	24,648	24,458	1-9-1997
13.	Sandakan Power Corporation Sdn. Bhd. Sandakan, Sabah	4x8.5MW (Diesel Engines)	34	143	136	29-11-1997
14.	TNB Janamanjung Sdn. Bhd. **	3x700MW (Coal)	2100	5,104	4,948	21-5-1998
15.	Teknologi Tenaga Perlis Consortium Sdn. Bhd. Kuala Sungai Baru, Perlis	1x650MW (Combined Cycle)	650	3,906	3,826	26-8-1998
16.	Nur Generation Sdn. Bhd. Kulim High-Tech Industrial Park, Kedah	* Phase 1 : 2x110MW (Combined Cycle) # Phase 2 : 2x110MW (Combined Cycle)	440	*	*	17-9-1998
17.	Pahlawan Power Sdn. Bhd. Stesen Janakuasa Melaka, Tanjung Keling, Melaka.	1x334MW (Combined Cycle)	334	2,386	2,359	26-5-1999
18.	TNB Hidro Sdn. Bhd. **	1910MW (Hydro)	1,910	4,032	3,489	1-9-2000
19.	Prai Power Sdn. Bhd. Daerah Seberang Perai Tengah Pulau Pinang	1x350MW (Combined Cycle)	350	493	672	9-2-2001



## Senarai Penjana Kuasa Bebas *List of Independent Power Producers (IPPs)*


Bil (No.)	Nama Pelesen (Licensee)	Jenis Loji (Type of Plant)	Kapasiti Berlesen (MW) (Licensed Capacity (MW))	Unit Penjanaan (GWj) (Units Generated (GWh))	Unit Jualan (GWj) (Units Sold (GWh))	Tarikh Lesen Dikeluarkan (Date of Issue of Licence)
20.	<b>GB3 Sdn. Bhd.</b> Lumut, Perak	1x640MW (Combined Cycle)	640	3,757	3,680	7-08-2001
21.	<b>Panglima Power Sdn. Bhd.</b> Alor Gajah, Melaka	1x720MW (Combined Cycle)	720	4,244	4,169	7-08-2001
22.	<b>Sejingkat Power Corporation Sdn. Bhd.</b> Kuching, Sarawak	100MW *** (Coal)	100	732	N/A	N/A
23.	<b>Sarawak Power Generation Sdn. Bhd.</b> Bintulu, Sarawak	2x110MW *** (Combined Cycle)	220	925	N/A	N/A

\* Dalam Pembinaan (*Under Construction*)

\*\* Anak Syarikat TNB (*Wholly Owned Subsidiaries of TNB*)

\*\*\* Anak Syarikat SESCO (*Wholly Owned Subsidiaries of SESCO*)

# Ditangguhkan (*Deferred*)



**Senarai Penjana Kuasa  
Menggunakan Sumber Tenaga  
Yang Boleh Diperbaharui**  
*List of Small Renewable  
Energy Power Producers  
(SREP)*

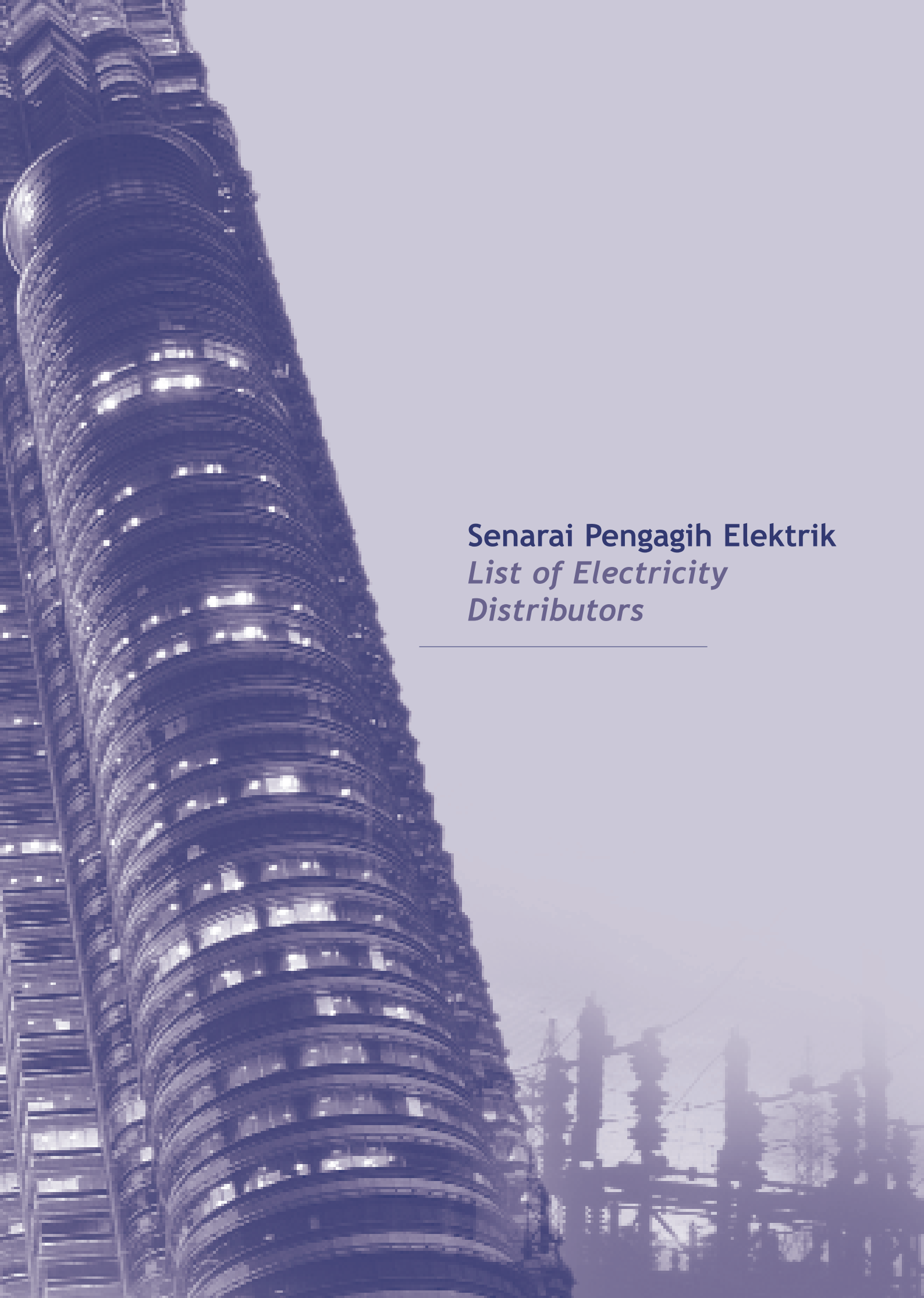
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## Senarai Penjana Kuasa Menggunakan Sumber Tenaga Yang Boleh Diperbaharui / List of Small Renewable Energy Power Producers

Bil (No.)	Nama Pelesen (Licensee)	Jenis Loji (Type of Plant)	Kapasiti Berlesen (MW) (Licensed Capacity (MW))	Jenis Bahan Api (Energy Sources)	Unit Penjanaan (GWj) (Units Generated (GWh))	Unit Jualan (GWj) (Units Sold (GWh))	Tarikh Lesen Dikeluarkan (Date of Issue of Licence)
1.	<b>Bumibiopower Sdn. Bhd.</b> Pantai Remis, Perak.	Turbin Stim (Steam Turbines)	6	Tangkai Buah Sawit (Empty Fruit Bunch)	*	*	13-10-2001
2.	<b>Jana Landfill Sdn. Bhd.</b> Air Hitam Sanitary Landfill Seri Kembangan, Selangor.	Turbin Gas (Gas Turbines)	2	Landfill Gas	*	*	13-10-2001
3.	<b>Palm Energy Sdn. Bhd.</b> Kwantas Oil Sdn Bhd Jalan Kwantas, Lahat Datu, Sabah.	Turbin Stim (Steam Turbines)	8	Sisa Sawit (Waste from Palm Oil)	*	*	6-9-2003
4.	<b>TSH Bio Energy Sdn. Bhd.</b> Km 65, Jalan Tawau-Kunak, Tawau, Sabah.	Turbin Stim (Steam Turbines)	10	Sisa Sawit (Waste from Palm Oil)	*	*	14-10-2003
5.	<b>Potensi Gaya Sdn. Bhd.</b> Sungai Burong Palm Oil Mill, Km 44, Tawau-Lahad Datu Highway, Tawau, Sabah.	Turbin Stim (Steam Turbines)	6	Tangkai Buah Sawit (Empty Fruit Bunch)	*	*	14-10-2003
6.	<b>Alaf Ekspresi Sdn. Bhd.</b> Apas Balung Mill, Tawau-Lahad Datu Highway, Km 35, Locked Bag 28, Borneo Samudra, 91009 Tawau, Sabah.	Turbin Stim (Steam Turbines)	7	Sisa Sawit (Waste from Palm Oil)	*	*	14-10-2003

\* Belum Beroperasi  
Not Operational Yet



**Senarai Pengagih Elektrik**  
*List of Electricity*  
*Distributors*

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## Senarai Pengagih Elektrik / List of Electricity Distributors

Bil (No.)	Nama Pelesen (Licensee)	Kawasan Bekalan (Area of Supply)	Kapasiti Dilesen (MW) (Licensed Capacity (MW))	Tarikh Lesen Dikeluarkan (Date of Issue of Licence)
1.	<b>Gopeng Berhad</b> No 1A, Persiaran Seri Raia, Taman Seri Raia, 31300 Kampung Kepayang, Perak.	Gopeng Tin Mine Area, Gopeng, Perak.	1.2	1-1-1984
2.	<b>Syarikat Elektrik Pulau Ketam</b> 62-K, Jalan Dua, Pulau Ketam, 42490 Port Klang, Selangor.	Bagan Teo Chew, Pulau Ketam, Selangor.	1.2	30-10-1985
3.	<b>Genting Utilities &amp; Services Sdn. Bhd.</b> Tingkat 24, Wisma Genting, Jalan Sultan Ismail, 50250 Kuala Lumpur.	Genting Highlands Area, Pahang.	48.0	17-10-2000
4.	<b>Sabah Forest Industries Sdn. Bhd.</b> No. 10, Jalan Jeti, Kompleks SFI, WDT 31, 89859 Sipitang, Sabah.	Sabah Forest Industries Complex, Sabah	57.7	12-5-1993
5.	<b>Bandar Utama City Corporation Sdn. Bhd.</b> 1, Persiaran Bandar Utama, Bandar Utama, 47800 Petaling Jaya, Selangor.	1 Utama Shopping Complex, Selangor.	100.0	19-1-1994
6.	<b>C3Power Sdn. Bhd.</b> Block F, Lot 51, Ground Floor, Jati Commercial Centre, P.O. Box 80737, 87017 F.T. Labuan, Sabah.	Temporary Settlement Areas.	5.9	18-5-1995
7.	<b>MTBE Malaysia Sdn. Bhd.</b> Lot 111, Kawasan Perindustrial Gebeng, Peti Surat 1, Balok, 26080 Kuantan, Pahang	Supply to Polypropylene Malaysia Sdn. Bhd. Gebeng Industrial Estate, Pahang.	5.6	14-6-1995
8.	<b>Berjantai Tin Dredging Berhad</b> P.O. Box 208, 45600 Batang Berjantai, Selangor.	Tin Mine Area, Batang Berjantai.	2.2	14-6-1995
9.	<b>Seseni Energy Services Sdn. Bhd.</b> 76, Lorong Mamanda 1, Ampang Point, 68000 Ampang, Selangor.	Stadium Merdeka Redevelopment Area Kuala Lumpur.	40.0	1-11-1995
10.	<b>Sunway Pyramid Sdn. Bhd.</b> Lot LL1.10 Sunway Pyramid, No. 3, Jalan PJS 11/15, Bandar Sunway, 46150 Petaling Jaya, Selangor.	Sunway Pyramid Shopping Complex, Selangor.	9.5	1-12-1995

## Senarai Pengagih Elektrik / List of Electricity Distributors

Bil (No.)	Nama Pelesen (Licensee)	Kawasan Bekalan (Area of Supply)	Kapasiti Dileesen (MW) (Licensed Capacity (MW))	Tarikh Lesen Dikeluarkan (Date of Issue of Licence)
11.	<b>EPE Distribution Sdn. Bhd.</b> No. 45-8 & 47-8 The Boulevard, Mid Valley City, Lingkaran Syed Putra, 59200 Kuala Lumpur.	Putra LRT Corridor, Kuala Lumpur	100.0	1-4-1996
12.	<b>Kuantan Port Consortium Sdn. Bhd.</b> Wisma KPC, KM. 25, Tanjung Gelang, Peti Surat 199, 25720 Kuantan, Pahang.	Kuantan Port Authority Area, Pahang.	3.5	1-10-1996
13.	<b>Profound Heritage Sdn. Bhd.</b> Lot 2, 1st Floor, Lorong Grace Square, Jalan Pantai Sembulan, 88100 Kota Kinabalu, Sabah.	Sutera Harbour Resort, Sabah.	19.0	1-10-1996
14.	<b>Wirazone Sdn. Bhd.</b> Level 13A, Block 3B, Plaza Sentral, Jalan Stesen Sentral 5, 50470 Kuala Lumpur.	KL Sentral Development Area, Kuala Lumpur.	60.0	9-10-1996
15.	<b>Kelang Port Authority</b> Beg Berkunci 202, Jalan Pelabuhan Utara, 42005 Pelabuhan Klang, Selangor.	Klang Port Authority Area, Port Klang, Selangor	5.80	25-3-1997
16.	<b>Jaya Jusco Stores Bhd. - (Ulu Kinta, Perak)</b> 4th & 5th Floor, Wisma JUSCO, Jalan 3/27A, Seksyen 1, Bandar Baru Wangsa Maju, 53300 Kuala Lumpur.	Jaya Jusco Shopping Complex, Ipoh, Perak.	2.0	1-8-1997
17.	<b>Pengkalan Bekalan Kemaman Sdn. Bhd.</b> Peti Surat 64, 24007 Kemaman, Terengganu.	Pengkalan Bekalan Kemaman Area, Terengganu.	0.4	4-12-1997
18.	<b>Cryovac (M) Sdn. Bhd.</b> Lot 115, Gebeng Industrial Estate, Peti Surat 30, Balok, 26080 Kuantan, Pahang.	Gebeng Industrial Estates, Pahang.	3.50	15-2-1998
19.	<b>Malaysia Airports (Sepang) Sdn. Bhd.</b> 3rd & 4th Floor, Airport Management Centre, KL International Airport, 64000 KLIA, Selangor.	KLIA, Sepang, Selangor.	46.0	14-3-1998
20.	<b>Petronas Gas Bhd. - CUF Kerteh</b> Centralized Utility Facilities (CUF), Integrated Petrochemical Complex, KM 105, Jalan Kuantan/Kuala Terengganu, 24300 Kertih, Kemaman, Terengganu.	Integrated Petrochemical Complex, Kerteh, Terengganu.	210.0	18-5-1998




## Senarai Pengagih Elektrik / List of Electricity Distributors

Bil (No.)	Nama Pelesen (Licensee)	Kawasan Bekalan (Area of Supply)	Kapasiti Dilesen (MW) (Licensed Capacity (MW))	Tarikh Lesen Dikeluarkan (Date of Issue of Licence)
21.	<b>Petronas Gas Bhd. - CUF Gebeng</b> Centralized Utility Facilities(CUF), Integrated Petrochemical Complex, Lot 139A, Gebeng Industrial Area, Phase 111, 26080 Kuantan, Pahang.	Integrated Petrochemical Complex, Gebeng Industrial Area, Pahang.	105.0	28-5-1998
22.	<b>K.K.I.P. Power Sdn. Bhd.</b> No. G21 & G22, KKIP Amenity Centre, Lot 11B, Export Oriented Industrial Zone Phase 1, Kota Kinabalu Industrial Park, Jalan Sepangar, Menggatal, 88450 Kota Kinabalu, Sabah.	Kota Kinabalu Industrial Park, Sabah.	210.0	15-6-1998
23.	<b>Nur Distribution Sdn. Bhd.</b> Central Control Building(CCB), Lot 30, Jalan Hi-Tech 4, Kulim Hi- Tech Park, 09000 Kulim, Kedah.	Kulim Hi-Tech Park, Kedah.	440.0	17-9-1998
24.	<b>Jaya Jusco Stores Bhd. - Taman Maluri, Cheras</b> Taman Maluri Cheras, 56100 Cheras, Kuala Lumpur.	Taman Jaya Maluri, Cheras, Kuala Lumpur.	3.4	2-10-2000
25.	<b>Gas District Cooling (M) Sdn. Bhd.</b> <b>Universiti Teknologi Petronas,</b> <b>Tronoh, Perak.</b> Level 46, Tower 1, Petronas Twin Towers, Kuala Lumpur City Centre, 50088 Kuala Lumpur.	Kampus University Technology Petronas Ipoh, Perak.	8.4	10-3-2001
26.	<b>Ikano Corporation Sdn. Bhd.</b> No. 2, Jalan PJU 7/2, Mutiara Damansara, 47800 Petaling Jaya, Selangor.	Mutiara Damansara, Selangor.	7.9	23-12-2003

NB \* Projek Pembangunan Belum Mula  
Project Development Not Commenced Yet





**Senarai *Co-Generators* Utama**  
*List of Major Co-Generators*

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## Senarai Co-Generators Utama / List of Major Co-Generators

Bil (No.)	Nama Pelesen (Licensee)	Kapasiti (MW) (Capacity (MW))	Jenis Lesen (Type of Licence)	Bahan Api (Fuels)	Top Up (MW) (Top Up (MW))	Tunggu-Sedia (MW) (Standby (MW))	Penjanaan (MWj) (Generation (MWh))
1.	<b>Sabah Forest Industries Sdn. Bhd.</b> Sipitang, Sabah.	57.7	Awam (Public)	Sisa Kayu/Disel (Wood/Diesel)	-	-	305,040
2.	<b>Perwaja Steel Sdn. Bhd.</b> Tanjung Berhala, Kemaman, Terengganu.	9.5	Persendirian (Private)	Haba Buangan Proses Perindustrian (Waste Heat From Industrial Process)	169	-	31,468
3.	<b>Lembaga Padi Dan Beras Negara,</b> Sekinchan, Selangor.	0.2	Persendirian (Private)	Bahan Buangan Pertanian (Agriculture Waste)	0.5	-	0
4.	<b>Lembaga Padi Dan Beras Negara</b> Sg. Ranggam (Ulu Dedap), Kg. Gajah, Perak.	0.6	Persendirian (Private)	Bahan Buangan Pertanian (Agriculture Waste)	2.3	-	657
5.	<b>Padiberas Nasional Bhd</b> Changkat Lada, Kg. Gajah, Perak.	0.6	Persendirian (Private)	Bahan Buangan Pertanian (Agriculture Waste)	2.3	-	2,651

## Senarai Co-Generators Utama / List of Major Co-Generators

Bil (No.)	Nama Pelesen (Licensee)	Kapasiti (MW) (Capacity (MW))	Jenis Lesen (Type of Licence)	Bahan Api (Fuels)	Top Up (MW) (Top Up (MW))	Tunggu-Sedia (MW) (Standby (MW))	Penjanaan (MWj) (Generation (MWh))
6.	<b>Consolidated Plantations Bhd.</b> Tennamaran, Batang Berjuntai, Selangor	2.0	Persendirian (Private)	Bahan Buangan Pertanian (Agriculture Waste)	-	-	3,923
7.	<b>Consolidated Plantations Bhd.</b> Nova Scotia Palm Oil Mill, Batu 5, Jalan Maharaja Lela, 36009 Teluk Intan, Perak.	3.4	Persendirian (Private)	Bahan Buangan Pertanian (Agriculture Waste)	-	-	3,330
8.	<b>Gas District Cooling (M) Sdn. Bhd.</b> Kuala Lumpur City Centre (KLCC)	40.0	Awam (Public)	Gas Asli (Natural Gas)	-	-	130,346
9.	<b>Gas District Cooling (KLIA) Sdn. Bhd.</b> Kuala Lumpur International Airport, Sepang, Selangor.	60.0	Awam (Public)	Gas Asli (Natural Gas)	-	-	233,930
10.	<b>See Sen Chemical Bhd.</b> Kawasan Perindustrian Telok Kalong, Kemaman, Terengganu.	6.0	Awam (Public)	Haba Buangan Proses Perindustrian (Waste Heat From Industrial Process)	-	2.4	25,603
11.	<b>Public Holdings Sdn. Bhd.</b> Jalan Ayer Hitam, Mukim Dengkil, Sepang, Selangor.	1.8	Persendirian (Private)	Gas Asli (Natural Gas)	1.0	-	4,567
12.	<b>Tractors Malaysia (1982) Sdn. Bhd.</b> Kampung Puchong, Daerah Petaling, Selangor.	1.2	Persendirian (Private)	Gas Asli (Natural Gas)	0.9	-	2,450



## Senarai Co-Generators Utama / List of Major Co-Generators

Bil (No.)	Nama Pelesen (Licensee)	Kapasiti (MW) (Capacity (MW))	Jenis Lesen (Type of Licence)	Bahan Api (Fuels)	Top Up (MW) (Top Up (MW))	Tunggu-Sedia (MW) (Standby (MW))	Penjanaan (MWj) (Generation (MWh))
13.	<b>Profound Heritage Sdn. Bhd.</b> Sutera Harbour Resort, Kota Kinabalu, Sabah.	38.0	Awam (Public)	Disel/Gas Asli (Diesel/ Natural Gas)	-	-	6,900
14.	<b>TCL Industries (M) Sdn. Bhd.</b> Telok Kalong Industrial Area, Kemaman, Terengganu.	7.0	Persendirian (Private)	Haba Buangan Proses Perindustrian (Waste Heat From Industrial Process)	-	-	6,890
15.	<b>Malaysian Mosaics Bhd.</b> Batu 3, Mukim Kluang, Jalan Batu Pahat, Kluang, Johor.	4.2	Persendirian (Private)	Gas Asli (Natural Gas)	1.5	4.2	1,460
16.	<b>Malaysian Newsprint Industries Sdn. Bhd.</b> Lot 3771, Jalan Lencongan Mentakab- Temerloh 28400 Mentakab, Pahang.	79.2	Persendirian (Private)	Minyak (Oil)	-	-	292,650
17.	<b>Titan Petrochemicals (M) Sdn. Bhd.</b> Plo 312, Jalan Tembaga 4, Pasir Gudang Industrial Estate, Pasir Gudang, Johor.	56.0	Persendirian (Private)	Gas Buangan Proses Perindustrian (Waste Gas From Industrial Process)	6	10	259,774
18.	<b>Titan Petrochemicals (M) Sdn. Bhd.</b> PLO 8, Tanjung Langsung Industrial Park, Mukim Sg. Tiram, Johor Bharu, Johor.	42.6	Persendirian (Private)	Gas Asli (Natural Gas)	6.0	31	190,472
19.	<b>Shell Refining Company (FOM) Bhd.</b> Batu 1, Jalan Pantai, Port Dickson, Negeri Sembilan.	35.0	Awam (Public)	Gas Buangan Proses Perindustrian (Waste Gas from Industrial Process)	-	17.5	151,049

## Senarai Co-Generators Utama / List of Major Co-Generators

Bil (No.)	Nama Pelesen (Licensee)	Kapasiti (MW) (Capacity (MW))	Jenis Lesen (Type of Licence)	Bahan Api (Fuels)	Top Up (MW) (Top Up (MW))	Tunggu-Sedia (MW) (Standby (MW))	Penjanaaan (MWj) (Generation (MWh))
20. (*)	<b>Bandar Utama City Corp. Sdn. Bhd.</b> No. 1, Pesiaran Bandar Utama, Petaling Jaya.	50.0	Awam (Public)	Gas Asli (Natural Gas)	50	-	-
21. (*)	<b>Wirazone Sdn. Bhd.</b> Kuala Lumpur Sentral Development, Brickfields, Kuala Lumpur.	12.0	Awam (Public)	Gas Asli (Natural Gas)	55	-	-
22. (*)	<b>CCM Chemicals Sdn. Bhd.</b> Pasir Gudang Works, Plot 411, Kaw. 4, Jalan Perak Satu, Pasir Gudang, Johor.	15.0	Persendirian (Private)	Gas Asli (Natural Gas)	2	6.5	-
23. (*)	<b>Amoco Chemical (Malaysia) Sdn. Bhd.</b> Lot 116, Gebeng Industrial Estate, P.O. Box 11, Balok, 26080 Kuantan, Pahang.	21.6	Persendirian (Private)	Gas Asli (Natural Gas)	2.4	27	-
24. (*)	<b>Seseni Energy Services Sdn. Bhd.</b> Plaza Merdeka, Jalan Stadium, Kuala Lumpur.	8.8	Awam (Public)	Gas Asli (Natural Gas)	35	-	-
25.	<b>Petronas Methanol (Labuan) Sdn. Bhd.</b> Kompleks Petronas Methanol (Labuan), Kawasan Perindustrian Ranca-Ranca,	12.8	Awam (Public)	Gas Asli (Natural Gas)	-	-	61,049
26.	<b>Petronas Gas Bhd.</b> Kertih, Terengganu.	210.0	Awam (Public)	Gas Asli (Natural Gas)	-	-	1,142,662



## Senarai Co-Generators Utama / List of Major Co-Generators

Bil (No.)	Nama Pelesen (Licensee)	Kapasiti (MW) (Capacity (MW))	Jenis Lesen (Type of Licence)	Bahan Api (Fuels)	Top Up (MW) (Top Up (MW))	Tunggu-Sedia (MW) (Standby (MW))	Penjanaan (MWj) (Generation (MWh))
27.	<b>Petronas Gas Bhd.</b> Gebeng, Kuantan, Pahang.	105.0	Awam (Public)	Gas Asli (Natural Gas)	-	-	570,517
28.	<b>Tian Siang Oil Mill (Perak) Sdn. Bhd.</b> Lot 2161, Batu 21, Jalan Beruas, Padang Gajah, 32700 Beruas, Perak.	1.8	Persendirian (Private)	Bahan Buangan Pertanian (Agriculture Waste)	-	-	199
29.	<b>Central Sugars Refinery Sdn. Bhd.</b> Batu Tiga, 40000 Shah Alam, Selangor	9.2	Persendirian (Private)	Disel/MFO (Diesel/MFO)	-	-	28,885
30.	<b>BASF-Petronas Chemicals Sdn. Bhd.</b> Lot 139, Kawasan Perindustrian Gebeng, 26080 Kuantan, Pahang	12.5	Persendirian (Private)	Gas Asli (Natural Gas)	27.5	-	36,230
31. (*)	<b>Gas District Cooling (M) Sdn. Bhd.</b> Universiti Teknologi Petronas Tronoh, Perak	8.4	Awam (Public)	Gas Asli (Natural Gas)	1.0	4.0	-
32. (*)	<b>Penfibre Sdn. Bhd.</b> Lot 109-114 Kawasan Perindustrian Bebas Prai Zon 1, 13600 Prai, Pulau Pinang	35.4	Persendirian (Private)	Gas Asli (Natural Gas)	1.4	2.5	-

## Senarai Co-Generators Utama / List of Major Co-Generators

Bil (No.)	Nama Pelesen (Licensee)	Kapasiti (MW) (Capacity (MW))	Jenis Lesen (Type of Licence)	Bahan Api (Fuels)	Top Up (MW) (Top Up (MW))	Tunggu-Sedia (MW) (Standby (MW))	Penjanaan (MWj) (Generation (MWh))
33. (*)	Nibong Tebal Paper Mill Sdn Bhd. 886, Jalan Bandar Baru, Sg. Kecil, 14300 Nibong Tebal S.P.S.Pulau Pinang.	0.8	Persendirian (Private)	Habuk Kayu (Wood Dust)	7.2	-	-
34. (*)	Gas District Cooling (Putrajaya) Sdn. Bhd. Plot 201, Putrajaya Precint 2, Wilayah Persekutuan, Putrajaya.	10.7	Persendirian (Private)	Gas Asli (Natural Gas)	-	-	-

### N.B.

1. (\*) Belum beroperasi (Not in operation yet)
2.
  - a) Jumlah kapasiti projek utama dilesen (Total capacity of major projects licensed)
 

- Awam (Public)	643.7 MW
- Persendirian (Private)	315.4 MW
<b>Jumlah (Total)</b>	<b>959.1 MW</b>
  - b) Jumlah kapasiti projek utama dalam perancangan (Total capacity of major projects Planned)
 

- Awam (Public)	79.2 MW
- Persendirian (Private)	83.5 MW
<b>Jumlah (Total)</b>	<b>162.7 MW</b>
  - c) Jumlah kapasiti projek dalam operasi (Total capacity of major projects in Operation)
 

- Awam (Public)	564.5 MW
- Persendirian (Private)	231.8 MW
<b>Jumlah (Total)</b>	<b>796.1 MW</b>
3.
  - a) Lesen Awam - Pemegang lesen menjana elektrik untuk kegunaan sendiri dan membekal kepada orang lain.  
*Public Licence - The licensee generates for his own use and for supply to other persons*
  - b) Lesen Persendirian - Pemegang lesen menjana elektrik untuk kegunaan sendiri.  
*Private Licence - The licensee generates for his own use only.*







**Senarai Penghantar Elektrik**  
*List of Electricity Transmitter*

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## Senarai Penghantar Elektrik / *List of Electricity Transmitter*

Bil (No.)	Nama Pelesen (Licensee)	Kapasiti (MW) (Capacity(MW))	Tarikh Lesen Dikeluarkan (Date of Issue of Licence)
1.	<b>Labuan Beaufort Interconnection Sdn. Bhd.</b> Lantai 37, Bangunan Tabung Haji 201 Jalan Tun Razak, 50400 Kuala Lumpur.	60	13-3-1990



**Statistik Penjanaan  
Persendirian**  
*Statistics of Self-Generation*

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## Statistik Penjanaaan Persendirian *Statistics of Self-Generation*

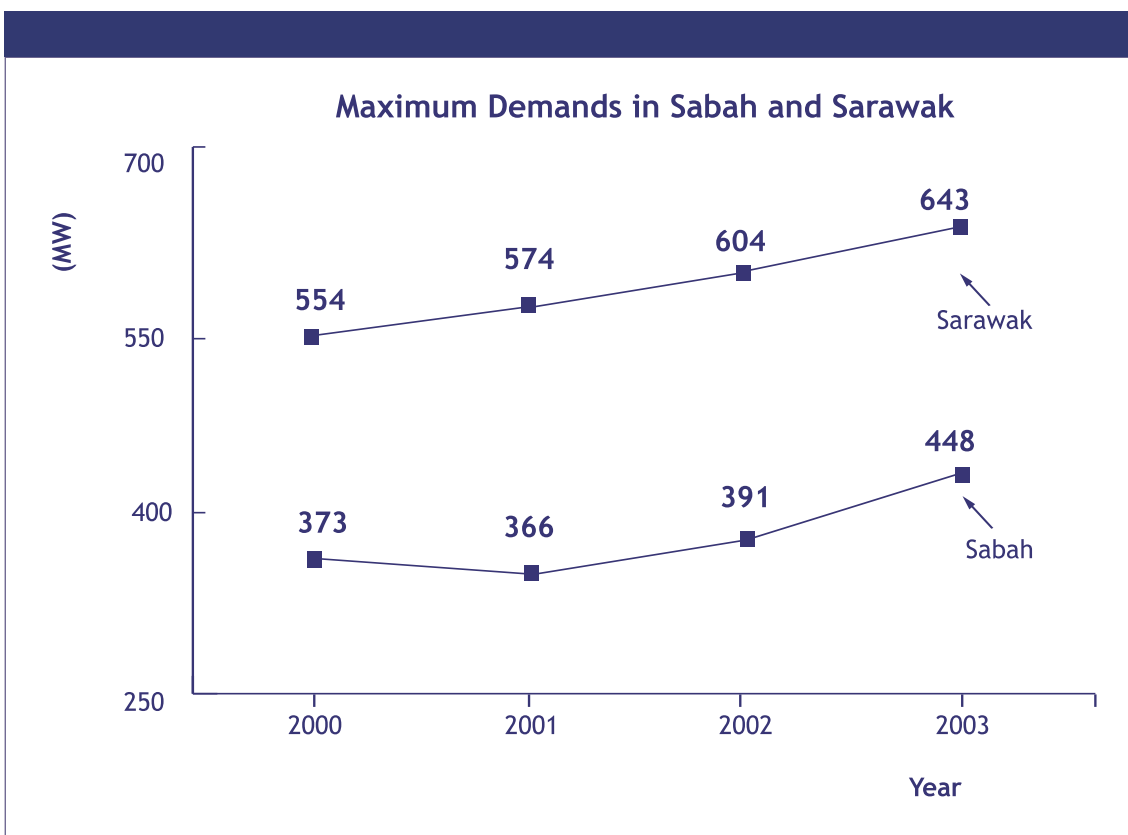
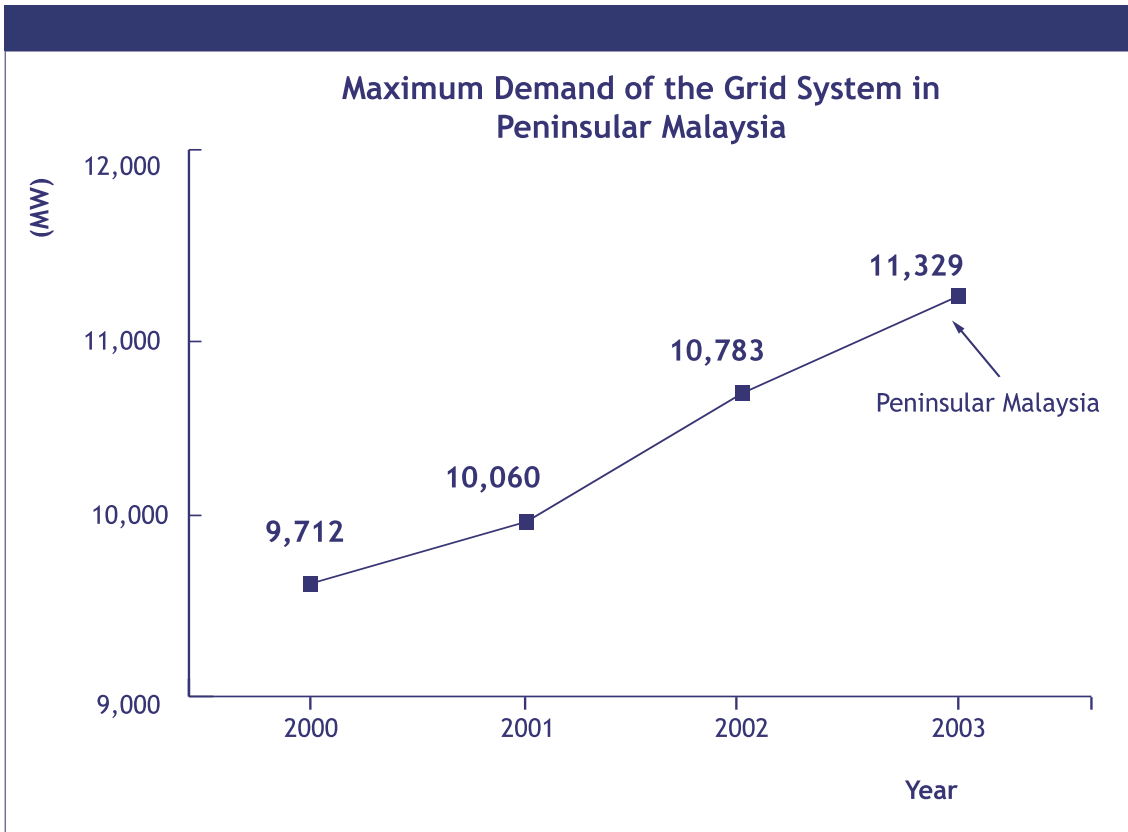
Bilangan Lesen Penjanaaan Persendirian (No. of Self-Generation Licences)	Kapasiti Janakuasa Mengikut Jenis Loji (MW) <i>Generation Plant Mix (MW)</i>				
	Gas (Gas)	Disel (Diesel)	Biomass (Biomass)	Lain-lain (Others)	Jumlah (Total)
1,606	71	822	57	37	987



**Statistik Dan Maklumat Lain  
Yang Penting Untuk Industri  
Bekalan Elektrik**

*Other Important Statistics  
and Information of the  
Electricity Supply Industry*

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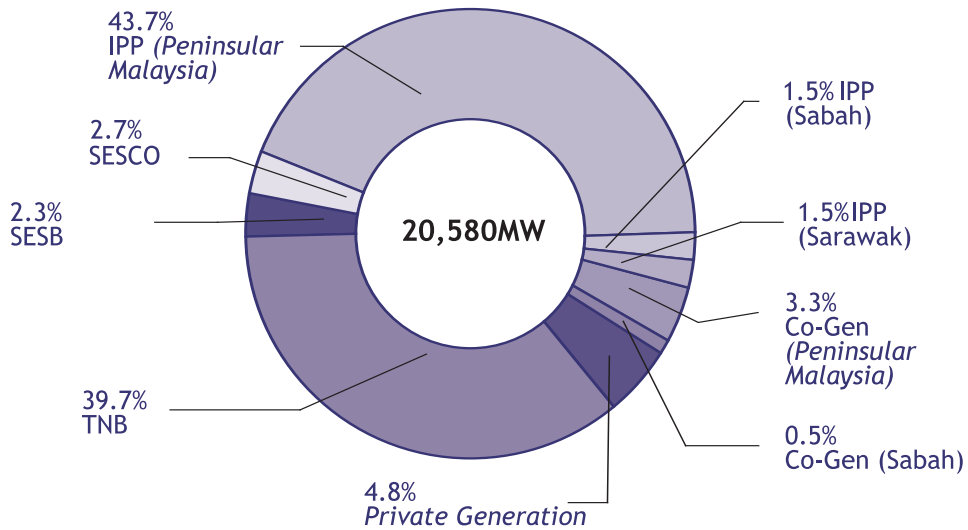
## Senarai Projek Tenaga Yang Boleh Diperbaharui Yang Telah Diluluskan Mengikut Sumber Tenaga

### List of Approved SMALL RENEWABLE ENERGY PROGRAMME PROJECTS

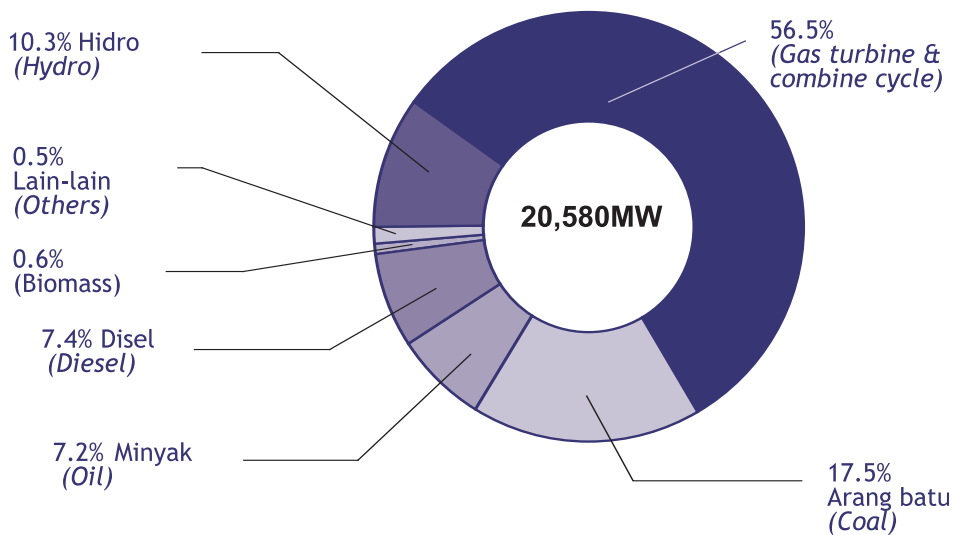
Bil (No.)	Jenis-Jenis Sumber Tenaga (Energy Sources)		Permohonan Diluluskan (Application Approved)	Kapasiti Penjanaan (MW) (Generation Capacity (MW))	Kapasiti Disambung Ke Grid (MW) (Grid Connected Capacity(MW))
1.	<b>Biomass</b>	Tangkai Sawit ( <i>Empty Fruit Bunch</i> )	22	187.0 (58.8%)	153.4
		Sisa Kayu ( <i>Wood Chips</i> )	1	6.6(2.1%)	6.6
		Sekam Padi ( <i>Rice Husk</i> )	1	10.0(3.1%)	10.0
		Sisa Pepejal ( <i>Municipal Solid Waste</i> )	1	5.0 (1.6%)	5.0
		Campuran ( <i>Mix</i> )	3	19.2(6.0%)	19.2
2.	<b>Gas Landfill</b> ( <i>Landfill Gas</i> )		4	9.4(3.0%)	9.0
3.	<b>Hidro Mini</b> ( <i>Mini Hydro</i> )		20	80.8(25.4%)	77.9
4.	<b>Angin &amp; Solar</b> ( <i>Wind &amp; Solar</i> )		0	0.0	0.0
<b>Jumlah (Total)</b>			52	318.0	281.1



### Kapasiti Penjanaan Penjana-Penjana Besar Generation Capacity of Major Power Producers

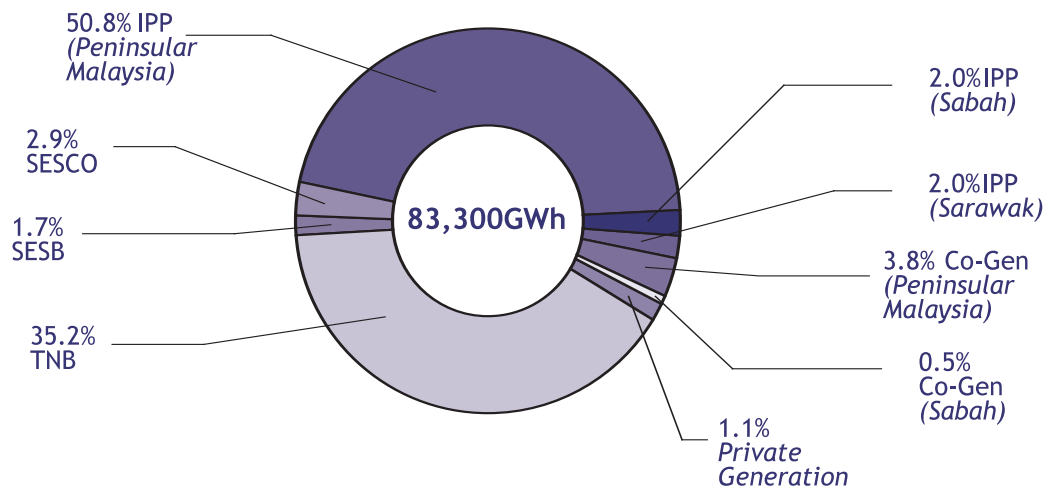


### Kapasiti Penjanaan Mengikut Jenis Loji Generation Plant Mix

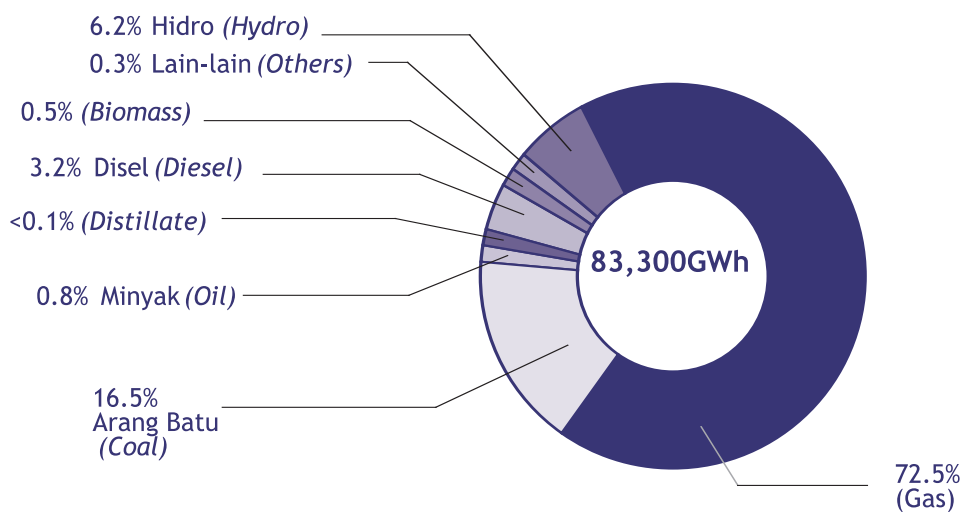




### Penjanaan Oleh Penjana-Penjana Besar Di Malaysia Generation by Major Power Producers in Malaysia

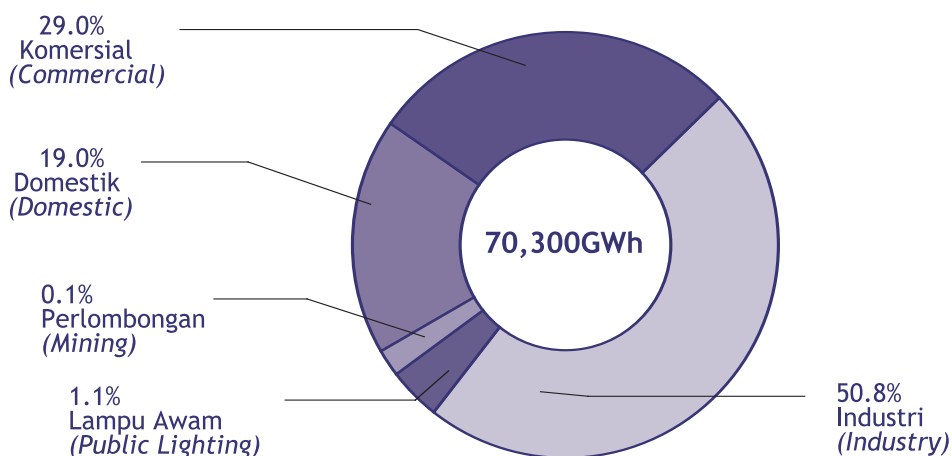


### Penjanaan Mengikut Sumber Bahanapi Di Malaysia Generation Mix in Malaysia

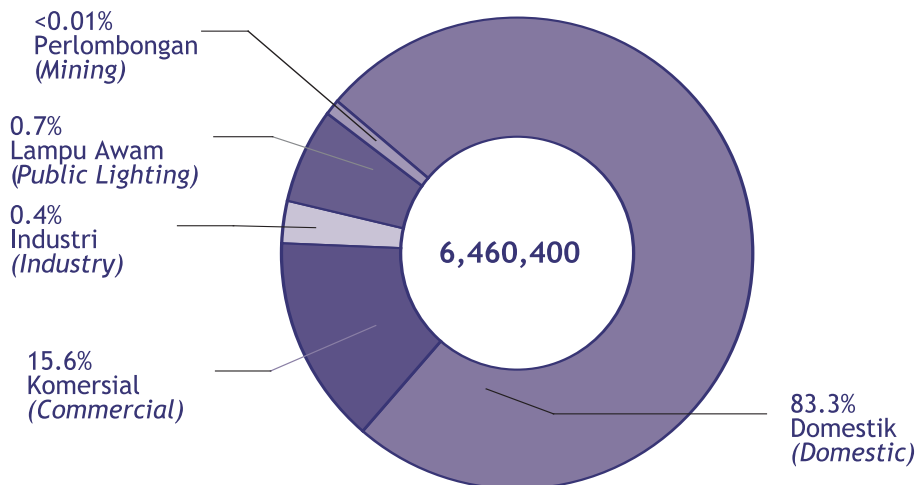




### Jualan Tenaga TNB, SESB dan SESCO Mengikut Sektor (Sales of Electricity of TNB, SESB and SESCO According to Sectors)



### Bilangan Pengguna Elektrik TNB, SESB dan SESCO Mengikut Sektor (Electricity Consumers of TNB, SESB and SESCO According to Sectors)

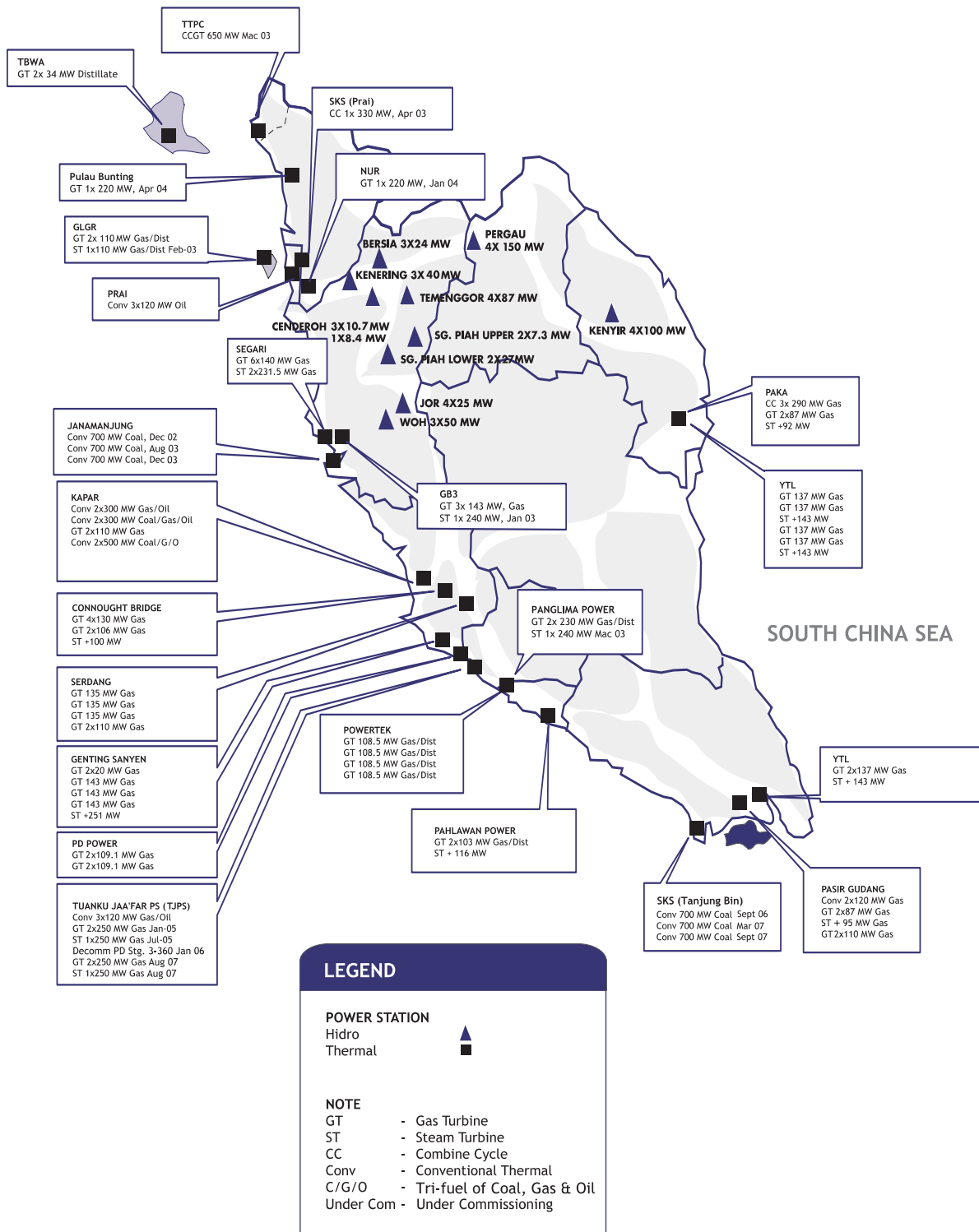


## Sistem Grid Utama Di Semenanjung Malaysia Main Grid System in Peninsular Malaysia

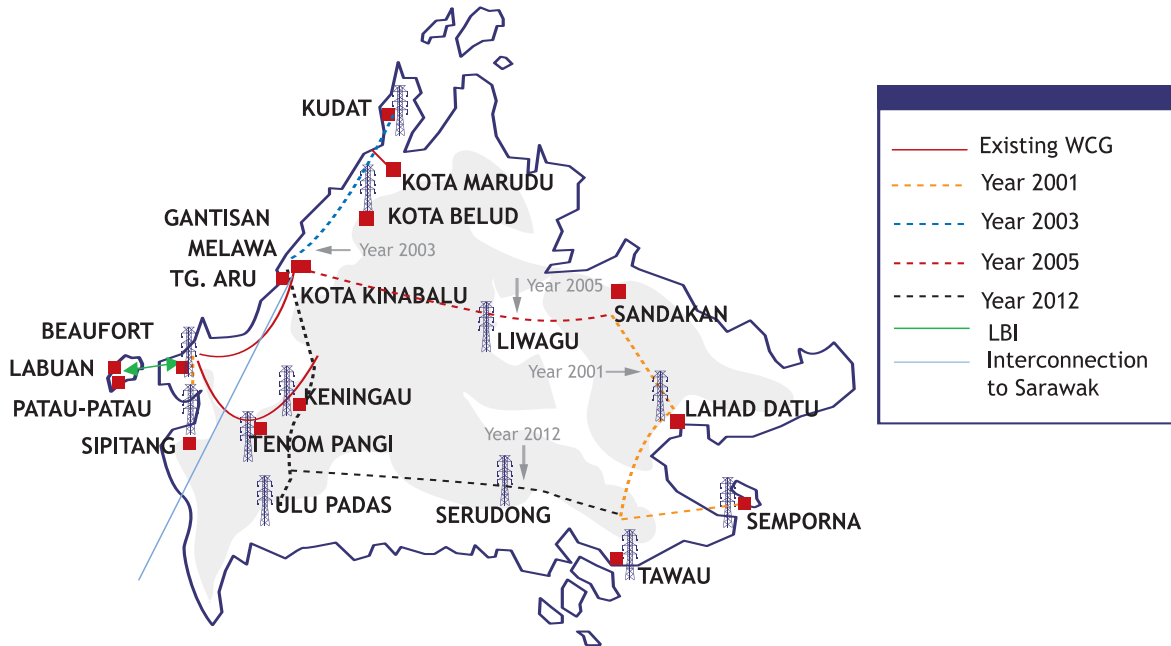




## Stesen Janakuasa Utama Di Semenanjung Malaysia Major Generation Stations in Peninsular Malaysia



### Sistem Grid Di Sabah / Grid System in Sabah

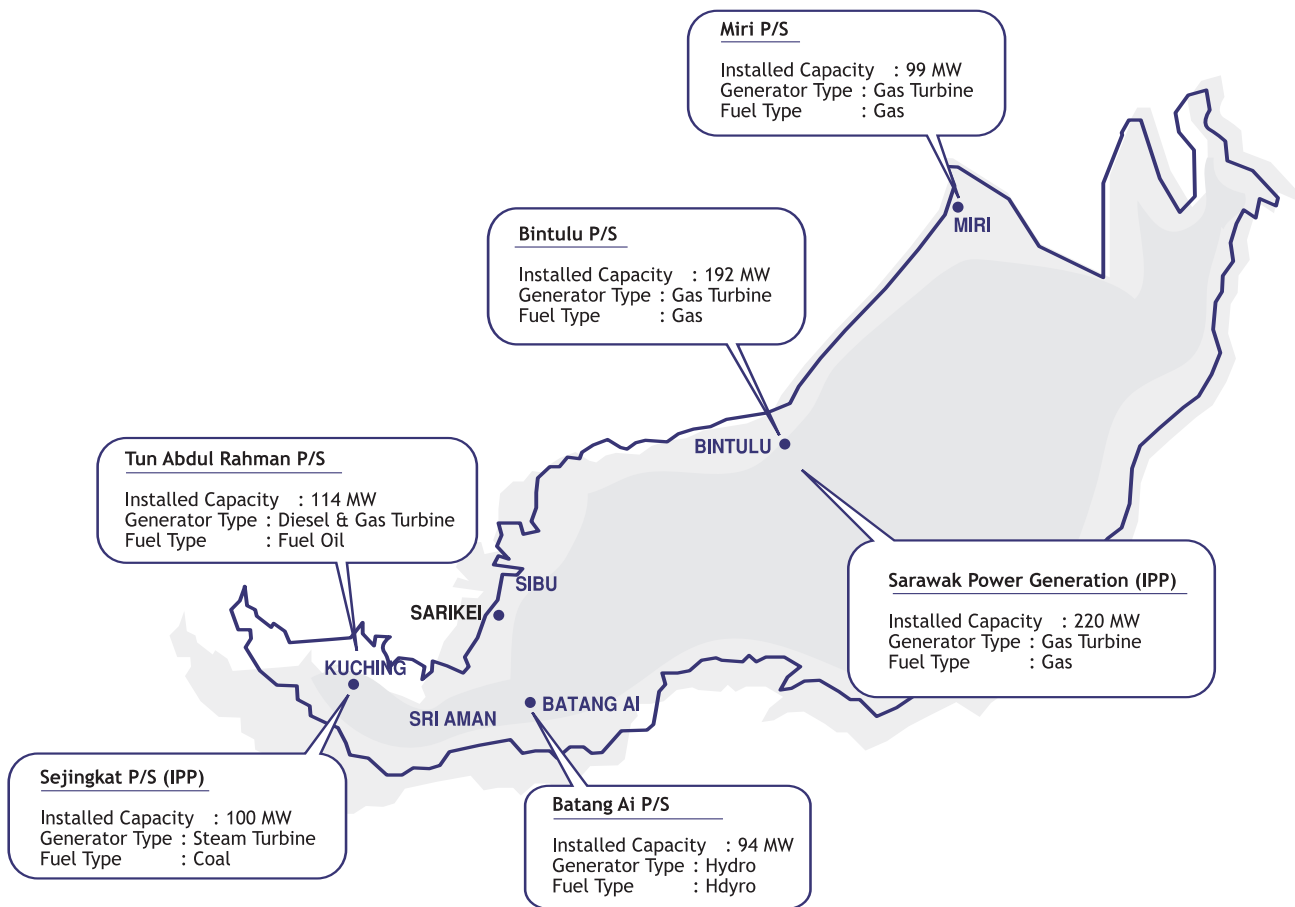


### Stesen Janakuasa Utama di Sabah / Major Generation Station in Sabah

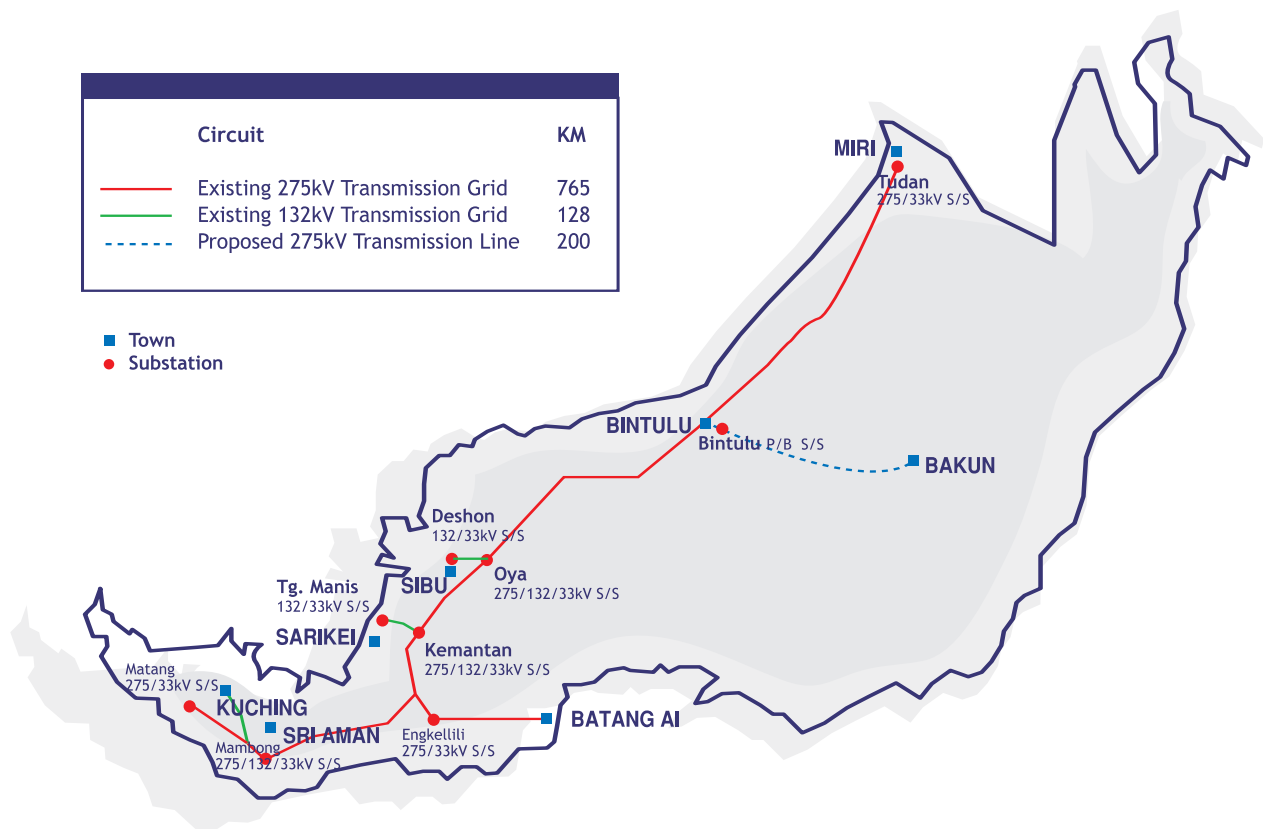




## Stesen Janakuasa Utama Di Sarawak Major Generation Stations in Sarawak



## Sistem Grid Di Sarawak Grid System in Sarawak









**Alamat Perhubungan**  
*Key Contacts*

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## KEY CONTACTS

### GOVERNMENT MINISTRIES AND DEPARTMENTS

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Fax : 03-2152 4032

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Fax : 03-2072 3600

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