



**MAKLUMAT PRESTASI DAN
STATISTIK INDUSTRI
PEMBEKALAN ELEKTRIK
DI MALAYSIA**

**PERFORMANCE AND STATISTICAL
INFORMATION ON ELECTRICITY SUPPLY
INDUSTRY IN MALAYSIA**

2015

Data dan maklumat dalam penerbitan tahunan ini disediakan untuk tujuan memberi makluman am sahaja. Walaupun Suruhanjaya Tenaga terus berusaha untuk memastikan semua maklumat yang terkandung dalam penerbitan ini adalah tepat, Suruhanjaya Tenaga menafikan tanggungjawab (samada timbul dari kelalaian, kenyataan yang salah akibat kecuaiian, atau sebaliknya) untuk sebarang kenyataan, pandangan, maklumat dan perkara (tersurat atau tersirat) yang timbul, terkandung dalam atau berasal darinya, atau tidak disertakan, maklumat dari penerbitan ini, atau penggunaan mana-mana pihak terhadap maklumat (termasuk pergantungan terhadap penggunaan yang meluas, ketepatan, kebolehharian dan lengkapan) yang terkandung dalam penerbitan ini.

The data and information contained in this yearly publication is prepared and provided for general information purposes only. While the Energy Commission made reasonable efforts to ensure that the information contained in this publication is accurate, the Energy Commission shall not have any liability (whether arising from negligence, negligent misstatement, or otherwise) for any statements, opinions, information or matter (expressed or implied) arising out of, contained in or derived from, or for any omissions from, the information in this publication, or in respect of a person's use of the information (including any reliance on its currency, accuracy, reliability or completeness) contained in this publication.

© Hakcipta terpelihara. Tidak dibenarkan mengeluarkan ulang mana-mana bahagian isi kandungan buku ini dalam apa jua bentuk dan dengan apa cara pun sama ada secara elektronik, fotokopi, mekanik, rakaman atau lain-lain sebelum mendapat izin bertulis dari Suruhanjaya Tenaga.

© All rights reserved. Reproduction of all or any part of this publication via electronic, mechanical, recording or other medium is strictly prohibited without written consent from the Energy Commission.


DITERBITKAN OLEH / PUBLISHED BY:

SURUHANJAYA TENAGA (ENERGY COMMISSION)
No. 12, Jalan Tun Hussein, Precinct 2, 62100 Putrajaya, Malaysia
Tel: (03) 8870 8500 Faks/ Fax: (03) 8888 8637
Talian Bebas Tol / Toll Free Number: 1-800-2222-78 (ST)
www.st.gov.my

ISSN : 2289-3741

No. Penerbitan ST / ST Publication No. : - ST(P) 20/11/2016

DICETAK DI MALAYSIA PRINTED IN MALAYSIA



Segala data dan maklumat yang terkandung di dalam buku laporan ini memberi gambaran yang munasabah dan saksama bagi keseluruhan industri pembekalan elektrik di negara ini. Segala usaha telah diambil untuk memastikan semua maklumat yang terkandung di dalam laporan ini telah disahkan kesahihannya berdasarkan laporan harian, bulanan dan tahunan yang dihantar oleh pemegang-pemegang lesen sebagaimana termaktub di bawah syarat-syarat lesen. Manakala bagi negeri Sarawak, maklumat mengenai statistik dan prestasi utiliti di negeri tersebut dikemukakan oleh Sarawak Energy Berhad (SEB) mengikut permintaan Suruhanjaya Tenaga (ST).

ST dengan niat yang baik menerbitkan maklumat ini untuk kegunaan orang awam, sejajar dengan fungsi yang ditetapkan di bawah Akta. ST menafikan semua atau apa-apa jua tanggungjawab kepada sesiapa sahaja untuk maklumat yang terkandung di dalam laporan ini atau bagi apa-apa representasi atau kenyataan di sini, sama ada secara tersurat atau tersirat, atau untuk apa-apa jawapan yang diberikan sebagai maklumbalas kepada sebarang pertanyaan berhubung dengan laporan ini.

The data and information in this report represent a fair and reasonable overview of the whole electricity supply industry. Every effort has been made to verify, validate and accurately represents the information in this report, based on the daily, monthly and yearly reports which were submitted by licensees pursuant to their licence conditions. As for Sarawak, information on the performance and statistics of utility in the state were submitted by Sarawak Energy Berhad (SEB) based on request by the Energy Commission (EC).

EC in good faith publishes this information for the consumption of the general public, in line with its function stipulated under the Act. EC disclaims all or any responsibility whatsoever to anyone for information contained in this report or for any representation or statement herein, whether expressed or implied, or for any replies given in response to any queries in relation to this report.

Isi Kandungan

Table of Contents

Ringkasan Eksekutif Executive Summary	3
Profil Negara, Data Ekonomi dan Elektrik Utama Country Profile, Key Economic and Electricity Data	6
Peta Malaysia Map of Malaysia	7
<hr/>	
Maklumat dan Statistik Industri Pembekalan Elektrik Information and Statistics on Electricity Supply Industry	
Maklumat dan Statistik Industri di Semenanjung Malaysia Industry Information and Statistics in Peninsular Malaysia	8
Maklumat dan Statistik Industri di Sabah Industry Information and Statistics in Sabah	28
Maklumat dan Statistik Industri di Sarawak Industry Information and Statistics in Sarawak	36
Peta Lokasi Stesen-stesen Jana Kuasa Utama dan Sistem Grid di Malaysia Location Maps of Major Power Stations and Grid System in Malaysia	40
Prestasi Sistem Pembekalan dan Perkhidmatan Elektrik Performance of Electricity Supply System and Services	
<hr/>	
Prestasi Pembekalan dan Perkhidmatan Elektrik di Semenanjung Malaysia Performance of Electricity Supply and Services in Peninsular Malaysia	45
Prestasi Pembekalan dan Perkhidmatan Elektrik di Sabah Performance of Electricity Supply and Services in Sabah	56
Prestasi Pembekalan dan Perkhidmatan Elektrik di Sarawak Performance of Electricity Supply and Services in Sarawak	61
Ringkasan Summary	65
<hr/>	
Apendiks Appendix	
<hr/>	
Laporan Prestasi Tenaga Nasional Berhad (TNB) – Berdasarkan <i>Guaranteed Service Level</i> (GSL) Performance Report of Tenaga Nasional Berhad (TNB) - Based on <i>Guaranteed Service Level</i> (GSL)	70
Laporan Prestasi Tenaga Nasional Berhad (TNB) – Berdasarkan <i>Minimum Service Level</i> (MSL) Performance Report of Tenaga Nasional Berhad (TNB) - Based on <i>Guaranteed Service Level</i> (MSL)	73
Laporan Prestasi NUR Distribution Sdn. Bhd. Performance Report of NUR Distribution Sdn. Bhd.	77
Laporan Prestasi Sabah Electricity Sdn. Bhd. (SESB) Performance Report of Sabah Electricity Sdn. Bhd. (SESB)	80
Tarif-tarif Elektrik di Malaysia Electricity Tariffs in Malaysia	85
Harga Jualan Purata dan Kos-kos Penjanaaan Average Selling Prices and Generation Costs	90

Ringkasan Eksekutif

SITUASI PEMBEKALAN DAN PERMINTAAN TENAGA ELEKTRIK

SEMENANJUNG MALAYSIA Di Semenanjung, penjanaan tenaga elektrik oleh stesen-stesen jana kuasa utama pada tahun 2015 ialah 118,697.8 GWj. Kehendak maksimum sistem grid yang direkodkan pada 21 April 2015 pula ialah 16,822 MW, iaitu menurun sebanyak 0.47% berbanding kehendak maksimum tahun 2014. Penjanaan tenaga harian tertinggi pula ialah sebanyak 353.7 GWj yang direkodkan pada 25 Jun 2015.

Jumlah kapasiti terpasang di Semenanjung ialah 20,710 MW, lebih rendah berbanding 20,944 MW pada 2014. Perubahan ini disebabkan penamatan operasi Stesen Jana Kuasa YTL Paka dan YTL Pasir Gudang berkapasiti 1,170 MW dan Stesen Jana Kuasa Putrajaya untuk turbin gas GT1, GT2 dan GT3 berkapasiti 324 MW pada suku ketiga 2015. Dua stesen jana kuasa baru iaitu Stesen Jana Kuasa Hidro Hulu Terengganu (250 MW) dan Unit 4 Stesen Jana Kuasa Janamanjung (1,010 MW) juga telah memulakan operasi pada tahun 2015.

SABAH Sehingga 31 Disember 2015, jumlah kapasiti yang dilesenkan di Sabah ialah sebanyak 1,504 MW, manakala kapasiti boleh harap adalah 1,324 MW. Kehendak maksimum sebanyak 914 MW direkodkan pada 12 Mei 2015. Jumlah penjanaan tenaga elektrik pula mencatatkan 6,000.6 GWj dengan 80.89% sumber tenaga didominasi oleh gas, diikuti diesel (10.03%), hidroelektrik (4.68%) serta biojisim dan biogas (4.40%).

SARAWAK Jumlah keseluruhan kapasiti penjanaan terpasang pada tahun 2015 ialah 4,641 MW dengan 65.73% daripada hidro, 20.77% daripada arang batu, 13.33% daripada gas asli dan 0.16% daripada diesel. Jumlah penjanaan tenaga elektrik mencatatkan 15,486.2 GWj, di mana 7,721 GWj (49.86%) ialah daripada Stesen Jana Kuasa Hidro Bakun. Kehendak maksimum Sarawak pada tahun 2015 ialah 2,288 MW iaitu peningkatan sebanyak 12.38% berbanding 2,036 MW pada 2014.

PRESTASI SISTEM PENJANAAN

SEMENANJUNG MALAYSIA Purata kecekapan *thermal* bagi stesen-stesen jana kuasa di Semenanjung menurun sekitar 0.30% sehingga 0.50% berbanding 2014. Kemerosotan kecekapan *thermal* stesen jana kuasa adalah disebabkan oleh kekerapan henti tugas tidak berjadual, cuaca berjerebu dan panas serta faktor-faktor lain seperti persekitaran tapak stesen, mod operasi, usia, tahap penggunaan dan penyelenggaraan.

Prestasi Faktor Ketersediaan Setara atau *Equivalent Availability Factor* (EAF) menurun 2.00% sehingga 4.00% bagi stesen jana kuasa kitar padu dan konvensional (arang batu). Penurunan ini disebabkan peningkatan henti tugas berjadual dan insiden henti tugas tidak berjadual. Walau bagaimanapun, stesen jana kuasa hidro mencatatkan EAF yang konsisten melebihi 90.00%. EAF bagi stesen konvensional (minyak/gas) juga telah meningkat dari 75.62% pada 2014 kepada 94.43% pada 2015.

Bagi Faktor Henti Tugas Tidak Berjadual (EUOF), prestasi stesen-stesen jana kuasa *base load* menurun berbanding tahun sebelumnya.

SABAH Di Sabah, purata kecekapan *thermal* bagi stesen jana kuasa kitar padu SESB menunjukkan peningkatan 5.77%. Walau bagaimanapun, kecekapan *thermal* stesen-stesen jana kuasa diesel milik IPP dan SESB menunjukkan penurunan.

Prestasi EAF stesen-stesen jana kuasa kitar padu bertambah baik, dengan kadar peningkatan antara 3.00% sehingga 7.00%. Prestasi stesen-stesen jana kuasa diesel milik SESB seperti Kubota, Tawau dan Batu Sapi di Sandakan mencatatkan peningkatan 19.52% disebabkan penurunan insiden henti tugas

tidak berjadual. Walau bagaimanapun, prestasi stesen jana kuasa diesel milik IPP menurun hampir 18.50% disebabkan masalah operasi di Stesen Jana Kuasa Stratavest dan Stesen Jana Kuasa ARL. Bagi stesen jana kuasa hidro milik SESB, purata EAF terjejas disebabkan henti tugas berjadual untuk kerja membaik pulih ketiga-tiga unit turbin di Stesen Jana Kuasa Tenom Pangli.

EUOF stesen-stesen jana kuasa diesel adalah tinggi kerana faktor usia dan kekerapan masalah teknikal. Stesen-stesen jana kuasa diesel seperti Stesen Jana Kuasa ARL telah mencapai jangka hayat operasi maksimum, manakala Stesen Jana Kuasa Stratavest mengalami kerosakan dan terpaksa dihentikan akibat masalah kewangan.

PRESTASI SISTEM PENGHANTARAN

Daya Harap Sistem

SEMENANJUNG MALAYSIA Prestasi sistem penghantaran TNB di Semenanjung dalam tempoh lima tahun ke belakang menunjukkan peningkatan, dengan penurunan *Delivery Point Unreliability Index* (DePUI) sebanyak 25.58% daripada 0.86 minit pada 2011 kepada 0.64 minit pada 2015. Walau bagaimanapun, DePUI sebanyak 0.64 minit di Semenanjung merupakan peningkatan sebanyak 106.45% berbanding dengan 0.31 minit pada 2014. Secara keseluruhannya, prestasi sistem minit bagi grid nasional 2015 masih berada di tahap yang baik dan tidak melebihi sasaran yang ditetapkan iaitu 1 minit.

Bilangan insiden pelantikan pada 2015 adalah sama seperti 2014. Terdapat satu insiden dilaporkan pada sistem penghantaran dengan kehilangan beban sebanyak 380 MW.

SABAH Kekurangan kapasiti penjanaan masih merupakan cabaran utama kepada daya harap sistem di Sabah. Hasil inisiatif yang telah diambil, DePUI sistem grid Sabah pada 2015 telah menunjukkan penurunan yang ketara sebanyak 32.42% kepada 108.87 minit, berbanding 161.09 minit pada 2014. Selain itu, terdapat sepuluh insiden pelantikan pada sistem grid di Sabah yang menyebabkan kehilangan beban melebihi 50 MW.

PRESTASI SISTEM PENGAGIHAN

Pencapaian SAIDI di Semenanjung dan Sabah

SEMENANJUNG MALAYSIA Pada 2015, sasaran SAIDI di Semenanjung telah dikurangkan kepada 55 minit/pelanggan/tahun berbanding 60 minit/pelanggan/ tahun pada 2014. Secara keseluruhannya, prestasi SAIDI bekalan elektrik TNB adalah baik dan menunjukkan *trend* yang menurun berbanding SAIDI 2014. SAIDI terkumpul 2015 adalah 51.49 minit/pelanggan/tahun, berbanding 56.64 minit/ pelanggan/ tahun pada 2014.

Dalam tempoh antara 2011 sehingga 2015, SAIDI keseluruhan TNB menunjukkan *trend* penurunan daripada 69.12 ke 51.49 minit/pelanggan/tahun atau bersamaan 25.51%.

NUR DISTRIBUTION SDN. BHD Pada 2015, SAIDI keseluruhan bagi Kulim Hi-Tech Park (KHTP) ialah 4.32 minit/pelanggan/tahun. Berbanding 81.72 minit/pelanggan/tahun pada 2014, peningkatan prestasi pembekalan tenaga di KHTP adalah ketara iaitu 94.71%. Peningkatan prestasi ini disumbangkan oleh ketiadaan gangguan besar di KHTP. SAIDI industri pula meningkat sedikit daripada 0 ke 0.091 minit/pelanggan/tahun.

SABAH SAIDI keseluruhan pada 2015 ialah 379 minit/pelanggan/tahun, iaitu menurun 27.53% daripada SAIDI 2014 iaitu 523 minit/pelanggan/tahun.

Gangguan Bekalan Elektrik

SEMENANJUNG MALAYSIA Pada 2015, jumlah keseluruhan bilangan gangguan bekalan elektrik bagi setiap 1,000 pengguna di Semenanjung mencatatkan penurunan sebanyak 13.90% kepada 7.43 berbanding 8.63 pada 2014.

Bilangan gangguan tidak berjadual telah menurun sebanyak 14.40% iaitu 7.25 bagi setiap 1,000 pengguna, berbanding 8.47 bagi setiap 1,000 pengguna bagi 2014, manakala gangguan berjadual pula telah berkurangan berbanding tahun sebelumnya. Walau bagaimanapun, gangguan berjadual kekal dengan catatan 0.17 gangguan bagi setiap 1,000 pengguna bagi 2014 dan 2015.

NUR DISTRIBUTION SDN. BHD. Pada 2015, bilangan gangguan bekalan elektrik keseluruhan bagi setiap 1,000 pengguna di KHTP yang dilaporkan oleh NUR Distribution Sdn. Bhd. telah berkurangan sebanyak 9.60%, iaitu 24.85 berbanding 27.49 pada 2014.

Daripada jumlah gangguan tersebut, gangguan berjadual dan tidak berjadual masing-masing mencatatkan 14.41 dan 10.44 gangguan bagi setiap 1,000 pengguna pada 2015. Kadar penurunan masing-masing sebanyak 6.91% berbanding 15.48 dan 13.07% berbanding 12.01 pada tahun 2014.

SABAH Bilangan gangguan bekalan elektrik bagi setiap 1,000 pengguna pada sistem pembekalan SESB di Sabah telah berkurang daripada 41.95 gangguan

pada 2014 kepada 35.12 gangguan pada 2015. Bilangan gangguan berjadual turut berkurang sebanyak 14.22% kepada 1.81 bagi setiap 1,000 pengguna, berbanding 2.11 bagi setiap 1,000 pengguna pada 2014.

Bilangan gangguan tidak berjadual juga didapati telah berkurang sebanyak 16.37% kepada 33.32 gangguan bagi setiap 1,000 pengguna daripada 39.84 bagi setiap 1,000 pengguna pada 2014. Gangguan tidak berjadual kekal sebagai penyumbang terbesar dengan peratusan 94.85% daripada jumlah gangguan bagi 2015.

PRESTASI KUALITI KUASA

SEMENANJUNG MALAYSIA Sebanyak 901 kejadian junaman voltan telah direkodkan di Semenanjung. Kejadian junaman voltan tertinggi direkodkan di Selangor iaitu sebanyak 165 kejadian, di mana 36 pengguna telah mengalami gangguan.

SARFI₉₀ bagi sistem keseluruhan di Semenanjung adalah 5.70.

NUR DISTRIBUTION SDN. BHD. Sebanyak 22 insiden junaman voltan direkodkan di KHTP dan ia melibatkan 32 pengguna. 90.91% daripada insiden junaman voltan di NUR adalah berpunca daripada sistem TNB.

Executive Summary

SITUATION OF ELECTRICITY SUPPLY AND DEMAND

PENINSULAR MALAYSIA Electricity generation by main power plants in Peninsula is 118,697.8 GWh in 2015. The maximum demand of grid systems which are recorded on 21st April 2015 were 16,822 MW, which decreased by 0.47% compared to 2014. The highest daily power generation of 353.7 GWh was recorded on 25th June, 2015.

Total installed capacity of the Peninsular is 20,710 MW, lower compared to 20,944 MW in 2014. The difference is due to ceased of YTL Paka Power Station and YTL Pasir Gudang (1,170 MW) and also 324 MW from GT1, GT2 and GT3 of Putrajaya Power Station in the third quarter of 2015. Meanwhile, two new power plants namely Hulu Terengganu Hydroelectric Power Station (250 MW) and Janamanjung Unit 4 Power Station (1,010 MW) were commissioned in 2015.

SABAH As of 31st December 2015, the total licensed capacity of main power plants in Sabah is 1,504 MW, while dependable capacity is 1,324 MW. Maximum demand of 914 MW was recorded on 12th May, 2015. The amount of electricity generated is 6,000.6 GWh, with domination of 80.89% by gas, followed by diesel (10.03%), hydroelectric (4.68%) and also 4.40% of biomass and biogas.

SARAWAK Total installed generation capacity in 2015 is 4,641 MW which 65.73% from hydro, 20.77% from coal, 13.33% from natural gas, and 0.16% from diesel. Total electricity generated is 15,486.2 GWh, with 7,721 GWh (49.86%) from Bakun Hydroelectric Power Station. Maximum demand in 2015 is 2,288 MW, an increase of 12.38% compared to 2,036 MW in 2014.

PERFORMANCE OF GENERATION SYSTEM

PENINSULAR MALAYSIA Average thermal efficiency of power stations decreased by around 0.30% to 0.50% compared to 2014. This is caused by frequent unscheduled downtime, hazy and hot weather, plus other factors such as station sites' surrounding, operation mode, age, level of use and maintenance.

Performance of Equivalent Availability Factor (EAF) drops by 2.00% to 4.00% in combined cycle power plants and conventional (coal) due to increase in scheduled and unscheduled downtime. However, hydroelectric power stations recorded consistent EAF exceeding 90.00%. EAF for conventional power stations (oil / gas) increased from 75.62% in 2014 to 94.43% in 2015.

The Unscheduled Outage Factor (EUOF) of base load power stations decreased compared to previous year.

SABAH The average thermal efficiency of combined cycle power stations (mainly SESB's) increased by about 5.77%. However, thermal efficiency of IPP and SESB's diesel power stations decreased.

EAF performance of combined cycle power stations improved by 3.00% to 7.00%. EAF performance of SESB's diesel power stations such as Kubota, Tawau, Sandakan and Batu Sapi increased by almost 19.52% due to lower unscheduled downtime. However, performance of diesel power stations owned by IPP decreased by almost 18.50% due to operational problems at Stratavest and ARL Power Stations.

Among SESB's hydroelectric power stations, the average EAF is affected by unscheduled downtime during the repairing of three units of turbines at Tenom Pangi Power Station.

EUOF of diesel power stations is high due to factor of age and technical problems. For example, ARL Power Stations has reached the maximum operating life, while Stratavest Power Station is broken and had to be decommissioned due to financial problems.

PERFORMANCE OF TRANSMISSION SYSTEM

Reliability of System

PENINSULAR MALAYSIA Performance of TNB transmission system in the last five years shows an improvement, with reduced Delivery Point Unreliability Index (DePUI) by 25.58% from 0.86 minutes in 2011 to 0.64 minutes in 2015. However, 0.64 minutes DePUI in the the Peninsular is an increase of 106.45% compared to only 0.31 minutes in 2014. Overall, the performance of system minutes in 2015 is good and does not exceed the target of 1 minute.

Number of trippings in 2015 is the same as in 2014. There was one incident reported in the transmission system with load loss of 380 MW.

SABAH System reliability in Sabah is still challenged by the shortage in generating capacity. Initiatives have been taken to reduce DePUI in Sabah and in 2015, DePUI Sabah significantly drops by 32.42% to 108.87 minutes, versus 161.09 minutes in 2014. There were ten trippings in Sabah grid which cause load loss of more than 50 MW.

PERFORMANCE OF DISTRIBUTION SYSTEM

SAIDI in Peninsular and Sabah

PENINSULAR MALAYSIA SAIDI target in 2015 for the Peninsular has been reduced to 55 minutes/customer/year compared to 60 minutes/customer/year in 2014. Overall, SAIDI of TNB power supply is good and shows a downward trend compared to 2014. Accumulated SAIDI in 2015 is 51.49 minutes/customer/year, compared to 56.64 minutes/ customer/year in 2014.

Between 2011 to 2015, the overall SAIDI of TNB showed a downward trend from 69.12 to 51.49 minutes/customer/year, equivalent to 25.51% of reduction.

NUR DISTRIBUTION SDN. BHD. Overall SAIDI for Kulim Hi-Tech Park (KHTP) is 4.32 minutes/customer/year in 2015. The improvement of 94.71% in the power supply quality is significant, compared to 81.72 minutes/customer/year in 2014. The improvement is due to the absence of major disruptions in KHTP. SAIDI of industry is also increased slightly from 0 to 0.091 minutes/customer/year.

SABAH Overall SAIDI in 2015 is 379 minutes/customer/year, which decreased by 27.53% from 523 minutes/customer/year in 2014.

Electricity Supply Interruption

PENINSULAR MALAYSIA Total number of electricity supply interruptions per 1,000 consumers in the Peninsular decreased by 13.90% from 8.63 to 7.43 per 1,000 consumers in 2015.

The number of unscheduled interruptions has decreased by 14.40%, from 25.7 per 1,000 consumers in 2014 to 8.47 per 1,000 consumers in 2015, while the unscheduled interruption also decreased. However, scheduled interruptions remain at 0.17 per 1,000 consumers as in 2014.

NUR DISTRIBUTION SDN. BHD. Total number of electricity supply interruptions per 1,000 consumers decreased by 9.60%, from 27.49 in 2014 to 24.85 in 2015.

Of total interruption, scheduled and unscheduled interruptions are respectively 14.41 and 10.44 per 1,000 consumers in 2015, with 6.91% and 13.07% of decrease respectively compared to 2014.

SABAH Number of electricity supply interruptions per 1,000 consumers decreased from 41.95 in 2014 to 35.12 in 2015. Unscheduled interruptions reduced by 14.22% to 1.81 per 1,000 consumers, compared to 2.11 per 1,000 consumers in 2014.

Unscheduled interruptions were also decreased by 16.37% to 33.32 interruptions per 1,000 consumers from 39.84 per 1,000 consumers in 2014. Unscheduled interruption remains as the largest contributor with 94.85% of the total percentage for 2015.

POWER QUALITY PERFORMANCE

PENINSULAR MALAYSIA Total of 901 voltage dip incidents were recorded in 2015. Selangor has the highest incidents, which is 165 incidents involving 36 people been disrupted.

In 2015, SARFI₉₀ for the Peninsular is 5.70.

NUR DISTRIBUTION SDN. BHD. Total voltage dips in 2015 is 22, involving 32 consumers. Of the total, 90.91% are caused by TNB system.

Profil Negara, Data Ekonomi dan Elektrik Utama

Country Profile, Key Economic and Electricity Data

Profil Negara Country Profile

Keluasan Kawasan Area	330,323 km ²
Iklim Climate	Jenis Tropika Tropical Type
Purata Suhu Average Temperature	21°C - 32°C
Populasi Population	30.996 juta million
Tenaga Kerja Labour Force	13.8 juta million

Data Ekonomi Utama Key Economic Data

Pendapatan Negara Kasar (PNK) pada Harga Semasa Gross National Income (GNI) at Current Prices	RM 1,125.128 bilion billion
PNK pada Harga Semasa per Kapita GNI at Current Prices per Capita	RM 36,299 per Kapita per Capita
KDNK pada Harga 2010 GDP at 2010 Prices	RM 1,062.80 bilion billion
PNK pada Harga Malar 2010 GNI at Constant 2010 Prices	RM 1,038.527 bilion billion

Data Elektrik Utama Key Electricity Data

Jumlah Kapasiti Terpasang Stesen Jana Kuasa Utama Major Power Plants' Total Installed Capacity	26,563.48 MW
Jumlah Penjanaan Tenaga Elektrik Stesen Jana Kuasa Utama Major Power Plants' Total Electricity Generation	140,184.64 GWj GWh
Jumlah Jualan Tenaga Elektrik oleh TNB, SESB dan SEB Total Electricity Sale by TNB, SESB and SEB	124,709 GWj GWh
Harga Jualan Purata Elektrik Electricity Average Selling Price	
TNB	39.45 sen/kWj sen/kWh
SESB	33.13 sen/kWj sen/kWh
SEB	28.50 sen/kWj sen/kWh

Sumber Source:

Bank Negara Malaysia Central Bank of Malaysia
Tenaga Nasional Berhad (TNB)
Sabah Electricity Sdn. Bhd. (SESB)
Sarawak Energy Berhad (SEB)
Penjana-penjana Bebas Independent Power Producers (IPP)

Peta Malaysia

Map of Malaysia



Negeri-negeri di Malaysia States in Malaysia :

- | | |
|-----------------|--------------------|
| 1. Kedah | 9. Negeri Sembilan |
| 2. Perlis | 10. Kuala Lumpur * |
| 3. Pulau Pinang | 11. Putrajaya * |
| 4. Perak | 12. Melaka |
| 5. Kelantan | 13. Johor |
| 6. Terengganu | 14. Sarawak |
| 7. Pahang | 15. Sabah |
| 8. Selangor | 16. Labuan * |

* Wilayah Persekutuan Federal Territory



Maklumat dan Statistik Industri Pembekalan Elektrik
Information and Statistics of Electricity Supply Industry

Maklumat dan Statistik Industri Pembekalan Elektrik di Semenanjung Malaysia
Information and Statistics of Electricity Supply Industry in Peninsular Malaysia

Jadual 1: Maklumat Utama Prestasi Tenaga Nasional Berhad (TNB)
Table 1: Key Information on TNB Performance

PETUNJUK INDICATOR	Unit	2011	2012	2013	2014	2015
Kehendak Maksimum Maximum Demand	MW	15,476	15,826	16,562	16,901	16,822
Jumlah Unit Penjanaan ¹ Total Units Generated ¹	GWj GWh	24,018	26,329	24,914	28,409	27,374
Jumlah Unit Jualan Total Units Sold	GWj GWh	93,713	97,256	101,105	103,465	105,562
Hasil Jualan Elektrik Sales of Electricity	RM Juta RM million	29,273	32,464	33,857	40,202	41,646
Kapasiti Penjanaan yang Dilesenkan ² Licensed Generation Capacity ²	MW	7,054	6,986	6,866	6,616	6,751
Jumlah Kakitangan ³ Number of Employees ³	orang person	26,732	28,105	34,972	36,105	35,896
Hasil Jualan Elektrik Setiap Kakitangan Sales Revenue of Electricity per Employee	RM Juta/Kakitangan RM Million/ Employee	1.10	1.16	0.97	1.11	1.16
Unit Jualan Setiap Kakitangan Units Sold per Employee	GWj/Kakitangan GWh/Employee	3.50	3.46	2.89	2.87	2.94
Kapasiti Penjanaan Setiap Kakitangan Installed Capacity per Employee	MW/Kakitangan MW/Employee	0.26	0.25	0.20	0.18	0.19
Jumlah Unit Pembelian Total Units Purchased	GWj GWh	76,887	81,733	86,767	86,335	87,816
Jumlah Unit Eksport Total Units Exported	GWj GWh	73	13	17 ⁴	17 ⁴	3 ⁴
Jumlah Unit Import Total Units Imported	GWj GWh	225	100	220 ⁴	22 ⁴	13 ⁴

Nota Note:

¹ Jumlah Unit Penjanaan bagi TNB tidak termasuk IPP di Semenanjung Malaysia Total Units Generated for TNB excluding IPPs in Peninsular Malaysia

² Jumlah Kapasiti Penjanaan Terpasang Yang Dilesenkan bagi TNB tidak termasuk penjana-penjana bebas (IPP) Licensed Generation Capacity for TNB excludes IPPs

³ Kakitangan TNB tidak termasuk anak syarikat milik penuh TNB dan anak syarikat dengan pemilikan majoriti

TNB employees exclude TNB wholly owned subsidiaries and TNB majority owned subsidiaries

⁴ Jabatan Single Buyer, TNB Single Buyer Department, TNB

Jadual 2: Kapasiti Penjanaan Terpasang yang Dilesenkan (MW) & Kebolehdapatan Keseluruhan TNB
Table 2: TNB Licensed Installed Capacity (MW) & Overall Availability

TAHUN YEAR	BAHAN API FUEL				JUMLAH TOTAL	Kebolehdapatan Keseluruhan (%) Overall Availability (%)
	Hidro Hydro	Gas Asli Natural Gas	Diesel			
2011	1,911	5,075	68		7,054	86.80
2012	1,911	5,075	-		6,986	93.50
2013	1,911	4,955	-		6,866	92.40
2014	1,911	4,705	-		6,616	86.70
2015	2,161	4,590	-		6,751	89.90
	32.01%	67.99%	0%		100.00%	

Nota Note:

Kapasiti penjanaan terpasang tahun 2015 ialah 6,299.10 MW Installed capacity in 2015 is 6,299.10 MW

Jadual 3: Campuran Penjanaan TNB (GWj)
Table 3: TNB Generation Mix (GWh)

TAHUN YEAR	BAHAN API FUEL				JUMLAH TOTAL
	Hidro Hydro	Gas Asli Natural Gas	Medium Fuel Oil (MFO)	Diesel	
2011	5,950	15,915	686	1,468	24,018
2012	5,524	19,558	86	1,161	26,329
2013	5,392	19,394	128	n/a	24,914
2014	4,111	24,298	n/a	n/a	28,409
2015	5,007	22,367	n/a	n/a	27,374
	18.29%	81.71%	0.00%	0.00%	100.00%

Jadual 4: Jualan Tenaga Elektrik TNB (GWj)
Table 4: TNB Electricity Sales (GWh)

TAHUN YEAR	SEKTOR SECTOR							
	Domestik Domestic	Komersil Commercial	Industri Industry	Lampu Awam Public Lighting	Perlombongan Mining	Eksport (EGAT) Export (EGAT)	Lain-lain (termasuk pertanian) Others (including agriculture)	JUMLAH TOTAL
2011	18,916	31,755	41,449	1,139	75	73	306	93,713
2012	20,301	33,218	42,047	1,235	98	13	344	97,256
2013	21,601	34,878	42,721	1,302	121	17	375	101,015
2014	22,350	35,801	43,380	1,370	133	17	414	103,465
2015	23,231	36,645	43,754	1,357	105	3	467	105,562
	22.01%	34.71%	41.45%	1.29%	0.10%	0.003%	0.44%	100.00%

Jadual 5: Bilangan Pengguna TNB
Table 5: TNB Number of Consumers

TAHUN YEAR	SEKTOR SECTOR							
	Domestik Domestic	Komersil Commercial	Industri Industry	Lampu Awam Public Lighting	Perlombongan Mining	Lain-lain (termasuk pertanian) Others (including agriculture)	Unit Percuma ¹ Free Units ¹	JUMLAH TOTAL
2011	6,288,281	1,281,108	26,203	53,075	20	1,166	2,264	7,652,117
2012	6,456,647	1,334,371	27,599	56,715	22	1,241	2,271	7,878,866
2013	6,503,417	1,334,856	27,954	61,121	27	1,494	-	7,928,869
2014	6,710,032	1,404,501	24,852	63,340	29	1,574	-	8,204,328
2015	6,920,122	1,475,306	27,672	65,888	28	1,627	-	8,490,643
	81.50%	17.38%	0.33%	0.78%	0.0003%	0.02%	0.00%	100.00%

Nota Note:

¹ Unit Percuma merupakan bekalan elektrik yang tidak dikenakan bayaran bil bulanan. Premis yang layak merupakan premis-premis TNB termasuk bangunan pejabat, rumah kelab, kuarters, pencawang masuk utama, pencawang pembahagian utama dan pencawang elektrik. Free Units refer to electricity provided for free without being charged for monthly bill payments. Eligible premises are TNB premises including office buildings, clubhouse, quarters, main substations, transmission substations and distribution substations.

SISTEM PENGHANTARAN TRANSMISSION SYSTEM

Jadual 6: Keupayaan Sistem Penghantaran TNB
Table 6: TNB Transmission System Capacity

TAHUN YEAR	2011	2012	2013	2014	2015
TALIAN/KABEL SISTEM PENGHANTARAN TRANSMISSION SYSTEM LINES/CABLES					
500 kV (km)	668	668	668	668	866
275 kV (km)	8,425	8,449	8,534 ¹	8,714 ¹	8,028
132 kV (km)	11,672	11,640	11,891	12,088	11,245
PENCAWANG PENGHANTARAN TRANSMISSION SUBSTATIONS					
Bilangan Number	399	401	404	414	419
Kapasiti (MVA) Capacity (MVA)	94,325	94,265	95,960	99,478	103,545
PRESTASI PERFORMANCE					
System Minutes	0.86	0.95	0.35	0.31	0.64
Bilangan Pelantikan Dengan Kehilangan Beban Sebanyak 50 MW dan ke atas Number of Trippings with Load Loss of 50 MW and above	5	4	2	1	1
Tenaga yang Tidak Dibekal (MWj) Semasa Pelantikan Unsupplied Energy During Trippings (MWj)	225.20	212.70	238.20	50.00	186.65

Nota Note:

¹ Termasuk 627.64 cct-km talian 500 kV beroperasi pada 275 kV. Including 627.64 cct-km 500 kV lines energized at 275 kV.

SISTEM PENGAGIHAN DISTRIBUTION SYSTEM

Jadual 7: Keupayaan Sistem Pengagihan TNB
Table 7: TNB Distribution System Capacity

TAHUN YEAR	2011	2012	2013	2014	2015
TALIAN/KABEL SISTEM PENGAGIHAN DISTRIBUTION SYSTEM LINES/CABLES					
Talian Atas (km) Overhead Lines (km)	477,191	495,925	487,385	516,780	532,403
Kabel Bawah Tanah (km) Underground Cables (km)	379,661	423,758	555,272	678,026	697,159
PENCAWANG PENGAGIHAN DISTRIBUTION SUBSTATIONS					
Bilangan Number	65,556	67,925	68,509	70,286	74,417
Keupayaan (MVA) Capacity (MVA)	125,222	126,969	127,217	128,717	131,465

Jadual 8: Stesen Jana Kuasa Utama di Semenanjung Malaysia
Table 8: Main Power Plants in Peninsular Malaysia

Bil No	Loji Jana Kuasa Power Plant	Jenis Type	Sumber Tenaga Energy Source	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Kapasiti Terpasang (MW) Installed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWj)		
TENAGA NASIONAL BERHAD (TNB)								
1	SJ Sungai Perak Scheme <i>termasuk including Temenggong (4x87 MW), Sg Piah Upper (2x73 MW), Sg Piah Lower (2x27 MW), Chenderoh (3x10.7 MW & 8.4 MW), Kenerong (3x40 MW) & Bersia (3x24 MW)</i>	Hidro Hydro	Hidro Hydro	649.10	649.10	2,513.51		
2	SJ Pergau	Hidro Hydro	Hidro Hydro	600.00	600.00			
3	SJ Sultan Mahmud Kenyir	Hidro Hydro	Hidro Hydro	400.00	400.00	1,850.47		
4	SJ Cameron Highlands Scheme <i>termasuk including Jor (4x25 MW), Won (3x50 MW) & Hidro Mini Mini Hydro (11.9 MW)</i>	Hidro Hydro	Hidro Hydro	261.90	250.00	643.06		
5	SJ Hulu Terengganu	Hidro Hydro	Hidro Hydro	250.00	250.00	-		
6	SJ Jambatan Connaught	OCGT	Gas Asli Natural Gas	478.00	362.00	1,589.01		
7	SJ Jambatan Connaught	CCGT		300.00	300.00			
8	SJ Sultan Iskandar, Pasir Gudang	OCGT		210.00	210.00			
9	SJ Sultan Iskandar, Pasir Gudang	CCGT		275.00	275.00			
10	SJ Sultan Ismail, Paka	CCGT		1,029.00	1,029.00		5,105.72	
11	SJ Gelugor	CCGT		310.00	310.00		2,267.36	
12	SJ Putrajaya	OCGT		577.00	253.00		668.55	
13	SJ Tuanku Jaafar, Port Dickson	CCGT		1,411.00	1,411.00		10,882.67	
Jumlah Total				6,751.00	6,299.10		27,374.33	
PENJANA-PENJANA BEBAS INDEPENDENT POWER PRODUCERS (IPP)								
14	SJ Sultan Azlan Shah (SJSAS), Manjung GF1	Thermal		Arang Batu Coal	2,100.00		2,070.00	16,104.79
15	SJSAS, Manjung GF2	Thermal		Arang Batu Coal	1,010.00		1,010.00	4,654.99
16	Tanjung Bin Power Sdn. Bhd. (U1-U3)	Thermal		Arang Batu Coal	2,100.00		2,100.00	14,852.09
17	Jimah Energy Ventures Sdn. Bhd., Port Dickson	Thermal	Arang Batu Coal	1,400.00	1,400.00	10,885.75		
18	SJ Sultan Salahuddin Abdul Aziz (SJSSAA), Kapar (GF1)	Thermal Konvensional Conventional Thermal	Gas Asli Natural Gas	600.00	564.00	1,092.19		
19	SJSSAA, Kapar (GF2)	Thermal	Arang Batu Coal	600.00	562.00	10,160.93		
20	SJSSAA, Kapar (GF3)	Thermal	Arang Batu Coal	1,000.00	924.00			
21	SJSSAA, Kapar (GF4)	OCGT	Gas Asli Natural Gas	220.00	205.10	276.10		
22	YTL Power Generation Sdn. Bhd., Paka	CCGT	Gas Asli Natural Gas	780.00	Bersara pada Sept. 2015 Retired in Sept. 2015	3,952.78		
23	YTL Power Generation Sdn. Bhd., Pasir Gudang	CCGT	Gas Asli Natural Gas	390.00		1,753.39		
24	Powertek Berhad, Telok Gong	OCGT	Gas Asli Natural Gas	440.00	434.00	362.72		
25	Port Dickson Power Berhad, Port Dickson	OCGT	Gas Asli Natural Gas	440.00	436.40	448.83		
26	Pahlawan Power Sdn. Bhd., Telok Gong	CCGT	Gas Asli Natural Gas	334.00	322.00	1,830.19		
27	GB3 Sdn. Bhd., Lumut	CCGT	Gas Asli Natural Gas	640.00	640.00	2,752.26		
28	Panglima Power Berhad, Telok Gong	CCGT	Gas Asli Natural Gas	720.00	720.00	4,875.19		
29	Teknologi Tenaga Perlis Consortium Sdn. Bhd., Perlis	CCGT	Gas Asli Natural Gas	650.00	650.00	4,102.02		
30	Prai Power Sdn. Bhd., Prai	CCGT	Gas Asli Natural Gas	350.00	350.00	1,529.19		
31	Kuala Langat Power Plant Sdn. Bhd., Kuala Langat	CCGT	Gas Asli Natural Gas	762.00	720.00	3,922.71		
32	Segari Energy Ventures Sdn. Bhd., Lumut	CCGT	Gas Asli Natural Gas	1,303.00	1,303.00	6,459.61		
33	NUR Generation Sdn. Bhd., Perlis <i>Menjana elektrik untuk kegunaan pelanggan KHTP sahaja Generates electricity only to supply their consumers within KHTP</i>	CCGT	Gas Asli Natural Gas	440.00	n/a	1,307.75		
34	Musteq Hydro Sdn. Bhd., Kuala Krai <i>Bersambung di talian pengagihan 33 kV Connected to 33 kV distribution line</i>	Hidro Mini Mini Hydro	Hidro Hydro	20.00	n/a	0.00		
Jumlah Total				16,299.00	14,410.50	91,323.48		
Jumlah Besar Grand Total				23,050.00	20,709.60	118,697.81		

Nota Note :

OCGT : Turbin Gas Kitar Terbuka Open Cycle Gas Turbine

CCGT : Turbin Gas Kitar Padu Combined Cycle Gas Turbine

Campuran Penjanaan: Gas Asli (47.48%), Distillate (0.46%), Arang Batu (47.84%), Hidro (4.21%)

Generation Mix: Natural Gas (47.48%), Distillate (0.46%), Coal (47.84%), Hydro (4.21%)

Jadual 9: Hidro Mini di Semenanjung Malaysia
Table 9: Mini Hydro in Peninsular Malaysia

Bil No	Stesen Station	Kapasiti Penjanaan Terpasang (MW) Installed Generation Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)
1	Sungai Perdak, Perak	0.342	0.42
2	Sungai Bil, Perak	0.225	0.93
3	Sungai Kinjang, Perak	0.325	1.46
4	Sungai Asap, Perak	0.110	0.06
5	Sungai Chempias, Perak	0.120	0.36
6	Sungai Tebing Tinggi, Perak	0.152	0.43
7	Sungai Tawar Besar, Kedah	0.552	0.31
8	Sungai Mahang, Kedah	0.454	2.45
9	Sungai Mempelam, Kedah	0.381	0.86
10	Sungai Renyok, Perak	1.600	1.03
11	Sungai Cheralak, Terengganu	0.480	0.03
12	Sungai Berang, Terengganu	0.364	0.52
Jumlah Total		5.105	8.86

Sumber Source : TNB

Jadual 10: Jana Kuasa Tenaga Boleh Baharu (TBB) di Semenanjung Malaysia
Table 10: Renewable Energy (RE) Power Generation in Peninsular Malaysia

Bil No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)	Elektrik Dijual (GWj) Sold Electricity (GWh)	Tarikh Lesen Dikeluarkan License Issuance Date
Sumber Tenaga: HIDRO MINI Energy Source: MINI HYDRO							
1	AMCORP PERTING HYDRO SDN. BHD.	Hutan Simpang Bukit Tinggi Mukim Bentong II Daerah Bentong Pahang.	Hidro Mini Mini Hydro	6.60	27.12*	25.16	2/3/2015
2	I.S. ENERGY SDN. BHD.	Sungai Rek Daerah Kuala Krai Kelantan.	Hidro Mini Mini Hydro	2.80	12.82*	12.13	14/5/2009
3	PESAKA TECHNOLOGIES SDN. BHD.	Sungai Brooke Mukim Loging Daerah Gua Musang Kelantan.	Hidro Mini Mini Hydro	12.00	Belum mulatugas Not yet commissioned	Belum mulatugas Not yet commissioned	30/9/2010
4	RENEWABLE POWER SDN. BHD.	Kompartmen 52 & 53 Hutan Simpan Gading Mukim Kerling Daerah Hulu Selangor Selangor.	Hidro Mini Mini Hydro	2.20	10.75*	8.72	14/9/2009
Sumber Tenaga: GAS TAPAK PELUPUSAN Energy Source: LANDFILL GAS							
5	BIOPOWER CLIMATE CARE SDN. BHD.	Lot 3348 Mukim Bera Daerah KM 32 Bahau-Keratong Highway 72100 Pahang	Enjin Gas Gas Engine	2.13	8.71*	7.56	16/5/2013
6	JANA LANDFILL SDN. BHD.	Air Hitam Sanitary Landfill Compartment 6 Hutan Simpan Air Hitam Mukim & Daerah Petaling Jalan Seri Kembangan-Puchong Seri Kembangan, Selangor.	Enjin Gas Gas Engine	2.00	3.72*	3.19	13/10/2001
7	JANA LANDFILL SDN. BHD.	No. Lot 1595, 2958 & 2959 Batu 3 1/2 Mukim Jalan Bukit Kerayong Jeram Daerah Kuala Selangor Selangor.	Enjin Gas Gas Engine	1.07	1.70	1.70	25/6/2012
8	JENG HUAT (BAHAU) REALTY SDN. BHD.	Lot PT 2035, Mukim Triang, Daerah Kemayan-Bera 28380 Pahang.	Enjin Gas Gas Engine	1.20	5.09	5.09	25/11/2014
9	KUB-BERJAYA ENERGY SDN. BHD.	No. Lot 25, 26, 36 dan 37 Mukim Sungai Tinggi Daerah Hulu Selangor Selangor.	Enjin Gas Gas Engine	1.20	4.17*	4.10*	8/4/2011
10	KUB-BERJAYA ENERGY SDN. BHD.	No. Lot 25, 36 & 37 Mukim Sungai Tinggi Daerah Hulu Selangor 40400 Selangor.	Enjin Gas Gas Engine	3.12	16.68*	16.35*	30/8/2012
11	KUB-BERJAYA ENERGY SDN. BHD.	Lot PT 1682 Mukim Sungai Tinggi 40410 Daerah Ulu Selangor Selangor.	Enjin Gas Gas Engine	2.00	n/a*	n/a*	15/9/2015

Bil No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)	Elektrik Dijual (GWj) Sold Electricity (GWh)	Tarikh Lesen Dikeluarkan License Issuance Date
Sumber Tenaga: BAHAN BUANGAN TAPAK PELUPUSAN				Energy Source: LANDFILL WASTE			
12	MAGENKO RENEWABLES (IPOH) SDN. BHD.	Sebahagian No. Lot 41293 Mukim Hulu Kinta Daerah Kinta 31250 Perak.	Enjin Gas Gas Engine	1.20	n/a*	n/a*	8/1/2015
13	SWM ENVIRO SDN. BHD.	Level 17, Menara LGB No. 1, Jalan Wan Kadir Taman Tun Dr. Ismail 60000 Kuala Lumpur.	Enjin Gas Gas Engine	2.00	n/a*	n/a*	4/8/2015
Sumber Tenaga: EFLUEN KILANG KELAPA SAWIT				Energy Source: PALM OIL MILL EFFLUENT			
14	ACHI JAYA PLANTATIONS SDN. BHD.	Lot 682 dan 1066 Mukim Chaah Daerah Segamat Johor.	Enjin Gas Gas Engine	1.25	6.45	6.45	2/3/2010
15	BELL ECO POWER SDN. BHD.	Lot No. 4960, Parit Ju Mukim Simpang Kiri Daerah Batu Pahat Johor.	Enjin Gas Gas Engine	2.00	3.21	2.08	5/10/2009
16	FELDA PALM INDUSTRIES SDN. BHD.	Lot PT34 Kilang Sawit Serting Hilir Mukim Rompin Daerah Jempul Negeri Sembilan.	Enjin Gas Gas Engine	1.50	0.07	0.07	4/8/2011
17	FELDA PALM INDUSTRIES SDN. BHD.	Kilang Sawit Maokil Mukim Maokil Daerah Labis 85300 Johor.	Enjin Gas Gas Engine	1.20	0.06	0.06	15/12/2014
18	FELDA PALM INDUSTRIES SDN. BHD.	Kilang Sawit Tenggaroh Felde Tenggaroh Daerah Kota Tinggi 81907 Johor.	Enjin Gas Gas Engine	1.20	0.06	0.06	15/12/2014
19	FELDA PALM INDUSTRIES SDN. BHD.	KM 27 Jalan Nitar-Mersing Johor.	Enjin Gas Gas Engine	1.60	0.08	0.08	5/3/2015
20	GAN TENG SIEW REALTY SDN. BHD.	Lot 422, Mukim Rantau Daerah Seremban Negeri Sembilan	Enjin Gas Gas Engine	2.40	3.74	3.74	2/3/2015
21	GLT ENERGY SDN. BHD.	Lot 25439 Mukim Keratong Daerah Rompin 26700 Pahang.	Enjin Gas Gas Engine	1.13	n/a*	n/a*	17/11/2015
22	KILANG KELAPA SAWIT LEKIR SDN. BHD.	Lot 260 Mukim Jaya Baru Daerah Perak Tengah 32020 Perak.	Enjin Gas Gas Engine	1.00	n/a*	n/a*	17/11/2015
23	SUNGEI KAHANG POWER SDN. BHD.	Lot 403 Mukim Kahang Derah Kluang 86000 Johor.	Enjin Gas Gas Engine	3.18	n/a*	n/a*	18/11/2015
Sumber Tenaga: SISA KAYU				Energy Source: WOOD WASTE			
24	BIOENERGY SOURCEENERGY RESORCES SDN. BHD.	Sebahagian Lot 322, 333 & 3562 Mukim Batang Kali Daerah Hulu Selangor 44200 Selangor.	Turbin Stim Steam Turbine	7.00	23.16*	21.53	9/1/2015
Sumber Tenaga: SOLAR				Energy Source: SOLAR			
25	ACE PIXEL SDN. BHD.	Sebahagian Lot No. H.S(D) 07435, PT 19 MAS Cargo Complex Zone B Free Commercial Zone Southern Support Zone Kuala Lumpur International Airport 64000 Sepang, Selangor.	Solar PV	0.40	0.51	0.51	27/2/2014
26	ACE PIXEL SDN. BHD.	Sebahagian Lot No. H.S(D) 07435, PT 19 MAS Cargo Complex Zone B Free Commercial Zone Southern Support Zone Kuala Lumpur International Airport 64000 Sepang, Selangor.	Solar PV	0.40	0.52	0.52	27/2/2014
27	ACIDCHEM INTERNATIONAL SDN. BHD.	Sebahagian Lot PT 3176 Mukim 1 Daerah Seberang Perai Tengah 13600 Pulau Pinang.	Solar PV	0.50	0.64*	0.64*	2/4/2014
28	ALLIANCE CONTRACT MANUFACTURING SDN. BHD.	Sebahagian Lot PT 2815 Mukim 01 13700 Daerah Seberang Perai Tengah Pulau Pinang	Solar PV	0.42	0.55	0.55	15/12/2014
29	ALPHA AUTOMATION (SELANGOR) SDN. BHD.	No. Lot 6 Jalan Permata 2 Arab Malaysia Industrial Park Nilai 71800 Negeri Sembilan	Solar PV	0.18	0.19*	0.03	2/7/2012
30	AM RICH CONSTRUCTIONS & DEVELOPMENT SDN. BHD.	No. Lot 7065 Mukim Johol Daerah Kuala Pilah 73100 Seremban, Negeri Sembilan	Solar PV	0.09	n/a*	n/a*	13/11/2015
31	AMBANG FIESTA SDN. BHD.	Lot PT 4564 Mukim Kuala Perlis 02000 Kangar Perlis.	Solar PV	5.00	7.01*	6.98	28/12/2012
32	AMBANG FIESTA SDN. BHD.	Lot PT 4564 (2889) Mukim Kuala Perlis 02000 Kangar Perlis	Solar PV	1.00	1.38*	1.37	22/11/2013

Bil No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)	Elektrik Dijual (GWj) Sold Electricity (GWh)	Tarikh Lesen Dikeluarkan License Issuance Date
33	ANEKA RETAIL (M) SDN. BHD.	Sebahagian Lot 10239 Mukim Bandar Gurun Daerah Kuala Muda 08300 Kedah.	Solar PV	0.18	n/a*	n/a*	2/12/2015
34	AQUAPONICS ENERGY GARDEN SDN. BHD.	Lot 3508 Mukim Kuala Muda Daerah Sungai Petani 06000 Kedah.	Solar PV	0.43	0.51*	0.51	30/12/2013
35	AQUAPONICS SOLAR FARM SDN. BHD.	Lot 3499 Mukim Kuala Muda Daerah Sungai Petani 06000 Kedah.	Solar PV	0.34	0.48*	0.43	30/12/2013
36	ASPEN MOMENTS SDN. BHD.	No. Lot 603 Mukim 16 Daerah Seberang Perai Utara Pulau Pinang.	Solar PV	0.43	n/a*	n/a*	23/12/2015
37	AT ENGINEERING SOLUTION SDN. BHD.	Sebahagian Lot 124600 Mukim 12 Daerah Barat Daya 11900 Pulau Pinang	Solar PV	0.43	n/a*	n/a*	23/12/2015
38	ATEN SDN. BHD.	Lot 6090 28 1/2 Mile Salak Road Mukim Dengkil Daerah Sepang 43800 Selangor.	Solar PV	0.51	0.45	0.45	8/1/2015
39	ATLANTIC BLUE SDN. BHD.	Lot 999, Pokok Sena 06400 Bandar Pokok Sena Daerah Pokok Sena Kedah.	Solar PV	1.00	1.49	1.49	17/12/2014
40	AZMINAS SDN. BHD.	No. Lot 42366 Mukim Kapar Daerah Klang 42200 Selangor.	Solar PV	0.43	0.55	0.55	23/1/2015
41	BAGAN DATOH SOLAR FARM SDN. BHD.	Lot 9721 Mukim Hutan Melintang Daerah Bagan Datoh 36400 Perak.	Solar PV	2.50	1.58	1.58	26/11/2015
42	BAGAN DATOH SOLAR FARM SDN. BHD.	Lot 9717 (GM 4454) Jalan Hutan Melintang Mukim Hutan Melintang 36400 Perak.	Solar PV	2.50	1.58	1.58	10/6/2013
43	BEYOND SOLARIS SDN. BHD.	Lot 74366, Mukim Gambang Daerah Kuantan 26300 Kuantan Pahang.	Solar PV	1.00	1.00	1.00	8/1/2015
44	BINA PURI NORWEST SDN. BHD.	Lot 1621 Jalan Prima Pelangi 6 Taman Bukit Prima Pelangi Mukim Batu 51200 Kuala Lumpur	Solar PV	0.30	0.30*	0.29	15/12/2014
45	BIOSUN ENERGY SDN BHD	Sebahagian Lot 1788 Mukim Batang Padang Daerah Batang Padang 35400 Perak.	Solar PV	1.00	n/a*	n/a*	29/12/2015
46	BROADWAY VICTORY SDN. BHD.	Lot PT 4236, H.S.(M) 6267 Mukim Kapar Selat Kelang Utara Selangor.	Solar PV	0.99	1.52*	1.14	4/12/2012
47	BUTTERWORTH PAPER CUPS SDN. BHD.	Lot 2778, Mukim 07 14300 Daerah Seberang Perai Selatan Pulau Pinang.	Solar PV	0.18	0.12*	0.10	19/2/2014
48	CANDELA GREEN ENERGY SDN. BHD.	No. Lot 17831 Kampong Bharu Gong Samak Mukim Kuala Paka 23100 Dungun Terengganu.	Solar PV	0.18	0.14	0.14	29/12/2014
49	CATHAYANA ECOTECH SDN. BHD.	Lot 1048 Sek 28-1053 Mukim Lorong Tun Ismail 5 Daerah Kuantan 25000 Pahang	Solar PV	0.09	n/a*	n/a*	18/11/2015
50	CEMARA ANGSANA SDN. BHD.	Sebahagian No. Lot HS(D) 10045 PT 3980 Mukim Gemas Daerah Tampin 73400 Negeri Sembilan.	Solar PV	4.50	5.12*	4.89	25/11/2013
51	CEMARA ANGSANA SDN. BHD.	Sebahagian No. Lot HS(D) 10045 PT 3980 Mukim Gemas Daerah Tampin 73400 Negeri Sembilan.	Solar PV	1.26	1.50*	1.45	25/11/2013
52	CHENG HUA ENGINEERING WORKS SDN. BHD.	P.T. 66271 Mukim Klang 41200 Klang Selangor.	Solar PV	0.18	0.22	0.22	30/12/2013
53	CHIAT HIN ENVELOPE MANUFACTURE SDN. BHD.	Plot 233/234 Lorong Perusahaan 8 13600 Perai Pulau Pinang.	Solar PV	0.18	0.13	0.13	4/8/2015
54	CINE ART COMMUNICATION SDN. BHD.	Lot 305012 Mukim Hulu Kinta Daerah Kinta 31150 Perak.	Solar PV	1.00	0.04*	0.04*	26/8/2015
55	CORPORATE SEASON SDN. BHD.	Sebahagian PT 43 Satellite A Lapangan Terbang Antarabangsa Kuala Lumpur 64000 Sepang Selangor.	Solar PV	4.00	5.27	5.27	15/11/2013
56	CYPARK SURIA (NEGERI SEMBILAN) SDN. BHD.	Sebahagian Lot 7134 Tapak Pelupusan Pajam Mukim Sentul Nilai Negeri Sembilan.	Solar PV	3.00	3.84*	3.84	25/6/2012

Bil No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)	Elektrik Dijual (GWj) Sold Electricity (GWh)	Tarikh Lesen Dikeluarkan License Issuance Date
57	CYPARK SURIA (PAJAM) SDN. BHD.	Lot 7134 Mukim Setul Daerah Pajam 71700 Negeri Sembilan.	Solar PV	5.00	5.73*	4.74	25/4/2014
58	CYPARK SURIA (PAJAM) SDN. BHD.	Lot 7134 Mukim Setul Daerah Seremban 71700 Negeri Sembilan	Solar PV	0.10	0.09	0.09	15/10/2015
59	CYPARK SURIA (PAJAM) SDN. BHD.	Sebahagian Lot 7134 Tapak Pelupusan Pajam Mukim Sentul Nilai Negeri Sembilan.	Solar PV	5.00	4.74	4.74	25/6/2012
60	DATO' IR. DR. DENNIS GANENDRA	Sebahagian Lot P.T. 17562 Mukim Klang Daerah Klang 40350 Selangor.	Solar PV	0.81	0.89	0.89	14/9/2012
61	DATO' IR. DR. DENNIS GANENDRA	Sebahagian Lot No. 3861, 3862 & 3863 Mukim Sabai Daerah Bentong 28600 Pahang.	Solar PV	0.99	1.13*	1.09	15/2/2013
62	DELLOYD HOLDINGS (M) SDN. BHD.	Lot 2592 Mukim Klang Daerah Klang 41200 Selangor	Solar PV	0.42	0.24	0.24	29/4/2015
63	DELLOYD HOLDINGS (M) SDN. BHD.	No. Lot 2755 Mukim Klang Daerah Klang 41200 Selangor.	Solar PV	0.42	0.51*	0.24	13/11/2015
64	DICKOW SDN. BHD.	Plot 361, Bukit Minyak Mukim 13 Daerah Tengah 14100 Seberang Perai Tengah Pulau Pinang.	Solar PV	0.42	0.61	0.61	15/12/2014
65	E & W VENTURETECH SDN. BHD.	Sebahagian Lot 3764 Mukim Sungai Buluh Daerah Petaling 40150 Selangor.	Solar PV	1.00	0.96	0.96	2/3/2015
66	EAGLETECH INDUSTRIES SDN. BHD.	Lot PT. 7645 Mukim Cheras Daerah Cheras 43200 Selangor.	Solar PV	0.18	0.21	0.21	19/2/2014
67	ECOSENSA TECHNOLOGIES SDN. BHD.	Lot 561 Mukim Jeli Daerah Jeli 17700 Kelantan.	Solar PV	0.10	n/a*	n/a*	13/11/2015
68	EH SOLAR FARM SDN. BHD.	Lot 999 (40) Mukim Bandar Pokok Sena Daerah Pokok Sena 06400 Kedah	Solar PV	1.00	n/a*	n/a*	13/11/2015
69	ELEGANT GROUP SDN. BHD.	Sebahagian Lot PT 303 Mukim Damansara Daerah Petaling Jaya 47620 Selangor.	Solar PV	0.14	0.21	0.21	15/1/2014
70	EMERALD ESTEEM SDN. BHD.	Sebahagian PT 230 Mukim Bandar Sultan Suleiman 42000 Klang Selangor.	Solar PV	0.99	1.29*	1.22	10/6/2013
71	EN. LIM CHOO SOO	PT6424 dan PT6425 Jalan Tanjung Minyak Mukim Cheng 75250 Melaka Pindah, Melaka.	Solar PV	0.95	1.30*	1.30*	28/11/2013
72	EN. ONG AH HWA	Lot 74369 Mukim Kuala Kuantan Daerah Kuantan 26300 Pahang.	Solar PV	1.00	n/a*	n/a*	28/2/2013
73	EN. TAN VAIT LEONG	Sebahagian Lot 222 Kawasan Perindustrian Kuala Ketil Mukim Tawar 09100 Baling, Kedah	Solar PV	0.50	0.64*	0.64*	22/5/2013
74	EN. TEW PENG HWEE	Sebahagian Lot 22202 (P.T. 17562) Mukim Klang Daerah Klang 40350 Selangor.	Solar PV	0.72	n/a*	n/a*	14/9/2012
75	EN. THAMILMUKILAN A/L PUSPADAM	Sebahagian PT 117 Mukim Kota Bharu 15000 Kelantan	Solar PV	0.62	n/a*	n/a*	16/4/2013
76	EQUITY GLOBAL STOCKS SDN. BHD.	Lot 1926 Mukim Tangkak Daerah Tangkak 84900 Johor.	Solar PV	0.43	n/a*	n/a*	3/12/2015
77	EVERGREEN GOLDFEED SDN. BHD.	Sebahagian Lot PT 4244 Mukim Kapar Daerah Klang 42000 Selangor	Solar PV	0.50	0.67*	0.66	18/2/2014
78	EVERISE TASKFORCE SDN. BHD.	Lot 3, Jalan Keluli 15/16 Seksyen 15 Mukim Shah Alam Daerah Petaling 40200 Selangor.	Solar PV	0.43	0.50	0.50	14/11/2014
79	EXOTIC ACCESS SDN. BHD.	Lot PT 4180 HS(D) 6214 Mukim Kapar Selat Kelang Utara 42000 Selangor	Solar PV	0.50	0.74*	0.54	13/8/2012
80	FAIRVIEW EQUITY PROJECT SDN. BHD.	Sebahagian No. Lot 5193, 5194, 5195, 5196, 5197, Mukim Kluang Daerah Kluang 86000 Johor.	Solar PV	1.00	1.26*	1.20	4/12/2014
81	FITENT SDN. BHD.	Lot 300645 Mukim Sungai Terap Daerah Kinta 31000 Perak	Solar PV	0.43	n/a*	n/a*	23/12/2015

Bil No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)	Elektrik Dijual (GWj) Sold Electricity (GWh)	Tarikh Lesen Dikeluarkan License Issuance Date
82	FORTUNE 11 SDN. BHD.	No. Lot PT98 Mukim Labu Daerah Sepang 64000 Selangor.	Solar PV	5.00	7.73	7.73	4/1/2013
83	GADING KENCANA SDN. BHD.	Sebahagian Lot 4661 Dan 4664 Mukim Ayer Panas Daerah Jasin Melaka.	Solar PV	5.00	7.14*	5.22	9/4/2014
84	GADING KENCANA SDN. BHD.	Sebahagian Lot 4661 Dan 4664 Mukim Ayer Panas Daerah Jasin Melaka.	Solar PV	3.00	4.38*	3.13	9/4/2014
85	GAYA DUNIA SDN. BHD. (Fasa I)	Tapak Pelupusan Bukit Palong Lot No. 4730 Mukim Lukut Daerah Port Dickson 71000 Negeri Sembilan	Solar PV	3.00	3.74	3.74	15/2/2013
86	GEN MASTER MANUFACTURING SDN. BHD.	Lot PT 214903 Mukim Sungai Raya Daerah Kinta 31000 Perak.	Solar PV	0.18	n/a*	n/a*	23/12/2015
87	GENERAL ENVIRONMENTAL SOLUTION SDN. BHD.	Sebahagian Lot 1997 Mukim Tanjong Minyak Daerah Melaka Tengah 75260 Melaka.	Solar PV	0.17	0.20	0.20	28/1/2015
88	GENETIC SOLAR SDN. BHD.	Sebahagian Lot HS(D) 203820, PT 7498 Mukim Sungai Raya Daerah Kinta 31300 Perak	Solar PV	1.00	n/a*	n/a*	23/12/2015
89	GETSOL SDN. BHD.	Universiti Malaysia Perlis Lot 1705, Mukim Padang Siding Daerah Arau 02600 Perlis.	Solar PV	1.00	n/a*	n/a*	4/9/2015
90	GF TECHNOLOGY SDN. BHD.	Sebahagian No. Lot 16041 (Plot 108) Mukim 12 Daerah Barat Daya 11900 Pulau Pinang.	Solar PV	0.33	0.45	0.45	21/1/2015
91	GUBAHAN CERIA SDN. BHD.	Sebahagian No. Lot HS(D) 10045 PT 3980 Mukim Gemas Daerah Tampin 73400 Negeri Sembilan.	Solar PV	4.50	5.16*	5.02	25/11/2013
92	HARTAMAS MENTARI SDN. BHD.	Lot 8 Mukim Pekan Puchong Perdana Daerah Petaling 47100 Selangor.	Solar PV	0.50	0.40*	0.39	9/4/2014
93	HBH GLOBAL ENERGY SDN. BHD.	Sebahagian Lot 20159 Jalan Guar Nangka Mata Ayer Mukim Padang Siding Daerah Perlis, 02500 Perlis	Solar PV	0.50	0.66	0.66	2/4/2014
94	HEXATECH ENGINEERING SDN. BHD.	Lot 58 Mukim Kelemak Daerah Alor Gajah 78000 Melaka.	Solar PV	0.17	0.19	0.19	2/4/2014
95	HONG SENG MOTOR SDN. BHD.	Lot 3420, Mukim 16 Daerah Seberang Perai Utara 13800 Pulau Pinang.	Solar PV	0.17	0.25	0.25	2/3/2015
96	IB SOFA SDN. BHD.	Lot 23792 Pekan Semenyih Daerah Hulu Langat Selangor.	Solar PV	0.18	0.23	0.23	5/3/2015
97	IKATAN HEMAT SDN. BHD	Lot 239 Mukim Mentakab Daerah Temerloh 28400 Temerloh, Pahang.	Solar PV	0.43	n/a*	n/a*	13/11/2015
98	INFRA MASYHUR SDN. BHD.	Lot 47946 Mukim Dengkil 63300 Daerah Sepang Selangor.	Solar PV	0.34	0.43	0.43	30/12/2013
99	INTEGRATE SOLAR FARM SDN. BHD.	Sebahagian Lot 312366 Mukim Sungai Raya Daerah Kinta 31600 Perak.	Solar PV	0.50	n/a*	n/a*	21/1/2015
100	INTEGRATED LOGISTICS SOLUTIONS SDN. BHD.	Lot PT 599 Pekan Hicom 40400 Daerah Petaling Selangor.	Solar PV	0.43	0.51	0.51	19/3/2015
101	IRM SOLAR SDN. BHD.	Lot 540, 541, 542, 552 & 553 Mukim Titi Tinggi Daerah Kangar 02100 Perlis	Solar PV	5.00	n/a*	n/a*	30/10/2014
102	ISKANDAR REGIONAL DEVELOPMENT AUTHORITY	No. Lot PTD 124161 Mukim Pulaui Daerah Johor Bahru 79200 Johor	Solar PV	0.21	0.17	0.17	14/10/2013
103	IVORY DAZZLE SDN. BHD.	Sebahagian Lot PT 17582 HS(D) 43148 Mukim Klang Daerah Klang 40350 Selangor.	Solar PV	0.99	1.24*	1.13	10/6/2013
104	JAYADEV A/L K.K PILLAI	Sebahagian Lot PT2421, PT2422 Mukim Semarak Tok Bali Daerah Pasir Putih 46400 Kelantan.	Solar PV	1.00	1.26	1.26	13/11/2013
105	JEFI AQUATECH RESOURCES SDN. BHD.	Plot 314A (PT 988) Mukim 13 Daerah Seberang Prai Tengah 14100 Pulau Pinang.	Solar PV	0.18	0.11	0.11	10/6/2013

Bil No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)	Elektrik Dijual (GWj) Sold Electricity (GWh)	Tarikh Lesen Dikeluarkan License Issuance Date
106	JISHAN PACK SDN. BHD.	Lot 4281 Jalan Bukit Panchor Mukim 07 Daerah Seberang Prai Selatan 14300 Pulau Pinang.	Solar PV	0.18	0.25	0.25	25/9/2013
107	KAYANGAN MEGAJAYA SDN. BHD.	Lot No. 606 Seksyen 16 Mukim Shah Alam 40000 Daerah Petaling Selangor.	Solar PV	0.50	0.54*	0.52	4/12/2012
108	KAYEL RUBBER PRODUCTS SDN. BHD.	Lot 395 Lorong Perusahaan 8 Kawasan Perusahaan Perai 13500 Perai, Pulau Pinang.	Solar PV	0.41	n/a*	n/a*	20/11/2015
109	KEMUNING SUMIKIN BUSSAN SDN. BHD.	Lot 793 Mukim Telok Panglima Garang Daerah Kuala Langat 42600 Selangor.	Solar PV	1.01	1.06*	1.06	12/12/2012
110	KIMMARK MANUFACTURING SDN. BHD.	Lot 1808 12 1/2 Mile, Sungai Besi Cheras Road, Pekan Ceras 43300 Hulu Langat Selangor.	Solar PV	0.53	n/a*	n/a*	19/10/2015
111	KLASIK AKTIF SDN. BHD.	Lot 2485 (PT 2693) Mukim 01 Daerah Seberang Prai Tengah 13600 Pulau Pinang.	Solar PV	0.18	0.23	0.23	24/12/2013
112	KOMBINASI BUMI SOLAR SDN. BHD.	Sebahagian Lot PT 57355 (HSD 57947) Mukim Klang Daerah Klang Selangor.	Solar PV	0.31	0.38*	0.36	19/2/2014
113	KOMBINASI BUMI SOLAR SDN. BHD.	Lot 2493, Sungai Jarom Mukim Teluk Panglima Garang 42700 Daerah Kuala Langat Selangor.	Solar PV	1.01	1.01*	1.01	11/8/2014
114	KOMITMEN MANTAP SDN. BHD.	Sebahagian Lot PT 952 Mukim Kubang Ketam 16150 Pasir Mas Kelantan.	Solar PV	2.00	2.86*	2.86	2/4/2014
115	KOMITMEN MANTAP SDN. BHD.	Sebahagian Lot PT 952 Mukim Kubang Ketam 16150 Pasir Mas Kelantan.	Solar PV	2.00	2.80*	2.80	19/2/2014
116	KOMPASS MURNI SDN. BHD.	Lot 2000 Mukim Johor Daerah Muar 84000 Johor.	Solar PV	1.00	n/a*	n/a*	7/9/2015
117	KUALA BERANG POWER SOLUTION SDN. BHD.	Sebahagian Lot PT13251 dan PT 13250 Mukim Kuala Berang Daerah Hulu Terengganu 21700 Terengganu.	Solar PV	1.00	n/a*	n/a*	29/12/2015
118	KUALITI ALAM SDN. BHD.	Lot 6638 Mukim Jimah 71960 Daerah Port Dickson Negeri Sembilan.	Solar PV	0.15	0.20*	0.17	1/7/2014
119	KUB-BERJAYA ENERGY SDN. BHD.	No. Lot 25, 36 & 37 Mukim Sungai Tinggi Daerah Hulu Selangor 40400 Selangor.	Solar PV	0.13	0.13*	0.13*	14/12/2012
120	KUMPULAN MELAKA BERHAD (Fasa I)	Sebahagian Lot PT 205 (Lot 1590), PT 206 (Lot 1591) dan PT 207 (Lot 1592) Sungai Petai Alor Gajah 76100 Melaka	Solar PV	1.30	1.81*	1.55	15/5/2013
121	KUMPULAN MELAKA BERHAD (Fasa II)	Sebahagian PT 203 (Lot 1588), PT 204 (Lot 1589) dan sebahagian PT 205 (Lot 1590) Sungai Petai Alor Gajah 76100 Melaka	Solar PV	1.22	1.58*	1.45	15/5/2013
122	KUMPULAN MELAKA BERHAD (Fasa III)	Lot PT 193 (Lot 1528), PT 194 (Lot 1529) dan sebahagian PT 203 (Lot 1588) Sungai Petai Alor Gajah 76100 Melaka	Solar PV	2.48	3.13*	2.96	15/5/2013
123	KURNIA MAJURIA SDN. BHD.	Sebahagian Lot PT 4244 Mukim Kapar Daerah Klang 42000 Selangor.	Solar PV	0.50	0.65*	0.64	18/2/2014
124	LEMBAGA PENGELOLA SJKC SUNGAI WAY	Lot 5150 Jalan SS9A/1 Seri Setia 47300 Petaling Jaya Selangor	Solar PV	0.18	0.22	0.22	4/12/2014
125	LEMBAGA PENGELOLA SMJK KATHOLIK PETALING JAYA	Sebahagian HSD 175755 Bandar Petaling Jaya Daerah Petaling Selangor.	Solar PV	0.18	0.17	0.17	3/12/2013
126	LEONG BEE & SOO BEE SDN. BHD.	Lot 143 & Lot 145 Seksyen 11E Bandar George Town Daerah Timur Laut 10300 George Town, Pulau Pinang	Solar PV	0.18	0.18*	0.10	2/3/2015
127	LEONG BEE & SOO BEE SDN. BHD.	Lot 5300, Mukim 01 13600 Daerah Seberang Perai Tengah Pulau Pinang	Solar PV	0.15	0.18*	0.08	19/2/2014

Bil No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)	Elektrik Dijual (GWj) Sold Electricity (GWh)	Tarikh Lesen Dikeluarkan License Issuance Date
128	LGH CONSTRUCTION SDN. BHD.	Lot 707, 141, 142 Mukim Bandar Kuala Kedah Daerah Kota Setar 06600 Kedah.	Solar PV	0.43	n/a*	n/a*	28/12/2015
129	MACGLO STEEL SERVICE CENTRE SDN. BHD.	Lot 3801 & Lot 104015 Batu 6 1/4, Jalan Klinik Seksyen 32 Bukit Kemuning Shah Alam Selangor.	Solar PV	0.47	0.59	0.59	2/7/2012
130	MAJUPERAK ENERGY RESOURCES S/B.	Sebahagian Lot 312366 Mukim Sungai Raya Daerah Kinta 31600 Perak.	Solar PV	0.50	n/a*	n/a*	20/1/2015
131	MAJUPERAK ENERGY RESOURCES S/B.	Sebahagian Lot 312366 Mukim Sungai Raya Daerah Kinta 31600 Perak.	Solar PV	0.50	n/a*	n/a*	20/1/2015
132	MALAYSIAN GREEN TECHNOLOGY CORPORATION	No. 2, Jalan 9/10 Persiaran Usahawan Seksyen 9, Bandar Baru Bangi 43650 Kajang, Selangor	Solar PV	0.09	n/a*	n/a*	29/2/2008
133	MARA INCORPORATED SDN. BHD.	Lot 003385 Mukim Kampung Raja Daerah Besut 22200 Terengganu	Solar PV	0.18	0.21	0.21	30/10/2014
134	MARAN ROAD SAWMILL SDN. BHD.	Lot 3887 Mukim Perak Daerah Temerloh 28000 Pahang.	Solar PV	0.50	0.66	0.66	19/2/2014
135	MATAHARI KENCANA SDN. BHD.	Lot 3841-A Mukim Hulu Bernam Timor Daerah Batang Padang 35950 Tanjung Malim Perak.	Solar PV	1.00	0.63	0.63	29/12/2014
136	MAXIMUM PROGRESS	Lot PT 2121 Mukim Bandar Shah Alam Daerah Petaling 40200 Selangor.	Solar PV	0.43	0.05*	0.05	9/10/2015
137	METEX STEEL SDN. BHD.	Lot 19033, 19034, 19035 dan 19055 Mukim Setul Daerah Seremban 71800 Negeri Sembilan	Solar PV	1.00	n/a*	n/a*	13/11/2015
138	MICRON CONCEPT ENGINEERING SDN. BHD.	Lot PT 2 Seksyen 16 Bandar Shah Alam Daerah Petaling Selangor.	Solar PV	0.18	n/a*	n/a*	3/12/2015
139	MIE CORPORATE HOLDINGS SDN. BHD.	No. Lot 39536 Mukim Petaling Daerah Puchong 47100 Selangor	Solar PV	0.20	0.20	0.20	29/12/2014
140	MILLEON EXTRUDER SDN. BHD.	Lot 946 Sungei Chu Mukim Serendah 48000 Daerah Hulu Selangor Selangor.	Solar PV	0.50	0.60	0.60	29/12/2014
141	MINDA BUMIJAYA SDN. BHD.	Lot PT 57351 Mukim Klang Daerah Klang 40460 Selangor.	Solar PV	0.43	n/a*	n/a*	16/11/2015
142	MITSUTOYO MARKETING SDN. BHD.	Lot PTD 16035 Mukim Tangkak Daerah Ledang 84900 Johor.	Solar PV	0.40	0.57	0.57	5/3/2015
143	MODERN ORIENTAL SDN. BHD.	Sebahagian PT10 dan Lot 541 Mukim 13 Daerah Seberang Perai Tengah 14000 Pulau Pinang.	Solar PV	0.43	n/a*	n/a*	16/11/2015
144	MP SOLAR ENERGY SDN. BHD.	No. Lot 312366 Mukim Simpang Pulai Daerah Kinta 31300 Perak.	Solar PV	0.50	n/a*	n/a*	20/1/2015
145	MUJUR SATRIA SDN. BHD.	Sebahagian Lot PT 17562 Mukim Klang Daerah Klang Selangor.	Solar PV	0.99	1.11*	1.11	13/8/2012
146	MUNSANG PLANTATION SDN. BHD.	Sebahagian Lot 21644 Mukim Sungai Terap Daerah Kinta Perak.	Solar PV	1.00	n/a*	n/a*	2/3/2015
147	MYWINDOW PORTAL SDN. BHD.	Lot 2114, Batu 55 Mukim Jabi 22000 Daerah Besut Terengganu.	Solar PV	1.00	n/a*	n/a*	8/1/2015
148	NEW HOONG FATT AUTO SUPPLIES SDN. BHD.	Sebahagian Lot 16474 Mukim Batu 51200 Kuala Lumpur Wilayah Persekutuan	Solar PV	0.18	0.20	0.20	2/4/2014
149	NOVEL ENERGY SDN. BHD.	Sebahagian Lot 22205 Mukim Klang Daerah Klang Selangor.	Solar PV	0.36	0.42*	0.42	21/1/2015
150	NYLOC FASTENERS SDN. BHD.	27 Persiaran Segambut Tengah Segambut 51200 Kuala Lumpur	Solar PV	0.18	0.21	0.21	9/1/2015
151	OTO VENDING SDN. BHD.	Lot 31080, Mukim 14 Seberang Perai Tengah 14000 Pulau Pinang	Solar PV	0.43	n/a*	n/a*	16/11/2015
152	OUTREACH GREEN SDN. BHD.	Sebahagian Lot 20159 Jalan Guar Nangka Mata Ayer Mukim Padang Siding Daerah Perlis, 02500 Perlis	Solar PV	0.50	0.65	0.65	2/4/2014
153	OUTREACH GREEN SDN. BHD.	Sebahagian Lot 20159 Jalan Guar Nangka Mata Ayer Mukim Padang Siding Daerah Perlis, 02500 Perlis	Solar PV	0.50	0.65	0.65	2/4/2014

Bil No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)	Elektrik Dijual (GWj) Sold Electricity (GWh)	Tarikh Lesen Dikeluarkan License Issuance Date
154	PANTAS LESTARI SDN. BHD.	PT 17562 Mukim Klang Daerah Klang 40350 Selangor.	Solar PV	0.43	0.41*	0.41	19/2/2014
155	PEMBINAAN EASTERN ALUMINIUM SDN. BHD.	Lot PTD 102958 Mukim Senai Daerah Kulaijaya Johor.	Solar PV	0.43	n/a*	n/a*	5/3/2015
156	PEPS-JV (M) SDN. BHD.	Lot 1403, 1406 & 1409 Batu 29 Jalan Kuala Kubu Mukim Ulu Yam 44300 Selangor.	Solar PV	2.00	2.40	2.40	10/6/2013
157	PERBADANAN MEMAJUKAN IKTISAD NEGERI TERENGGANU	Pulau Kapas Mukim Rusila Daerah Marang 21600 Terengganu	Solar PV	0.45	0.07*	0.07*	1/6/2007
158	PERPETUAL INGENUITY SDN. BHD.	No. Lot 6675 Mukim Sungei Baru Tengah Daerah Alor Gajah 00000 Melaka.	Solar PV	1.00	n/a*	n/a*	7/10/2015
159	PERSISTCOM SDN. BHD.	Sebahagian Lot 6369 Mukim Batang Padang Daerah Batang Padang 35000 Perak.	Solar PV	1.00	n/a*	n/a*	29/12/2015
160	PLANET SONATA SDN. BHD.	No. Lot 5369 HSD 42086 Mukim 01 Daerah Seberang Perai Tengah 13700 Pulau Pinang	Solar PV	0.11	0.14	0.14	29/12/2014
161	PS GREEN ENERGY SDN. BHD.	No. Lot 3431 Mukim Kuala Berang Daerah Hulu Terengganu Terengganu.	Solar PV	1.00	n/a*	n/a*	29/12/2015
162	RENTAK RAYA SDN. BHD.	Tapak Pelupusan Rimba Terjun Lot PTD 12068 Mukim Rimba Terjun 82000 Pontian Johor.	Solar PV	2.00	2.78*	2.78	22/11/2012
163	REVENUE VANTAGE	Sebahagian Lot 4564 Mukim Kuala Perlis Daerah Kangar 02000 Perlis.	Solar PV	0.08	0.12*	0.11	20/1/2015
164	REVENUE VANTAGE	Sebahagian Lot 4564 Mukim Kuala Perlis Daerah Kangar 02000 Perlis.	Solar PV	1.00	1.42	1.42	20/1/2015
165	REVISION SOLAR SDN. BHD.	Lot 2584 (PT 3195) Mukim 01 Daerah Seberang Perai Tengah 13600 Pulau Pinang	Solar PV	0.18	0.23	0.23	24/12/2013
166	ROVSKI INDUSTRIES SDN. BHD.	Lot 561, Sungai Penaga Sungai Penaga Mukim Damansara Daerah Petaling 47610 Selangor.	Solar PV	0.18	0.21	0.21	21/1/2014
167	RUMPUN TIARA DEVELOPMENT SDN. BHD.	Lot PT 24337 Mukim Triang Daerah Bera 26200 Pahang.	Solar PV	0.10	n/a*	n/a*	23/12/2015
168	SAGE MAJESTIC SDN. BHD.	Lot PT 2035 Mukim Dengkil Daerah Sepang 63000 Selangor.	Solar PV	0.18	0.19	0.19	2/12/2014
169	SAI KIM ENTERPRISE SDN. BHD.	Lot PT 11175 Mukim Pasir Panjang Daerah Sabak Bernam 45400 Selangor	Solar PV	1.00	0.09	0.09	18/11/2015
170	SAUJANA NAGAMAS SDN. BHD.	Lot 626 dan 627 Jalan Gudang 16/9Seksyen 16 40000 Shah Alam Selangor	Solar PV	0.99	0.98*	0.97	13/8/2012
171	SEE HAU GLOBAL	Sebahagian Lot 184 Mukim Plentong 81800 Daerah Johor Bahru, Johor.	Solar PV	0.18	0.23*	0.19	8/1/2015
172	SELASIH MENTARI SDN. BHD.	Sebahagian No. Lot 4324 Mukim Rantau Daerah Seremban 71200 Negeri Sembilan.	Solar PV	2.00	2.61*	2.61	30/12/2013
173	SELASIH MENTARI SDN. BHD.	Sebahagian No. Lot 4324 Mukim Rantau Daerah Seremban 71200 Negeri Sembilan	Solar PV	1.30	1.70	1.70	22/11/2013
174	SELASIH MENTARI SDN. BHD.	Sebahagian No. Lot 4324 Mukim Rantau Daerah Seremban 71200 Negeri Sembilan	Solar PV	2.00	2.68*	2.61	22/11/2013
175	SENDANG JAYA SDN. BHD.	Lot 11022 Mukim Pancang Bendena Daerah Sabak Bernam Selangor.	Solar PV	1.00	n/a*	n/a*	21/12/2015
176	SHAH ALAM AUTO PARTS SDN. BHD.	Lot 339 Mukim Kandang 75460 Melaka Tengah Melaka Bandar Bersejarah	Solar PV	0.18	n/a*	n/a*	29/12/2015
177	SHAW & SONS (KUALA LUMPUR) SDN. BHD.	Sebahagian Lot 40734 Mukim Bandar Klang Daerah Klang 41400 Selangor.	Solar PV	0.30	0.32	0.32	19/2/2014

Bil No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)	Elektrik Dijual (GWj) Sold Electricity (GWh)	Tarikh Lesen Dikeluarkan License Issuance Date
178	SHEN YONG ENGINEERING WORKS SDN. BHD.	Lot 3910 Mukim Tanjong Minyak Daerah Melaka Tengah 75250 Melaka.	Solar PV	0.43	0.37	0.37	2/12/2014
179	SHEN YONG ENGINEERING WORKS SDN. BHD.	11-A, Jalan Suria 6 Taman Mulai Jaya 72050 Melaka.	Solar PV	0.43	0.37	0.37	8/7/2015
180	SILVERSTAR PAVILION SDN. BHD.	Sebahagian PT 86 Jalan KLIA1 Lapangan Terbang Antarabangsa Sepang 64000 Selangor.	Solar PV	5.00	6.66	6.66	24/10/2013
181	SILVERSTAR PAVILION SDN. BHD.	Sebahagian PT 86 Jalan KLIA1 Lapangan Terbang Antarabangsa Sepang 64000 Selangor.	Solar PV	5.00	6.66	6.66	30/10/2013
182	SMART GOLDENWAY SDN. BHD.	No. Lot 9579 Mukim Damansara Daerah Petaling Selangor	Solar PV	0.43	n/a*	n/a*	23/11/2015
183	SOLAR INTERACTIVE SDN. BHD.	Sebahagian Lot 312366 Mukim Sungai Raya Daerah Kinta 31600 Perak.	Solar PV	0.50	n/a*	n/a*	21/1/2015
184	SOLAR MANAGEMENT (CHEMBONG) SDN. BHD.	Lot PT 2540 Mukim Pedas 71300 Rembau Negeri Sembilan.	Solar PV	0.50	0.34	0.34	24/12/2013
185	SOLAR MANAGEMENT (CHEMBONG) SDN. BHD.	Sebahagian No. Lot PT 2540 Mukim Pedas Daerah Rembau 73300 Negeri Sembilan	Solar PV	1.01	0.34	0.34	9/10/2015
186	SOLAR MANAGEMENT (PEDAS ONE) SDN. BHD.	Lot 927 Mukim Chembong 71300 Rembau Negeri Sembilan.	Solar PV	0.43	n/a*	n/a*	15/10/2015
187	SOLAR MANAGEMENT (REMBAU) SDN. BHD.	Lot PT 2539 Mukim Pedas 71300 Rembau Negeri Sembilan	Solar PV	0.50	0.68	0.68	24/12/2013
188	SOLAR SYSTEM & POWER SDN. BHD.	Sebahagian No. Lot 13854 (Site A) Mukim Puchong Daerah Petaling 43400 Selangor.	Solar PV	1.01	1.14	1.14	2/3/2015
189	SOLAR SYSTEM & POWER SDN. BHD.	Sebahagian No. Lot 13854 (Site B) Mukim Puchong Daerah Petaling 43400 Selangor.	Solar PV	1.01	1.15	1.15	2/3/2015
190	SOLARCO HOLDINGS SDN. BHD.	Sebahagian Lot A12 Mukim Kulim Daerah Kulim 09000 Kedah	Solar PV	0.49	0.63	0.63	6/3/2014
191	SOLARCORP SDN. BHD.	Lot 11220, 11221, 11222 dan 11223 Mukim Tanjong Minyak 75250 Daerah Melaka Tengah Melaka.	Solar PV	0.43	0.53	0.53	28/2/2014
192	SOLPLUS SDN. BHD.	Sebahagian Lot 7499 Mukim Sungai Raya Daerah Kinta 31300 Perak.	Solar PV	0.50	0.57*	0.20	18/2/2014
193	SOLRA SDN. BHD.	Sebahagian Lot 222 Mukim Tawar Daerah Baling 09100 Kedah.	Solar PV	0.48	0.63*	0.58	30/12/2013
194	SPECIAL UNIVERSAL SDN. BHD.	Lot 203 Kawasan Perindustrian Gebeng Mukim Sungai Karang 26080 Kuantan Pahang.	Solar PV	5.00	7.29*	6.74	9/4/2014
195	SPECIAL UNIVERSAL SDN. BHD.	Lot 203 Kawasan Perindustrian Gebeng Mukim Sungai Karang 26080 Kuantan Pahang.	Solar PV	2.50	3.45*	3.21	9/4/2014
196	SPECIAL UNIVERSAL SDN. BHD.	Lot 203 Kawasan Perindustrian Gebeng Mukim Sungai Karang 26080 Kuantan Pahang.	Solar PV	2.50	3.60*	3.35	9/4/2014
197	SPRINGFEILD POWER SDN. BHD.	Lot 4842, Mukim Cheras Daerah Ulu Langat 43300 Selangor	Solar PV	0.43	0.15	0.15	8/1/2015
198	SPRINGFIELD POWER SDN. BHD.	Lot 4842 Batu 3, Jalan Sungai Besi 43300 Cheras Selangor.	Solar PV	0.35	0.12	0.12	23/12/2015
199	STAR PUBLICATIONS (MALAYSIA) BERHAD	Lot 64219 Mukim Damansara 40150 Daerah Petaling Selangor.	Solar PV	0.50	0.54*	0.54	18/2/2014
200	STARKEN AAC SDN. BHD.	Lot PT 16047 Mukim Bandar Serendah Daerah Ulu Selangor Selangor.	Solar PV	0.43	n/a*	n/a*	12/11/2015
201	SUCCESS SIGNET SDN. BHD.	Sebahagian Lot 1162 dan 1163 Mukim Sungai Petani Kuala Muda 08000 Kedah.	Solar PV	1.75	2.23	2.23	18/2/2014
202	SULUK DAMAI SDN. BHD.	Lot PT 1062 Mukim Bandar Sri Sendayan Daerah Seremban 71950 Negeri Sembilan	Solar PV	0.36	0.48	0.48	23/1/2015

Bil No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)	Elektrik Dijual (GWj) Sold Electricity (GWh)	Tarikh Lesen Dikeluarkan License Issuance Date
203	SUN SENG FATT SDN. BHD.	Sebahagian Lot 7498 Mukim Sungai Raya Daerah Kinta 31300 Perak.	Solar PV	0.50	0.56*	0.21	18/2/2014
204	SUN SENG FATT SDN. BHD.	Sebahagian Lot 7498 Mukim Sungai Raya Daerah Kinta 31300 Perak.	Solar PV	0.50	0.61*	0.20	18/2/2014
205	SUN SOLARTECH SDN. BHD.	No. Lot 2114, Blok 31 Batu 55, Mukim Jabi 22000 Daerah Besut Terengganu.	Solar PV	0.50	n/a*	n/a*	8/1/2015
206	SUNRISE PRIMA SDN. BHD.	Lot 26, PT 56366 Mukim Klang Daerah Klang 40460 Selangor.	Solar PV	0.42	0.41*	0.41	30/12/2013
207	SUNTECH ENERGY SDN. BHD.	Lot 732, Pekan Nilai 71800 Daerah Seremban Negeri Sembilan.	Solar PV	1.00	1.17	1.17	8/1/2015
208	SUPERSPAN SDN. BHD.	Lot 2116, Batu 9 Telok, Mukim Teluk Panglima Garang 42500 Daerah Kuala Langat Selangor.	Solar PV	1.50	1.96*	1.81	15/1/2014
209	SURIA KLCC SDN. BHD.	No. Lot 170 Seksyen 58 Mukim Bandar Kuala Lumpur Daerah Kuala Lumpur Negeri Wilayah Persekutuan.	Solar PV	0.68	0.06	0.06	16/2/2012
210	SYNERGY GENERATED SDN. BHD.	Lot 3729, Kawasan Industri Sungai Bari Mukim Hulu Nerus Daerah Setiu 22120 Terengganu	Solar PV	5.00	7.13*	6.90	28/11/2014
211	SYNERGY MUST SDN. BHD.	Sebahagian Lot No. H.S(D) 07435, PT 19 MAS Cargo Complex Zone B Free Commercial Zone Southern Support Zone Kuala Lumpur International Airport 64000 Sepang, Selangor.	Solar PV	1.00	1.22	1.22	27/2/2014
212	SYNERGY MUST SDN. BHD.	Sebahagian Lot No. H.S(D) 07435, PT 19 MAS Cargo Complex Zone B Free Commercial Zone Southern Support Zone Kuala Lumpur International Airport 64000 Sepang, Selangor.	Solar PV	1.00	1.27	1.27	27/2/2014
213	SYNERGY SOLAR DEVELOPMENT SDN. BHD.	Lot PTD 87634 (PLO 19) Mukim Kulai Daerah Kulaijaya 81400 Johor.	Solar PV	0.42	0.52	0.52	21/4/2014
214	SYNERGY SOLAR DEVELOPMENT SDN. BHD.	Lot PTD 43022 Mukim Senai - Kulai Daerah Johor Bahru 81400 Johor	Solar PV	0.17	0.21	0.21	21/4/2014
215	SYNERGY SOLAR DEVELOPMENT SDN. BHD.	Lot PTD 43009 Mukim Senai - Kulai Daerah Johor Bahru 81400 Johor.	Solar PV	0.17	0.21	0.21	21/4/2014
216	SYNERGY SOLAR DEVELOPMENT SDN. BHD.	Lot PTD 43023 Mukim Senai - Kulai Daerah Johor Bahru 81400 Johor	Solar PV	0.17	0.21	0.21	21/4/2014
217	SYNERGY SOLAR DEVELOPMENT SDN. BHD.	Sebahagian Lot PTD 37443 Jalan Perindustrian 3 Senai Industrial Park 81400 Senai Johor.	Solar PV	0.17	0.21	0.21	15/12/2014
218	SYNERGY SOLAR DEVELOPMENT SDN. BHD.	PLO 227 Kawasan Perindustrian Tebrau II 81100 Johor Bahru Johor.	Solar PV	0.17	0.21	0.21	30/11/2012
219	SYNERGY SOLAR DEVELOPMENT SDN. BHD.	PLO 742 Jalan Keluli 12 Kawasan Perindustrian Pasir Gudang 81700 Pasir Gudang Johor.	Solar PV	0.17	0.21	0.21	30/11/2012
220	SYNERGY SOLAR DEVELOPMENT SDN. BHD.	PLO 228 Jalan Angkasa Mas 15 Kawasan Perindustrian Tebrau II 81100 Johor Bahru Johor.	Solar PV	0.17	0.21	0.21	30/11/2012
221	SYNERGY SOLAR DEVELOPMENT SDN. BHD.	PLO 191 Jalan Angkasa Mas 15 Kawasan Perindustrian Tebrau II 81100 Johor Bahru Johor.	Solar PV	0.09	0.11	0.11	30/11/2012
222	SYNERGY SOLAR DEVELOPMENT SDN. BHD.	PLO 49, No. 23 Jalan Persiaran Teknologi Taman Teknologi Johor 81400 Skudai, Johor.	Solar PV	1.37	1.68	1.68	30/1/2013
223	TAKUMI BRIQUETTE INDUSTRIES SDN. BHD.	No. Lot 18066 Mukim Terbau Daerah Johor Bahru Johor	Solar PV	0.18	n/a*	n/a*	3/12/2015

Bil No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)	Elektrik Dijual (GWj) Sold Electricity (GWh)	Tarikh Lesen Dikeluarkan License Issuance Date
224	TAN CHENG SIANG	Di atas Bumbung Pan Engineering Sdn. Bhd. Lot 12, Mukim Sungai Buluh Daerah Petaling 47810 Selangor	Solar PV	0.16	0.15	0.15	10/7/2013
225	TANJUNG SUCI SDN. BHD.	Sebahagian Lot 24 Mukim Bandar Petaling Jaya Daerah Petaling 46300 Selangor.	Solar PV	0.18	n/a*	n/a*	26/8/2015
226	TENAGA UBAH SDN. BHD.	Sebahagian Lot 13044 Mukim Sitiawan Daerah Manjung 32400 Perak.	Solar PV	0.28	0.09	0.09	21/1/2015
227	TEONG HUAT MEDICAL SDN. BHD.	Lot No. H.S. (D) 14898 PT 2938 Mukim 11 Daerah Seberang Prai Tengah 13700 Pulau Pinang.	Solar PV	0.18	n/a*	n/a*	13/11/2015
228	THE METHODIST CHURCH IN MALAYSIA	Sebahagian Lot PT 7417 Mukim Pasir Panjang 71050 Port Dickson Negeri Sembilan	Solar PV	0.16	0.21	0.21	10/6/2014
229	THUMBPRINTS UTD SDN. BHD.	Sebahagian Lot PT 10346 Mukim Rawang Daerah Gombak 48000 Selangor.	Solar PV	0.50	0.60*	0.59	19/2/2014
230	TRINITY MAJESTIC SDN. BHD.	Sebahagian Lot 1627, Mukim 12 Daerah Seberang Prai Utara 13700 Pulau Pinang.	Solar PV	1.00	n/a*	n/a*	31/12/2015
231	TS SOLARTECH SDN. BHD.	Sebahagian Lot PT 1002 Mukim 13 Daerah Seberang Perai Tengah 14000 Pulau Pinang.	Solar PV	0.18	0.02	0.02	25/8/2014
232	TS SOLARTECH SDN. BHD.	Sebahagian Lot PT 1002 Mukim 13 Daerah Seberang Perai Tengah 14000 Pulau Pinang	Solar PV	1.00	0.08	0.08	31/12/2015
233	TS WORLDWIDE WAREHOUSING SDN. BHD.	Sebahagian Lot P.T 126749 Mukim Klang 41200 Klang Selangor.	Solar PV	0.18	0.19	0.19	12/3/2014
234	TST MACHINERY & AUTOMATION SDN. BHD.	Lot 377857 Mukim Hulu Kinta 31200 Daerah Kinta Perak.	Solar PV	0.13	n/a*	n/a*	18/11/2015
235	TWELVE STRANDDNA SDN. BHD.	No. Lot 670, Sg. Bakap Mukim Seberang Perai Selatan Daerah Jawi 14200 Pulau Pinang.	Solar PV	0.43	0.56	0.56	28/1/2015
236	TWT HARDWARE SDN. BHD.	Lot 11250 Mukim Ijok Daerah Kuala Selangor 42300 Selangor.	Solar PV	0.43	n/a*	n/a*	9/10/2015
237	UNICITY MANAGEMENT SDN. BHD.	Lot 707, 141, 142 Mukim Bandar Kuala Kedah Daerah Kota Setar 06600 Kedah	Solar PV	0.18	n/a*	n/a*	23/12/2015
238	UPAYA JAYAMAS SDN. BHD.	PT No. 249 Mukim Damansara Daerah Petaling 47600 Selangor.	Solar PV	0.50	0.58*	0.56	30/12/2013
239	UPTOWN SYSTEM SDN. BHD.	Sebahagian Lot No. H.S(D) 07435, PT 19 MAS Cargo Complex Zone B Free Commercial Zone Southern Support Zone Kuala Lumpur International Airport 64000 Sepang, Selangor.	Solar PV	2.47	2.15	2.15	27/2/2014
240	URBAN AQUAPONICS SDN. BHD.	7B, Medan Fettes Fettes Park Tanjung Bungah 11200 Penang	Solar PV	0.43	0.59*	0.54	30/12/2013
241	VELOCITY RENEWABLE & GREEN ENERY TECH SDN. BHD.	Lot PT 24091 Mukim Bandar Sungai Petani Daerah Kuala Muda 08000 Kedah	Solar PV	0.18	n/a*	n/a*	5/10/2015
242	VIZ URBANA SDN. BHD.	Sebahagian Lot 15 Mukim Jelutong Daerah Johor Bahru 79200 Johor.	Solar PV	0.10	0.14*	0.14	19/2/2014
243	VOLTAGE RENEWABLES SDN. BHD.	Sebahagian No. Lot PT 9006 Mukim Sungai Karang Daerah Gebeng 26080 Pahang.	Solar PV	5.00	6.50	6.50	16/10/2013
244	VOLTAGE RENEWABLES SDN. BHD.	Sebahagian No. Lot PT 9006 Mukim Sungai Karang Daerah Gebeng 26080 Pahang.	Solar PV	3.00	3.98	3.98	16/10/2013
245	VOLTAGE RENEWABLES SDN. BHD.	Sebahagian No. Lot PT 9006 Mukim Sungai Karang Daerah Gebeng 26080 Pahang.	Solar PV	1.01	1.29	1.29	16/10/2013

Bil No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)	Elektrik Dijual (GWj) Sold Electricity (GWh)	Tarikh Lesen Dikeluarkan License Issuance Date
246	VOLTAGE RENEWABLES SDN. BHD.	Sebahagian No. Lot PT 9006 Mukim Sungai Karang Daerah Gebeng 26080 Pahang.	Solar PV	1.01	1.26	1.26	16/10/2013
247	WANGCO INCORPORATED SDN. BHD.	Lot PT 11741 Mukim Damansara Daerah Subang Jaya Selangor.	Solar PV	0.18	0.15	0.15	5/3/2015
248	WENG SIANG SDN. BHD.	Lot 520, Mukim 13 Daerah Seberang Perai Tengah 13700 Pulau Pinang	Solar PV	0.43	n/a*	n/a*	12/11/2015
249	WIBAWA HARMONI SDN. BHD.	Lot 632 & 633 Seksyen 16 Bandar Shah Alam 40000 Daerah Petaling Selangor	Solar PV	0.99	1.05*	1.04	4/12/2012
250	WT PLASTIC PRODUCTS SDN. BHD.	Sebahagian PT 50641 Mukim Kapar Daerah Klang 42200 Selangor.	Solar PV	0.14	0.18*	0.18	26/12/2013
251	YIQI SDN. BHD.	Lot PT 104 Pekan Baru Subang 40100 Daerah Petaling Selangor.	Solar PV	0.18	0.22	0.22	19/2/2014
Sumber Tenaga: TANDAN SAWIT KOSONG Energy Source: EMPTY FRUIT BUNCHES							
252	BELL ECO SDN. BHD.	Sebahagian Lot 4960 Mukim Simpang Kiri Daerah Batu Pahat 83000 Johor	Turbin Stim Steam Turbine	11.00	n/a*	n/a*	16/7/2014
253	FTJ BIO POWER SDN. BHD.	No. Lot : PT 17478 (H.S(D) 722) Mukim Chemor Daerah Jengka Pahang.	Turbin Stim Steam Turbine	13.50	n/a*	n/a*	20/8/2013
254	MAJU INTAN BIOMASS ENERGY SDN. BHD.	Sebahagian Lot 21570 Mukim Durian Sebatang Daerah Hilir Perak 36000 Perak.	Turbin Stim Steam Turbine	12.93	43.95*	33.10	31/7/2013
Jumlah Total				308.94	380.95	350.93	

Nota Note:

PV: Foltovolta Suria Solar Photovoltaic

Campuran Penjanaan: Solar (54.97%), Biojisim (17.62%), Biogas (14.11%), Hidro mini (13.31%)
Generation Mix: Solar (54.97%), Biomass (17.62%), Biogas (14.11%), Mini hydro (13.31%)

Semua data diperolehi daripada SEDA yang bertarikh 23 November 2016, kecuali yang bertanda *
All data are obtained from SEDA dated 23rd November 2016, except those marked with *

Semua pemegang lesen dalam jadual di atas mendapat kuota *Feed-in Tariff* (FIT), kecuali Perbadanan Memajukan Iktisad Negeri Terengganu (0.45 MW), Malaysian Green Technology Corporation (0.92 MW) dan Suria KLCC Sdn. Bhd. (0.68 MW)
All the licensees in the table above get a quota of *Feed-in Tariff* (FIT), except Perbadanan Memajukan Iktisad Negeri Terengganu (0.45 MW), Malaysian Green Technology Corporation (0.92 MW) and Suria KLCC Sdn. Bhd. (0.68 MW)

Senarai terperinci boleh diperolehi di www.meih.st.gov.my
Detailed list is available at www.meih.st.gov.my

Jadual 11: Cogeneration dengan Lesen Persendirian di Semenanjung Malaysia
Table 11: Cogeneration with Private Licences in Peninsular Malaysia

Bil No.	Pemegang Lesen dan Lokasi Pemasangan Licensee and Location of Installation	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Sumber Tenaga Energy Source	Elektrik Dijana (GWj) Generated Electricity (GWh)
1	ACIDCHEM INTERNATIONAL SDN. BHD. Lot 4698, 5000 & 6241 Mukim 01 Seberang Perai Tengah Pulau Pinang.	6.51	Gas Asli Natural Gas	11.40
2	BASF PETRONAS CHEMICALS SDN. BHD. Lot 139, Kawasan Perindustrian Gebeng 26080 Kuantan Pahang	27.40	Gas Asli Natural Gas	29.31
3	CENTRAL SUGARS REFINERY SDN. BHD. Batu Tiga 40150 Shah Alam, Selangor.	14.23	Gas Asli Natural Gas	30.25
4	GAS DISTRICT COOLING (PUTRAJAYA) SDN. BHD. Plot 2U1 Putrajaya Precint 2 Wilayah Persekutuan Putrajaya.	10.74	Gas Asli Natural Gas	23.51
5	GAS DISTRICT COOLING (PUTRAJAYA) SDN. BHD. Plot 12371, Precint 1 WP Putrajaya, Lebuhraya Timur Pusat Pentadbiran Kerajaan Persekutuan Putrajaya 62000 Putrajaya.	6.50	Gas Asli Natural Gas	35.68
6	GULA PADANG TERAP SDN. BHD. Lot 2143 dan 2142 Mukim Terap Kiri, Daerah Padang Terap 06300 Kedah.	11.49	Bahan Buangan Proses Perindustrian Industrial Process Waste	17.99
7	KANEKA (MALAYSIA) SDN BHD Lot PT 7469 Mukim Sungai Karang Daerah Kuantan Pahang	12.00	Gas Asli Natural Gas	n/a
8	KUALA LUMPUR KEPONG BERHAD Kilang Kelapa Sawit Kekayaan, Lot PT, Blok 5 Mukim paloh 86609 Kluang Johor	5.53	Gas Asli Natural Gas	3.23
9	LOTTE CHEMICAL TITAN (M) SDN. BHD. PLO 257, 312, 425 dan 426, Jalan Tembaga 4 Pasir Gudang Industrial Estate 81700 Pasir Gudang, Johor	56.00	Gas Asli Natural Gas	241.86
10	LOTTE CHEMICAL TITAN (M) SDN. BHD. PLO 8, Tanjung Langsung Industrial Park Mukim Sg. Tiram Johor Bahru Johor.	42.60	Gas Asli Natural Gas	165.14
11	MALAYAN SUGAR MANUFACTURING CO. BHD. No. Lot 287 Mukim 1, Daerah Seberang Perai Tengah 13600 Perai, Pulau Pinang.	9.00	Gas Asli Natural Gas	n/a
12	MALAYSIAN NEWSPRINT INDUSTRIES SDN. BHD. Lot 3771, Jalan Lencongan Mentakab-Temerloh Temerloh Industrial Park 28400 Mentakab, Pahang.	79.20	Bahan Buangan Pertanian Agricultural Waste	n/a
13	MUDA PAPER MILLS SDN. BHD Lot 11207, Mukim Kajang Daerah Hulu Langat, Selangor	14.40	Gas Asli Natural Gas	75.88
14	PERAK-HANJOONG SIMEN SDN. BHD. No. Lot 1076, 4059, 417, 1419, 1328, 1420, 1421, 1329, 1122, 1327, 1123, 1418, 1330, 1333 dan 1417 Mukim Kampung Buaya Daerah Kuala Kangsar, 33700 Perak.	12.00	Haba Buangan Proses Perindustrian Industrial Process Waste Heat	n/a
15	PERWAJA STEEL SDN. BHD. Lot 1407, PT 2504 Kawasan Perindustrian Telok Kalong 24007 Kemaman, Terengganu.	9.50	Haba Buangan Proses Perindustrian Industrial Process Waste Heat	n/a
16	PETRONAS FERTILIZER (KEDAH) SDN. BHD. Lot 10750, Bandar Gurun Daerah Kuala Muda Kedah.	18.31	Gas Asli Natural Gas	85.00
17	PETRONAS GAS BERHAD Gas Processing Plant - GPP A, Kertih Lot 1902, 1903 dan 3541, Mukim Kertih 24300 Daerah Kemaman Terengganu.	25.00	Gas Asli Natural Gas	n/a
18	PETRONAS GAS BERHAD Gas Processing Plant - GPP B, Paka Lot 7346, Mukim Paka 23100 Daerah Dungun Terengganu	25.00	Gas Asli Natural Gas	n/a
19	PETRONAS PENAPISAN (MELAKA) SDN BHD Kompleks Penapisan PETRONAS Melaka, Mukim Sungai Udang, 76300 Melaka	152.26	Gas Asli Natural Gas	18.45
20	WRP ASIA PACIFIC SDN. BHD. No. Lot PT 5758 dan PT 5759 Mukim Bandar Baru Salak Tinggi Daerah Sepang Selangor.	8.00	Gas Asli Natural Gas	n/a
Jumlah Total		545.67		737.70

Nota Note:
 Campuran Penjana: Gas Asli (97.56%), Bahan Buangan Proses Perindustrian/ Haba Buangan Proses Perindustrian (2.44%)
 Generation Mix: Natural Gas (97.56%), Industrial Process Waste/ Industrial Process Waste Heat (2.44%)

Jadual 12: Cogeneration dengan Lesen Awam di Semenanjung Malaysia
Table 12: Cogeneration with Public Licences in Peninsular Malaysia

Bil No.	Pemegang Lesen dan Lokasi Pemasangan Licensee and Location of Installation	Kapasiti yang Dilesenkan Licensed Capacity (MW)	Bahan Api Fuel	Elektrik Dijana (GWj) Generated Electricity (GWh)
1	GAS DISTRICT COOLING (KLCC) SDN. BHD Bangunan DCC 1/DCC 2 KLCC DCS/Cogeneration Plant Persiaran KLCC, Jalan Ampang, Kuala Lumpur.	40.00	Gas Asli Natural Gas	n/a
2	GAS DISTRICT COOLING (KLIA) SDN. BHD Kuala Lumpur International Airport Daerah Sepang, Selangor.	40.00	Gas Asli Natural Gas	222.14
3	GAS MALAYSIA ENERGY ADVANCE SDN. BHD. Kawasan Kompleks Perindustrian Toray Lot PT 2812, Mukim 01, Daerah Seberang Perai Tengah Pulau Pinang.	33.50	Gas Asli Natural Gas	n/a
4	INSTITUTE OF TECHNOLOGY PETRONAS SDN. BHD. Kampus Universiti Teknologi Petronas Tronoh, Perak.	8.40	Gas Asli Natural Gas	42.92
5	OPTIMISTIC ORGANIC SDN. BHD. Plot No. 4248 Telok Kalong Industries Estate 24007 Kemaman Terengganu.	7.00	Haba Buangan Proses Perindustrian Industrial Process Waste Heat	n/a
6	PERSTIMA UTILITY SDN. BHD. Perstima Berhad, No. Lot 00051694 Mukim Plentong Daerah Johor Bahru, Johor.	5.67	Gas Asli Natural Gas	20.66
7	PETRONAS GAS BERHAD Petrochemical Complex Kerteh Industrial Area Terengganu.	210.00	Gas Asli Natural Gas	1,313.44
8	PETRONAS GAS BERHAD Petrochemical Complex Gebeng Industrial Area Kuantan Pahang.	105.00	Gas Asli Natural Gas	679.46
9	SEE SEN CHEMICAL BHD. Malay-Sino Chemical Industries Sdn. Bhd. Lot 2989, 3558, 3557 dan 4525 Mukim Kalong, Daerah Kemaman, Terengganu.	6.00	Haba Buangan Proses Perindustrian Industrial Process Waste Heat	13.29
10	SHELL REFINING COMPANY (FOM) BERHAD Port Dickson Negeri Sembilan.	35.00	Gas Buangan Proses Perindustrian Industrial Process Waste Gas	85.00
Jumlah Total		490.57		2,376.91

Nota Note:
 Campuran Penjanaan: Gas Asli (95.86%), Haba Buangan Proses Perindustrian/ Gas Buangan Proses Perindustrian (4.14%)
 Generation Mix: Natural Gas (95.86%), Industrial Process Waste Heat/ Industrial Process Waste Gas (4.14%)

Jadual 13: Penjanaan Persendirian Kurang 5MW di Semenanjung Malaysia
Table 13: Less-Than-5MW Self Generation in Peninsular Malaysia

Pejabat Kawasan ST ST Regional Office	Bilangan Lesen Sah shg. 31 Dis. 2015 No. of Valid License as of 31 st Dec. 2015	Kapasiti Terpasang (MW) Installed Capacity (MW)	Elektrik Dijana (GWj) mengikut Sumber Tenaga Generated Electricity by Energy Source (GWh)										Jumlah Total	
			Diesel	EFB	Tempurung & Gentian Kelapa Sawit Palm Oil Shell & Fibre	Efluen Kilang Kelapa Sawit Palm Oil Mill Effluent	Habuk Kayu Wood Dust	Solar	Hidro Hydro	Sisa Sawit Palm Oil Waste	Hampas Padi Paddy Husk	Lain-lain Others		
Johor	155	23.62											2.04	2.04
Kelantan & Terengganu	241	87.28	2.48	15.30										17.78
Negeri Sembilan & Melaka	142	78.68	1.00							25.69				26.69
Pahang	216	250.84	0.01	0.14		0.00	0.00							0.15
Perak	122	70.07	6.00	59.50		7.14			5.28					77.92
Pulau Pinang, Kedah & Perlis	58	60.00	0.08	0.54				0.12				0.03		0.77
Selangor, Kuala Lumpur & Putrajaya	472	188.33	1.49	0.72	0.45		0.25							2.91
Jumlah Total	1,406	758.80	11.06	76.20	0.45	7.14	0.25	0.12	5.28	25.69	0.03	2.04		128.26

Sumber Source:
 Pejabat-pejabat Kawasan ST ST Regional Offices

Jadual 14: Lesen Pengagih Elektrik di Semenanjung Malaysia yang Dikeluarkan Pada 2015
Table 14: Electricity Distribution Licences in Peninsular Malaysia Issued in 2015

Bil. No.	Pemegang Lesen & Alamat Perhubungan Licensees & Contact Address	Kawasan Bekalan Area of Supply	Nombor Telefon & Nombor Faks Phone Number & Fax Number	Kapasiti yang Dilesenkan (MW) Licensed Capacity (MW)	Tarikh Lesen License Date
1	GCH RETAIL (M) SDN. BHD. Mezzanine Floor Giant Hypermarket Shah Alam Stadium Lot 2, Persiaran Sukan, Seksyen 12, 40100 Shah Alam, Selangor	Lot PT 32060 Mukim Kampar Daerah Kampar 31900 Perak.	n/a & 03-5511 9692	2.55	13/1/2015
2	AEON BIG (M) SDN. BHD. No. 3, Jalan SS16/1, 47500 Subang Jaya Selangor.	Aeon Big Sri Petaling, Lot No. 36833 Mukim Petaling 57000 Daerah Kuala Lumpur	n/a & 03-5637 4680	2.13	20/1/2015
3	SUNWAY GIZA MALL SDN. BHD. Centre Management Office LG Block D, No. 2, Jalan PJU 5/14, PJU 5 Kota Damansara 47810 Petaling Jaya Selangor.	Sunway Giza Mall Lot 54661 Pekan Baru Sungai Buloh Daerah Petaling 47810 Selangor.	n/a & 03-6148 1606	3.40	20/1/2015
4	AEON BIG (M) SDN. BHD. 3, Jalan SS 16/1 47500 Subang Jaya Selangor.	AEON Big Alor Setar Lot 8722 (PT 4310) Bandar Alor Setar Daerah Kota Setar 05615 Kedah.	n/a & 03-5637 4680	4.42	21/1/2015
5	COSMOPOLITAN AVENUE SDN. BHD. A-12-01, Empire Office Empire Subang, Jalan SS16/1, SS16 47500 Subang Jaya Selangor.	Lot 84185 Sg. Buloh 47820 Daerah Petaling Selangor.	n/a	27.00	2/3/2015
6	UNIVERSITI MALAYA (Jabatan Pembangunan & Penyelenggaraan Hartabenda) Lembah Pantai 50603 Kuala Lumpur.	Lot No. 39, 40 & 5270 Mukim Seksyen 15 Daerah Petaling Jaya W.P. Kuala Lumpur	n/a	0.30	2/3/2015
7	HEKTAR ASSET MANAGEMENT SDN. BHD. Landmark Central Shopping Centre No. 1, Jalan KLC Satu (1) 09000 Kulim Kedah.	Central Square Shopping Centre Lot 134 HS(D) 759/95 Mukim Sungai Petani Daerah Kuala Muda 08000 Kuala Kedah Kedah.	n/a	4.80	19/3/2015
8	DAMANSARA CITY SDN. BHD. Level 19, Block B, HP Towers 12 Jalan Gelenggang Bukit Damansara 50490 Kuala Lumpur.	Lot 58303 Mukim Kuala Lumpur Daerah Kuala Lumpur 50490 Wilayah Persekutuan Kuala Lumpur	n/a	36.89	3/4/2015
9	MAH SING UTILITIES SDN. BHD. Wisma Mah Sing, Penthouse Suite 2 No. 163, Jalan Sungai Besi 57100 Kuala Lumpur.	Icon City, Lot PT 5191 & Lot 5192 Seksyen 40 Bandar Petaling Jaya Daerah Petaling 47300 Selangor	n/a	11.26	16/4/2015
10	GREAT REALTY SDN. BHD. 3rd Floor, Burmah House 405 Jalan Burmah 10350 Penang.	Lot 65, 150, 151, 415, 416, 417, 418, 419, 420, 421, 433, 134 Seksyen 18 Bandar Alor Setar Kedah	n/a	9.30	29/4/2015
11	SAKURA MANAGEMENT SDN. BHD. 29-3 (Suite 3) Block F2 Jalan PJU 1/42A Dataran Prima 47801 Petaling Jaya, Selangor.	Lot PT 15, PT 20 & Sebahagian PT 834 & PT 848 Daerah Melaka Tengah Melaka	n/a	2.00	29/4/2015
12	SUNWAY VELOCITY MALL SDN. BHD. Level 16, Menara Sunway Jalan Lagoon Timur Bandar Sunway 46150 Petaling Jaya, Selangor.	Lot PT 391 Seksyen 90A Mukim Bandar Kuala Lumpur Kuala Lumpur	n/a	11.80	29/4/2015
13	AEON BIG (M) SDN. BHD. No. 3, Jalan SS16/1, 47500 Subang Jaya Selangor.	AEON Big Bangsar Sebahagian Lot PT 8097 Mukim Kuala Lumpur	n/a	0.78	14/5/2015
14	LOTTE CHEMICAL TITAN (M) SDN. BHD. PLO 8, Jalan Nibong Tanjung Langsat Industrial Estate 81700 Pasir Gudang Johor.	Lotte UBE Synthetic Sdn. Bhd. Lot PTD 2855 Mukim Sungai Tiram Daerah Johor Bhagru Johor.	n/a	11.90	14/5/2015
15	SUNWAY MONASH-U RESIDENCE SDN. BHD. Persiaran Tasik Barat Sunway South Quay Bandar Sunway 47500 Subang Jaya Selangor.	Lot PT 895 Mukim Bandar Sunway Daerah Petaling Selangor	n/a	4.40	14/5/2015
16	HARI LUMAYAN SDN. BHD. No. 11, Jalan PJS 8/18 Dataran Mentari 46150 Petaling Jaya Selangor.	Sebahagian Lot 13865 Mukim Bandar Nilai Utama Daerah Seremban Negeri Sembilan.	n/a	13.18	21/5/2015
17	SAMSUNG SDI ENERGY MALAYSIA SDN. BHD. Lot 635 & 660 Kawasan Perindustrian Tuanku Jaafar 71450 Sungai Gadut Negeri Sembilan.	Samsung's Complex Lot 28501, 28502, Mukim Rantau dan Lot 26218, 31355, 31354, 34829, 26213 dan 26217 Mukim Ampangan Daerah Seremban 71450 Negeri Sembilan	n/a	25.00	25/5/2015
18	IB TOWER SDN. BHD. No. 8, Jalan Sri Hartamas 8 Sri Hartamas 50480 Kuala Lumpur.	No. Lot 20002, Seksyen 63 Mukim Bandar Kuala Lumpur Daerah Kuala Lumpur 50450 Wilayah Persekutuan Kuala Lumpur.	03-6201 7233 & 03-6201 1820	11.48	8/6/2015

Bil. No.	Pemegang Lesen & Alamat Perhubungan Licensees & Contact Address	Kawasan Bekalan Area of Supply	Nombor Telefon & Nombor Faksimili Phone Number & Fax Number	Kapasiti yang Dilesenkan (MW) Licensed Capacity (MW)	Tarikh Lesen License Date
19	FESTIVA MALL SDN. BHD. Centre Management Office No. 67, Jalan Taman Ibukota Taman Danau Kota 55300 Setapak Kuala Lumpur.	Kompleks Festival City Lot 26220 Mukim Setapak Wilayah Persekutuan Kuala Lumpur.	n/a	14.00	4/8/2015
20	GAPURNA RETAIL SDN. BHD. Level 16, Wisma Amfirst Tower 2, Jalan SS7/15 47301 Kelana Jaya Selangor.	Lot PT 15084 Mukim Petaling Daerah Wilayah Persekutuan Kuala Lumpur Wilayah Persekutuan Kuala Lumpur	n/a	6.80	4/8/2015
21	TREC HOLDINGS SDN. BHD. Lot 2-2, Level 2, Tower B The Troika 19, Persiaran KLCC 50450 Kuala Lumpur.	Lot 433, 434, 578 & 579 Mukim Seksyen 90 Kuala Lumpur.	n/a	1.30	4/8/2015
22	DB HARTANAH SDN. BHD. No. 21 & 23, Jalan Kompas 2/2 Taman Tanah Tampoi 81200 Johor Bahru Johor.	Bangunan DB Wellness Centre Lot 154095 Mukim Pulau Johor.	n/a	1.28	5/8/2015
23	P-EXCELL MANAGEMENT SDN. BHD. Tkt. 1, Menara Permint Jalan Sultan Ismail 20200 Kuala Terengganu Terengganu.	Paya Bunga Square Lot PT 3133K dan 4785 Jalan Masjid Abidin Kuala Terengganu Terengganu.	n/a	5.50	5/8/2015
24	QUILL COMMERCIAL PROPERTIES SDN. BHD. Level 7, Quill 9,112 Jalan Semangat 46300 Petaling Jaya Selangor.	Bangunan Quill 18, Lot PT 12062 Mukim Dengkil Derah Sepang, Selangor.	n/a	5.95	5/8/2015
25	RHB TRUSTEE BERHAD No. 100, Jalan Putra 50350 Kuala Lumpur.	Lot No. 38, Seksyen 51, Jalan Putra Wilayah Persekutuan Kuala Lumpur.	n/a	19.38	5/8/2015
26	EQUINE PARK COUNTRY RESORT SDN. BHD. No. 1, Jalan Putra Permai 1A Taman Equine 43300 Seri Kembangan Selangor.	Equine Park Country Resort, No. Lot 42697, Mukim Damansara Daerah Petaling 47600 Selangor.	03-8941 7878 & 03-8941 1818	27.20	17/9/2015
27	AEON BIG (M) SDN. BHD. No. 3, Jalan SS16/1, 47500 Subang Jaya Selangor.	AEON Big Tun Hussein Onn , Lot 33723, Seksyen 1 Bandar Cheras, Hulu Langat 43200 Selangor.	n/a	3.83	15/10/2015
28	SUNHOR PROPERTY BERHAD K-05-03, No. 2 Jalan Solaris Solaris Mont' Kiara 50480 Kuala Lumpur.	Sebahagian Lot PT13314-13327, PT13354-13367, PT13390-13401, PT13424-13435, Mukim Klang Daerah Klang 40470 Selangor.	n/a	6.40	20/11/2015
29	UNIVERSITI PUTRA MALAYSIA Pejabat Pembangunan dan Pengurusan Aset 43400 UPM Serdang Selangor.	Universiti Putra Malaysia, Lot PT5259, PT55, PT533, PT534, PT535, PT611, PT4220, PT7618, PT5297, 7979 dan 7978 Mukim Petaling, Daerah Petaling 43400 Selangor.	n/a	1.60	9/12/2015
30	AMTRUSTEE BERHAD Level 15, Menara AmFIRST No. 1, Jalan 19/3 16300 Petaling Jaya Selangor.	Tropicana City Mall Lot 45821, Seksyen 39 Mukim Pekan Sungai Penchala Daerah Petaling 47400 Selangor.	n/a	12.75	23/12/2015

Nota Note:
Senarai terperinci boleh diperolehi di www.meih.st.gov.my Detailed list is available at www.meih.st.gov.my



Maklumat dan Statistik Industri Pembekalan Elektrik
Information and Statistics of Electricity Supply Industry

Maklumat dan Statistik Industri Pembekalan Elektrik di Sabah
Information and Statistics of Electricity Supply Industry in Sabah

Jadual 15: Maklumat Utama Prestasi Sabah Electricity Sdn. Bhd. (SESB)
Table 15: Key Information on SESB Performance

PETUNJUK INDICATOR	Unit	2011	2012	2013	2014	2015
Kehendak Maksimum Maximum Demand	MW	830	828	874	908	914
Jumlah Unit Penjanaan Total Units Generated	GWj GWh	1,524	1,294	1,357	1,323	1,071
Jumlah Unit Jualan Total Units Sold	GWj GWh	4,275	4,456	4,670	4,776	5,109
Hasil Jualan Elektrik Sales of Electricity	RM Juta RM million	1,155	1,350	1,382	1,636	1,668
Kapasiti Penjanaan Boleh Harap Dependable Generation Capacity	MW	435	417	495	401	328
Jumlah Kakitangan Number of Employees	orang person	2,613	2,679	2,788	2,975	3,096
Hasil Jualan setiap Kakitangan Sales of Electricity per Employee	RM Juta/Kakitangan RM Million/Employee	0.44	0.5	0.5	0.55	0.54
Unit Jualan setiap Kakitangan Units Sold per Employee	GWj/Kakitangan GWh/Employee	1.64	1.66	1.68	1.60	1.65
Kapasiti Penjanaan setiap Kakitangan Installed Capacity per Employee	MW/Kakitangan MW/Employee	0.17	0.16	0.18	0.13	0.11
Jumlah Unit Pembelian Total Units Purchased	GWj GWh	3,765	3,843	3,866	4,479	4,881
Jumlah Unit Eksport Total Units Exported	GWj GWh	-	-	-	-	-
Jumlah Unit Import Total Units Imported	GWj GWh	-	-	-	-	-

Jadual 16: Kapasiti Penjanaan Boleh Harap (MW) & Kebolehdapatan Keseluruhan SESB
Table 16: SESB Dependable Capacity (MW) & Overall Availability

TAHUN YEAR	SUMBER TENAGA ENERGY SOURCE				
	Hidro Hydro	Gas Asli Natural Gas	Diesel	JUMLAH TOTAL	Kebolehdapatan Keseluruhan (%) Overall Availability (%)
2011	70.00	107.00	259.00	435.00	57.00
2012	68.00	105.00	245.00	417.00	70.75
2013	68.00	105.00	322.00	495.00	75.96
2014	69.60	104.50	226.60	400.70	76.80
2015 ¹	72.20	104.50	150.90	327.60	78.00
	22.04%	31.90%	46.06%	100.00%	

Nota Note: ¹Merangkumi hidro mini Melangkap, Sayap, Bombalai dan Merotai Inclusive of mini hydro Melangkap, Sayap, Bombalai dan Merotai

Jadual 17: Campuran Penjanaan SESB (GWj)
Table 17: SESB Generation Mix (GWh)

TAHUN YEAR	SUMBER TENAGA ENERGY SOURCE			
	Hidro Hydro	Gas Asli Natural Gas	Diesel	JUMLAH TOTAL
2011	754.00	398.00	372.00	1,524.00
2012	377.00	589.00	328.00	1,294.00
2013	410.00	619.00	328.00	1,357.00
2014	292.79	472.44	557.81	1,323.04
2015	271.92	417.62	381.35	1,070.89
	25.39%	39.00%	35.61%	100.00%

Jadual 18: Jualan Tenaga Elektrik SESB (GWj)
Table 18: SESB Electricity Sales (GWh)

TAHUN YEAR	SEKTOR SECTOR				
	Domestik Domestic	Komersil Commercial	Industri Industry	Lampu Awam Public Lighting	JUMLAH TOTAL
2011	1,332	1,742	1,146	56	4,275
2012	1,436	1,923	1,038	59	4,456
2013	1,530	2,018	1,061	60	4,670
2014	1,583	2,043	1,086	63	4,776
2015	1,618	2,256	1,171	64	5,109
	31.67%	44.16%	22.92%	1.25%	100.00%

Jadual 19: Bilangan Pengguna SESB
Table 19: SESB Number of Consumers

TAHUN YEAR	SEKTOR SECTOR				JUMLAH TOTAL
	Domestik Domestic	Komersil Commercial	Industri Industry	Lampu Awam Public Lighting	
2011	384,384	72,288	2,865	4,516	464,053
2012	403,387	75,375	2,903	4,820	486,485
2013	422,964	79,188	2,937	5,128	510,217
2014	442,516	82,472	2,906	5,349	533,243
2015	460,321	85,581	2,756	5,596	554,254
	83.05%	15.44%	0.50%	1.01%	100.00%

SISTEM PENGHANTARAN TRANSMISSION SYSTEM

Jadual 20: Keupayaan Sistem Penghantaran SESB
Table 20: SESB Transmission System Capacity

TAHUN YEAR	2011	2012	2013	2014	2015
TALIAN/KABEL SISTEM PENGHANTARAN TRANSMISSION SYSTEM LINES/CABLES					
275 kV (km)	492	492	492	493	493
132 kV (km)	1,775	1,775	1,809	1,829	1,921
66 kV (km)	123	123	119	119	119
PENCAWANG PENGHANTARAN TRANSMISSION SUBSTATIONS					
Bilangan Number	41	42	39	36	41
Keupayaan (MVA) Capacity (MVA)	4,652	4,672	3,657	4,497	4,513
PRESTASI PERFORMANCE					
System Minutes	40.13	67.12	26.53	161.09	108.87
Bilangan Pelantikan Dengan Kehilangan Beban Sebanyak 50 MW dan ke atas Number of Trippings with Load Loss of 50 MW and above	5	4	3	5	10
Tenaga yang Tidak Dibekal (MWj) Semasa Pelantikan Unsupplied Energy During Trippings (MWh)	4,146.57	3,497.03	92.94	1,911.02	1,364.18

SISTEM PENGAGIHAN TRANSMISSION SYSTEM

Jadual 21: Keupayaan Sistem Pengagihan SESB
Table 21: SESB Distribution System Capacity

TAHUN YEAR	2011	2012	2013	2014	2015
TALIAN/KABEL SISTEM PENGAGIHAN DISTRIBUTION SYSTEM LINES/CABLES					
Talian Atas (km) Overhead Lines (km) ¹	7,761	8,525	8,904	9,038	9,350
Kabel Bawah Tanah (km) Underground Cables (km) ¹	1,317	1,136	729	903	764
PENCAWANG PENGAGIHAN DISTRIBUTION SUBSTATIONS					
Bilangan Number	5,878	6,365	6,619	6,781	6,762
Keupayaan (MVA) Capacity (MVA)	4,813	4,813	5,864	5,865	4,294

Nota Note:

¹ Sistem 11 kV dan 33kV sahaja 11 kV and 33kV only

Jadual 22: Stesen Jana Kuasa Utama di Sabah
Table 22: Main Power Plants in Sabah

Bil. No	Loji Jana Kuasa Power Plant	Jenis Type	Sumber Tenaga Energy Source	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Kapasiti Boleh Harap (MW) Dependable Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)
SABAH ELECTRICITY SDN. BHD. (SESB)						
1	Patau-Patau (Labuan, WC)	Turbin Gas Kitar Padu Combined Cycle Gas Turbine	Gas Asli Natural Gas	112.00	104.50	417.62
2	Tenom Pangi (Tenom, WC)	Hidro Hydro	Hidro Hydro	69.00	69.00	268.52
3	Mini Hidro Melangkap & Sayap	Hidro Mini Mini Hydro	Hidro Hydro	2.00	1.60	3.17
4	Mini Hidro Merotai - Tawau (Tawau, EC)			1.00	0.80	0.23
5	Mini Hidro Bombalai - Tawau (Tawau, EC)			1.00	0.80	0.00
6	Melawa (K.Kinabalu, WC)	Enjin Diesel Diesel Engine	Diesel	44.00	31.50	27.46
7	Batu Sapi GT SimeBest			20.00	17.40	90.19
8	Labuk Canopy Genset			8.90	8.00	21.56
9	Tawau (Tawau, EC)			44.00	30.00	41.23
10	Kubota GT1 & GT2			64.00	64.00	200.91
Jumlah Total				365.90	327.60	1,070.89
PENJANA-PENJANA BEBAS INDEPENDENT POWER PRODUCERS (IPP)						
11	Ranhill Powertron Sdn. Bhd.	Turbin Gas Kitar Padu Combined Cycle Gas Turbine	Gas Asli Natural Gas	212.00	190.00	4,436.02
12	Ranhill Powertron II Sdn. Bhd.			205.00	195.38	
13	Kimanis Power Sdn. Bhd.			285.00	285.00	
14	SPR Energy (M) Sdn. Bhd.			108.20	100.00	
15	Sepangar Bay Corporation Sdn.Bhd.			112.00	100.00	
16	ARL Tenaga Sdn. Bhd.	Enjin Diesel Diesel Engine	Diesel	50.00	22.70	220.41
17	Serudong Power Sdn. Bhd.			37.50	36.00	
18	Stratavest Sdn. Bhd.			64.40	15.00	
Jumlah Total				1,074.10	944.08	4,656.43
PENJANA KUASA TENAGA BOLEH BAHARU (TBB) RENEWABLE ENERGY (RE) POWER GENERATORS						
19	Syarikat Esajadi Power Sdn. Bhd. Sungai Pangpuyan	Hidro Mini Mini Hydro	Hidro Hydro	4.50	4.50	4.63
20	Syarikat Esajadi Power Sdn. Bhd. Sungai Kadamaian			2.00	2.00	4.30
21	Cash Horse (M) Sdn. Bhd.	Turbin Stim Steam Turbine	Biojisim & Tandan Sawit Kosong Biomass & Empty Fruit Bunches	12.00	10.00	58.14
22	Kina Biopower Sdn. Bhd.			11.50	10.00	52.07
23	Seguntor Bioenergy Sdn. Bhd.			13.50	10.00	57.31
24	TSH Bio-Gas Sdn. Bhd.		Biogas & Efluen Kilang Kelapa Sawit Biogas & Palm Oil Mill Effluent	3.19	2.70	16.31
25	TSH Bio Energy Sdn. Bhd.		Biojisim & Sisa Sawit Biomass & Palm Oil Waste	14.00	10.00	80.28
Jumlah Total				60.69	49.20	273.04
COGENERATION AWAM PUBLIC COGENERATION						
26	Evergreen Intermerge Sdn. Bhd. (Teck Guan)	Turbin Stim Steam Turbine	Biojisim & Tandan Sawit Kosong Biomass & Empty Fruit Bunches	3.00	3.00	0.25
Jumlah Total				3.00	3.00	0.25
Jumlah Besar Grand Total				1,503.69	1,323.88	6,000.61

Nota Note :
 Campuran Penjanaan: Gas Asli (80.89%), Diesel (10.03%), Hidro & Hidro mini (4.68%), Biojisim (4.13%), Biogas (0.27%)
 Generation Mix: Natural Gas (80.89%), Diesel (10.03%), Hydro & Mini hydro (4.68%), Biomass (4.13%), Biogas (0.27%)

Jadual 23: Hidro Mini di Sabah
Table 23: Mini Hydro in Sabah

Bil. No	Stesen Station	Kapasiti Penjanaan Terpasang (MW) Installed Generation Capacity (MW)	Elektrik Dijana (MWj) Generated Electricity (MWh)
1	Sungai Pangpuyan (IPP)	4.50	4.63
2	Sungai Kadamaian (IPP)	2.00	4.30
3	Melangkap, Kota Belud	0.80	3.17
4	Sayap, Kota Belud	0.80	
5	Bombalai, Tawau	1.00	0.23
6	Merotai, Tawau	1.00	0.00
7	Naradau, Ranau	1.76	6.87
Jumlah Total		11.86	19.20

Sumber Source : SESB

Jadual 24: Pemegang Lesen Projek Jana Kuasa Tenaga Boleh Baharu (TBB) di Sabah (Lesen yang Sah Sehingga 31 Disember 2015)
Table 24: Licencees of Renewable Energy (RE) Power Generation Projects in Sabah (Valid License Until 31st December 2015)

Bil. No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)	Elektrik Dijual (GWj) Sold Electricity (GWh)	Tarikh Lesen Dikeluarkan License Issuance Date
Sumber Tenaga: HIDRO MINI Energy Source: MINI HYDRO							
1	SYARIKAT ESAJADI POWER SDN. BHD.	Sungai Pangpuyan Kota Marudu Sabah.	Hidro Mini Mini Hydro	4.50	4.63*	3.28	31/03/2008
2	SYARIKAT ESAJADI POWER SDN. BHD.	Sungai Kadamaian Kota Belud Sabah.	Hidro Mini Mini Hydro	2.00	4.30*	2.92	31/03/2008
Sumber Tenaga: TANDAN SAWIT KOSONG Energy Source: EMPTY FRUIT BUNCHES							
3	CASH HORSE (M) SDN. BHD.	Lot CL 075561929 Mukim Segaliud Daerah Sandakan Sabah	Turbin Stim Steam Turbine	12.00	58.14*	46.51	13/09/2013
4	KINA BIOPOWER SDN. BHD.	Lot 16359 Mukim Seguntor 90736 Sandakan Sabah	Turbin Stim Steam Turbine	11.50	52.07*	38.07	30/11/2007
5	SEGUNTOR BIOENERGY SDN. BHD.	Lot NT.073020309 Mukim Seguntor 90736 Sandakan Sabah	Turbin Stim Steam Turbine	13.50	57.31*	41.39	30/11/2007
Sumber Tenaga: EFLUEN KILANG KELAPA SAWIT Energy Source: PALM OIL MILL EFFLUENT							
6	TSH BIO-GAS SDN. BHD.	Lot CL 105392989 KM 56, Jalan Tawau Kunak Highway Daerah Tawau 91000 Sabah.	Enjin Gas Gas Engine	3.19	16.31*	14.34	16/4/2015
Sumber Tenaga: SISA SAWIT Energy Source: PALM OIL WASTE							
7	TSH BIO ENERGY SDN. BHD.	Km 65 Jalan Tawau-Kunak Tawau Sabah.	Turbin Stim Steam Turbine	14.00	80.28*	50.90	14/10/2003
Sumber Tenaga : SOLAR Energy Source: SOLAR							
8	API API ENERGY SDN. BHD.	No. Lot 055028192 Mukim Kota Kinabalu Daerah Kudat Sabah.	Solar PV	1.00	n/a*	n/a*	31/12/2015
9	ASIATIC ECO FOREST SDN. BHD.	Lot CL 105112301 Mukim Tanjung Batu 91000 Daerah Tawau Sabah.	Solar PV	0.34	n/a*	n/a*	8/1/2015
10	CAHAYA METRO	Lot CL 025088877 Mukim Bongawan 89709 Papar Sabah.	Solar PV	1.00	1.54*	1.42	8/1/2015
11	DIAMOND UPTOWN SDN. BHD.	Sebahagian Lot 1555 Mukim Kudat Daerah Kudat 89100 Sabah	Solar PV	1.00	0.52	0.52	2/3/2015

Bil. No	Pemegang Lesen Licensee	Lokasi Location	Jenis Loji Plant Type	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWj)	Elektrik Dijual (GWj) Sold Electricity (GWj)	Tarikh Lesen Dikeluarkan License Issuance Date
12	DIGITAL AWAN	Sebahagian Lot PT 2129 Mukim Kampung Binaong Daerah Keningau 89007 Sabah.	Solar PV	1.00	0.04	0.04	5/10/2015
13	ENERGY BAY SDN. BHD.	Lot NT 043099341 Daerah Tauran Kg. Pogunwalid, Tua 89600 Tuaran Sabah.	Solar PV	1.00	n/a*	n/a*	28/12/2015
14	EVERGREEN TECHNOLOGY (M) SDN. BHD.	Sebahagian Lot 075510799, Mile 27 Jalan Labuk Mukim Sungai Manuel Daerah Sandakan, 90000 Sabah.	Solar PV	1.00	0.03	0.03	23/12/2015
15	GREEN LEADERSHIP SDN. BHD.	Sebahagian Lot CL 135348051, CL 13531-280 Batu 5 1/2 Mukim Nabawan Daerah Keningau 89000 Sabah	Solar PV	1.00	1.43	1.43	04/12/2014
16	GREEN LEADERSHIP SDN. BHD.	Lot CL 135348051 Mukim Kg. Biah Daerah Keningau 89000 Sabah.	Solar PV	1.00	0.04	0.04	12/11/2015
17	GV BUMISINAR SDN. BHD.	Sebahagian Lot 053051737 Mukim Kampung Liman Limawan Daerah Kudat 89050 Sabah.	Solar PV	0.60	0.91	0.91	2/3/2015
18	INOVASI KURNIA SDN. BHD.	NT 3598 Mukim Kesapong 89150 Kota Belud Sabah.	Solar PV	1.00	n/a*	n/a*	29/12/2015
19	LOK KAWI PLASTIC INDUSTRIES SDN. BHD.	Lot 64 Lok Kawi Daerah Papar 88100 Kota Kinabalu, Sabah.	Solar PV	0.18	0.07	0.07	12/11/2015
20	MARUDU ENGINEERING SDN. BHD.	Sebahagian Lot No. NT 15445 (L.A.312-61) Mukim Kampung Rorongkom Daerah Kudat Sabah.	Solar PV	1.00	1.32*	1.28	04/12/2014
21	MICROVEST POWER VENTURES SDN. BHD.	Lot NT053029217 Mukim Kampung Tambuluran Daerah Kudat 89050 Sabah.	Solar PV	1.00	n/a*	n/a*	12/11/2015
22	SABAKEKAL SDN. BHD.	Lot 2 (No. 077577442), Mile 1 1/2 North Road 90000 Sandakan Sabah.	Solar PV	1.00	0.05	0.05	13/1/2015
23	SMR AQUACULTURE SDN. BHD.	CL 105510870 Mukim Mas Mas Kalumpang 0000 Daerah Tawau Sabah	Solar PV	1.00	n/a*	n/a*	8/1/2015
24	SRI SABAWAK ENERGY SDN BHD.	Sebahagian Lot NT 043196578 Mukim Kampung Laya-Laya Daerah Tauran 89200 Sabah.	Solar PV	1.00	0.00	0.00	29/12/2015
25	TENAGA SOLAR BEAUFORT SDN. BHD.	Sebahagian Lot 81170494 Mukim Kg. Mawao Membakut Daerah Beaufort 89800 Sabah.	Solar PV	1.00	n/a*	n/a*	31/12/2015
26	TIONG CHEONG BRICKS SDN. BHD.	Lot CL 174436 Mile 18, Kg. Bakut Jalan Tuaran 89207 Sabah.	Solar PV	0.69	0.53	0.53	29/12/2014
27	TR ENERGY SDN. BHD.	Lot 172 Daerah Kudat 89050 Sabah.	Solar PV	0.99	0.01	0.01	7/10/2015
28	VISTA SERIJUTA SDN. BHD.	Sebahagian Lot No. 10200111 Sabah Ports Sdn. Bhd. Daerah Tawau 91000 Sabah.	Solar PV	0.34	0.00*	0.00*	23/12/2015
Jumlah Total				78.83	279.53	203.74	

Nota Note:

n/a Tiada data Not available

Solar PV: Foltovolta Suria Solar Photovoltaic

Semua data diperolehi daripada SEDA yang bertarikh 23 November 2016, kecuali yang bertanda *
All data are obtained from SEDA dated 23rd November 2016, except those marked with *

Campuran Penjanaaan: Biojisim (88.65%), Biogas (5.83%), Hidro Mini (3.19%), Solar (2.32%)
Generation Mix: Biomass (88.65%), Biogas (5.83%), Mini Hydro (3.19%), Solar (2.32%)

Semua pemegang lesen dalam jadual di atas mendapat kuota *Feed-in Tariff* (FIT)
All the licensees in the table above get a quota of Feed-in Tariff (FIT)

Senarai terperinci boleh diperolehi di www.meih.st.gov.my
Detailed list is available at www.meih.st.gov.my

Jadual 25: Cogeneration dengan Lesen Persendirian Sabah
Table 25: Cogeneration with Private Licences in Sabah

Bil. No	Pemegang Lesen dan Lokasi Pemasangan Licensee and Location of Installation	Kapasiti Dilesenkan (MW) Licensed Generation Capacity (MW)	Sumber Tenaga Energy Source	Elektrik Dijana (GWj) Generated Electricity (GWh)
1	FELDA PALM INDUSTRIES SDN. BHD. Gugusan Felda Sahabat Mukim Tungku Daerah Lahad Datu	7.50	Tandan Sawit Kosong Empty Fruit Bunches	35.86
2	PALM ENERGY SDN. BHD. No. Lot CL 115311138, Mukim Lahad Datu Daerah Lahad Datu	6.50	Bahan Buangan Pertanian Agricultural Waste	0.61
3	SABAH FOREST INDUSTRIES SDN. BHD. Mukim Kg. Sebuluh Daerah Sipitang	79.50	Sisa Kayu Wood Waste	n/a
4	PETRONAS CHEMICAL FERTILIZER SABAH SDN. BHD. No. Lot PT2010191348, Mukim Mengalong, Daerah Sipitang, 89850 Sipitang	65.00	Gas Asli Natural Gas	n/a
Jumlah Total		158.50		36.47

Jadual 26: Cogeneration dengan Lesen Awam Sabah
Table 26: Cogeneration with Public Licences in Sabah

Bil. No	Pemegang Lesen dan Lokasi Pemasangan Licensee and Location of Installation	Kapasiti Dilesenkan (MW) Licensed Generation Capacity (MW)	Sumber Tenaga Energy Source	Elektrik Dijana (GWj) Generated Electricity (GWh)
1	EKSONS BIOMASS ENERGY SDN. BHD. Rajang Plywood (Sabah) Sdn. Bhd. CLS 105486762, 105486771 dan PT2000100538 Sg. Umas, Umas Mukim Merotai, Tawau	3.00	Tandan Sawit Kosong Empty Fruit Bunches	16.27
2	EVERGREEN INTERMERGE SDN. BHD. Cacao Paramount Sdn. Bhd. Lot CI 105323797 KM 3, Tanjung Batu Laut Tawau	6.00	Tandan Sawit Kosong Empty Fruit Bunches	16.00
3	IOI BIO-ENERGY SDN. BHD. IOI Edible Oils Sdn. Bhd. IOI Integrated Edible Oil Processing Complex Mukim Sungai Mowtas, Daerah Sandakan 90738	15.00	Biojisim Biomass	1.32
4	PETRONAS METHANOL (LABUAN) SDN. BHD. Kawasan Perindustrian Ranca-Ranca Labuan, 87010 Wilayah Persekutuan Labuan	41.80	Gas Asli Natural Gas	n/a
5	SEO ENERGY SDN. BHD. Sandakan Edible Oils Sdn. Bhd. KM 8, Jalan Batu Sapi Karamunting, Sandakan	1.20	Tandan Sawit Kosong Empty Fruit Bunches	n/a
6	UNTUNG RIA SDN. BHD. Lot No. CL 135193752 dan CL 135366139 Kg. Ulu Patikang Keningau	4.00	Sisa Kayu Wood Waste	20.64
Jumlah Total		71.00		54.23

Jadual 27: Penjanaaan Persendirian Kurang 5MW di Sabah
Table 27: Less-Than-5MW Self Generation in Sabah

Bil. No.	Pejabat Kawasan ST ST Regional Office	Bilangan Lesen Sah shg. 31 Dis. 2015 No. of Valid License as of 31st Dec. 2015	Kapasiti Terpasang (MW) Installed Capacity (MW)	Elektrik Dijana (GWj) mengikut Sumber Tenaga Generated Electricity by Energy Source (GWh)				Jumlah Total
				Diesel	Tandan Sawit Kosong Empty Fruit Bunches	Biogas	Habuk Kayu Wood Dust	
1	Pantai Barat West Coast	194	87.76	4.15	3.62	-	-	7.77
2	Pantai Timur East Coast	830	578.30	125.56	183.23	4.72	4.20	317.71
Jumlah Total		1,024	666.06	88.53	186.85	4.72	4.20	325.48

Jadual 28: Lesen Pengagih Elektrik di Sabah yang Dikeluarkan Pada Tahun 2015
Table 28: Electricity Distribution Licences in Sabah Issued in 2015

Bil No.	Pemegang Lesen & Alamat Perhubungan Licensee's Name & Contact Address	Kawasan Bekalan Area of Supply	Nombor Telefon & Nombor Faksimili Phone Number & Fax Number	Kapasiti Dilesenkan (MW) Licensed Capacity (MW)	Tarikh Lesen License Date
1	KAPASI SDN. BHD. 106, Block G Pusat Perdagangan Phileo Damansara 1 No. 9, Jalan 16/11 46350 Petaling Jaya, Selangor.	KK Times Square (Fasa 2) Sebahagian Lot L.S.102.1.203 Mukim Sembulan Daerah Kota Kinabalu 88100 Sabah	n/a & 03-7665 2622	7.85	5/2/2015
2	RIVERSON CORPORATION SDN. BHD. Unit No. 30, 1st Floor, Block E KK Times Square Off Coastal Highway 88100 Kota Kinabalu Sabah.	TL 017549530 Derah Coasted Highway Kota Kinabalu 88100 Sabah.	n/a	3.49	19/3/2015

Nota Note:
 Senarai terperinci boleh diperolehi di www.meih.st.gov.my Detailed list is available at www.meih.st.gov.my



Maklumat dan Statistik Industri Pembekalan Elektrik

Information and Statistics of Electricity Supply Industry

Maklumat dan Statistik Industri Pembekalan Elektrik di Sarawak

Information and Statistics of Electricity Supply Industry in Sarawak

37

Jadual 29: Maklumat Utama Prestasi Sarawak Energy Berhad (SEB)

Table 29: Key Information on SEB Performance

PETUNJUK INDICATOR	Unit	2011	2012	2013	2014	2015
Kehendak Maksimum Maximum Demand	MW	1,278	1,229	1,466	2,036	2,288
Jumlah Unit Penjanaan ¹ Total Units Generated ¹	GWj GWh	7,279	7,025	6,572	6,494	7,765
Jumlah Unit Jualan ² Total Units Sold ²	GWj GWh	6,486	7,587	10,420	13,440	14,038
Hasil Jualan Elektrik Sales of Electricity	RM Juta RM million	1,673	1,862	2,266	2,752	2,911
Kapasiti Penjanaan Terpasang ³ Installed Generation Capacity ³	MW	1,358	1,352	1,332	1,551	2,241
Jumlah Kakitangan Number of Employees	orang person	3,529	3,882	4,040	4,174	4,307
Hasil Jualan Setiap Kakitangan Sales Revenue of Electricity per Employee	RM Juta/Kakitangan RM Million/Employee	0.47	0.48	0.56	0.66	0.68
Unit Jualan Setiap Kakitangan Units Sold per Employee	GWj/Kakitangan GWh/Employee	1.84	1.95	2.58	3.59	3.26
Kapasiti Penjanaan Setiap Kakitangan Installed Capacity per Employee	MW/Kakitangan MW/Employee	0.38	0.35	0.33	0.37	0.52
Jumlah Unit Pembelian Total Units Purchased	GWj GWh	759	2,712	5,414	8,457	7,721
Jumlah Unit Eksport Total Units Exported	GWj GWh	-	-	-	-	-
Jumlah Unit Import Total Units Imported	GWj GWh	-	-	-	-	-

Nota Note:

¹ Jumlah Unit Penjanaan bagi SEB tidak termasuk IPP di Sarawak Generation Mix for SEB excludes IPPs in Sarawak

² Jualan Tenaga Elektrik bagi SEB termasuk pembelian daripada IPP di Sarawak Sales of Electricity for SEB includes the purchase from IPPs in Sarawak

³ Jumlah Kapasiti Penjanaan Terpasang SEB tidak termasuk IPP di Sarawak Installed Generation Capacity for SEB excludes IPPs in Sarawak

Jadual 30: Kapasiti Penjanaan Terpasang (MW)

Table 30: SEB Installed Generation Capacity (MW)

TAHUN YEAR	SUMBER TENAGA ENERGY SOURCE				JUMLAH TOTAL
	Hidro Hydro	Gas Asli Natural Gas	Arang Batu Coal	Diesel	
2011	101	675	480	102	1,358
2012	101	608	480	163	1,352
2013	101	588	480	163	1,332
2014	337	576	480	158	1,551
2015	1,052 ¹	595	480	114	2,241
	46.95%	26.54%	21.42%	5.09%	

Nota Note:

¹ Hidro merangkumi Loji Hidroelektrik Batang Ai Syarikat SESCO Berhad dan Loji Hidroelektrik Murum
Hydro includes Batang Ai Hydroelectric Plant SESCO and Murum Hydroelectric Plant

Jadual 31: Campuran Penjanaan SEB (GWj)

Table 31: SEB Generation Mix (GWj)

TAHUN YEAR	SUMBER TENAGA ENERGY SOURCE				JUMLAH TOTAL
	Hidro Hydro	Gas Asli Natural Gas	Arang Batu Coal	Diesel	
2011	424	3,243	3,368	244	7,279
2012	433	2,777	3,037	778	7,025
2013	363	3,015	3,046	148	6,572
2014	444	2,706	3,157	187	6,494
2015	2,459 ¹	2,065	3,217	25	7,765
	31.66%	26.59%	41.42%	0.32%	100.00%

Nota Note:

¹ Hidro merangkumi Loji Hidroelektrik Batang Ai Syarikat SESCO Berhad dan Loji Hidroelektrik Murum Hydro includes Batang Ai Hydroelectric Plant/SESCO and Murum Hydroelectric Plant

Jadual 32: Jualan Tenaga Elektrik SEB (GWj)**Table 32: SEB Electricity Sales (GWh)**

TAHUN YEAR	SEKTOR SECTOR				JUMLAH TOTAL
	Domestik Domestic	Komersil Commercial	Industri Industry	Lampu Awam Public Lighting	
2011	1,423	1,846	3,151	66	6,486
2012	1,584	2,026	3,904	73	7,587
2013	1,722	2,169	6,457	72	10,420
2014	1,817	2,291	9,254	78	13,440
2015	1,940	2,390	9,619	89	14,038
	13.82%	17.03%	68.52%	0.63%	100.00%

Jadual 33: Bilangan Pengguna SEB**Table 33: SEB Number of Consumers**

TAHUN YEAR	SEKTOR SECTOR				JUMLAH TOTAL
	Domestik Domestic	Komersil Commercial	Industri Industry	Lampu Awam Public Lighting	
2011	444,340	76,222	947	7,042	528,551
2012	461,422	79,278	970	7,383	549,053
2013	483,106	82,160	985	7,699	573,950
2014	498,601	85,188	984	8,152	592,925
2015	516,084	88,297	1,004	8,939	614,324
	84.01%	14.37%	0.16%	1.46%	100.00%

SISTEM PENGHANTARAN TRANSMISSION SYSTEM

Jadual 34: Keupayaan Sistem Penghantaran SEB**Table 34: SEB Transmission System Capacity**

TAHUN YEAR	2011	2012	2013	2014	2015
TALIAN/KABEL SISTEM PENGHANTARAN TRANSMISSION SYSTEM LINES/CABLES					
275 kV (km)	867	1,086	1,188	1,235	1,204
132 kV (km)	235	383	398	372	384
66 kV (km)	-	-	-	-	-
PENCAWANG PENGHANTARAN TRANSMISSION SUBSTATIONS					
Bilangan Number	22	25	27	28	38
Keupayaan (MVA) Capacity (MVA)	5,206	5,876	6,356	6,440	10,574
PRESTASI PERFORMANCE					
Bilangan Kejadian Pelantikan dengan Kehilangan Beban sebanyak 50 MW dan ke atas Number of Tripping Incidents with Load Loss of 50 MW and above	8	16	20	26	29
Tenaga yang Tidak Dibekal Semasa Pelantikan (MWj) Unsupplied Energy During Load Loss (MWj)	507	421	6,018	1,754	1,176

SISTEM PENGAGIHAN DISTRIBUTION SYSTEM

Jadual 35: Keupayaan Sistem Pengagihan SEB**Table 35: SEB Distribution System Capacity**

TAHUN YEAR	2011	2012	2013	2014	2015
TALIAN/KABEL SISTEM PENGHANTARAN TRANSMISSION SYSTEM LINES/CABLES					
Talian Atas (km) Overhead Lines (km)	20,254	21,030	22,350	23,210	24,031
Kabel Bawah Tanah (km) Underground Cables (km)	6,450	6,680	6,969	7,274	7,688
PENCAWANG PENGAGIHAN DISTRIBUTION SUBSTATIONS					
Bilangan Number	9,130	9,588	10,365	10,927	11,435
Keupayaan (MVA) Capacity (MVA)	3,490	3,744	4,002	4,174	4,339

Jadual 36: Stesen Jana Kuasa Utama di Sarawak
Table 36: Main Power Plants in Sarawak

Bil. No	Sumber Tenaga Energy Source	Penggerak Utama Prime Mover	Kapasiti Penjanaan Terpasang (MW) Installed Generation Capacity (MW)	Kapasiti Tersedia (MW) Available Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)
SEB					
1	Arang batu Coal	Stim Steam	480.00	423.00	3,216.51
2	Hidro Hydro	Hidro Hydro	1,052.00	1,038.00	2,458.80
3	Gas Asli Natural Gas	Turbin gas Gas turbine	277.60	266.00	1,013.14
4	Diesel	Turbin gas Gas turbine	64.00	60.00	7.94
5	Gas Asli Natural Gas	Kitar padu Combined cycle	317.00	309.00	1,051.58
6	Diesel	Enjin diesel Diesel engine	50.00	34.00	17.25
Jumlah Total			2,240.60	2,130.00	7,765.22
IPP					
9	Bakun Hydropower Generation	Hidro Hydro	2,400.0	2,400.00	7,721.00
Jumlah Total			2,400.0	2,400.00	7,721.00
Jumlah Besar Grand Total			4,640.60	4,530.00	15,486.22

Nota Note :
 Campuran Penjanaan: Hidro (65.73%), Arang Batu (15.65%), Gas Asli (13.33%), Diesel (5.29%)
 Generation Mix: Hydro (65.73%), Coal (15.65%), Natural Gas (13.33%), Diesel (5.29%)

Jadual 37: Hidro Mini di Sarawak
Table 37: Mini Hydro in Sarawak

Bil. No	Stesen Station	Kapasiti Penjanaan Terpasang (MW) Installed Generation Capacity (MW)	Kapasiti Tersedia (MW) Available Capacity (MW)	Elektrik Dijana (GWj) Generated Electricity (GWh)
1	Lundu/Semantan	1.80	0.50	4.09
2	Lawas	5.00	2.60	9.49
Jumlah Total		6.80	3.10	13.56

Jadual 38: Maklumat Tambahan Mengenai Kapasiti Penjanaan di Sarawak
Table 38: Additional Information on Generation Capacity in Sarawak

Bil. No	Jenis Type	Sumber Tenaga Energy Source	Kapasiti Penjanaan Terpasang (MW) Installed Generation Capacity (MW)	Elektrik Dijana (MWj) Generated Electricity (MWh)
1	TBB Lesen Persendirian RE Private License	Biojisim Biomass	43.80	80.66
2	TBB Lesen Persendirian RE Private License	Biogas	0.50	0.00
3	Cogeneration	Gas Asli Natural Gas	273.00	1,501.24
4	TBB Lesen Awam RE Public License	Solar	0.30	Belum diperolehi Not available
5	Penjanaan Persendirian Self-Generation	Diesel	57.96	154.34
Jumlah Total			375.56	1,736.24

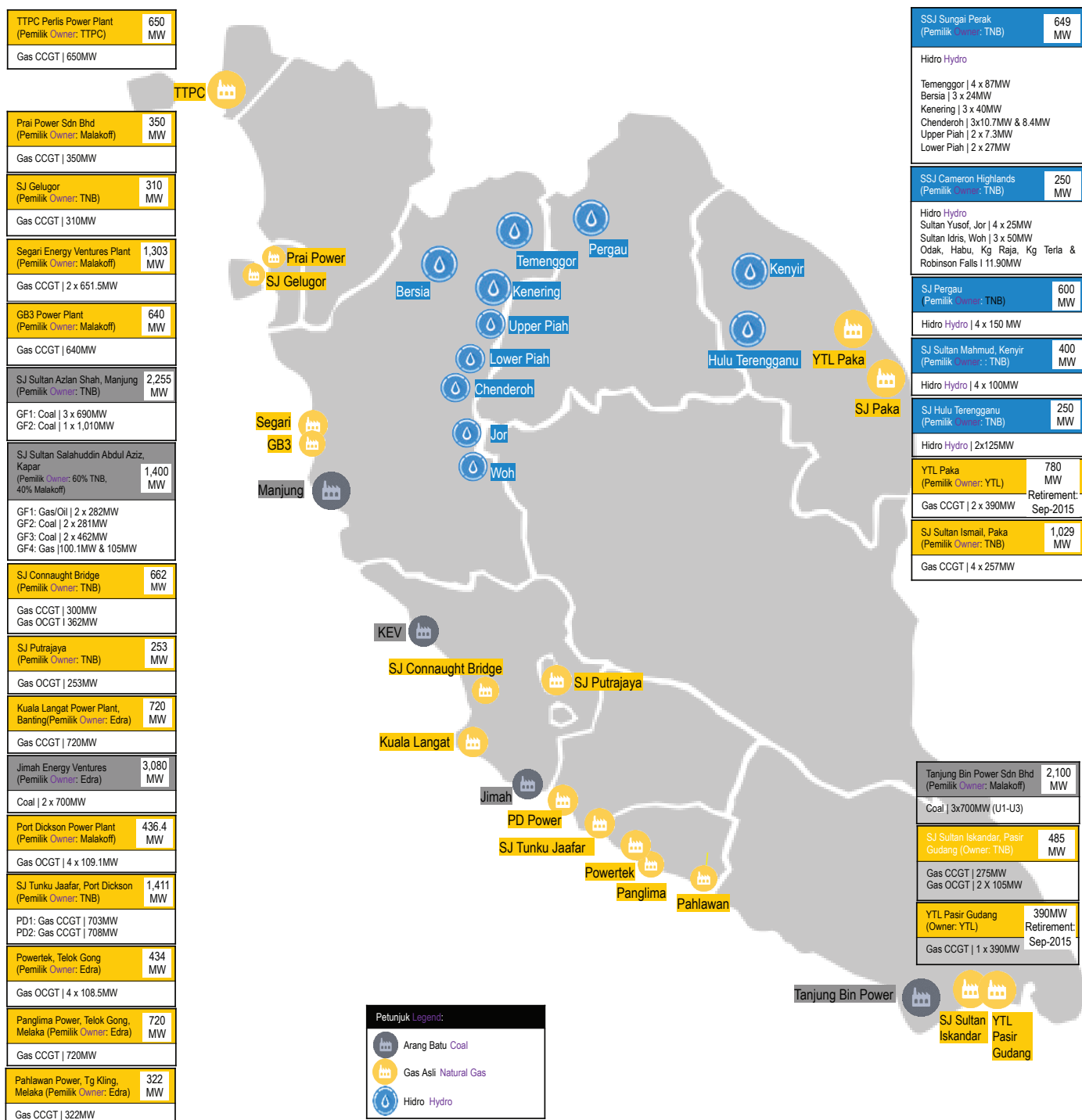


Maklumat dan Statistik Industri Pembekalan Elektrik
Information and Statistics of Electricity Supply Industry

Peta Lokasi Stesen Jana Kuasa Utama di Malaysia
Location Maps of Main Power Generation Stations in Malaysia

41

Peta 1: Lokasi Stesen Jana Kuasa Utama di Semenanjung Malaysia
Map 1: Location of Major Power Stations in Peninsular Malaysia

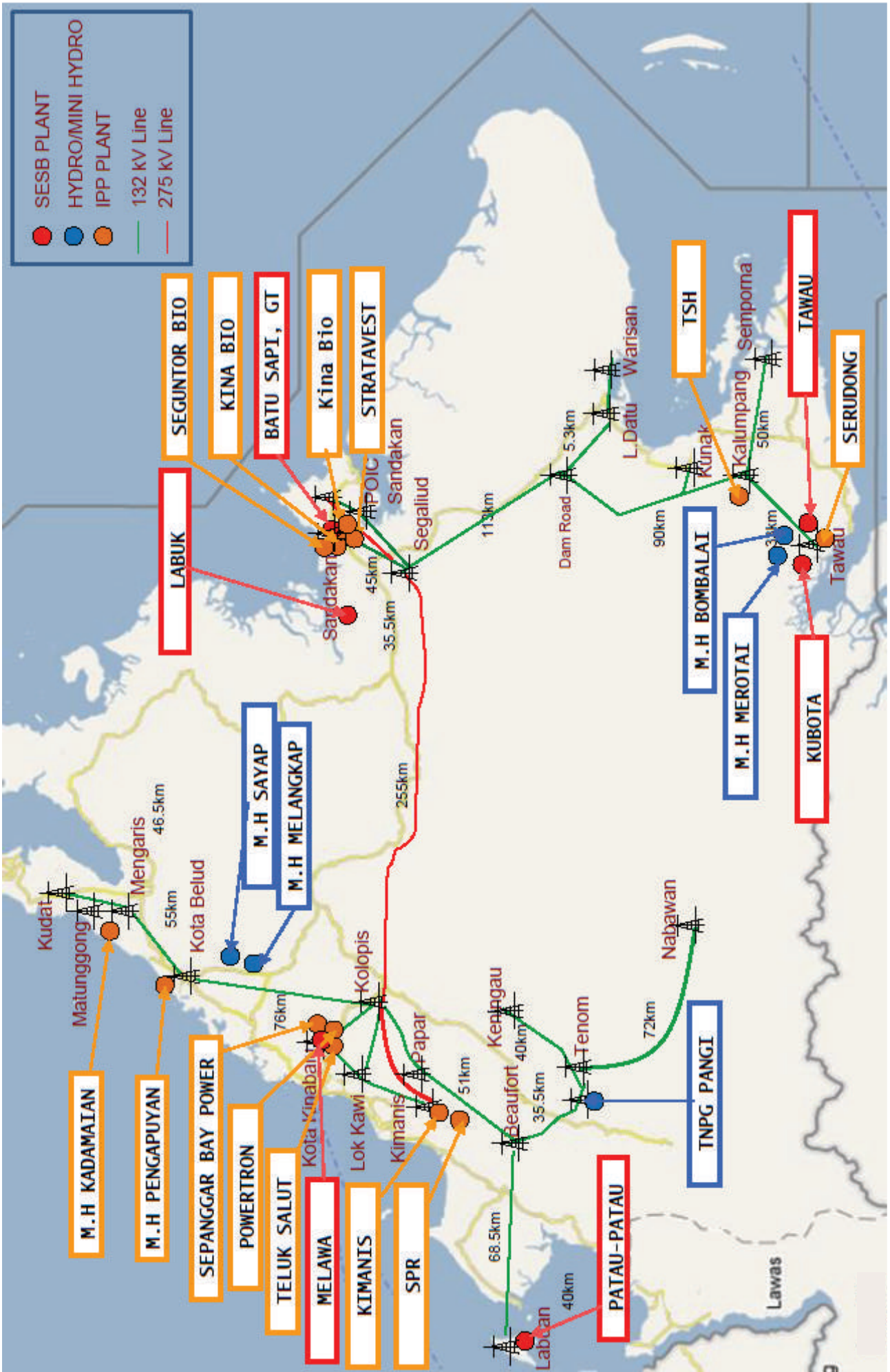


Diolah daripada sumber Adapted from source : Regulatory Economics Dept, TNB

Peta 2 : Sistem Penghantaran Elektrik di Semenanjung Malaysia
Map 2 : Electricity Transmission System in Peninsular Malaysia



Peta 3: Lokasi Stesen Jana Kuasa Utama dan Sistem Grid di Sabah
 Map 3: Location of Major Power Stations and Grid System in Sabah



Sumber: SESB

Peta 4: Lokasi Stesen Jana Kuasa Utama dan Sistem Grid di Sarawak
Map 4: Location of Major Power Stations and Grid System in Sarawak



Sumber: SEB



Prestasi Sistem Pembekalan dan Perkhidmatan Elektrik

Performance of Electricity Supply System and Services

Prestasi Pembekalan dan Perkhidmatan Elektrik di Semenanjung Malaysia
Performance of Electricity Supply and Services in Peninsular Malaysia

46

Jadual 39: Purata Kecekapan Thermal, Faktor Kesediaan Setara (EAF) dan Faktor Henti Tugas Tidak Berjadual Setara (EUOF) Mengikut Jenis Loji

Table 39: Average Thermal Efficiency, Equivalent Availability Factor (EAF) & Average Equivalent Unplanned Outage Factor (EUOF) by Type of Plant

JENIS LOJI TYPE OF PLANT	2011		2012		2013		2014		2015	
	TNB	IPP	TNB	IPP	TNB	IPP	TNB	IPP	TNB	IPP
KITAR PADU COMBINED CYCLE										
Purata Kecekapan Thermal (%) Average Thermal Efficiency (%)	40.80	44.00	44.34	43.96	43.30	44.00	43.63	43.66	43.14	44.24
EAF (%)	85.00	88.60	94.14	95.10	83.50	91.60	90.17	91.19	86.15	88.41
EUOF	5.50	3.95	3.48	3.27	6.28	2.13	1.49	1.38	3.60	4.79
KITAR TERBUKA OPEN CYCLE										
Purata Kecekapan Thermal (%) Average Thermal Efficiency (%)	22.30	27.10	26.29	26.77	26.70	27.40	26.70	26.93	26.23	26.61
EAF (%)	97.60	94.50	94.14	95.10	90.40	84.80	84.44	90.14	91.11	96.45
EUOF	0.98	0.71	1.32	1.71	5.89	13.80	10.07	8.23	5.47	2.42
KONVENSIONAL (MINYAK/GAS) CONVENTIONAL (OIL/GAS)										
Purata Kecekapan Thermal (%) Average Thermal Efficiency (%)	27.30	30.60	26.60	32.34	27.00	32.70	-	32.81	-	32.52
EAF (%)	82.50	87.40	88.53	85.42	94.50	82.40	-	75.62	-	94.43
EUOF	17.53	5.62	0.46	2.96	5.55	6.57	-	11.48	-	3.02
KONVENSIONAL (ARANG BATU) CONVENTIONAL (COAL)										
Purata Kecekapan Thermal (%) Average Thermal Efficiency (%)	-	35.10	-	35.53	-	35.20	-	36.30	-	35.65
EAF (%)	-	80.50	-	84.18	-	80.10	-	81.31	-	79.92
EUOF	-	10.61	-	6.07	-	9.58	-	7.40	-	8.04
HIDRO HYDRO										
Purata Kecekapan Thermal (%) Average Thermal Efficiency (%)	-	-	-	-	-	-	-	-	-	-
EAF (%)	92.30	-	90.77	-	90.60	-	91.38	-	92.52	-
EUOF	0.93	-	1.90	-	3.94	-	1.74	-	2.09	-

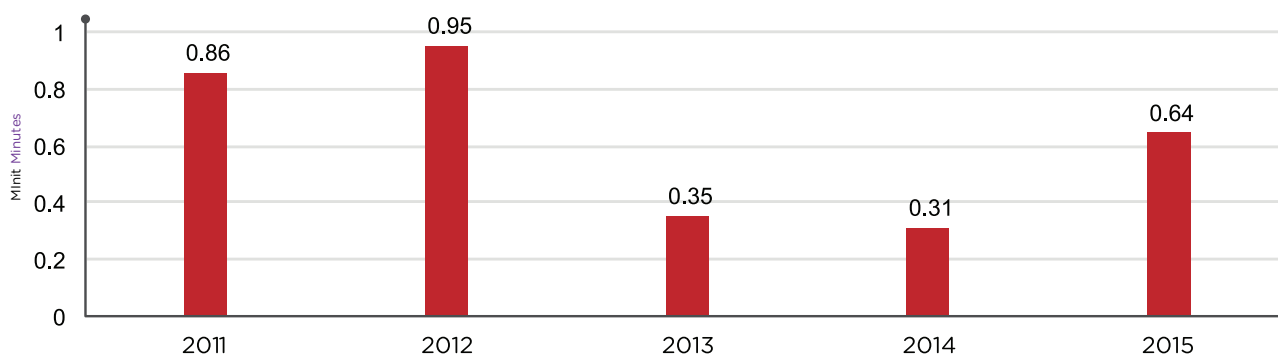
Jadual 40: Pelantikan Sistem Penghantaran TNB dengan Kehilangan Beban Sebanyak 50MW dan ke Atas
Table 40: TNB Transmission System Trippings with Load Loss of 50MW and Above

PETUNJUK INDICATOR	2011	2012	2013	2014	2015
Bilangan Pelantikan Tanpa Lucutan Beban Number of Trippings without Load Shedding	4	4	2	1	1
Tenaga yang Tidak Dibekalkan Semasa Pelantikan (MWj) Unsupplied Energy During Trippings (MWh)	225.20	212.70	238.20	1.20	-
Bilangan Pelantikan dengan Lucutan Beban Number of Trippings with Load Shedding	1	-	-	1	1
Tenaga Tidak Dibekalkan Semasa Lucutan Beban (MWj) Unsupplied Energy during Load Shedding (MWh)	171.30	-	-	-	67.60

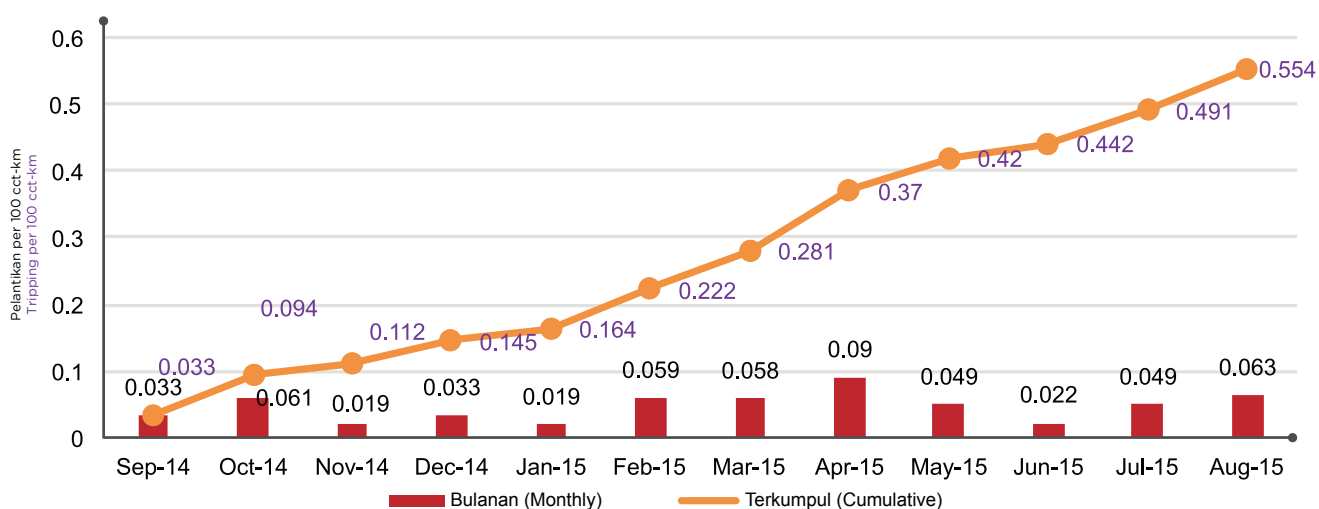
Jadual 41: Pelantikan Bulanan Sistem Penghantaran TNB dengan Kehilangan Beban 50MW dan ke Atas
Table 41: TNB Monthly Transmission System Trippings with Load Loss of 50MW and Above

PETUNJUK INDICATOR	JAN JAN	FEB FEB	MAR MAR	APR APR	MEI MAY	JUN JUNE	JUL JULY	OGOS AUG	SEPT SEPT	OKT OCT	NOV NOV	DIS DEC
Bilangan Pelantikan Tanpa Lucutan Beban Number of Trippings Without Load Shedding	0	0	0	1	0	0	0	0	0	0	0	0
Bilangan Pelantikan Dengan Lucutan Beban Number of Trippings With Load Shedding	0	0	0	0	1	0	0	0	0	0	0	0
Kehilangan Beban Maksimum (MW) Maximum Load Losses (MW)	0	0	0	321	380	0	0	0	0	0	0	0
Tenaga Yang Tidak Dibekalkan Semasa Pelantikan (MWj) Unsupplied Energy During Trippings (MWh)	0	0	0	119.05	67.60	0	0	0	0	0	0	0
Purata Tenaga Tidak Dibekalkan Setiap Pelantikan (MWj) Average Unsupplied Energy During Trippings (MWh)	0	0	0	-	-	0	0	0	0	0	0	0
Purata Tempoh Setiap Pelantikan (Jam: Minit) Average Duration Per Tripping (Hour: Minutes)	0	0	0	1j14m	40min	0	0	0	0	0	0	0
Tenaga Tidak Dibekalkan Semasa Lucutan Beban (MWj) Unsupplied Energy During Load Shedding (MWh)	0	0	0	119.05	67.60	0	0	0	0	0	0	0

Carta 1 : Delivery Point Unreliability Index (DePUI) - System Minutes
Chart 1 : Delivery Point Unreliability Index (DePUI) - System Minutes



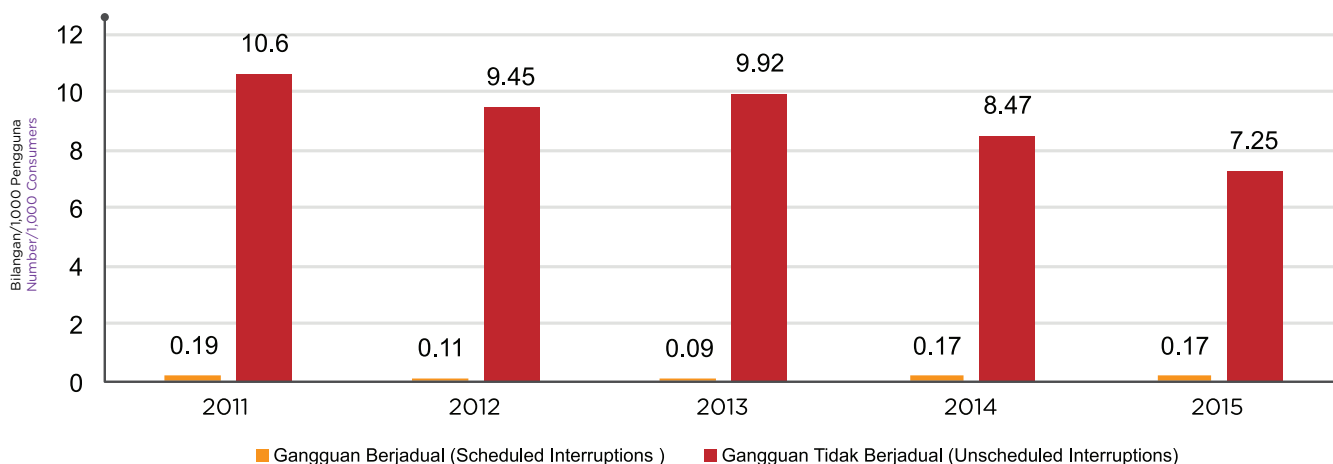
Carta 2: Insiden Pelantikan Bulanan bagi Talian/Kabel per 100 cct-km
Chart 2: Monthly Tripping Incidents for Lines/Cables per 100 cct-km



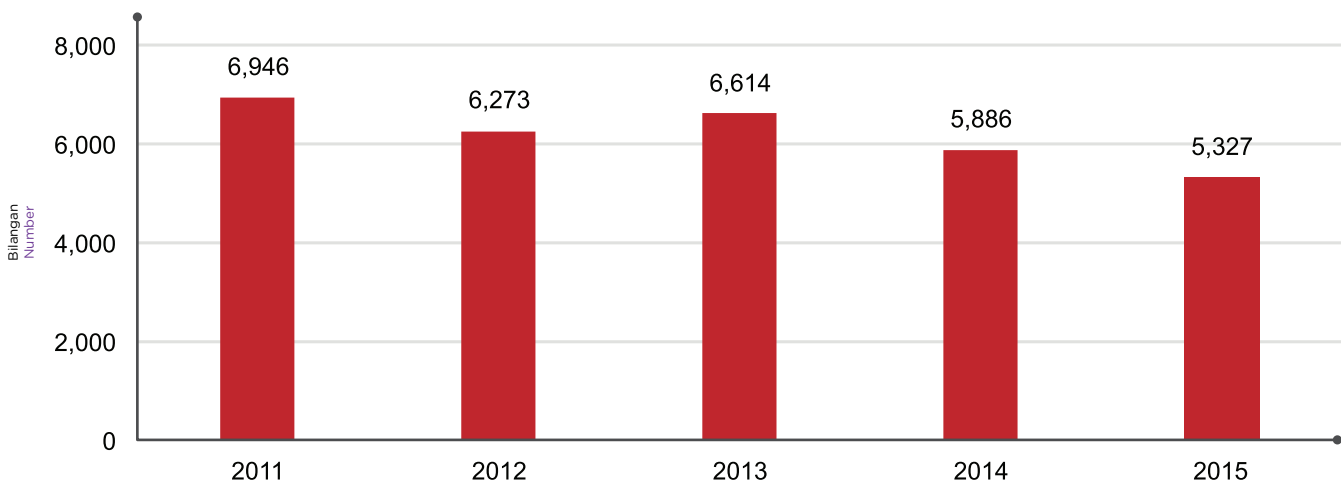
Nota Note: Data Tahun Kewangan Financial Year Data

SISTEM PENGAGIHAN DISTRIBUTION SYSTEM

Carta 3: Gangguan Bekalan Elektrik per 1,000 Pengguna
Chart 3: Electricity Supply Interruptions per 1,000 Consumers



Carta 4: Purata Gangguan Bekalan Elektrik Bulanan
Chart 4: Monthly Average Electricity Supply Interruptions



Jadual 42: Gangguan Bekalan Elektrik Mengikut Negeri
Table 42: Electricity Supply Interruptions by State

NEGERI STATE	2011	2012	2013	2014	2015
Johor	12,540	11,935	11,554	7,719	8,354
Kedah	7,635	6,590	6,642	5,538	3,799
Kelantan	8,211	7,843	7,469	5,901	5,781
Kuala Lumpur	9,620	10,481	9,861	9,391	9,470
Melaka	4,772	2,318	3,307	3,939	1,694
N. Sembilan	5,248	4,876	6,264	4,966	5,226
P. Pinang	5,662	6,269	6,678	5,021	3,815
Pahang	4,226	4,039	4,460	5,399	4,971
Perak	8,930	7,598	8,029	8,050	6,601
Perlis	1,240	420	422	1,086	465
Putrajaya / Cyberjaya	8	7	9	4	25
Selangor	11,885	9,745	10,968	9,768	12,268
Terengganu	3,370	3,150	3,709	3,847	1,451
JUMLAH TOTAL	83,347	75,271	79,372	70,629	63,920

Jadual 43: Gangguan Bekalan Elektrik mengikut Tahap Voltan TNB
Table 43: Electricity Supply Interruptions by Voltage Level

TAHAP VOLTAN VOLTAGE LEVEL	2011	2012	2013	2014	2015
Voltan Tinggi (66 kV dan ke atas) High Voltage (66 kV and above)	26	17	14	17	21
Voltan Sederhana (6.6 kV - 33 kV) Medium Voltage (6.6 kV - 33 kV)	9,681	8,376	9,295	8,663	8,259
Voltan Rendah (1kV dan ke bawah) Low Voltage (1kV and below)	73,640	66,878	70,063	61,949	55,640
JUMLAH TOTAL	83,347	75,271	79,372	70,629	63,920

Jadual 44: Bilangan Gangguan Bekalan Elektrik
Table 44: Number of Electricity Supply Interruptions

BILANGAN NUMBER	2011	2012	2013	2014	2015
Gangguan Tidak Berjadual Unscheduled Interruptions	81,860	74,436	78,647	69,260	62,420
Gangguan Berjadual Scheduled Interruptions	1,487	835	725	1,369	1,500
JUMLAH TOTAL	83,347	75,271	79,372	70,629	63,920

Jadual 45: Gangguan Bekalan Elektrik Tidak Berjadual Mengikut Jenis Gangguan (Tidak Termasuk Gangguan Voltan Tinggi)
Table 45: Number of Unscheduled Electricity Supply Interruptions by Type of Interruptions (Excluding High Voltage Interruptions)

KATEGORI	CATEGORY	Voltan Rendah Low Voltage	Voltan Sederhana Medium Voltage	Jumlah Total
Haiwan Animal		941	254	1,195
Auto Reclose		n/a	10	10
Kabel Cable		2,210	1,600	3,810
Konduktor Conductor		8,090	278	8,368
Feeder Pillar		3,127	n/a	3,127
Banjir Flood		2	1	3
Fius Fuse		3,362	7	3,369
Kotak Fius Fuse Box		5,596	8	5,604
Insulating Piercing Connectors (IPC)		18,075	n/a	18,075
Penebat Insulator		n/a	11	11
Sambungan Joint		10	4,056	4,066
Jumper		n/a	8	8
Pautan Link		31	5	36
Null		n/a	96	96
Lain-lain Others		113	21	134
Pokok Tree		7,554	135	7,689
Tiang Pole		1,659	45	1,704
Relay		n/a	14	14
Ribut Storm		335	35	370
Peralatan Suis Switchgear		n/a	107	107
Penamatan Termination		157	118	275
Pihak Ketiga Third Party		2,639	1,005	3,644
Alat ubah Transformer		n/a	77	77
Ubahnika Transient		n/a	86	86
Vandalisme Vandalism		497	24	521
JUMLAH TOTAL		54,398	8,001	62,399

SAIDI, SAIFI & CAIDI

Jadual 46: System Average Interruption Duration Index (SAIDI) Mengikut Tahap Voltan
Table 46: SAIDI by Voltage Level

TAHAP VOLTAN VOLTAGE LEVEL	Minit/Pelanggan/Tahun Minutes/Customer/Year				
	2011	2012	2013	2014	2015
Voltan Tinggi (66 kV dan ke atas) High Voltage (66 kV and above)	0.94	6.87	0.11	2.64	1.05
Voltan Sederhana (6.6 kV - 33 kV) Medium Voltage (6.6 kV - 33 kV)	63.25	49.30	56.20	50.84	47.78
Voltan Rendah (1 kV dan ke bawah) Low Voltage (1 kV and below)	4.93	4.29	4.04	3.16	2.66
JUMLAH TOTAL	69.11	60.46	60.35	56.65	51.49

Jadual 47: System Average Interruption Duration Index (SAIDI) Mengikut Negeri
Table 47: SAIDI by State

NEGERI STATE	Minit/Pelanggan/Tahun Minutes/Customer/Year				
	2011	2012	2013	2014	2015
Johor	78.03	61.77	70.84	57.98	58.98
Kedah	87.18	81.36	74.38	84.34	57.42
Kelantan	72.78	72.35	69.61	56.23	56.18
Kuala Lumpur	33.45	33.69	35.85	32.96	32.36
Melaka	43.52	45.64	38.11	45.27	42.48
N. Sembilan	55.94	54.6	69.96	53.79	56.86
P. Pinang	76.56	73.29	68.89	50.4	54.49
Pahang	88.95	62.15	63.70	68.94	62.61
Perak	119.74	83.61	78.95	69.04	51.64
Perlis	37.80	35.24	36.79	38.94	34.09
Putrajaya/Cyberjaya	0.22	8.48	0.99	0.17	0.63
Selangor	61.34	56.69	54.42	55.84	50.74
Terengganu	54.26	50.29	44.64	43.33	41.46
SEMENANJUNG MALAYSIA PENINSULAR MALAYSIA	69.11	60.46	60.35	56.65	51.49

Jadual 48: System Average Interruption Frequency Index (SAIFI) Mengikut Tahap Voltan
Table 48: SAIFI by Voltage Level

TAHAP VOLTAN VOLTAGE LEVEL	Bilangan Gangguan/Pelanggan/Tahun Number Of Interruptions/Customer/Year				
	2011	2012	2013	2014	2015
Voltan Tinggi (66 kV dan ke atas) High Voltage (66 kV and above)	0.01	0.01	0.00	0.00	0.02
Voltan Sederhana Medium Voltage (6.6 kV - 33 kV)	0.93	0.80	0.87	0.92	0.79
Voltan Rendah (1 kV dan ke bawah) Low Voltage (1 kV and below)	0.02	0.00	0.00	0.00	0.02
JUMLAH TOTAL	0.97	0.81	0.87	0.92	0.83

Jadual 49: System Average Interruption Frequency Index (SAIFI) Mengikut Negeri
Table 49: SAIFI by State

NEGERI STATE	Bilangan Gangguan/Pelanggan/Tahun Number Of Interruptions/Customer/Year				
	2011	2012	2013	2014	2015
Johor	0.95	0.12	0.94	0.83	0.7
Kedah	1.32	0.29	1.11	1.65	1.2
Kelantan	1.48	0.24	1.26	1.21	1.25
Kuala Lumpur	0.44	0.03	0.37	0.67	0.48
Melaka	0.60	0.15	0.56	0.71	0.58
N. Sembilan	0.64	0.10	0.73	0.78	0.77
P. Pinang	1.06	0.16	1.00	0.81	0.83
Pahang	1.24	0.19	1.42	1.49	1.44
Perak	1.81	0.21	1.10	1.08	0.8
Perlis	0.48	0.05	0.47	0.43	0.46
Putrajaya/Cyberjaya	0.00	0.00	0.01	0.08	0.01
Selangor	0.86	0.12	0.76	0.74	0.74
Terengganu	1.29	0.16	1.03	1.05	0.87
SEMANJUNG MALAYSIA PENINSULAR MALAYSIA	0.97	0.81	0.87	0.92	0.83

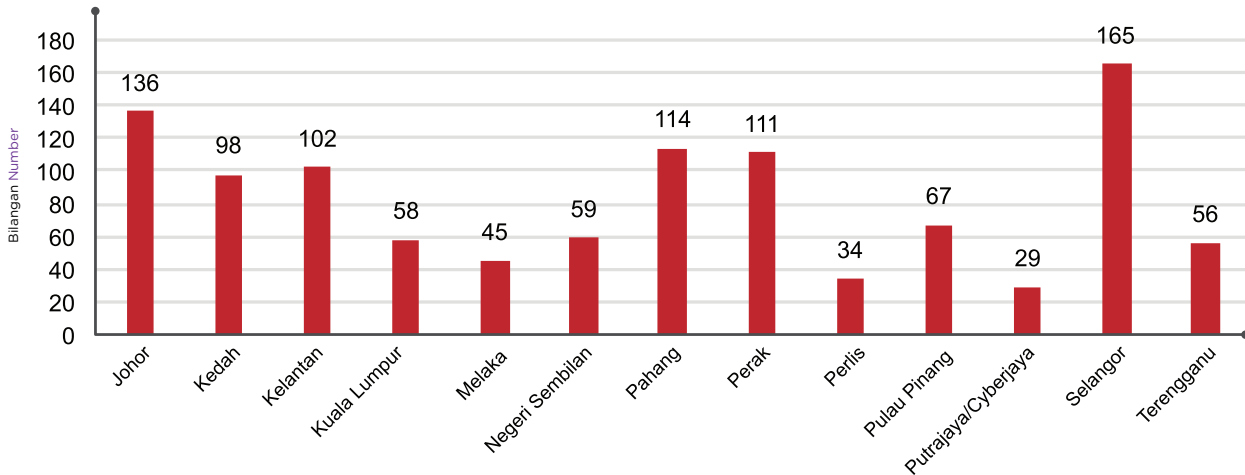
Jadual 50: Customer Average Interruption Duration Index (CAIDI) Mengikut Tahap Voltan
Table 50: CAIDI by Voltage Level

TAHAP VOLTAN VOLTAGE LEVEL	Minit/ Pengguna Terlibat/Tahun Minutes/Affected Consumer/Year				
	2011	2012	2013	2014	2015
Voltan Tinggi (66 kV dan ke atas) High Voltage (66 kV and above)	92.00	687.00	0.00	0.00	52.50
Voltan Sederhana Medium Voltage (6.6 kV - 33 kV)	68.04	61.63	64.60	55.26	60.48
Voltan Rendah (1 kV dan ke bawah) Low Voltage (1 kV and below)	245.60	429.00	403.00	316.00	133.00
JUMLAH TOTAL	71.62	74.64	69.37	61.58	62.04

Jadual 51: Customer Average Interruption Duration Index (CAIDI) Mengikut Negeri
Table 51: CAIDI by State

NEGERI STATE	Minit/ Pengguna Terlibat/Tahun Minutes/Affected Consumer/Year				
	2011	2012	2013	2014	2015
Johor	77.25	73.07	75.36	69.86	84.26
Kedah	55.55	47.45	67.01	51.12	47.85
Kelantan	89.94	54.80	55.25	46.47	44.94
Kuala Lumpur	62.88	98.59	96.89	49.19	67.42
Melaka	89.32	73.74	68.05	63.76	73.24
N. Sembilan	79.68	82.21	95.84	68.96	73.84
P. Pinang	64.43	67.06	68.89	62.22	65.65
Pahang	42.69	57.46	44.86	46.27	43.48
Perak	65.39	66.52	71.77	63.93	64.55
Perlis	95.73	72.67	78.28	90.56	74.11
Putrajaya/Cyberjaya	52.00	35.78	99.00	2.13	63.00
Selangor	63.07	66.77	71.61	75.46	68.57
Terengganu	83.62	49.12	43.34	41.27	47.66
SEMANJUNG MALAYSIA PENINSULAR MALAYSIA	71.62	74.64	69.37	61.58	62.04

Carta 5: Kejadian Junaman Voltan mengikut Negeri
Chart 5: Voltage Dip Incidents by State



Jadual 52: Bilangan Pengguna Terlibat dengan Insiden Junaman Voltan Mengikut Negeri
Table 52: TNB Number of Consumers Involved in Voltage Dip Incidents by State

NEGERI / STATE	2011	2012	2013	2014	2015
Johor	7	7	4	20	17
Kedah	2	0	2	5	11
Kelantan	1	0	1	3	0
Melaka	3	2	3	3	9
Negeri Sembilan	3	3	6	17	16
Pahang	3	1	7	4	4
Perak	13	5	3	7	20
Perlis	0	0	0	0	0
P. Pinang	6	7	27	29	64
Selangor	12	16	28	33	36
Terengganu	0	1	2	2	1
WP Kuala Lumpur	1	6	8	10	26
WP Putrajaya / Cyberjaya	0	0	2	19	5
SEMENANJUNG MALAYSIA / PENINSULAR MALAYSIA	51	48	93	152	209

Jadual 53 Table 53: System Average RMS Frequency Index (SARFI)

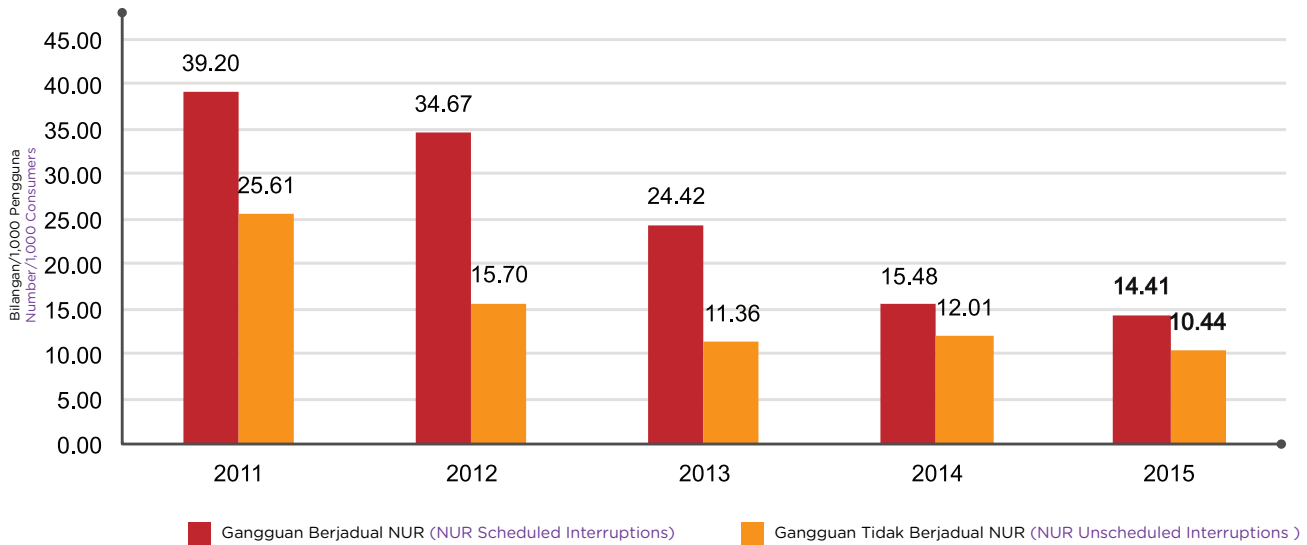
SISTEM TNB / TNB SYSTEM	SARFI ₉₀	SARFI ₈₀	SARFI ₇₀
11 kV	6.19	3.40	2.13
22 kV	6.86	4.36	3.14
33 kV	7.05	2.97	1.55
SISTEM KESELURUHAN / OVERALL SYSTEM	5.70	3.01	1.88

Jadual 54: Perbandingan SARFI dengan Syarikat Utiliti Terpilih
Table 54: SARFI Comparison with Selected Power Utility Companies

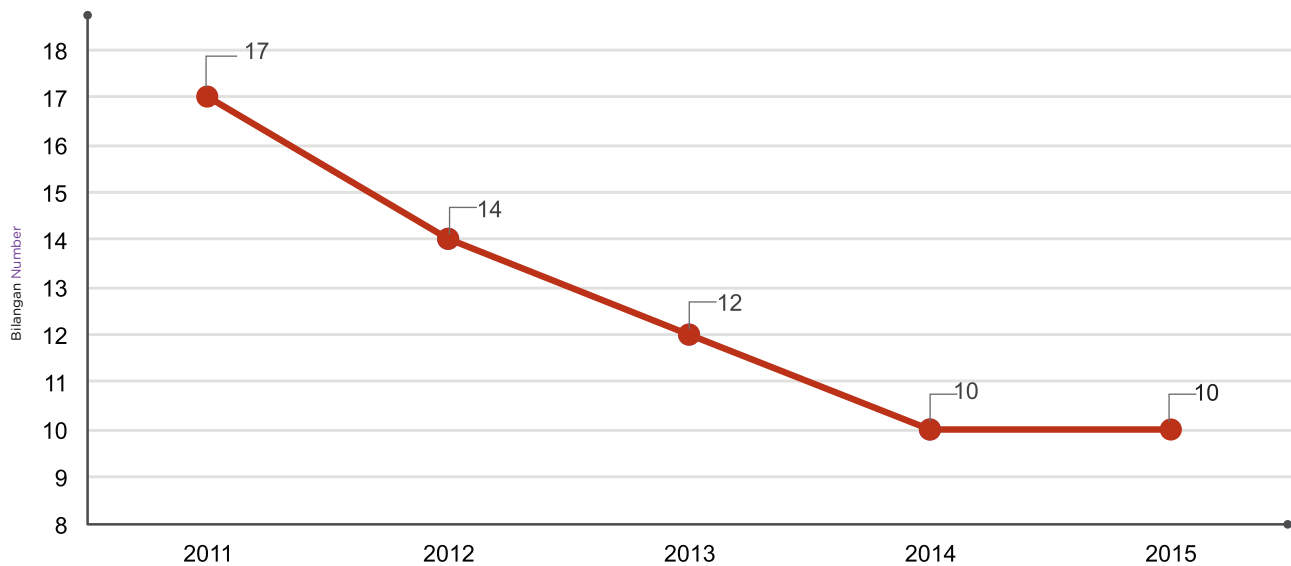
SYARIKAT / COMPANY	SARFI ₉₀	SARFI ₈₀	SARFI ₇₀
Singapore Power (2012)	3.50	1.10	0.70
Tenaga Nasional Berhad	7.05	2.97	1.55

SISTEM PENGAGIHAN NUR DISTRIBUTION SDN. BHD. (NUR) NUR DISTRIBUTION SDN. BHD. DISTRIBUTION SYSTEM

Carta 6: Gangguan Bekalan Elektrik per 1,000 Pengguna NUR
Chart 6: NUR Electricity Supply Interruptions per 1,000 Consumers



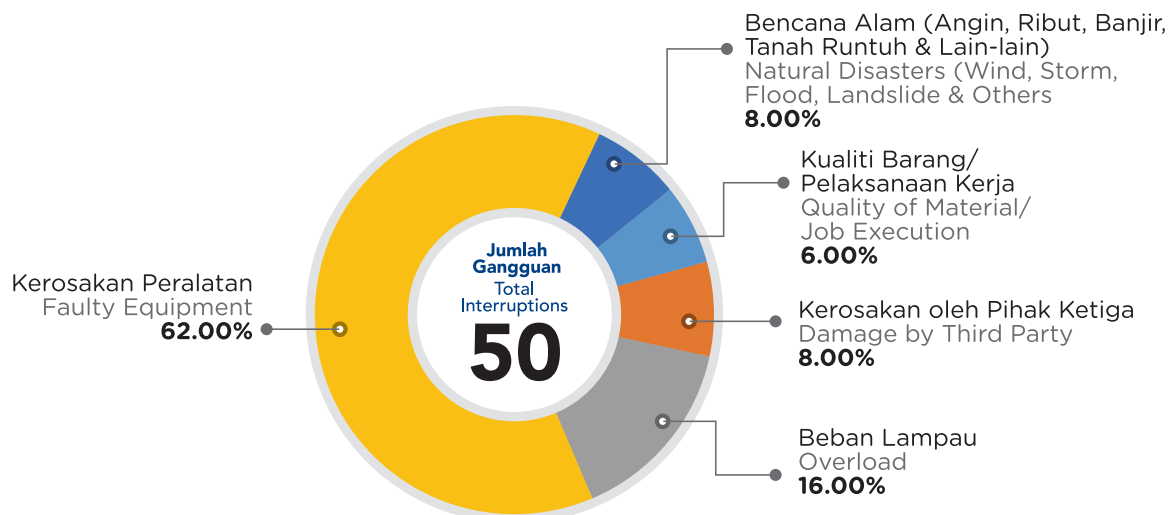
Carta 7: Purata Gangguan Bekalan Elektrik Bulanan NUR
Chart 7: NUR Monthly Average Electricity Supply Interruptions



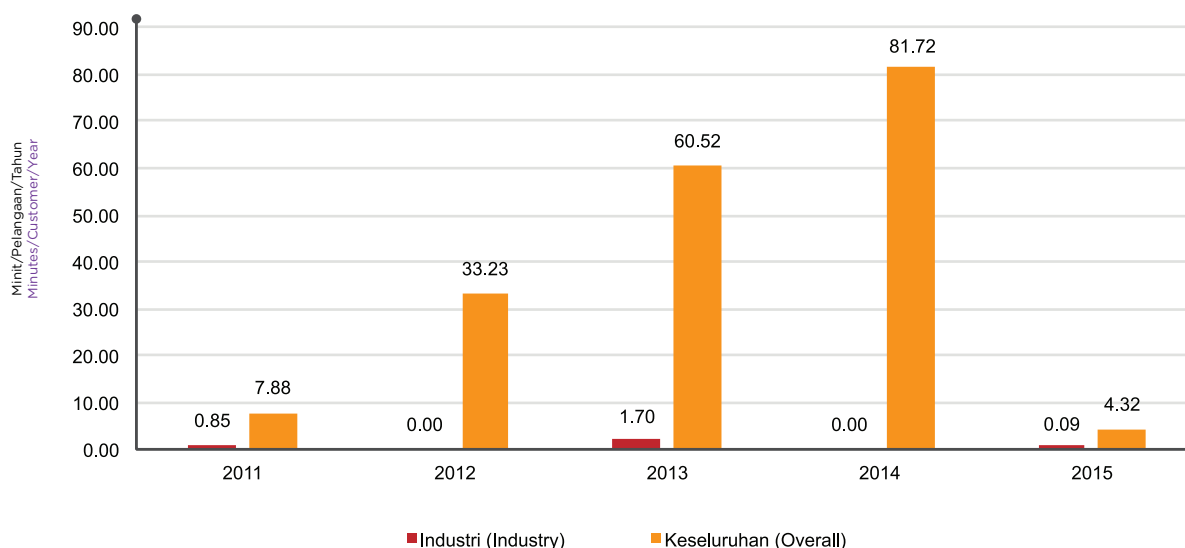
Jadual 55: Bilangan Gangguan Bekalan Elektrik NUR
Table 55: NUR Number of Electricity Supply Interruptions

BILANGAN NUMBER	2011	2012	2013	2014	2015
Gangguan Tidak Berjadual Unscheduled Interruptions	81	53	47	52	50
Gangguan Berjadual Scheduled Interruptions	124	117	101	67	69
JUMLAH GANGGUAN TOTAL INTERRUPTIONS	205	170	148	119	119

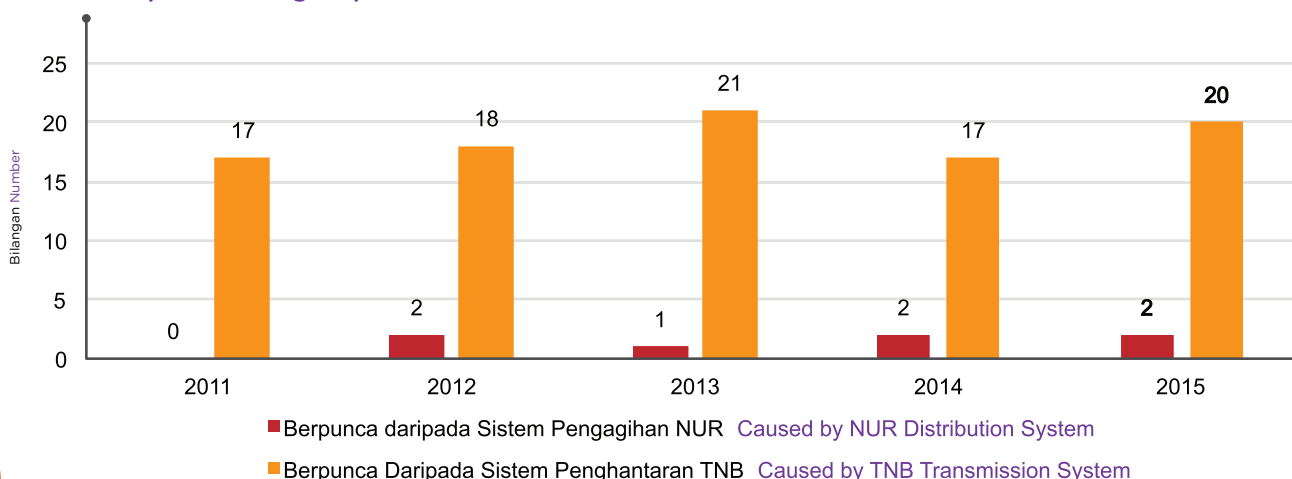
Carta 8: Gangguan Bekalan Elektrik Tidak Berjadual mengikut Jenis Gangguan NUR
Chart 8: NUR Unscheduled Supply Interruption by Type of Interruptions



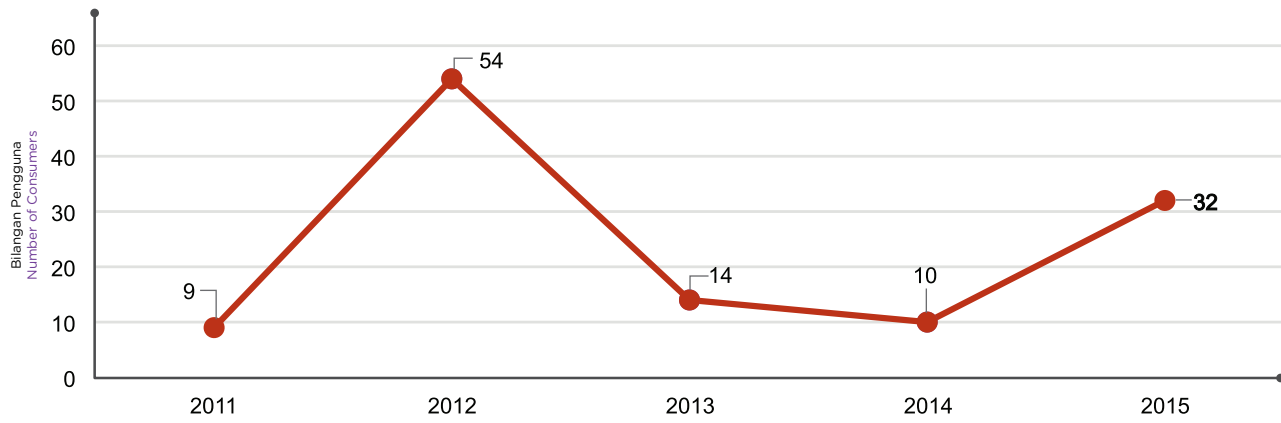
Carta 9: System Average Interruption Duration Index (SAIDI) NUR
Chart 9: System Average Interruption Duration Index (SAIDI) NUR



Carta 10: Kejadian Junaman Voltan yang Dilaporkan di KHTP
Chart 10: Reported Voltage Dips Incidents in KHTP



Carta 11 Bilangan Pengguna Terlibat dengan Insiden Junaman Voltan NUR
Chart 11: NUR Number of Consumers Involved in Voltage Dip Incidents



Jadual 56: System Average RMS Frequency Index (SARFI) NUR
Table 56: System Average RMS Frequency Index (SARFI NUR)

PUNCA SOURCE	2011	2012	2013	2014	2015
Sistem Pengagihan NUR NUR Distribution System	0	1	1	1	1
Sistem Penghantaran TNB TNB Transmission System	0	2	5	1	0



Prestasi Sistem Pembekalan Dan Perkhidmatan Elektrik

Performance of Electricity Supply System and Services

Prestasi Pembekalan dan Perkhidmatan Elektrik di Sabah
Performance of Electricity Supply and Services in Sabah

57

Jadual 57: Purata Kecekapan Thermal, Faktor Kesediaan Setara (EAF) dan Faktor Henti Tugas Tidak Berjadual Setara (EUOF) mengikut jenis Loji

Table 57: Average Thermal Efficiency, Average Equivalent Availability Factor (EAF) and Average Equivalent Unplanned Outage Factor (EUOF) by type of Plant

JENIS LOJI TYPE OF PLANT	2012		2013		2014		2015	
	SESB	IPP	SESB	IPP	SESB	IPP	SESB	IPP
KITAR PADU COMBINED CYCLE								
Purata Kecekapan Thermal (%) Average Thermal Efficiency (%)	26.73	38.72	25.07	39.25	21.93	37.27	27.70	38.54
EAF (%)	73.43	93.92	76.96	91.95	73.5	91.17	80.36	94.10
EUOF	6.59	1.88	6.11	4.24	5.37	5.77	9.42	2.05
DIESEL								
Purata Kecekapan Thermal (%) Average Thermal Efficiency (%)	27.72	38.20	20.72	35.06	27.53	37.14	27.47	36.13
EAF (%)	60.76	74.57	63.43	71.21	62.85	57.96	82.37	39.46
EUOF	20.77	28.81	27.91	23.66	32.75	50.72	11.55	59.56
HIDRO HYDRO								
Purata Kecekapan Thermal (%) Average Thermal Efficiency (%)	-	-	-	-	-	-	-	-
EAF (%)	86.23	-	89.24	-	87.30	-	62.69	-
EUOF	10.34	-	1.71	-	2.38	-	8.17	-

SISTEM PENGHANTARAN TRANSMISSION SYSTEM

Jadual 58: Pelantikan Sistem Penghantaran dengan Kehilangan Beban Sebanyak 50 MW dan ke atas

Table 58: Transmission System Trippings with Load Loss of 50 MW and Above

Petunjuk Indicator	JAN JAN	FEB FEB	MAR MAR	APR APR	MEI MAY	JUN JUNE	JUL JULY	OGOS AUG	SEPT SEPT	OKT OCT	NOV NOV	DIS DEC
Bilangan Pelantikan Tanpa Lucutan Beban Number of Trippings Without Load Shedding	-	-	-	-	1	2	-	-	-	-	1	-
Bilangan Pelantikan Dengan Lucutan Beban Number of Trippings With Load Shedding	-	-	-	5	-	-	-	-	-	1	-	-
Kehilangan Beban Maksimum (MW) Maximum Load Losses (MW)	-	-	-	432.71	64.10	21312	-	-	-	99.09	83.07	-
Tenaga Yang Tidak Dibekalkan Semasa Pelantikan (MWj) Unsupplied Energy During Trippings (MWh)	-	-	-	754.03	180.42	318.87	-	-	-	69.39	41.47	-
Purata Tenaga Tidak Dibekalkan Setiap Pelantikan (MWj) Average Unsupplied Energy During Trippings (MWh)	-	-	-	150.81	180.24	159.44	-	-	-	69.39	41.47	-
Purata Tempoh Setiap Pelantikan (Jam: Minit) Average Duration Per Tripping (Hour: Minutes)	-	-	-	11:01	2:59	2:20	-	-	-	1:29	0:27	-
Tenaga Tidak Dibekalkan Semasa Lucutan Beban (MWj) Unsupplied Energy During Load Shedding (MWh)	-	-	-	-	-	-	-	-	-	16.90	-	-

Jadual 59 Table 59: Delivery Point Unreliability Index (DePUI) - System Minutes

Tahun Year	2011	2012	2013	2014	2015
Termasuk Bekalan Elektrik Terputus Including Blackout	-	263.91 ¹	-	161.09	97.84
Tidak Termasuk Bekalan Elektrik Terputus Excluding Blackout	40.13	67.12	26.53	-	11.03

Nota Note:

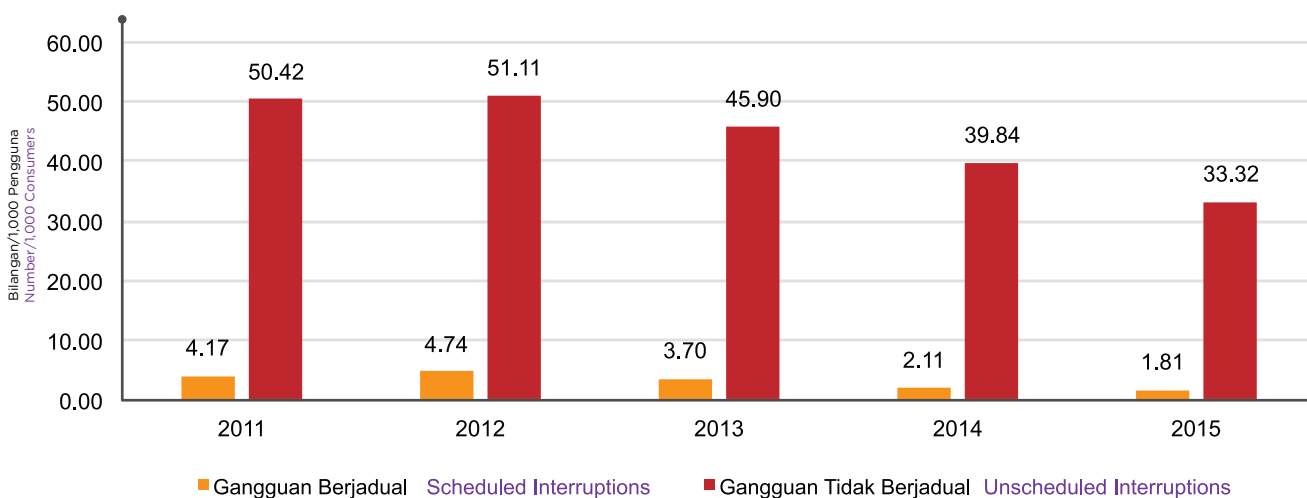
¹ Termasuk 5 insiden besar Inclusive of 5 major incidents

Jadual 60 Insiden Pelantikan bagi Talian/Kabel per 100 cct-km mengikut Tahap Voltan (dengan Kehilangan Beban)
Table 60: Tripping Incidents for Lines/Cables per 100 cct-km by Voltage Level (with Load Loss)

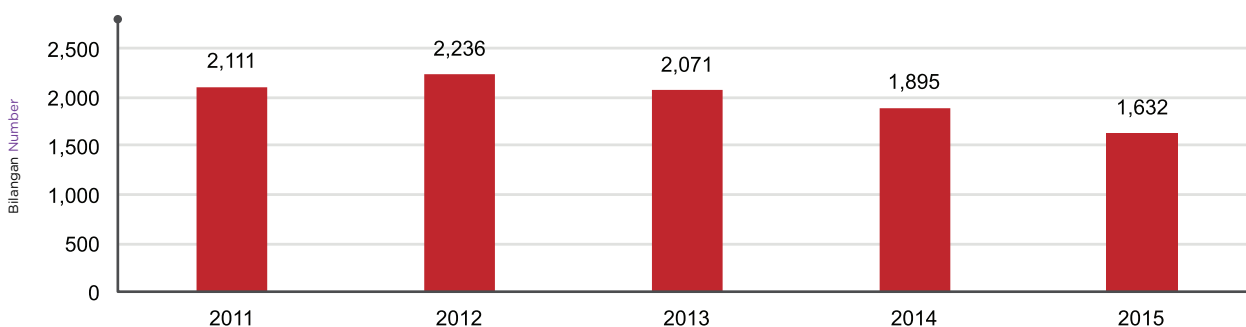
Tahap Voltan Voltage Level	2011	2012	2013	2014	2015
275k V	0.20	0.00	0.00	0.00	0.00
132 kV	0.42	1.08	0.42	0.58	0.99
66 kV	6.68	5.56	4.46	0.00	5.89

SISTEM PENGAGIHAN DISTRIBUTION SYSTEM

Carta 12: Gangguan Bekalan Elektrik per 1,000 Pengguna SESB
Chart 12: SESB Electricity Supply Interruptions per 1,000 Consumers



Carta 13: Purata Gangguan Bekalan Elektrik Bulanan SESB
Chart 13: SESB Monthly Average Electricity Supply Interruptions



Jadual 61: Bilangan Gangguan Bekalan Elektrik SESB

Table 61: SESB Number of Electricity Supply Interruptions

BILANGAN NUMBER	2011	2012	2013	2014	2015
Gangguan Berjadual Scheduled Interruptions	1,937	2,280	1,864	1,145	1,009
Gangguan Tidak Berjadual Unscheduled Interruptions	23,397	24,561	22,985	21,594	18,576
JUMLAH TOTAL	25,334	26,841	24,849	22,739	19,585

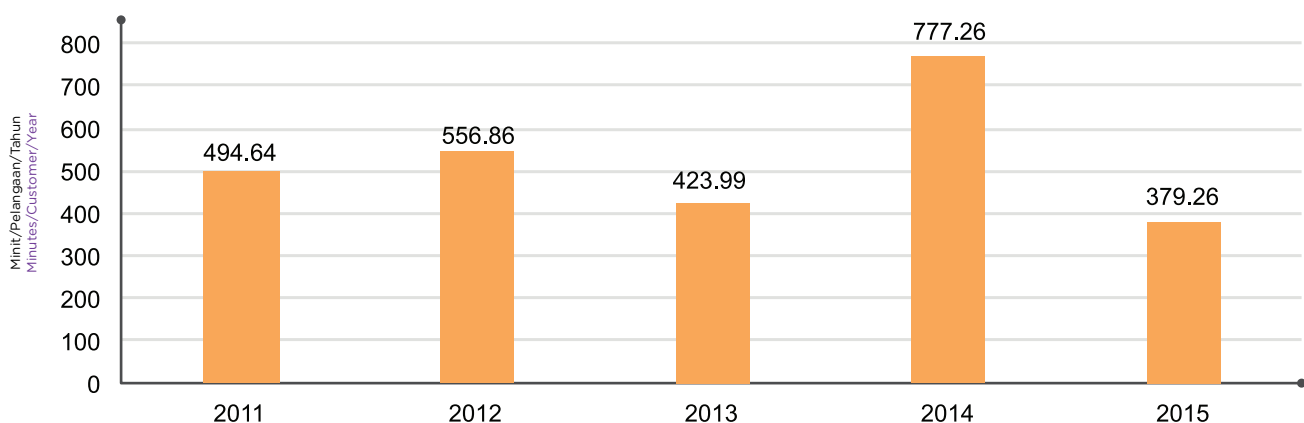
Jadual 62: Gangguan Bekalan Elektrik Tidak Berjadual mengikut Jenis Gangguan SESB

Table 62: SESB Number of Unscheduled Electricity Supply Interruptions by Type of Interruptions

JENIS GANGGUAN TYPE OF INTERRUPTIONS	2011	2012	2013	2014	2015
Cuaca Buruk (Angin, Ribut, Petir) Bad Weather (Wind, Storm, Lightning)	2,922	3,159	2,416	2,185	1,415
Beban Lampau Overload	1,514	2,675	3,444	3,317	2,209
Disebabkan oleh Pihak Lain (Kena Langgar, Khianat, Kena Curri dan Penyambungan Haram) Caused by Other Parties (Hit, Treachery, Theft and Illegal Connection)	1,566	1,962	1,521	2,071	1,742
Binatang Animal	1,437	1,930	1,451	1,445	1,171
Pokok Tree	4,233	4,561	4,542	4,126	3,185
Ubahtika Transient	271	174	295	361	255
Kerosakan Peralatan Faulty Equipment	100	250	380	255	71
Kena Guard Wire/ Kendur Touched with Guard Wire/Sagging	1,086	1,203	1,253	1,283	837
Contact Tidak Baik Poor Contact	2,432	3,326	3,224	2,977	3,168
Kualiti Barang Quality of Material	381	585	224	176	94
Lanjut Usia / Reput Old/Decayed	938	929	855	726	1111
Pencawang Substation	614	632	666	547	495
Kabel Cable	545	566	586	604	483
Lain-lain (Tiada Data, Tiada Operasi, Tiada Bekalan) Others (Unavailable data, Shut Down, No Supply)	2,353	2,543	0	1,368	2,275
Banjir Flood	16	5	16	16	7
Tanah Runtuh Landslide	84	50	41	104	33
Kebakaran Fire	24	11	16	33	25
Tidak Diketahui Unknown	2,881	0	2,055	0	0
JUMLAH TOTAL	23,397	24,561	22,985	21,594	18,576

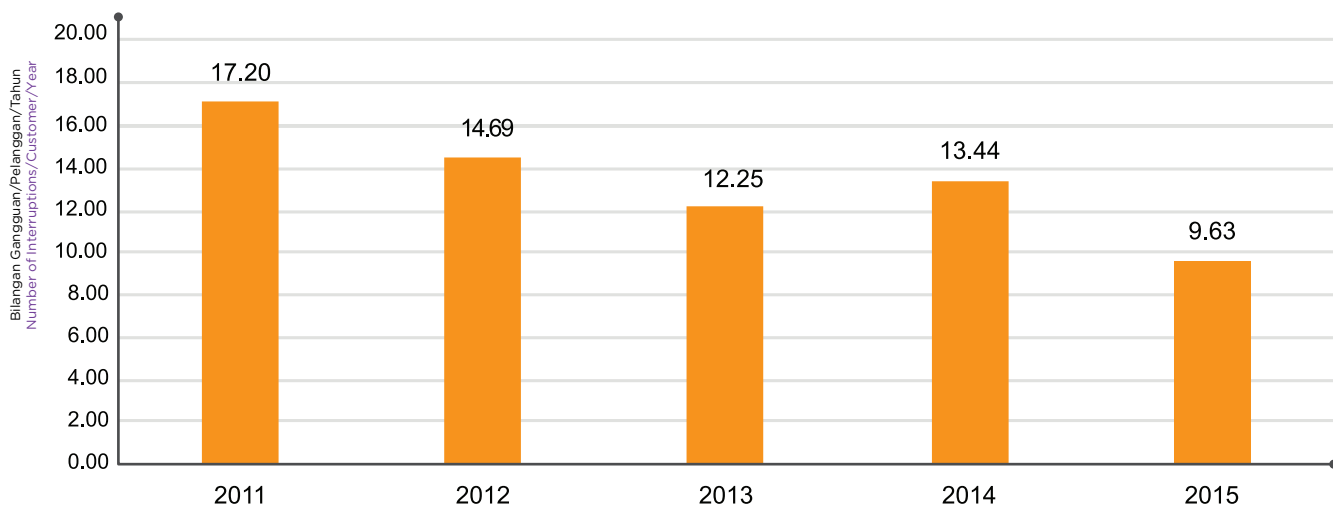
Carta 14: System Average Interruption Duration Index (SAIDI) SESB

Chart 14: SESB SAIDI



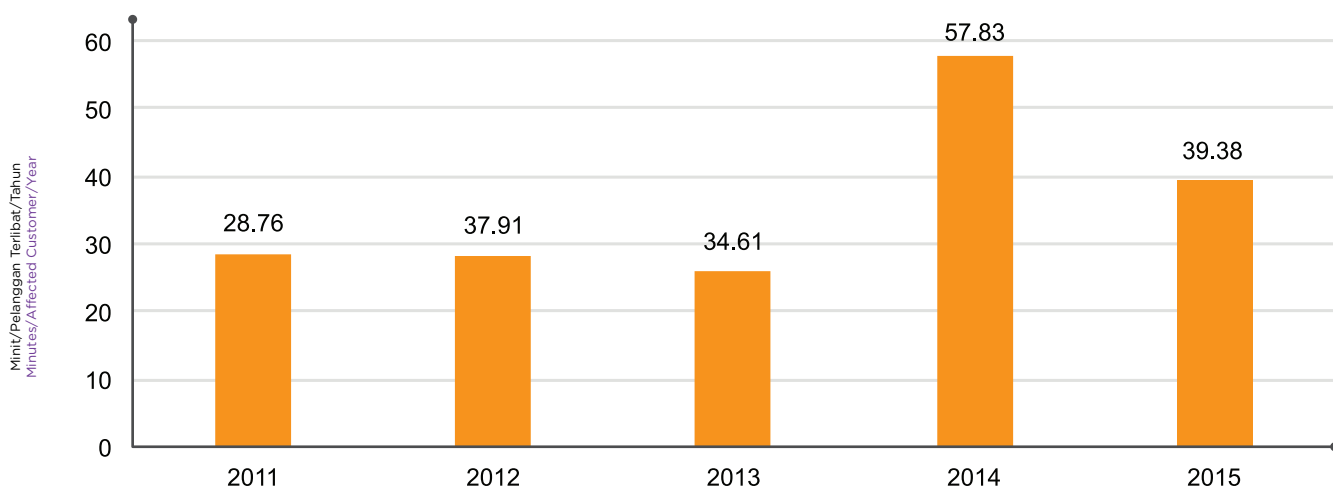
Carta 15: System Average Interruption Frequency Index (SAIFI) SESB

Chart 15: SESB SAIFI



Carta 16: Customer Average Interruption Duration Index (CAIDI) SESB

Chart 16: SESB CAIDI





Prestasi Sistem Pembekalan dan Perkhidmatan Elektrik

Performance of Electricity Supply System and Services

Prestasi Pembekalan dan Perkhidmatan Elektrik di Sarawak
Performance of Electricity Supply and Services in Sarawak

62

Jadual 63: Purata Kecekapan Thermal (%), Faktor Kesediaan Setara (EAF) (%) dan Kadar Hentitugas Tidak Berjadual (FOR) mengikut Jenis Loji

Table 63: Average Thermal Efficiency (%), Average Equivalent Availability Factor (EAF) (%) and Forced Outage Rate (FOR) by Type of Plant

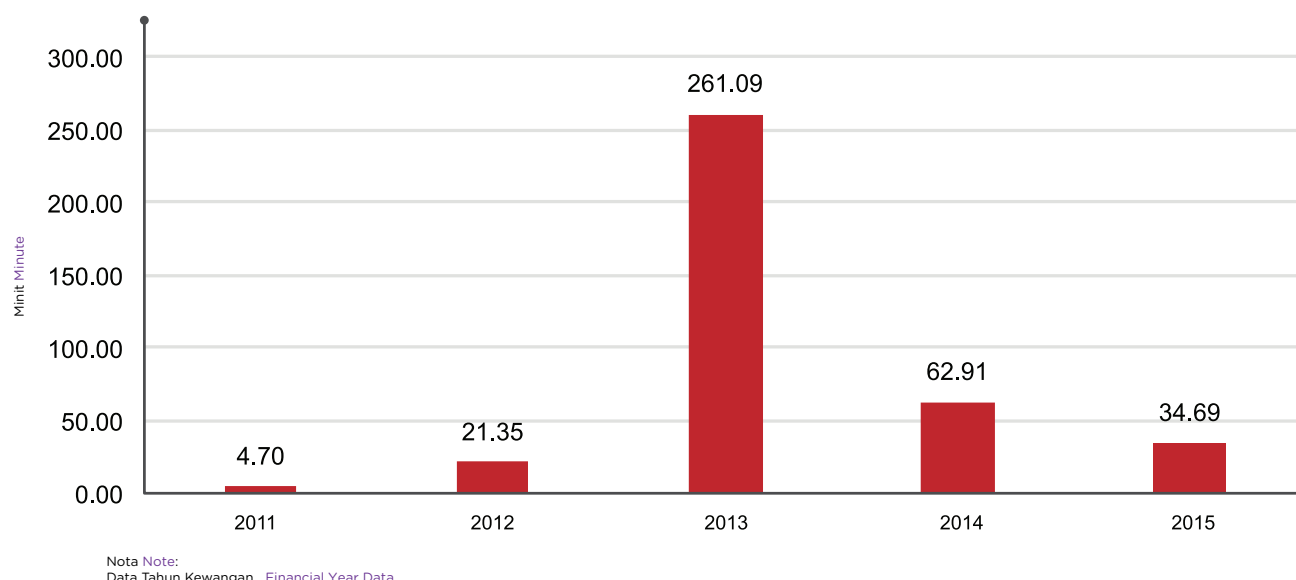
JENIS LOJI TYPE OF PLANT	2015
KITAR TERBUKA (GAS ASLI) OPEN CYCLE (NATURAL GAS)	
Purata Kecekapan Thermal (%) Average Thermal Efficiency (%)	19.92
EAF (%)	87.64
FOR	3.06
KITAR PADU (GAS ASLI) COMBINED CYCLE (NATURAL GAS)	
Purata Kecekapan Thermal (%) Average Thermal Efficiency (%)	36.54
EAF (%)	73.25
FOR	5.22
DIESEL	
Purata Kecekapan Thermal (%) Average Thermal Efficiency (%)	32.36
EAF (%)	94.00
FOR	0.92
KONVENSIONAL (ARANG BATU) CONVENTIONAL (COAL)	
Purata Kecekapan Thermal (%) Average Thermal Efficiency (%)	33.93
EAF (%)	86.67
FOR	2.61

SISTEM PENGHANTARAN TRANSMISSION SYSTEM

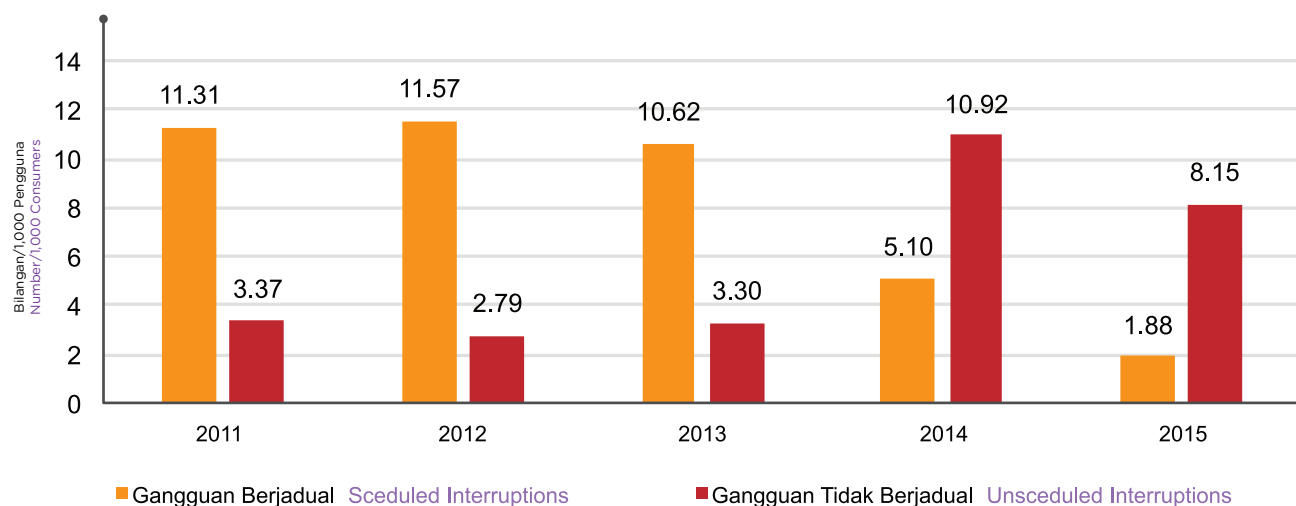
Jadual 64: Pelantikan Sistem Penghantaran SEB dengan Kehilangan Beban Sebanyak 50MW dan ke Atas
Table 64: SEB Transmission System Trippings with Load Loss of 50 MW and Above

PETUNJUK INDICATOR	JAN JAN	FEB FEB	MAR MAR	APR APR	MEI MAY	JUN JUNE	JUL JULY	OGOS AUG	SEPT SEPT	OKT OCT	NOV NOV	DIS DEC
Bilangan Pelantikan Tanpa Lucutan Beban Number of Trippings Without Load Shedding	2	1	4	5	5	1	2	4	-	2	2	1
Bilangan Pelantikan dengan Lucutan Beban Number of Trippings with Load Shedding	-	-	-	-	-	-	-	-	-	-	-	-
Kehilangan Beban Maksimum (MW) Maximum Load Losses (MW)	7.00	1.29	134.72	121.57	39.16	0.20	20.20	35.90	-	39.50	681.30	4.90
Tenaga Yang Tidak Dibekalkan Semasa Pelantikan (MWj) Unsupplied Energy During Trippings (MWh)	26.35	2.41	195.59	113.20	39.25	1.37	24.00	19.33	-	68.90	679.51	6.29
Purata Tenaga Tidak Dibekalkan Setiap Pelantikan (MWj) Average Unsupplied Energy During Trippings (MWh)	13.18	2.41	48.90	22.64	7.85	1.37	11.85	4.83	-	34.45	339.76	6.29
Purata Tempoh Setiap Pelantikan (Jam: Minit) Average Duration Per Tripping (Hour: Minutes)	195	112	75.5	61.6	76.4	410	90	29.25	-	78	56.5	77
Tenaga Tidak Dibekalkan Semasa Lucutan Beban (MWj) Unsupplied Energy During Load Shedding (MWh)	-	-	-	-	-	-	-	-	-	-	-	-

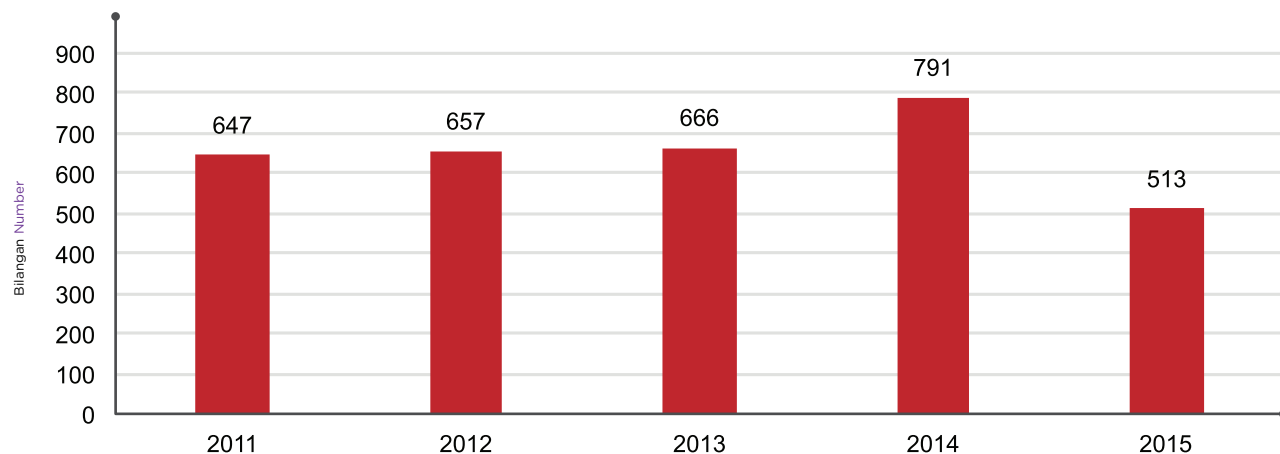
Carta 17 Chart 17 : Delivery Point Unreliability Index (DePUI) - System Minutes SEB



**Carta 18: Gangguan Bekalan Elektrik per 1,000 Pengguna SEB
Chart 18: SEB Electricity Supply Interruptions per 1,000 Consumers**



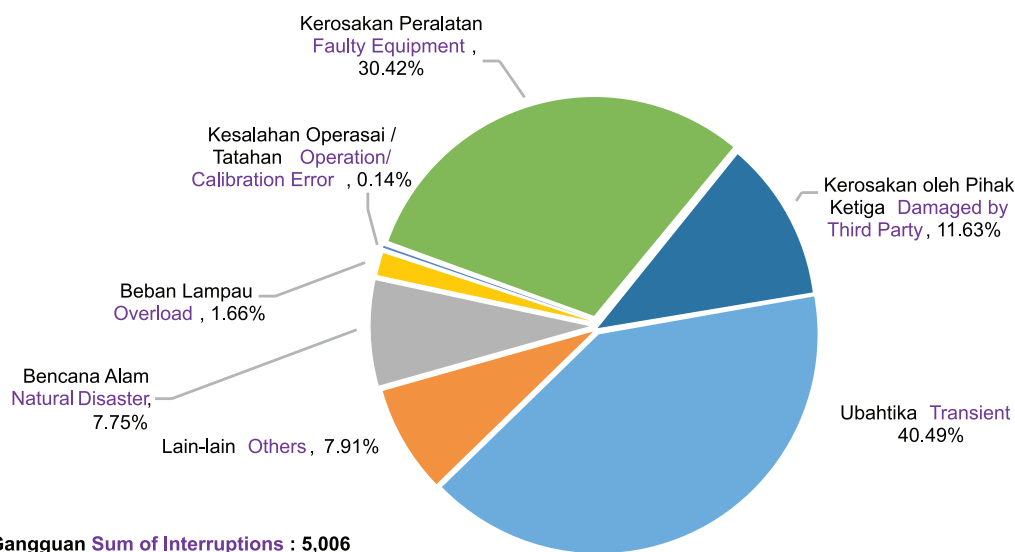
**Carta 19: Purata Gangguan Bekalan Elektrik Bulanan SEB
Chart 19: SEB Monthly Average Electricity Supply Interruptions**



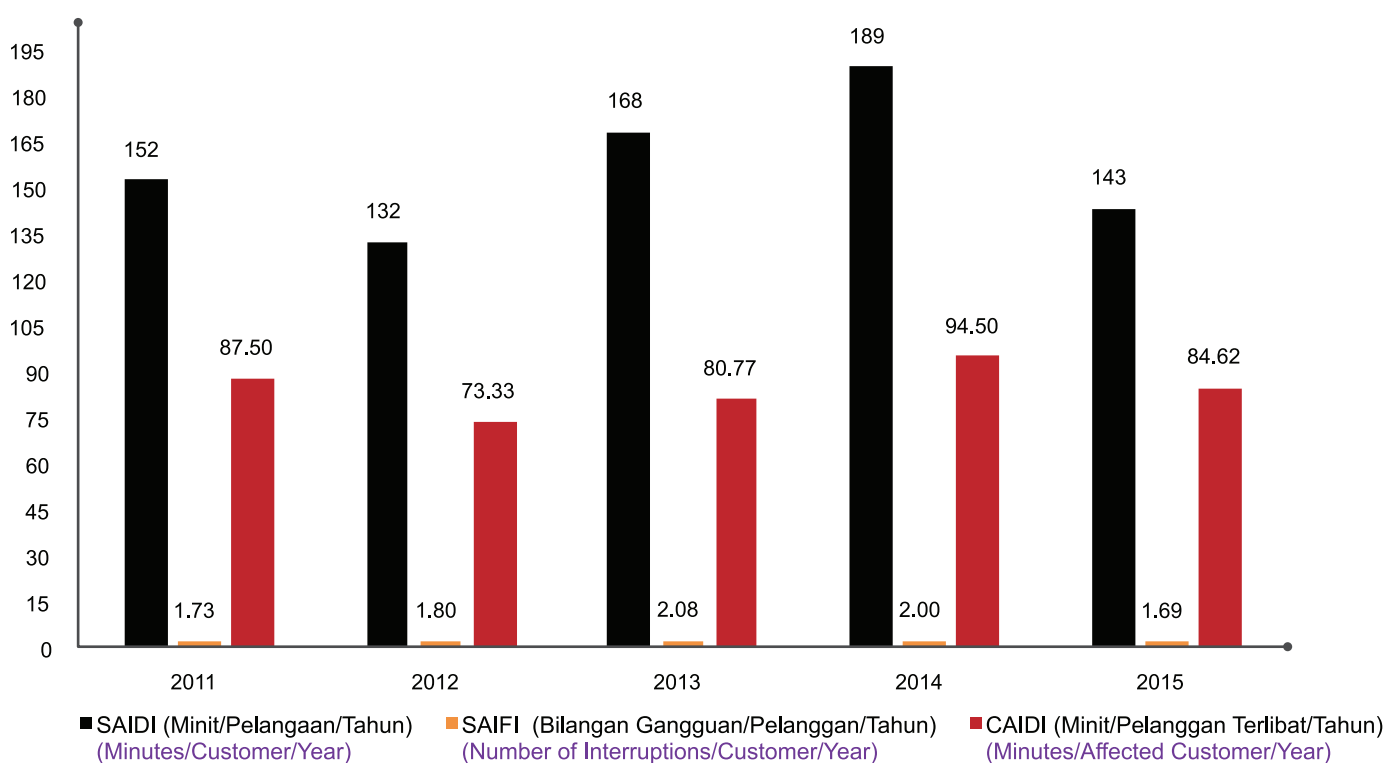
Jadual 65: Bilangan Gangguan Bekalan Elektrik SEB
Chart 65: SEB Number of Electricity Supply Interruptions

BILANGAN NUMBER	2011	2012	2013	2014	2015
Gangguan Berjadual Scheduled Interruptions	5,976	6,351	6,098	6,473	5,006
Gangguan Tidak Berjadual Unscheduled Interruptions	1,783	1,530	1,896	3,023	1,152
JUMLAH TOTAL	7,759	7,881	7,994	9,496	6,158

Carta 20: Gangguan Bekalan Elektrik Tidak Berjadual SEB Mengikut Jenis Gangguan
Chart 20: SEB Number of Unscheduled Electricity Supply Interruptions by Type of Interruptions



Carta 21 Chart 21: System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI) & (Customer Average Interruption Duration Index (CAIDI) SEB





Ringkasan

Summary

Jadual 66: Kapasiti Dilesenkan Mengikut Sumber Tenaga
Table 66: Licensed Capacity by Energy Source

Bil. No	Penjana Generator	Kapasiti Yang Dilesenkan Mengikut Sumber Tenaga (MW)										Jumlah Total	
		Gas Asli Natural Gas	Arang Batu Coal	Air (Hidro) Water (Hydro)	Diesel	Biojisim Biomass	Solar	Biogas	Air (Hidro Mini) Water (Mini Hydro)	Distillate	Lain-lain Others		
Semenanjung Malaysia Peninsular Malaysia													
1	TNB	4,590.00		2,161.00									6,751.00
2	Penjana Bebas IPP	8,069.00	8,210.00	20.00									16,299.00
3	TBB RE					44.43	208.53	32.38	23.60				308.94
4	Cogen Awam Public Cogen	442.57										48.00	490.57
5	Cogen Persendirian Private Cogen	433.48										112.19	545.67
6	Persendirian <5MW Self Gen <5MW				399.03	351.79	1.00	4.85	2.13				758.80
	Jumlah Semenanjung Malaysia Total Peninsular Malaysia	13,535.05	8,210.00	2,181.00	399.03	396.22	209.53	37.23	25.73	0.15%	0.10%	160.19	25,153.98
	Pecahan Share	53.81%	32.64%	8.67%	1.59%	1.58%	0.83%	0.15%	0.10%			0.64%	100.00%
Sabah													
7	SESB	112.00			180.90								365.90
8	Penjana Bebas IPP	922.2			151.90								1,074.10
9	TBB RE					51.00	18.14	3.19	6.50				78.83
10	Cogen Awam Public Cogen	41.80				29.20							71.00
11	Cogen Persendirian Private Cogen	65.00				93.50							158.50
12	Persendirian <5MW Self Gen <5MW				484.14	130.35	0.13	8.81	42.63				666.06
	Jumlah Sabah Total Sabah	1,141.00			816.94	304.05	18.27	12.00	42.63	0.50%	3.29%	42.63	2,414.39
	Pecahan Share	47.26%			33.84%	12.59%	0.76%	0.50%	1.77%				100.00%
Sarawak													
13	SEB	594.60	480.00	1,052.00	114.00								2,240.60
14	Penjana Bebas IPP			2,400.00									2,400.00
15	TBB RE					43.80	0.30	0.50					44.60
16	Cogen	273.00											273.00
17	Persendirian Self Gen				57.96								57.96
	Jumlah Sarawak Total Sarawak	867.60	480.00	3,452.00	171.96	43.80	0.30	0.50	0.01%	0.01%	0.01%	0.01%	5,016.16
	Pecahan Share	17.30%	9.57%	68.82%	3.43%	0.87%	0.01%	0.01%	0.01%				100.00%
	JUMLAH BESAR GRAND TOTAL	15,543.65	8,690.00	5,163.00	1,387.93	744.07	228.10	49.73	105.23	0.15%	0.32%	160.19	32,584.53
	Pecahan Share	47.70%	26.67%	17.29%	4.26%	2.28%	0.70%	0.15%	0.32%			0.49%	100.00%

Nota Note :
 Bagi cogeneration, "Lain-lain" adalah terdiri daripada haba buangan proses perindustrian, gas buangan proses perindustrian dan bahan buangan proses perindustrian.
 For cogeneration, "Others" consists of industrial process waste heat, industrial process waste gas and industrial waste

Jadual 67: Penjanaaan Elektrik Mengikut Sumber Tenaga
Table 67: Electricity Generation by Energy Source

Penjanaaan Elektrik Mengikut Sumber Tenaga (GWt) Electricity Generation by Energy Source (GWt)												
Bil. No	Penjana Generator	Gas Asli Natural Gas	Arang Batu Coal	Hidro Hydro	Diesel	Biojisim Biomass	Solar	Biogas	Hidro Mini Mini Hydro	Distillate	Lain-lain Others	Jumlah (GWt) Total (GWt/h)
Semenanjung Malaysia Peninsular Malaysia												
1	TNB	22,367.29		5,007.04								27,374.33
2	Penjana Bebas IPP	34,114.93	56,912.31							550.00		91,577.24
3	TBB RE					67.11	209.41	53.74	50.69			380.95
4	Cogen Awam Public Cogen	2,278.62									98.29	2,376.91
5	Cogen Persendirian Private Cogen	719.71									17.99	737.70
6	Persendirian <5MW Self Gen <5MW				11.06	102.62	0.12	7.14	5.28		2.04	128.26
Jumlah Semenanjung Malaysia Total Peninsular Malaysia		59,480.55	56,912.31	5,007.04	11.06	169.73	209.53	60.88	55.97	550.00	118.32	122,575.39
Total Peninsular Malaysia		48.53%	46.43%	4.08%	0.01%	0.14%	0.17%	0.05%	0.05%	0.45%	0.10%	100.00%
Sabah												
7	SESB	417.62		268.52	381.35				3.40			1,070.89
8	Penjana Bebas IPP	4,436.02			220.41							4,656.43
9	TBB RE					247.80	6.49	16.31	8.93			279.53
10	Cogen Awam Public Cogen	n/a				54.23						54.23
11	Cogen Persendirian Private Cogen	n/a				36.47						36.47
12	Persendirian <5MW Self Gen <5MW				84.38	191.05		4.72		45.33		325.48
Jumlah Sabah Total Sabah		4,853.64	0.00	268.52	686.14	529.55	6.49	21.03	12.33	45.33		6,423.03
Pecahan Share		75.57%	0.00%	4.18%	10.68%	8.24%	0.10%	0.33%	0.19%	0.71%		100.00%
Sarawak												
13	SEB	2,064.72	3,216.52	2,458.81	25.19							7,765.24
14	Penjana Bebas IPP			7,721.00								7,721.00
15	TBB RE					80.66						80.66
16	Cogen	1,501.24										1,501.24
17	Persendirian Self Gen				154.34							154.34
Jumlah Sarawak Total Sarawak		3,565.96	3,216.52	10,179.81	179.53	80.66						17,222.48
Pecahan Share		20.71%	18.68%	59.11%	1.04%	0.47%						100.00%
Jumlah Besar Grand Total		67,900.15	60,128.83	15,455.37	876.73	779.94	216.02	81.91	68.30	595.33	118.32	146,220.90
Pecahan Share		46.44%	41.12%	10.57%	0.60%	0.53%	0.15%	0.06%	0.05%	0.41%	0.08%	100.00%

Nota Note:
n/a Data tidak diperolehi Data not obtained
Bagi cogen, "Lain-lain" adalah terdiri daripada haba buangan proses perindustrian, gas buangan proses perindustrian dan bahan buangan proses perindustrian. For cogen, "Others" consists of industrial process waste heat, industrial process waste gas and industrial waste

Jadual 68: Jualan Tenaga Elektrik Mengikut Sektor
Table 67: Electricity Sales by Sector

Jualan Tenaga Elektrik mengikut Sektor (GWj) Electricity Sales by Sector (GWh)								
Syarikat Company	Domestik Domestic	Komersil Commercial	Industri Industry	Lampu Awam Public Lighting	Perlombongan Mining	Eksport (EGAT) Export (EGAT)	Lain-lain (termasuk pertanian) Others (including agriculture)	Jumlah Total
TNB	43,754	36,645	23,231	1,357	105	3	467	105,562
	41.45%	34.71%	22.01%	1.29%	0.10%	<0.01%	0.44%	100.00%
SESB	1,171	2,256	1,618	64	-	-	-	5,109
	22.92%	44.16%	31.67%	1.25%	-	-	-	100.00%
SEB	9,619	2,390	1,940	89	-	-	-	14,038
	68.52%	17.03%	13.82%	0.63%	-	-	-	100.00%
Jumlah Total	54,544	41,291	26,789	1,510	105	3	467	124,709
	43.74%	33.11%	21.48%	1.21%	0.08%	<0.01%	0.37%	100.00%

Jadual 69: Bilangan Pengguna Mengikut Sektor
Table 68: Number of Consumers by Sector

Syarikat Company	Domestik Domestic	Komersil Commercial	Industri Industry	Lampu Awam Public Lighting	Perlombongan Mining	Lain-lain (termasuk pertanian) Others (including agriculture)	Jumlah Total
TNB	6,920,122	1,475,306	27,672	65,888	28	1,627	8,490,643
	81.50%	17.38%	0.33%	0.78%	<0.01%	0.02%	100.00%
SESB	460,321	85,581	2,756	5,596	-	-	554,254
	83.05%	15.44%	0.50%	1.01%	-	-	100.00%
SEB	516,084	88,297	1,004	8,939	-	-	614,324
	84.01%	14.37%	0.16%	1.46%	-	-	100.00%
Jumlah Total	7,896,527	1,649,184	31,432	80,423	28	1,627	9,659,221
	81.75%	17.07%	0.33%	0.83%	<0.01%	0.02%	100.00%

Apendiks

Appendix

Laporan Prestasi Tenaga Nasional Berhad (TNB) – Berdasarkan *Guaranteed Service Level (GSL)*
Performance Report of Tenaga Nasional Berhad (TNB) - Based on Guaranteed Service Level (GSL)

Laporan Prestasi Tenaga Nasional Berhad (TNB) – Berdasarkan *Minimum Service Level (MSL)*
Performance Report of Tenaga Nasional Berhad (TNB) - Based on Minimum Service Level (MSL)

Laporan Prestasi Sabah Electricity Sdn. Bhd.
Performance Report of Sabah Electricity Sdn. Bhd.

Laporan Prestasi NUR Distribution Sdn. Bhd.
Performance Report of Nur Distribution Sdn. Bhd.

Tarif-tarif Elektrik di Malaysia
Electricity Tariffs in Malaysia

Harga Jualan Purata dan Kos-kos Penjanaan
Average Selling Prices and Generation Costs

**Appendix 1: Laporan Prestasi Tenaga Nasional Berhad (TNB) – Berdasarkan Guaranteed Service Level (GSL)
Appendix 1: Performance Report of Tenaga Nasional Berhad (TNB) – Based on Guaranteed Service Level (GSL)**

Total		8,001	0	0	100.00		8001	290	8,369,120	96.38	68,171	
Kelantan		343	0	0	100.00		343	17	495,750	95.04	10,137	
Johor		1,502	0	0	100.00		1502	88	2,189,130	94.14	7,926	
Negeri Sembilan		463	0	0	100.00		463	19	193,500	95.90	2,625	
Kuala Lumpur		628	0	0	100.00		628	25	980,010	96.02	2,397	
Terengganu		240	0	0	100.00		240	2	125,700	99.17	8,114	
Pahang		599	0	0	100.00		599	21	1,908,420	96.49	5,595	
Melaka		256	0	0	100.00		256	4	65,960	98.44	3,146	
Selangor		1,878	0	0	100.00		1878	69	1,279,760	96.33	7,784	
Perak		733	0	0	100.00		733	18	596,100	97.54	8,618	
P.Pinang		575	0	0	100.00		575	15	381,300	97.39	2,764	
Kedah		653	0	0	100.00		653	8	121,750	98.77	7,412	
Perlis		118	0	0	100.00		118	3	20,740	97.46	1,653	
Putrajaya/ Cyberjaya		13	0	0	100.00		13	1	11,000	92.31	0	
	Penalty	1. Domestic - 1% of avg bill or min RM10; 2. Commercial - 1% of avg bill or max RM300; 3. Industrial - 0.5% of avg bill or max RM1,000										
	Target	4 per year (Bandaraya Kuala Lumpur & Putrajaya) & 5 per year (Other areas)										
	Service Indicator	Number of unplanned interruptions	Total interruptions	Total incidents (not achieving target)	Total penalty (RM)							
	Service Dimension	Availability of Supply - Frequency of Interruption										
	Item	GSL 1										
		Percentage Performance (%)										
		Time taken to restore electricity supply following outage	Total interruptions	Total incidents (not achieving target)	Total penalty (RM)		1. Domestic - 1% of avg bill or min RM10; 2. Commercial - 1% of avg bill or max RM300; 3. Industrial - 0.5% of avg bill or max RM1,000					
		3 hrs (Minor fault); 4 hrs (Major fault-MV-with feedback); 12 hrs (Major fault-MV-without feedback); 8 hrs (grid/transmission-partial blackout)										
		Availability of Supply - Restoration Time										
		Percentage Performance (%)										
		Time taken to implement connection (overhead line) requiring low voltage cable installation work	Total connection (overhead line)				RM50					
		5 w/days (overhead line)										
		Providing Supply										
		GSL3										

Total	59	0.00		6,289	96	0	99.79		142,008	1,469	0	98.97
Kelantan	2	0.00		373	2	0	99.96		9,784	37	0	99.62
Johor	10	0.00		912	21	0	99.65		18,474	134	0	99.27
Negeri Sembilan	1	0.00		420	2	0	99.90		8,263	12	0	99.85
Kuala Lumpur	0	0.00		831	0	0	100.00		12,284	193	0	98.43
Terengganu	5	0.00		363	0	0	99.94		8,936	4	0	99.96
Pahang	10	0.00		251	5	0	99.74		7,743	122	0	98.42
Melaka	4	0.00		300	2	0	99.83		6,270	37	0	99.41
Selangor	5	0.00		1,923	40	0	99.54		24,625	659	0	97.32
Perak	10	0.00		323	23	0	99.63		15,355	220	0	98.57
P.Pinang	0	0.00		139	0	0	100.00		10,244	9	0	99.91
Kedah	10	0.00		286	0	0	99.87		16,950	36	0	99.79
Perlis	2	0.00		52	0	0	99.88		1,604	0	0	100.00
Putrajaya/ Cyberjaya	0	0.00		116	1	0	99.14		1,476	6	0	99.59

Item	Service Dimension	Service Indicator	Target	Penalty
		Total connection not completed in 5 working days		
		Total penalty (RM)		
		Time taken to implement connection (underground cable) requiring low voltage cable installation work	14 w/days (underground cable)	RM50
		Total service connection (underground cable)		
		Total service connection not completed in 14 working days		
		Total penalty (RM)		
		Percentage Performance (%)		
		Time taken to connect new electricity supply for individual domestic low voltage consumer	3 w/days	RM50
		Total supply connection		
		Total supply connection not completed in 3 working days		
		Total penalty (RM)		
		Percentage Performance (%)		
		Providing Supply		
		GSL 4		

Total		782,956	20	0	100.00	8,369,120.00
Kelantan		50,641	0	0	100.00	495,750.00
Johor		35,305	1	0	100.00	2,189,130.00
Negeri Sembilan		42,075	1	0	100.00	193,500.00
Kuala Lumpur		92,823	10	0	99.99	980,010.00
Terengganu		35,056	0	0	100.00	125,700.00
Pahang		53,023	1	0	100.00	1,908,420.00
Melaka		37,952	1	0	100.00	65,960.00
Selangor		112,577	5	0	100.00	1,279,760.00
Perak		133,385	0	0	100.00	596,100.00
P.Pinang		37,117	0	0	100.00	381,300.00
Kedah		133,189	1	0	100.00	121,750.00
Perlis		11,298	0	0	100.00	20,740.00
Putrajaya/ Cyberjaya		8,515	0	0	100.00	11,000.00
						8,369,120
						99.03
Item	GSL 5					
Service Dimension	Customer Contact					
Service Indicator	Disconnection of supply according to the applicable legislation or disconnection procedures	Total disconnection	Total disconnection not done with procedures	Total penalty (RM)	Percentage Performance (%)	
Target	No wrongful disconnection					Total Penalty in RM according to states (GSL1, 2, 3, 4, 5)
Penalty	RM100					Total Penalty in RM - Nationwide (GSL1, 2, 3, 4, 5)
						Overall Percentage Performance (%)

Apendiks 2: Laporan Prestasi Tenaga Nasional Berhad (TNB) – Berdasarkan Minimum Service Level (MSL)
Appendix 2: Performance Report of Tenaga Nasional Berhad (TNB) - Based on Minimum Service Level (MSL)

Item	Service Indicator	Service Standard	Putrajaya/ Cyberjaya	Perlis	Kedah	P.Pinang	Perak	Selangor	Melaka	Pahang	Terengganu	Kuala Lumpur	Negeri Sembilan	Johor	Kelantan	Total/ Avg %		
1	Availability of Supply 1a. Minimum duration of notice for planned/schedule interruption of electricity supply Total notices served Total notices served more than 2 days before planned/schedule interruption % Compliance	> 2 days	461	14	704	1,565	1,462	4,699	618	928	283	927	1,308	2,439	505	15,913		
			461	14	702	1,549	1,401	4,530	595	912	281	897	1,305	2,415	472	15,534		
			100.00	100.00	99.72	98.98	95.83	96.40	96.28	98.28	99.29	96.76	99.77	99.02	93.47	97.62		
2	Quality of Supply 2a. Time taken to rectify voltage complaint or limit violation and correct voltage complaint which requires network reinforcement Total complaints received Total complaints solved less than 180 days % Compliance 2b. Time taken to complete investigation of over voltage and under voltage complaints from complaint received date Total complaints received Total complaints solved less than 30 working days % Compliance	< 1 hour														733		
																	732	
																		99.86
																		99.86
	Quality of Supply 2a. Time taken to rectify voltage complaint or limit violation and correct voltage complaint which requires network reinforcement Total complaints received Total complaints solved less than 180 days % Compliance 2b. Time taken to complete investigation of over voltage and under voltage complaints from complaint received date Total complaints received Total complaints solved less than 30 working days % Compliance	< 180 days	0	0	2	0	0	2	2	2	0	0	0	1	1	0	8	
			0	0	2	0	0	2	2	2	0	0	0	0	1	1	0	8
			None	None	100.00	None	None	100.00	100.00	100.00	100.00	None	None	None	100.00	100.00	None	100.00
	Quality of Supply 2a. Time taken to rectify voltage complaint or limit violation and correct voltage complaint which requires network reinforcement Total complaints received Total complaints solved less than 180 days % Compliance 2b. Time taken to complete investigation of over voltage and under voltage complaints from complaint received date Total complaints received Total complaints solved less than 30 working days % Compliance	< 30 working days	0	11	22	71	20	8	9	2	11	96	6	19	13	288		
			0	11	22	71	16	8	9	2	11	89	3	19	13	274		
			None	100.00	100.00	100.00	80.00	100.00	100.00	100.00	100.00	100.00	92.71	50.00	100.00	100.00	100.00	95.14

Item	Service Indicator	Service Standard	Putrajaya/ Cyberjaya	Perlis	Kedah	P.Pinang	Perak	Selangor	Melaka	Pahang	Terengganu	Kuala Lumpur	Negeri Sembilan	Johor	Kelantan	Total/ Avg %		
2	2c. Time taken to provide a complete report of voltage sag from complaints received date	< 14 days	18	1	19	313	45	126	28	17	3	70	24	30	0	694		
	Total complaints solved less than 14 days		18	1	15	309	40	119	25	7	3	67	23	20	0	647		
	% Compliance		100.00	100.00	78.95	98.72	88.89	94.44	89.29	41.18	100.00	95.71	95.83	66.67	None	93.23		
3	Providing Supply	i) For supply up to 22kV : < 30 days ii) For supply of 33kV : < 60 days 3a. Time taken to inform the developer of the connection charges to be paid upon receipt of complete application Total no. of contribution charge letters issued Total no. of contribution charge letters issued less than 60 days % Compliance 3b. Time taken to implement electrification scheme requiring new substations after connection charges paid, way leave obtained and successful taking over of substation building by TNB Total no. of projects given supply Total no. of projects given supply less than 120 days % Compliance 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 appointments made Total appointments met in not less than 1 hour of appointment date % Compliance	84.38	0.00	89.13	91.62	98.94	94.50	92.13	85.96	91.67	95.65	86.27	95.45	97.50	93.24		
	Total no. of contribution charge letters issued		27	0	41	175	93	584	82	49	66	66	66	132	399	39	1,753	
	Total no. of projects given supply		21	7	67	117	68	417	71	78	23	115	95	95	317	9	1,405	
	Total no. of projects given supply less than 120 days		13	5	51	115	65	383	44	48	18	92	66	66	242	6	1,148	
	% Compliance		61.90	71.43	76.12	98.29	95.59	91.85	61.97	61.54	78.26	80.00	69.47	69.47	76.34	66.67	81.71	
	Total appointments made		4,773	3,300	28,127	27,448	36,858	86,883	15,026	20,474	18,481	41,324	21,731	21,731	62,151	16,443	383,019	
	Total appointments met in not less than 1 hour of appointment date		4,773	3,300	28,127	27,448	36,858	86,883	15,026	20,474	18,481	41,324	21,731	21,731	62,151	16,443	383,019	
	% Compliance		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Item	Service Indicator	Service Standard	Putrajaya/ Cyberjaya	Perlis	Kedah	P.Pinang	Perak	Selangor	Melaka	Pahang	Terengganu	Kuala Lumpur	Negeri Sembilan	Johor	Kelantan	Total/ Avg %	
4	Customer Contact	< 7 working days															
	4a. Time taken to reply to written enquiry or complaint		12	8	28	56	94	222	18	42	36	253	30	123	10	932	
	Total written enquiries/complaints received																
	Total written enquiries/complaints replied less than 7 working days		12	8	28	56	93	217	18	42	36	253	30	123	10	926	
5	% Compliance	< 15 minutes	100.00	100.00	100.00	100.00	98.94	97.75	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.36	
	4b. Average queuing time at customer service counter																
	Total customers served		7,233	62,607	877,854	261,590	808,185	227,265	333,311	509,056	215,800	228,432	326,488	772,878	514,487	5,145,186	
	Total customers served less than 15 minutes		6,762	54,619	782,892	244,581	748,827	199,685	319,883	485,212	191,440	217,322	317,825	697,768	479,563	4,746,379	
5	% Compliance	90% calls answered within 30 seconds	93.49	87.24	89.18	93.50	92.66	87.86	95.97	95.32	88.71	95.14	97.35	90.28	93.21	92.25	
	4c. Average time taken by customer service officer at CMC 15454 to pick up ringing telephone																
	Total incoming calls received																
	Total incoming calls answered less than 30 seconds																
5	% Compliance	< 2 working days															
	Metering Services																
	5a. Time taken to attend to meter problem upon official notification/request by the consumer (appointment, visit, testing, etc)																
	No. of appointments, visit, testing completed		0	185	220	313	2,155	652	327	15	0	48	952	1,539	653	7,059	
5	No. of appointments, visit, testing completed less than 2 working days																
	% Compliance																
			2,358,537	2,248,161	2,358,537	2,248,161	95.32	95.32	2,358,537	2,248,161	95.32	2,358,537	2,248,161	95.32	2,358,537		

Item	Service Indicator	Service Standard	Putrajaya/ Cyberjaya	Perlis	Kedah	P.Pinang	Perak	Selangor	Melaka	Pahang	Terengganu	Kuala Lumpur	Negeri Sembilan	Johor	Kelantan	Total/ Avg %
	5b. Time taken to respond to metering problem or dispute upon official notification/request by the consumer (replace, relocate, etc)	< 3 working days	0	15	71	156	1,759	400	148	9	0	13	754	1,149	427	4,901
			0	15	71	155	353	1,716	353	145	9	0	13	754	1,128	422
	No. of meter replacement/relocation completed	% Compliance	None	100.00	100.00	99.36	97.56	88.25	97.97	100.00	None	100.00	100.00	100.00	98.83	97.55
			476,079	965,601	7,669,054	7,404,416	10,301,929	20,698,723	3,765,679	5,697,568	4,020,547	13,265,964	5,048,242	14,681,672	5,271,713	99,267,187
	5c. Time interval between successive rendering of bill(s)	1 month	476,057	965,579	7,668,913	7,404,350	10,301,417	20,697,449	3,765,652	5,697,393	4,020,542	13,265,269	5,048,210	14,681,254	5,268,270	99,260,355
			100.00	100.00	100.00	100.00	100.00	99.99	99.99	100.00	100.00	100.00	99.99	100.00	100.00	99.93
Average % Compliance			93.49	88.76	94.88	98.10	95.05	95.81	94.59	89.03	95.74	96.08	92.36	94.32	93.47	95.70
Average % Compliance			97.48%													

Apendiks 3: Laporan Prestasi NUR Distribution Sdn. Bhd. (NUR)
Appendix 3: Performance Report of NUR Distribution Sdn. Bhd. (NUR)

Keterangan	2011	2012	2013	2014	2015
1. Penyambungan Bekalan Elektrik					
A. Penukaran Pegguna					
Bilangan Permohonan	63	47	55	50	50
Peratus disambung dalam tempoh tidak melebihi 1 hari bekerja selepas temujanji untuk pengujian pemasangan	100%	100%	100%	100%	100%
B. Bekalan Baru (Voltan Rendah)					
i. Permohonan Individu Dalam Keadaan Biasa					
Bilangan Permohonan	207	162	756	207	441
Peratus penyambungan dalam tempoh tidak melebihi 1 hari bekerja selepas temujanji untuk pengujian pemasangan	100%	100%	100%	100%	100
ii. Permohonan Pukul Dan Skim Perumahan					
Bilangan permohonan	0	0	0	0	0
Peratus penyambungan dalam tempoh tidak melebihi 1 minggu selepas temujanji untuk pengujian pemasangan	N/A	N/A	N/A	N/A	N/A
2. Pemulihan Semula Bekalan Selepas Kerosakan					
i. Aduan					
Bilangan pengguna melapor	0	0	0	0	0
Peratus pengguna yang melapor diberi nombor aduan	N/A	N/A	N/A	N/A	N/A
ii. Kerosakan Kecil / Biasa					
Bilangan kerosakan kecil	40	11	14	20	27
Peratus membaikpulih kerosakan dalam tempoh 2 jam	80.00%	72.70%	85.70%	55.00%	74.07%
iii. Kerosakan Besar / Luarbiasa					
Bilangan kerosakan besar	41	42	33	32	23
Peratus penyambungan dalam tempoh 24 jam	95.10%	97.60%	93.90%	90.60%	100.00%
3. Penyambungan Bekalan Selepas Pemetongan					
Bilangan pemetongan bekalan	122	181	455	326	298
Bilangan pelanggan yang membayar bil sebelum 1:00 petang pada hari pemetongan	122	181	455	326	298
Peratus penyambungan semula bekalan pada hari yang sama berbanding dengan mereka yang telah membayar bil sebelum 1:00 petang	100.00%	100.00%	100.00%	100.00%	100.00%
4. Gangguan Bekalan Yang Dirancang / Berjadual					
Bilangan gangguan berjadual	79	77	72	32	46
Peratus pengguna diberi notis 7 hari sebelum gangguan berjadual	91.10%	98.70%	95.80%	90.60%	91.30%
5. Bacaan Meter					
Bilangan pengguna domestik dimana bacaan anggaran melebihi 2 bulan berturut-turut	23	46	59	58	0
Peratus pengguna domestik dengan bacaan anggaran melebihi 2 bulan berturut-turut yang diberi notis	100.00%	100.00%	100.00%	100.00%	N/A
6. Pertanyaan / Aduan Bertulis Daripada Pengguna					
i. Pertanyaan Bertulis Termasuklah Pertanyaan					
Berkaitan Dengan Akaun/Bil	84	82	76	86	93
Bilangan pertanyaan bertulis yang diterima	100%	100%	100%	100%	100%
Peratus yang diberi jawapan dalam tempoh 5 hari bekerja					
7. Perkhidmatan Kaunter					
Peratus pengguna yang masa menunggu tidak melebihi 20 minit	N/A	N/A	N/A	N/A	N/A

Keterangan	2011	2012	2013	2014	2015
8. Temujanji Untuk Penentuan Kejituan Meter					
Bilangan temujanji untuk penentuan kejituan meter	6	1	2	3	17
Peratus penentuan kejituan meter dilakukan dalam 1 hari bekerja	100%	100%	100%	100%	100%
9. Penukaran Meter					
Bilangan penukaran meter	9	12	12	15	20
Peratus penukaran meter dalam tempoh 2 hari bekerja	100.00%	100.00%	100.00%	100.00%	100.00%
10. Temujanji Dengan Pengguna					
i. Untuk Temujanji Di Luar Premis NUR					
Bilangan temujanji yang dibuat dengan pengguna dimana pegawai NUR tiba tidak lewat daripada 15 minit daripada masa yang dijanjikan	276	265	912	332	508
ii. Penangguhan Oleh Pihak NUR					
Peratus temujanji susulan yang dibuat di dalam tempoh tidak lebih daripada 1 hari bekerja	100.00%	100.00%	100.00%	97.30%	100.00%
11. Cagaran					
Bilangan pengguna yang mana selepas 6 bulan didapati cagarannya melebihi 2 bulan purata penggunaan	0	0	0	0	0
Peratus pengguna tersebut telah dikembalikan lebihan wang cagarannya	N/A	N/A	N/A	N/A	N/A
12. Pemulangan Wang Cagaran Pengguna					
Bilangan pengguna yang telah memajukan segala dokumen yang diperlukan bagi tujuan pemulangan wang cagaran	111	121	161	134	140
Peratus pengguna yang telah dipulangkan wang cagarannya di dalam tempoh masa yang ditetapkan iaitu 15 hari bekerja	100.00%	100.00%	100.00%	100.00%	100.00%
13. Pungutan					
Peratus pengguna yang membayar melalui pos yang telah dihantar pengesahan pembayaran tidak melebihi daripada tempoh masa yang ditetapkan iaitu 5 hari bekerja	100%	100%	100%	N/A	N/A
14. Pemotongan Bekalan					
i. Dengan Notis 24 Jam					
Bilangan pemotongan akibat pemasangan pengguna membahayakan	0	0	0	0	0
Bilangan pemotongan akibat disyaki berlaku kecurian elektrik	0	0	0	0	0
Bilangan pemotongan akibat meter elektrik dirosakkan	0	0	0	0	0
ii. Tanpa Sebarang Notis					
Bilangan pemotongan akibat kegagalan membayar bil dalam masa 15 hari selepas penyerahan bil	0	0	0	0	0
Bilangan pemotongan akibat kegagalan membayar cagaran tambahan dalam 7 hari bekerja daripada tarikh tuntutan dibuat	142	145	358	110	383
Bilangan pemotongan akibat pemasangan yang amat membahayakan dan pemotongan tidak boleh dilengahkan	9	0	9	2	0
15. Pengguna Khas Yang Menghadapi Masalah Membayar Bil Elektrik					
Bilangan pengguna cacat atau lanjut usia yang menghadapi masalah membayar bil elektrik, NUR bersedia mengatur cara-cara khas untuk menjelaskan bayaran	0	0	0	0	0

Keterangan	2011	2012	2013	2014	2015
16. Masalah Voltan DiLuar Tahap Diistiharkan					
i. Tidak Memerlukan Pengukuhan Sistem					
Bilangan aduan	10	5	1	0	8
Peratus aduan yang diselesaikan dalam tempoh 2 hari daripada tarikh aduan dibuat	100%	100%	100%	N/A	100%
ii. Memerlukan Pengukuhan Sistem					
Bilangan aduan	0	0	0	0	0
Peratus aduan yang diselesaikan dalam tempoh 6 bulan daripada tarikh aduan dibuat	N/A	N/A	N/A	N/A	N/A
17. Jawapan Kepada Permohonan Bekalan Baru / Peningkatan Bekalan					
i. Tidak Memerlukan Pencawang Baru					
Bilangan permohonan	12	12	7	5	15
Peratus permohonan yang dijawab dalam masa 1 minggu daripada tarikh permohonan dibuat	100%	100%	100%	100%	100%
ii. Memerlukan Pencawang Baru					
Bilangan Permohonan	4	0	0	10	0
Peratus permohonan yang dijawab dalam masa 2 minggu daripada tarikh permohonan dibuat	1	N/A	N/A	100	N/A
18. Permohonan Memindahkan Lokasi Meter Oleh Pengguna					
Bilangan permohonan memindahkan lokasi meter oleh pengguna yang dirasakan perlu dan sesuai	8	14	28	11	24
Peratus permohonan yang perlu dan dirasakan sesuai yang diselesaikan dalam tempoh 7 (3) hari bekerja	100%	100%	100%	100%	100%
19. Pendidikan Pengguna Mengenai Cara Penggunaan Elektrik Dengan Cekap Dan Selamat					
Bilangan program pendidikan pengguna mengenai cara penggunaan elektrik dengan cekap dan selamat dan cara untuk mengelakkan kemalangan elektrik, termasuk aktiviti berdekatan pemasangan dan talian elektrik yang dijalankan	4	4	4	4	3
20. Peningkatan Kualiti Bekalan					
Bilangan aktiviti-aktiviti berkaitan peningkatan kualiti bekalan elektrik	61	56	52	48	48

Nota Note:

1. N/A Tidak Diperolehi Not Available
2. Data Tahun Kalendar Calendar Year Data

Sumber Source: NUR Distribution Sdn. Bhd.

Apendiks 4: Laporan Prestasi Sabah Electricity Sdn. Bhd. (SESB)
Appendix 4: Performance Report of Sabah Electricity Sdn. Bhd. (SESB)

			TK 2013/2014 FY 2013/2014	TK 2014/2015 FY 2014/2015
1	PENYAMBUNGAN BEKALAN ELEKTRIK Selepas kontrak ditandatangani	ELECTRICITY SUPPLY CONNECTION After contract signed		
1.1	PENUKARAN PENGGUNA	CHANGE OF TENANCY		
1.1.1	Bilangan Permohonan	Number of application	8,550	12,804
1.1.2	Bilangan permohonan yang disambung dalam tempoh tidak lebih daripada 1 hari bekerja dari tarikh temujanji pengujian pemasangan	Number of application connected within not more than 1 working day from the date of installation test appointment	8,550	12,797
1.1.3	Peratus permohonan yang disambung dalam tempoh tidak lebih daripada 1 hari bekerja dari tarikh temujanji pengujian pemasangan	Percentage of application connected within not more than 1 working day from the date of installation test appointment	100.00%	99.95%
1.2	BEKALAN BARU VOLTAN RENDAH (PERMOHONAN INDIVIDU)	NEW LOW VOLTAGE SERVICE CONNECTION (INDIVIDUAL APPLICATION)		
1.2.1	Bilangan Permohonan	Number of application	24,221	22,071
1.2.2	Bilangan permohonan yang disambung dalam tempoh tidak lebih daripada 2 hari bekerja dari tarikh temujanji pengujian pemasangan	Number of application connected within not more than 2 working days from the date of installation test appointment	23,060	21,469
1.2.3	Peratus permohonan yang disambung dalam tempoh tidak lebih daripada 2 hari bekerja dari tarikh temujanji pengujian pemasangan	Percentage of application connected within not more than 2 working days from the date of installation test appointment	97.27%	95.21%
1.3	BEKALAN BARU VOLTAN RENDAH (PERMOHONAN PUKAL DAN SKIM PERUMAHAN)	NEW LOW VOLTAGE SERVICE CONNECTION (BULK AND HOUSING) SCHEMES APPLICATION)		
1.3.1	Bilangan Permohonan	Number of application	8,083	7,070
1.3.2	Bilangan permohonan yang disambung dalam tempoh tidak lebih daripada 2 minggu bekerja dari tarikh temujanji pengujian pemasangan	The number of applications connected within no more than 2 weeks from the date of installation testing appointment	7,806	6,629
1.3.3	Peratus permohonan yang disambung dalam tempoh tidak lebih daripada 2 minggu bekerja dari tarikh temujanji pengujian pemasangan	Percentage of applications	96.57%	93.76%
2	PEMULIHAN SEMULA BEKALAN SELEPAS GANGGUAN	RESTORATION OF ELECTRICITY SUPPLY AFTER INTERRUPTION		
2.1	BILANGAN PENGGUNA YANG MELAPOR KEPADA SESB	NUMBER OF CONSUMER REPORTING TO SESB	305,794	334,008
2.2	Bilangan pengguna yang mana maklumat tidak dapat diberikan pada masa itu dihubungi semula dalam tempoh 15 minit	Number of consumer which information cannot be given at the time who has been recalled within 15 minutes	302,740	330,664
2.3	Bilangan pengguna yang diberi nombor aduan	Number of consumer who given a complaint reference number	305,794	334,008
2.4	Bilangan kerosakan kecil	Number of minor outage	28,116	33,152
2.5	Bilangan kerosakan kecil yang dipulihkan dalam tempoh 2 jam	Number of minor outage restored within 2 hours	25,097	30,403
2.6	Bilangan kerosakan besar	Number of major outage	5,245	5,063
2.7	Bilangan kerosakan besar yang dipulihkan dalam tempoh 12 jam	Number of major outage restored within 12 hours	4,692	4,979
2.8	Peratus bilangan pengguna yang mana maklumat tidak dapat diberikan pada masa itu dihubungi semula dalam tempoh 15 minit	Percentage of consumer which information cannot be given at the time who has been recalled within 15 minutes	99.00%	99.00%
2.9	Peratus bilangan pengguna yang diberi nombor aduan	Percentage of consumer who given a complaint reference number	100.00%	100.00%
2.10	Peratus kerosakan kecil yang dipulihkan dalam tempoh 2 jam	Percentage of minor outage restored within 2 hours	89.26%	91.71%
2.11	Peratus kerosakan besar yang dipulihkan dalam tempoh 12 jam	Percentage of major outage restored within 12 hours	89.46%	98.34%
3	PENYAMBUNGAN BEKALAN YANG DIPOTONG	RECONNECTION OF SUPPLY AFTER BEING DISCONNECTED		
3.1	Bilangan pemotongan bekalan	Number of supply disconnected	174,346	175,252
3.2	Bilangan pengguna yang mana bekalannya dipotong menjelaskan semua bayaran sebelum 1.00 tengahari pada hari yang sama	Number of consumer whose supply being disconnected and settled all bills before 1:00 p.m. on the same day	121,270	118,783

			TK 2013/2014 FY 2013/2014	TK 2014/2015 FY 2014/2015
3.3	Bilangan pengguna yang mana telah menjelaskan semua bayaran sebelum pukul 1.00 tengahari mendapat bekalan semula pada hari yang sama	Number of consumer whose settled all bills before 1:00 p.m. and reconnected on the same day	113,455	116,527
3.4	Peratus pengguna yang mana telah menjelaskan semua bayaran sebelum pukul 1.00 tengahari mendapat bekalan semula pada hari yang sama	Percentage of consumer whose settled all bills before 1:00 p.m. and reconnected on the same day	93.56%	98.10%
4	GANGGUAN BEKALAN YANG DIRANCANG/BERJADUAL	PLANNED/SCHEDULE INTERRUPTION OF ELECTRICITY SUPPLY		
4.1	GANGGUAN BERJADUAL	SCHEDULED INTERRUPTIONS		
4.1.1	Bilangan gangguan berjadual	Number of scheduled interruptions	972	745
4.1.2	Bilangan pengguna terlibat	Number of consumer affected	263,709	203,035
4.1.3	Bilangan pengguna terlibat yang diberikan notis atau cara-cara yang sesuai sekurang-kurangnya 7 hari sebelum gangguan	Number of consumer affected who has been notified by notice or in an appropriate ways at least 7 days before interruptions	257,322	202,828
4.1.4	Peratus pengguna terlibat yang diberikan notis atau cara-cara yang sesuai sekurang-kurangnya 7 hari sebelum gangguan	Percentage of consumer affected who has been notified by notice or in an appropriate ways at least 7 days before interruptions	97.58%	99.90%
4.2	RANCANGAN GANGGUAN BERJADUAL	PLANNED SCHEDULED INTERRUPTIONS		
4.2.1	Bilangan rancangan gangguan berjadual tahunan/bulanan	Number of annually/monthly planned scheduled interruptions	654	442
4.2.2	Bilangan pengguna besar yang dijangka terlibat	Number of large power consumer affected	28,337	4,314
4.2.3	Bilangan pengguna besar yang dijangka terlibat yang dimaklumkan mengenai rancangan gangguan berjadual tahunan/bulanan	Number of large power consumer affected who has been notified about the annually/monthly planned scheduled interruptions	28,337	4,314
4.2.4	Peratus bilangan pengguna besar yang dijangka terlibat yang dimaklumkan mengenai rancangan gangguan berjadual tersebut	Percentage of large power consumer affected who has been notified about the annually/monthly planned scheduled interruptions	100.00%	100.00%
5	BACAAN METER	METER READING		
5.1	BILANGAN PENGGUNA DOMESTIK YANG MANA BACAAN METER DIBUAT SECARA ANGGARAN MELEBIHI 3 BULAN BERTURUT-TURUT	Number of domestic consumer who estimated meter reading has been carried out for more than 3 months consecutively	64,819	66,556
5.2	Bilangan pengguna domestik yang mana bacaan meter dibuat secara anggaran melebihi 3 bulan berturut-turut diberi notis	Number of domestic consumer who estimated meter reading has been carried out for more than 3 months consecutively being given a notice	64,819	66,082
5.3	Peratus pengguna domestik yang mana bacaan meter dibuat secara anggaran melebihi 3 bulan berturut-turut diberi notis	Percentage of domestic consumer who estimated meter reading has been carried out for more than 3 months consecutively being given a notice	100.00%	99.29%
6	PERTANYAAN DARIPADA PENGGUNA	ENQUIRY FROM CONSUMER		
6.1	PERTANYAAN BERTULIS	WRITTEN ENQUIRY		
6.1.1	Bilangan pertanyaan bertulis yang diterima daripada pelanggan	Number of written enquiry received from the consumer	7,306	1,179
6.1.2	Bilangan pertanyaan bertulis yang diterima daripada pelanggan yang dijawab dalam tempoh 5 hari bekerja dari tarikh penerimaan	Number of written enquiry received from the consumer which replied within 5 working days from the date of receipt within 5 working days from the date of receipt	7,274	1,149
6.1.3	Peratus bilangan pertanyaan bertulis yang diterima daripada pelanggan yang dijawab dalam tempoh 5 hari bekerja dari tarikh penerimaan	Percentage of written enquiry received from the consumer which replied within 5 working days from the date of receipt	99.56%	97.46%
6.2	PERTANYAAN MELALUI TELEFON	ENQUIRY VIA TELEPHONE		
6.2.1	Bilangan pertanyaan melalui telefon yang diterima daripada pelanggan	Number of enquiry via telephone received from the consumer	66,255	60,428
6.2.2	Bilangan pelanggan yang mana pertanyaannya tidak dapat diselesaikan pada masa itu juga dihubungi semula dalam masa 24 jam	Number of consumer whose enquiry cannot be resolved at that time has been recalled within 24 hours	64,319	60,140
6.2.3	Peratus bilangan pelanggan yang mana pertanyaannya tidak dapat diselesaikan pada masa itu juga dihubungi semula dalam masa 24 jam	Percentage of consumer whose enquiry cannot be resolved at that time has been recalled within 24 hours	97.08%	99.52%

			TK 2013/2014 FY 2013/2014	TK 2014/2015 FY 2014/2015
6.3	PERTANYAAN DI KAUNTER	ENQUIRY AT THE COUNTER		
6.3.1	Bilangan pengguna yang membuat pertanyaan di kaunter	Number of consumer who made enquiry at the counter	206,489	225,738
6.3.2	Bilangan pengguna yang mana pertanyaannya tidak dapat diselesaikan pada masa itu juga dihubungi semula dalam tempoh 24 jam	Number of consumer whose enquiry cannot be resolved at that time can be recalled within 24 hours	203,299	224,836
6.3.3	Bilangan pengguna yang mana pertanyaannya tidak dapat diselesaikan pada masa itu tidak juga dapat dihubungi semula dalam tempoh 24 jam	Number of consumer whose enquiry cannot be resolved at that time cannot be recalled within 24 hours	8,409	14,767
6.3.4	Peratus bilangan pengguna yang mana pertanyaannya tidak dapat diselesaikan pada masa itu juga dihubungi semula dalam tempoh 24 jam	Percentage of consumer whose enquiry cannot be resolved at that time has been recalled within 24 hours	98.46%	99.60%
7	PERKHIDMATAN KAUNTER	COUNTER SERVICE		
7.1	BILANGAN PENGGUNA YANG MENDAPATKAN SEBARANG PERKHIDMATAN DI KAUNTER	Number of consumer who made transactions at the counter service	676,443	800,070
7.2	Bilangan pengguna yang mana masa menunggu tidak melebihi 15 minit	Number of consumer who waiting time not more than 15 minutes	595,524	720,793
7.3	Peratus bilangan pengguna yang mana masa menunggu tidak melebihi 15 minit	Percentage of consumer who waiting time not more than 15 minutes	88.04%	90.09%
8	TEMUJANJI UNTUK PENGUJIAN METER	APPOINTMENT FOR METER ACCURACY TEST		
8.1	Bilangan temujanji untuk ujian kejituan meter	Number of appointment for meter accuracy test	1,096	1,632
8.2	Bilangan pengujian meter yang dibuat dalam tempoh 2 hari bekerja	Number of meter test carried out within 2 working days	1,005	1,589
8.3	Peratus bilangan pengujian meter yang dibuat dalam tempoh 2 hari bekerja	Percentage of meter test carried out within 2 working days	91.70%	97.37%
9	PENUKARAN METER	METER REPLACEMENT		
9.1	Bilangan permohonan yang didapati perlu membuat penukaran meter	Number of application that need for meter replacement	13,643	6,459
9.2	Bilangan penukaran yang dibuat dalam tempoh 2 hari bekerja dari tarikh permohonan dibuat	Number of replacement carried out within 2 working days from the date of application	13,525	6,362
9.3	Peratus bilangan penukaran meter yang dibuat dalam tempoh 2 hari bekerja dari tarikh permohonan dibuat	Percentage of replacement carried out within 2 working days from the date of application	99.14%	98.50%
10	TEMUJANJI DENGAN PENGGUNA	APPOINTMENT WITH CONSUMER		
10.1	Bilangan temujanji dengan pengguna yang dibuat di luar SESB	Number of appointment with consumer outside SESB premise	10,302	2,474
10.2	Bilangan temujanji dengan pengguna yang mana pihak SESB sampai tidak lewat dari masa yang dijanjikan	Number of appointment with consumer which SESB arrived no later than the promised time	1,300	2,474
10.3	Peratus bilangan temujanji dengan pengguna yang mana pihak SESB sampai tidak lewat dari masa yang dijanjikan	Percentage of appointment with consumer which the SESB arrived no later than the promised time	99.85%	100.00%
10.4	Bilangan temujanji yang perlu ditangguhkan	Number of appointment has to be postponed	60	127
10.5	Bilangan temujanji susulan yang mana dibuat dalam tempoh 1 hari bekerja dari tarikh tangguhan dibuat	Number of follow-up appointment made within 1 working day from the postponed date	60	123
10.6	Peratus bilangan temujanji susulan yang mana dibuat dalam tempoh 1 hari bekerja dari tarikh tangguhan dibuat	Percentage of follow-up appointment made within 1 working day from the postponed date	100.00%	96.85%
11	CAGARAN	DEPOSIT		
11.1	Bilangan pengguna yang mana selepas 6 bulan didapati cagaran melebihi 2 bulan purata penggunaan	Number of consumer whose deposit held were more than 2 months average consumption after 6 months	673	6,314
11.2	Bilangan pengguna yang mana dipulangkan lebihan cagarannya	Number of consumer who refunded the excess deposit	625	5,590
11.3	Peratus bilangan pengguna yang mana dipulangkan lebihan cagarannya	Percentage of consumer who refunded the excess deposit	92.87%	88.53%

			TK 2013/2014 FY 2013/2014	TK 2014/2015 FY 2014/2015
12	PEMULANGAN WANG CAGARAN PENGGUNA	REFUND OF CONSUMER'S DEPOSIT		
12.1	Bilangan pengguna yang telah memajukan segala dokumen yang diperlukan bagi tujuan pemulangan wang cagaran	Number of consumer who submitted all necessaries document for deposit refund puposes	7,314	8,537
12.2	Bilangan pengguna yang mana wang cagarannya telah dipulangkan dalam tempoh 1 bulan selepas penyerahan segala dokumen yang diperlukan	Number of consumer who deposit has been refunded within 1 month after submission of all necessaries document	7,015	8,128
12.3	Peratus bilangan pengguna yang mana wang cagarannya telah dipulangkan dalam tempoh 1 bulan selepas penyerahan segala dokumen yang diperlukan	Percentage of consumer who deposit has been refunded within 1 month after submission of all necessaries document	95.91%	95.21%
13	PUNGUTAN	COLLECTION		
13.1	Bilangan pengguna yang membayar melalui pos	Number of consumer paid via mail	161,058	132,729
13.2	Bilangan pengguna yang diberi pengesahan pembayaran dalam tempoh 2 hari selepas pembayaran dibuat	Number of consumer who given payment confirmation within 2 days after the payment made	161,058	132,729
13.3	Peratus bilangan pengguna yang diberi pengesahan pembayaran dalam tempoh 2 hari selepas pembayaran dibuat	Percentage of consumer who given payment confirmation within 2 days after the payment made	100.00%	100.00%
14	PEMOTONGAN BEKALAN	DISCONNECTION OF ELECTRICITY SUPPLY		
14.1	DENGAN NOTIS 24 JAM	WITH 24 HOURS NOTICE		
14.1.1	Bilangan pemotongan akibat pemasangan membahayakan	Number of disconnection due to dangerous installation	337	283
14.1.2	Bilangan pemotongan akibat disyaki berlaku kecurian elektrik	Number of disconnection due to suspected theft of electrical	146	376
14.1.3	Bilangan pemotongan akibat meter elektrik dirosakkan	Number of disconnection due to electricity meter damaged	3	8
14.2				
14.2.1	Bilangan pemotongan akibat kegagalan membayar bil selepas 30 hari dari tarikh bil dan 7 hari bekerja notis pemotongan	Number of disconnection due to non payment of bills after 30 days from the billing date and 7 days working days of notice	81,647	94,772
14.2.2	Bilangan pemotongan akibat kegagalan membayar cagaran tambahan selepas 7 hari tuntutan dibuat	Number of disconnection due to non payment of additional deposit after 7 days claims made	8,629	4,969
14.2.3	Bilangan pemotongan tanpa notis akibat pemasangan yang amat membahayakan dan tidak boleh dilengahkan	Number of disconnection without notice due to dangerous installation and cannot be delayed	7,714	1,620
15	PENGGUNA KHAS YANG MENGHADAPI MASALAH MEMBAYAR BIL ELEKTRIK	SPECIAL NEEDS CONSUMER ENCOUNTERING PROBLEM TO PAY BILL		
15.1	Bilangan pengguna cacat yang merayu mengelakkan pemotongan	Number of disability consumer who appeal for not to disconnect the supply	0	3
15.2	Bilangan pengguna lanjut usia yang merayu mengelakkan pemotongan	Number of elderly consumer who appeal for not to disconnect the supply	14	70
15.3	Bilangan pengguna cacat yang dibantu dalam urusan pembayaran bil	Number of disability consumer who assisted in the payment of bills	6	33
15.4	Bilangan pengguna lanjut usia yang dibantu dalam urusan pembayaran bil	Number of elderly consumer who assisted in the payment of bills	48	176
16	MASALAH VOLTAN DI LUAR TAHAP DIISYTIHARKAN	VOLTAGE PROBLEM DUE TO OVER/UNDER VOLTAGE		
16.1	TIDAK MEMERLUKAN PENGUKUHAN SISTEM	NOT REQUIRE SYSTEM IMPROVEMENT		
16.1.1	Bilangan aduan	Number of complaint	3,307	3,273
16.1.2	Bilangan aduan yang diselesaikan dalam tempoh 2 hari dari tarikh aduan dibuat	Number of complaint resolved within 2 days from the date of complaint received	3,268	3,265
16.1.3	Peratus bilangan aduan yang diselesaikan dalam tempoh 2 hari dari tarikh aduan dibuat	Percentage of complaint resolved within 2 days from the date of complaint received	96.00%	0.00%
16.2	MEMERLUKAN PENGUKUHAN SISTEM	REQUIRE SYSTEM IMPROVEMENT		
16.2.1	Bilangan aduan	Number of complaint	104	110

			TK 2013/2014 FY 2013/2014	TK 2014/2015 FY 2014/2015
16.2.2	Bilangan aduan yang diselesaikan dalam tempoh 3 bulan dari tarikh aduan dibuat	Number of complaint resolved within 3 months from the date of complaint received	104	1
16.2.3	Peratus bilangan aduan yang diselesaikan dalam tempoh 3 bulan dari tarikh aduan dibuat	Percentage of complaint resolved within 3 months from the date of complaint received	94.74%	100.00%
17	JAWAPAN KEPADA PERMOHONAN BEKALAN BARU / PENINGKATAN BEKALAN	REPLY TO THE NEW SUPPLY APPLICATION/SUPPLY IMPROVEMENT		
	Jawapan kepada permohonan bekalan termasuk tarikh bekalan akan diberi dan anggaran caj sambungan akan dikemukakan kepada pelanggan secara bertulis	Replies of application including the date of supply and the estimation of connection charges that will be submitted to consumer in written		
17.1	TIDAK MEMERLUKAN PENCAWANG BARU	NOT REQUIRE NEW SUBSTATION		
17.1.1	Bilangan permohonan	Number of application	3,307	3,273
17.1.2	Bilangan permohonan yang dijawab dalam masa 1 minggu dari tarikh permohonan dibuat	Number of application replied within 1 weeks from the date of application	3,268	3,265
17.1.3	Peratus bilangan permohonan yang dijawab dalam masa 1 minggu dari tarikh permohonan dibuat	Percentage of application replied within 1 weeks from the date of application	98.82%	99.76%
17.2	MEMERLUKAN PENCAWANG BARU	REQUIRE NEW SUBSTATION		
17.2.1	Bilangan permohonan	Number of application	104	110
17.2.2	Bilangan permohonan yang dijawab dalam masa 1 minggu dari tarikh permohonan dibuat	Number of application replied within 2 weeks from the date of application	104	110
17.2.3	Peratus bilangan permohonan yang dijawab dalam masa 1 minggu dari tarikh permohonan dibuat	Percentage of application replied within 2 weeks from the date of application	100.00%	100.00%
18	PERMOHONAN MEMINDAHKAN LOKASI METER OLEH PENGGUNA	METER RELOCATION REQUEST BY CONSUMER		
18.1	Bilangan permohonan memindahkan lokasi meter oleh pengguna	Number of application of meter relocation by the consumer	97	64
18.2	Bilangan permohonan memindahkan lokasi meter oleh pengguna yang dirasakan perlu dan sesuai	Number of application of meter relocation by the consumer which is necessary and appropriate	75	52
18.3	Bilangan permohonan yang perlu dan dirasakan sesuai yang diselesaikan dalam tempoh 3 hari bekerja	Number of necessary and appropriate application that completed within 3 working days	73	52
18.4	Peratus bilangan permohonan yang perlu dan dirasakan sesuai yang diselesaikan dalam tempoh 3 hari bekerja	Percentage of necessary and appropriate application that completed within 3 working days	97.33%	100.00%
19	PENDIDIKAN PENGGUNA MENGENAI CARA PENGGUNAAN ELEKTRIK DENGAN CEKAP DAN SELAMAT	CONSUMER EDUCATION PROGRAMME		
19.1	Bilangan program pendidikan pengguna mengenai cara penggunaan elektrik dengan cekap dan selamat dan cara mengelakkan kemalangan elektrik, termasuk aktiviti berdekatan pemasangan dan talian elektrik yang dijalankan	Number of consumer education programme on how to use electricity effectively and securely and how to avoid electricity accident including activities nearby installations and power lines that had been conducted	19	14
20	PENINGKATAN KUALITI BEKALAN	QUALITY SUPPLY IMPROVEMENT		
20.1	Bilangan aktiviti-aktiviti berkaitan peningkatan kualiti bekalan elektrik	Number of activities related to improve the quality of electricity supply	114	183
Sumber Source: SESB			97.00%	94.00%

Apendiks 5: Tarif-tarif Elektrik Tenaga Nasional Berhad (TNB) Berkuatkuasa 1 Januari 2014
Appendix 5: Tenaga Nasional Berhad (TNB) Electricity Tariffs Effective from 1st January, 2014

Bil. No.	Kategori Tarif Tariff category	Unit	Kadar Rate
1	Tarif A - Tarif Kediaman Tariff A - Domestic Tariff		
	200 kWj pertama (1-200 kWj) sebulan For the first 200 kWh (1-200 kWh) per month	sen/kWj sen/kWh	21.80
	100 kWj berikutnya (201-300 kWj) sebulan For the next 100 kWh (201-300 kWh) per month	sen/kWj sen/kWh	33.40
	300 kWj berikutnya (301-600 kWj) sebulan For the next 300 kWh (301-600 kWh) per month	sen/kWj sen/kWh	51.60
	300 kWj berikutnya (601-900 kWj) sebulan For the next 300 kWh (601-900 kWh) per month	sen/kWj sen/kWh	54.60
	Setiap kWj berikutnya (901 kWj ke atas) sebulan For the next kWh (901 and above) per month	sen/kWj sen/kWh	57.10
	Caj minimum bulanan Minimum monthly charge	RM	3.00
2	Tarif B - Tarif Perdagangan Voltan Rendah Tariff B - Low Voltage Commercial Tariff		
	200 kWj pertama (1-200 kWj) sebulan For the first 200 kWh (1-200 kWh) per month	sen/kWj sen/kWh	43.50
	Setiap kWj berikutnya (201 kWj ke atas) sebulan For the next kWh (201 and above) per month	sen/kWj sen/kWh	50.90
	Caj minimum bulanan Minimum monthly charge	RM	7.20
3	Tarif C1 - Tarif Perdagangan Am Voltan Sederhana Tariff C1 - Medium Voltage General Commercial Tariff		
	Bagi setiap kilowatt kehendak maksimum sebulan For each kilowatt of maximum demand per month	RM/kW	30.30
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	36.50
	Caj minimum bulanan Minimum monthly charge	RM	600.00
4	Tarif C2 - Tarif Perdagangan Puncak/Luar Puncak Voltan Sederhana Tariff C2 - Medium Voltage Peak/Off-Peak Commercial Tariff		
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak For each kilowatt of maximum demand per month during the peak period	RM/kW	45.10
	Bagi semua kWj dalam tempoh puncak For all kWh during the peak period	sen/kWj sen/kWh	36.50
	Bagi semua kWj dalam tempoh luar puncak For all kWh during the off-peak period	sen/kWj sen/kWh	22.40
	Caj minimum bulanan Minimum monthly charge	RM	600.00
5	Tarif D - Tarif Perindustrian Voltan Rendah Tariff D - Low Voltage Industrial Tariff		
	200 kWj pertama (1-200 kWj) sebulan For the first 200 kWh (1-200 kWh) per month	sen/kWj sen/kWh	38.00
	Setiap kWj berikutnya (201 kWj ke atas) sebulan For the next (201 and above) per month	sen/kWj sen/kWh	44.10
	Caj minimum bulanan Minimum monthly charge	RM	7.20
	Tarif Ds - Tarif Perindustrian Khas (untuk pengguna yang layak sahaja) Tariff Ds - Special Industrial Tariff (only for qualified consumers)		
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	42.70
	Caj minimum bulanan Minimum monthly charge	RM	7.20
6	Tarif E1 - Tarif Perindustrian Am Voltan Sederhana Tariff E1 - Medium Voltage General Industrial Tariff		
	Bagi setiap kilowatt kehendak maksimum sebulan For each kilowatt of maximum demand per month	RM/kW	29.60
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	33.70
	Caj minimum bulanan Minimum monthly charge	RM	600.00
	Tarif E1s - Tarif Perindustrian Khas (untuk pengguna yang layak sahaja) Tariff E1s - Special Industrial Tariff (only for qualified consumers)		
	Bagi setiap kilowatt kehendak maksimum sebulan For each kilowatt of maximum demand per month	sen/kWj sen/kWh	23.70
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	33.60
	Caj minimum bulanan Minimum monthly charge	RM	600.00
7	Tarif E2 - Tarif Perindustrian Puncak/Luar Puncak Voltan Sederhana Tariff E2 - Medium Voltage Peak/Off-Peak Industrial Tariff		
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak For each kilowatt of maximum demand per month during the peak period	sen/kWj sen/kWh	37.00
	Bagi semua kWj dalam tempoh puncak For all kWh during the peak period	sen/kWj sen/kWh	35.50
	Bagi semua kWj dalam tempoh luar puncak For all kWh during the off-peak period	sen/kWj sen/kWh	21.90
	Caj minimum bulanan Minimum monthly charge	RM	600.00
	Tarif E2s - Tarif Perindustrian Khas (untuk pengguna yang layak sahaja) Tariff E2s - Special Industrial Tariff (only for qualified consumers)		
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak For each kilowatt of maximum demand per month during the peak period	RM/kW	32.90
	Bagi semua kWj dalam tempoh puncak For all kWh during the peak period	sen/kWj sen/kWh	33.60
	Bagi semua kWj dalam tempoh luar puncak For all kWh during the off-peak period	sen/kWj sen/kWh	19.10
	Caj minimum bulanan Minimum monthly charge	RM	600.00

Bil. No.	Kategori Tariff Tariff category	Unit	Kadar Rate
8	Tariff E3 - Tariff Perindustrian Puncak/Luar Puncak Voltan Tinggi Tariff E3 - High Voltage Peak/Off-Peak Industrial Tariff		
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak For each kilowatt of maximum demand per month during the peak period	RM/kW	35.50
	Bagi semua kWj dalam tempoh puncak For all kWh during the peak period	sen/kWj sen/kWh	33.70
	Bagi semua kWj dalam tempoh luar puncak For all kWh during the off- peak period	sen/kWj sen/kWh	20.20
	Caj minimum bulanan Minimum monthly charge	RM	600.00
	Tariff E3s - Tariff Perindustrian Khas (untuk pengguna yang layak sahaja) Tariff E3s - Special Industrial Tariff (only for qualified consumers)		
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak For each kilowatt of maximum demand per month during the peak period	RM/kW	29.00
	Bagi semua kWj dalam tempoh puncak For all kWh during the peak period	sen/kWj sen/kWh	31.70
	Bagi semua kWj dalam tempoh luar puncak For all kWh during the off- peak period	sen/kWj sen/kWh	17.50
Caj minimum bulanan Minimum monthly charge	RM	600.00	
9	Tariff F - Tariff Perlombongan Voltan Rendah Tariff F - Low Voltage Mining Tariff		
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	38.10
	Caj minimum bulanan Minimum monthly charge	RM	120.00
10	Tariff F1 - Tariff Perlombongan Am Voltan Sederhana Tariff F1 - Medium Voltage General Mining Tariff		
	Bagi setiap kilowatt kehendak maksimum sebulan For each kilowatt of maximum demand per month	RM/kW	21.10
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	31.30
	Caj minimum bulanan Minimum monthly charge	RM	120.00
11	Tariff F2 - Tariff Perlombongan Puncak/Luar Puncak Voltan Sederhana F2 Tariff - Medium Voltage Peak/Off-Peak Mining Tariff		
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak For each kilowatt of maximum demand per month during the peak period	RM/kW	29.80
	Bagi semua kWj dalam tempoh puncak For all kWh during the peak period	sen/kWj sen/kWh	31.30
	Bagi semua kWj dalam tempoh luar puncak For all kWh during the off- peak period	sen/kWj sen/kWh	17.20
	Caj minimum bulanan Minimum monthly charge	RM	120.00
12	Tariff G - Tariff Lampu Jalanraya Tariff G - Street Lighting Tariff		
	Bagi semua kWj (termasuk senggaraan) For all kWh (including maintenance)	sen/kWj sen/kWh	30.50
	Bagi semua kWj (tidak termasuk senggaraan) For all kWh (excluding maintenance)	sen/kWj sen/kWh	19.20
	Caj minimum bulanan Minimum monthly charge	RM	7.20
13	Tariff G1 - Tariff Lampu Neon & Lampu Limpah Tariff G1 - Neon & Floodlight Tariff		
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	20.80
	Caj minimum bulanan Minimum monthly charge	RM	7.20
14	Tariff H - Tariff Pertanian Spesifik Voltan Rendah Tariff H - Low Voltage Specific Agriculture Tariff		
	200 kWj pertama (1-200 kWj) sebulan For the first 200 kWh (1-200 kWh) per month	sen/kWj sen/kWh	39.00
	Setiap kWj berikutnya (201 kWj ke atas) sebulan For the next kWh (201 kWh and above) per month	sen/kWj sen/kWh	47.20
	Caj minimum bulanan Minimum monthly charge	RM	7.20
15	Tariff H1 - Tariff Pertanian Spesifik Am Voltan Sederhana Tariff H1 - Medium Voltage General Specific Agriculture Tariff		
	Bagi setiap kilowatt kehendak maksimum sebulan For each kilowatt of maximum demand per month	RM/kW	30.30
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	35.10
	Caj minimum bulanan Minimum monthly charge	RM	600.00
16	Tariff H2 - Tariff Pertanian Spesifik Puncak/Luar Puncak Voltan Sederhana Tariff H2 - Medium Voltage Peak/Off-peak Specific Agriculture Tariff		
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak For each kilowatt of maximum demand per month during the peak period	RM/kW	40.80
	Bagi semua kWj dalam tempoh puncak For all kWh during the peak period	sen/kWj sen/kWh	36.50
	Bagi semua kWj dalam tempoh luar puncak For all kWh during the off- peak period	sen/kWj sen/kWh	22.40
	Caj minimum bulanan Minimum monthly charge	RM	600.00

Apendiks 6: Tarif Elektrik Tenaga Nasional Berhad (TNB) untuk Top-Up dan Standby (Co-Generators sahaja)
Appendix 6: Tenaga Nasional Berhad (TNB) Electricity Tariffs for Top-Up and Standby (Co-Generators only)

Bil. No.	Kategori Tarif / Tariff category	Unit	Top-up	Standby
1	Tarif C1 – Perdagangan Am Voltan Sederhana / Tariff C1 – Medium Voltage General Commercial Tariff			
	Bagi setiap kilowatt kehendak maksimum sebulan / For each kilowatt of maximum demand per month	RM/kW	30.30	14.00
	Bagi semua kWj / For all kWh	sen/kWj / sen/kWh	36.50	
2	Tarif C2 – Perdagangan Puncak/Luar Puncak Voltan Sederhana / C2 Tariff – Medium Voltage Peak/Off Peak Commercial Tariff			
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak / For each kilowatt of maximum demand per month during the peak period	RM/kW	45.10	14.00
	Bagi semua kWj dalam tempoh puncak / For all kWh during the peak period	sen/kWj / sen/kWh	36.50	
	Bagi semua kWj dalam tempoh luar puncak / For all kWh during the off-peak period	sen/kWj / sen/kWh	22.40	
3	Tarif E1 – Perindustrian Am Voltan Sederhana / Tariff E1 – Medium Voltage General Industrial Tariff			
	Bagi setiap kilowatt kehendak maksimum sebulan / For each kilowatt of maximum demand per month	RM/kW	29.60	14.00
	Bagi semua kWj / For all kWh	sen/kWj / sen/kWh	33.70	
4	Tarif E2 – Perindustrian Puncak/Luar Puncak Voltan Sederhana / Tariff E2 – Medium Voltage Peak/Off-Peak Industrial Tariff			
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak / For each kilowatt of maximum demand per month during the peak period	RM/kW	37.00	14.00
	Bagi semua kWj dalam tempoh puncak / For all kWh during the peak period	sen/kWj / sen/kWh	35.50	
	Bagi semua kWj dalam tempoh luar puncak / For all kWh during the off-peak period	sen/kWj / sen/kWh	21.90	
5	Tarif E3 – Perindustrian Puncak/Luar Puncak Voltan Tinggi / Tariff E3 – High Voltage Peak/Off-Peak Industrial Tariff			
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak / For each kilowatt of maximum demand per month during the peak period	RM/kW	35.50	12.00
	Bagi semua kWj dalam tempoh puncak / For all kWh during the peak period	sen/kWj / sen/kWh	33.70	
	Bagi semua kWj dalam tempoh luar puncak / For all kWh during the off-peak period	sen/kWj / sen/kWh	20.20	
6	Tarif F1 – Perlombongan Am Voltan Sederhana / Tariff F1 – Medium Voltage General Mining Tariff			
	Bagi setiap kilowatt kehendak maksimum sebulan / For each kilowatt of maximum demand per month	RM/kW	21.10	14.00
	Bagi semua kWj / For all kWh	sen/kWj / sen/kWh	31.30	
7	Tarif F2 – Perlombongan Puncak/Luar Puncak Voltan Sederhana / Tariff F2 – Medium Voltage Peak/Off-Peak Mining Tariff			
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak / For each kilowatt of maximum demand per month during the peak period	RM/kW	29.80	14.00
	Bagi semua kWj dalam tempoh puncak / For all kWh during the peak period	sen/kWj / sen/kWh	31.30	
	Bagi semua kWj dalam tempoh luar puncak / For all kWh during the off-peak period	sen/kWj / sen/kWh	17.20	
8	Tarif H1 – Tarif Pertanian Spesifik Am Voltan Sederhana / Tariff H1 – Medium Voltage Specific General Agriculture Tariff			
	Bagi setiap kilowatt kehendak maksimum sebulan / For each kilowatt of maximum demand per month	RM/kW	30.30	14.00
	Bagi semua kWj / For all kWh	sen/kWj / sen/kWh	35.10	
9	Tarif H2 – Tarif Pertanian Spesifik Am Puncak/Luar Puncak / Tariff H1 – Medium Voltage Specific General Agriculture Tariff			
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak / For each kilowatt of maximum demand per month during the peak period	RM/kW	40.80	14.00
	Bagi semua kWj dalam tempoh puncak / For all kWh during the peak period	sen/kWj / sen/kWh	36.50	
	Bagi semua kWj dalam tempoh luar puncak / For all kWh during the off-peak period	RM/kW	22.40	

Nota / Note:

- Semua pengguna 'Co-generation' baru; dan Pengguna 'Co-generation' sedia ada yang berhasrat untuk menukar kepada kadar 'Standby' yang baru ini / All new co-generation customers; and Existing co-generation customers who wish to migrate to this new Standby rate.
- Bagi pengguna 'Co-generation' sedia ada yang berhasrat untuk mengekalkan kadar 'Standby' ('Firm' dan 'Non-Firm') yang lama, kadar 'Standby' ('Firm' dan 'Non-Firm') yang lama bersama-sama kadar 'Top-up' yang baru (bermula 1 Januari 2014) akan diguna pakai. For existing co-generation customer who wishes to maintain previous Standby (Firm and Non-Firm) rates, the rate is applicable together with the new Top-Up rate (as of 1st January 2014)
- Kutipan 1.6% Feed-in Tariff (FIT) akan dikenakan ke atas bil elektrik bulanan pengguna (kecuali pengguna Domestik yang menggunakan sehingga 300kWj sebulan) berkuatkuasa mulai 1 Januari 2014. Effective starting from 1st January, 2014, 1% Feed-in Tariff (FIT) for Renewable Energy Resources Fund (RE) is imposed on consumers' monthly electric bill (except for domestic consumers with consumption not exceeding 300 kWh per month)

Apendiks 7: Tarif Elektrik Sabah Electricity Sdn. Bhd. (SESB) & Wilayah Persekutuan Labuan (Berkuatkuasa 1 Januari 2014)
Appendix 7: Sabah Electricity Sdn. Bhd. (SESB) & Federal Territory of Labuan Electricity Tariffs (Effective from 1st January 2014)

Bil. No.	Kategori Tarif Tariff category	Unit	Kadar semasa Current Rate
1	Tarif DM – Tarif Kediaman Tariff DM – Domestic Tariff		
	100 kWj pertama (1-100 kWj) sebulan For the first 100 kWh (1-100 kWh) per month	sen/kWj sen/kWh	17.50
	100 kWj berikutnya (101-200 kWj) sebulan For the next 100 kWh (101-200 kWh) per month	sen/kWj sen/kWh	18.50
	300 kWj berikutnya (201-300 kWj) sebulan For the next 300 kWh (201-300 kWh) per month	sen/kWj sen/kWh	33.00
	200 kWj berikutnya (301-500 kWj) sebulan For the next 200 kWh (301-500 kWh) per month	sen/kWj sen/kWh	44.50
	500 kWj berikutnya (501-1000 kWj) sebulan For the next 500 kWh (501-1000 kWh) per month	sen/kWj sen/kWh	45.00
	Setiap kWj berikutnya (1001 kWj ke atas) sebulan For the next kWh (1001 kWh and above) per month	sen/kWj sen/kWh	47.00
Caj minimum bulanan Minimum monthly charge	RM	5.00	
2	Tarif CM1 – Tarif Perdagangan Voltan Rendah Tariff CM1 – Low Voltage Commercial Tariff		
	200 kWj pertama (1-200 kWj) sebulan For the first 200 kWh (1-200 kWh) per month	sen/kWj sen/kWh	38.50
	Setiap kWj berikutnya (201 kWj ke atas) sebulan For the next kWh (201 kWh and above) per month	sen/kWj sen/kWh	39.50
	Caj minimum bulanan Minimum monthly charge	RM	15.00
3	Tarif CM2 – Perdagangan Am Voltan Sederhana Tariff CM2 – Medium Voltage General Commercial Tariff		
	Bagi setiap kilowatt kehendak maksimum sebulan For each kilowatt of maximum demand per month	RM/kW	23.20
	Bagi semua kWj for all kWh	sen/kWj sen/kWh	32.40
	Caj minimum bulanan Minimum monthly charge	RM	1,000.00
4	Tarif CM3 – Tarif Perdagangan Tariff CM3 – Commercial Tariff		
	Puncak/Luar Puncak Voltan Sederhana Tariff CM3 – Medium Voltage Peak/Off Peak Commercial		
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak For each kilowatt of maximum demand per month during the peak period	RM/kW	32.60
	Bagi semua kWj dalam tempoh puncak For all kWh during the peak period	sen/kWj sen/kWh	32.40
	Bagi semua kWj dalam tempoh luar puncak For all kWh during the off-peak period	sen/kWj sen/kWh	19.50
Caj minimum bulanan Minimum monthly charge	RM	1,000.00	
5	Tarif ID1 – Tarif Perindustrian Voltan Rendah Tariff ID1 – Low Voltage Industrial Tariff		
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	37.6
	Caj minimum bulanan Minimum monthly charge	RM	15.00
6	Tarif ID2 – Tarif Perindustrian Am Voltan Sederhana Tariff ID2 – Medium Voltage Industrial Tariff		
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak For each kilowatt of maximum demand per month during the peak period	RM/kW	21.75
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	26.80
	Caj minimum bulanan Minimum monthly charge	RM	RM1,000.00
7	Tarif ID3 – Tarif Perindustrian Puncak/Luar Puncak Voltan Sederhana Tariff ID3 – Medium Voltage Peak/Off Peak Industrial		
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak For each kilowatt of maximum demand per month during the peak period	RM/kW	28.00
	Bagi semua kWj dalam tempoh puncak For all kWh during the peak period	sen/kWj sen/kWh	28.60
	Bagi semua kWj dalam tempoh luar puncak For all kWh during the off-peak period	sen/kWj sen/kWh	18.00
	Caj minimum bulanan Minimum monthly charge	RM	1,000.00
8	Tarif PL – Tarif Lampu Jalanraya Tariff PL – Public Lighting		
	Bagi semua kWj (tidak termasuk senggaraan) For all kWh (excluding maintenance)	sen/kWj sen/kWh	20.30
	Bagi semua kWj (termasuk senggaraan) For all kWh (including maintenance)	sen/kWj sen/kWh	36.30
	Caj minimum bulanan Minimum monthly charge	RM	15.00

Apendiks 8: Tarif Elektrik Sarawak Energy Berhad (SEB)
Appendix 8: Sarawak Energy Berhad (SEB) Electricity Tariff

Kategori Tarif Tariff Category	Kadar Per Unit Rate Per Unit
TARIF C1 - KOMERSIL TARIFF C1 - COMMERCIAL	
1 - 100 unit units	20.0 sen
1 - 200 unit units	24.0 sen
1 - 300 unit units	26.0 sen
1 - 400 unit units	28.0 sen
1 - 500 unit units	30.0 sen
1 - 3,000 unit units	31.5 sen
1 - 10,000 unit units	32.0 sen
1 - 20,000 unit units	31.0 sen
1- Melebihi 20,000 unit 1 - Above 20,000 units	30.0 sen
Caj minimum bulanan Minimum monthly charge	RM10.00
TARIF C2 - KEHENDAK PERDAGANGAN TARIFF C2 - COMMERCIAL DEMAND	
Semua penggunaan All consumption	24.5 sen
Bagi setiap kilowatt kehendak maksimum sebulan For each kilowatt of maximum demand per month	RM16.00
Caj minimum bulanan Minimum monthly charge	RM 16.00 per kilowatt X Kehendak Bil RM 16.00 per kilowatt X Billing Demand
TARIF C3 - KEHENDAK WAKTU PUNCAK / BUKAN WAKTU PUNCAK PERDAGANGAN TARIFF C3 - COMMERCIAL PEAK/OFF-PEAK DEMAND	
Bagi setiap unit waktu puncak For each unit during the peak period	24.5 sen
Bagi setiap unit bukan waktu puncak For each unit during the off-peak period	13.9 sen
Bagi setiap kilowatt kehendak maksimum sebulan semasa waktu puncak For each kilowatt of maximum demand per month during the peak period	RM20.00
Caj minimum bulanan Minimum monthly charge	RM 20.00 per kilowatt X Kehendak Bil RM 20.00 per kilowatt X Billing Demand
TARIF D - DOMESTIK TARIFF D - DOMESTIC	
Bagi 1 hingga 100 unit sebulan 1 to 100 units per month	18 sen
Bagi 1 hingga 150 unit sebulan For 1 to 150 units per month	18 sen
Bagi 1 hingga 200 unit sebulan For 1 to 200 units per month	22 sen
Bagi 1 hingga 300 unit sebulan For 1 to 300 units per month	25 sen
Bagi 1 hingga 400 unit sebulan For 1 to 400 units per month	27 sen
Bagi 1 hingga 500 unit sebulan For 1 to 500 units per month	29.5 sen
Bagi 1 hingga 700 unit sebulan For 1 to 700 units per month	30 sen
Bagi 1 hingga 800 unit sebulan For 1 to 800 units per month	30.5 sen
Bagi 1 hingga 1,300 unit sebulan For 1 to 1,300 units per month	31 sen
Bagi 1 hingga 100 unit sebulan For above 1,300 units per month	31.5 sen
Caj minimum bulanan Minimum monthly charge	RM5.00
TARIF I1 - PERINDUSTRIAN TARIFF I1 - INDUSTRIAL	
1 - 100 unit units	24.0 sen
1 - 3,000 unit units	25.0 sen
1- melebihi 3,000 unit 1 - Above 3,000 units	26.0 sen
Caj minimum bulanan Minimum monthly charge	RM10.00
TARIF I2- KEHENDAK PERINDUSTRIAN TARIFF I2 - INDUSTRIAL DEMAND	
Semua penggunaan All consumption	21.7 sen
Bagi setiap kilowatt kehendak maksimum sebulan For each kilowatt of maximum demand per month	RM16.00
Caj minimum bulanan Minimum monthly charge	RM 16.00 per kilowatt X Kehendak Bil RM 16.00 per kilowatt X Billing Demand
TARIF I3 - KEHENDAK WAKTU PUNCAK/BUKAN WAKTU PUNCAK PERINDUSTRIAN TARIFF I3 - INDUSTRIAL PEAK/OFF-PEAK DEMAND	
Bagi setiap unit waktu puncak For each unit during the peak period	22.9 sen
Bagi setiap unit bukan waktu puncak For each unit during the off-peak period	13.9 sen
Bagi setiap kilowatt kehendak maksimum sebulan semasa waktu puncak For each kilowatt of maximum demand per month during the peak period	RM20.00
Caj minimum bulanan Minimum monthly charge	RM 20.00 per kilowatt X Kehendak Bil RM 20.00 per kilowatt X Billing Demand
TARIF PL - LAMPU AWAM TARIFF PL - PUBLIC LIGHTING	
Bagi setiap unit For each unit	47 sen
Caj minimum bulanan Minimum monthly charge	RM10.00

Apendiks 9: Perbandingan Harga Jualan Purata antara Syarikat Utiliti Kuasa yang Terpilih
Appendix 9 Comparison of Electricity Average Selling Price among Selected Power Utility Companies

Syarikat Company	Harga Jualan Purata (sen/kWj) Average Selling Prices (sen/kWh)						Purata (sen/kWj) Average (sen/kWh)
	Domestik Domestic	Perdagangan Commerce	Perindustrian Industrial	Perlombongan Mining	Lampu Awam Public Lighting	Pertanian Agriculture	
TNB, Malaysia	32.67	47.68	36.56	25.00	25.49	45.86	39.45
SESB, Malaysia	29.14	37.63	30.80		22.54		33.13
SEB, Malaysia	28.25	31.72	24.48				28.50
PLN, Indonesia	41.27	47.18	37.17				39.69
Taipower, Taiwan	-	-	-				36.79
EGAT, Thailand	-	-	-				47.31
CLP, Hong Kong	-	-	-				48.43
MERALCO, Philippines	-	-	-				69.85
TEPCO, Japan	-	-	-				101.5
KEPCO, Korea	45.27	47.76	39.31				40.84
Singapore Power	-	-	-				63.44

Nota Note:

- Harga Jualan Purata (HJP) = Jumlah Hasil bagi Sektor Pelanggan / Unit Jualan bagi Sektor Pelanggan
Average Selling Price (ASP) = Revenue by Customer Category / Unit Sold by Customer Category
- Pengiraan HJP berdasarkan kadar tukaran matawang pada 31 Disember 2015 ASP calculation is based on currency exchange rate as of 31st December 2015.
- Bagi SESB, HJP dikira menggunakan tariff 2014 For SESB, ASP is calculated using 2014 tariff
- Bagi EGAT, HJP dikira menggunakan tariff 2014 For EGAT, ASP is calculated using 2014 tariff

Apendiks 10: Harga Jualan Purata Syarikat Utiliti Kuasa Utama mengikut Sektor
Appendix 10: Average Selling Prices of Major Power Utility Companies by Sectors

Syarikat Company	Harga Jualan Purata (sen/kWj) Average Selling Prices (sen/kWh)				
	2011	2012	2013	2014	2015
TNB					
Domestik Domestic	27.97	28.93	29.15	32.28	32.67
Komersil Commercial	39.10	40.98	40.76	47.10	47.68
Industri Industrial	29.77	30.89	31.00	35.88	36.56
Perlombongan Mining	20.21	20.81	20.55	23.99	25.00
Lampu Awam Public Lighting	20.87	21.53	21.55	25.06	25.49
Pertanian Agriculture	38.48	39.64	39.35	45.29	45.86
Purata Average	32.48	33.83	33.87	38.86	39.45
SESB					
Domestik Domestic	23.83	25.10	25.30	29.32	29.14
Komersil Commercial	29.27	31.41	33.59	39.25	37.63
Industri Industrial	22.43	24.68	28.81	32.90	30.80
Lampu Awam Public Lighting	24.99	18.66	18.75	23.31	22.54
Purata Average	25.69	27.64	29.60	34.31	33.13
SEB					
Domestik Domestic	31.20	31.20	31.30	31.30	28.25
Komersil Commercial	31.20	32.00	32.00	32.00	31.72
Industri Industrial	24.70	24.90	25.10	25.10	24.48
Lampu Awam Public Lighting	47.10	47.00	47.10	47.10	n/a
Purata Average	29.40	29.70	29.90	29.80	28.50

Apendiks 11: Kos Penjanaan Tenaga Nasional Berhad (TNB)
Appendix 11: Generation Cost of TNB

KOS PENJANAAN (sen/kWj) GENERATION COST (sen/kWh)	2011	2012	2013	2014	2015
(a) Penjanaan Sendiri Own Generation	18.22	20.28	20.13	18.6	18.03
(b) Elektrik Dibeli Purchased Electricity	24.68	25.05	22.8	20.93	20.21
(c) Kos Keseluruhan (a) & (b) Overall Cost (a) & (b)	23.08	23.95	23.03	23.94	22.03

Nota Note:
 Data Tahun Kewangan Financial Year data
 Kos (kapasiti, tenaga) / Jumlah Penjanaan Tenaga (bagi IPP, menggunakan syarat yang termaktub dalam PPA/SLA)
 Cost (capacity, energy) / Total Units Generated (for IPP, based on condition stipulated in PPA/SLA)

Apendiks 12: Kos Penjanaan Sabah Electricity Sdn. Bhd. (SESB)
Appendix 12: Generation Cost of SESB

KOS PENJANAAN (sen/kWj) GENERATION COST (sen/kWh)	2011	2012	2013	2014	2015
(a) Penjanaan Sendiri Own Generation	24.30	16.16	17.84	25.34	28.29
(b) Elektrik Dibeli Purchased Electricity	25.80	17.90	20.04	22.75	20.64
(c) Kos Keseluruhan (a) & (b) Overall Cost (a) & (b)	25.20	17.40	19.38	20.47	48.93

Apendiks 13: Kos Penjanaan Sarawak Energy Berhad (SEB)
Appendix 13: Generation Cost of SEB

KOS PENJANAAN (sen/kWj) GENERATION COST (sen/kWh)	2011	2012	2013	2014	2015
(a) Penjanaan Sendiri Own Generation	21.80	25.89	11.58	15.62 ¹	13.10 ¹
(b) Elektrik Dibeli Purchased Electricity	13.20	11.72	10.75	9.96 ²	11.80 ²
(c) Kos Keseluruhan (a) & (b) Overall Cost (a) & (b)	15.40	14.15	10.85	10.57 ³	11.90 ³

Nota Note:

- 1 Kos Sumber Tenaga SESCO SESCO Energy Sourcecost
- 2 Kos pembelian tenaga Power purchase cost
- 3 Purata kos Sumber Tenaga Average Energy Sourcecost

Berikutan penstrukturan semula SEB pada tahun 2011, kos penjanaan SEB turut mengambil kira kos penjanaan Sejangkat Power Corporation, Sarawak Power Corporation, PPLS Power Generation dan Mukah Power Generation Due to restructuring of SEB in 2011, SEB's generation cost takes into account the generation cost of Sejangkat Power Corporation, Sarawak Power Corporation, PPLS Power Generation and Mukah Power Generation

www.st.gov.my

SURUHANJAYA TENAGA

(Energy Commission)

No. 12 Jalan Tun Hussein,
Precinct 2, 62100 Putrajaya,
Malaysia

Tel: (03) 8870 8500 Faks / Fax: (03) 8888 8637

Talian Bebas Tol / Toll Free Number: 1 800 2222 78 (ST)