

**MAKLUMAT PRESTASI  
& STATISTIK INDUSTRI  
PEMBEKALAN ELEKTRIK  
MALAYSIA**

PERFORMANCE & STATISTICAL  
INFORMATION ON THE MALAYSIAN  
ELECTRICITY SUPPLY INDUSTRY

**2021**



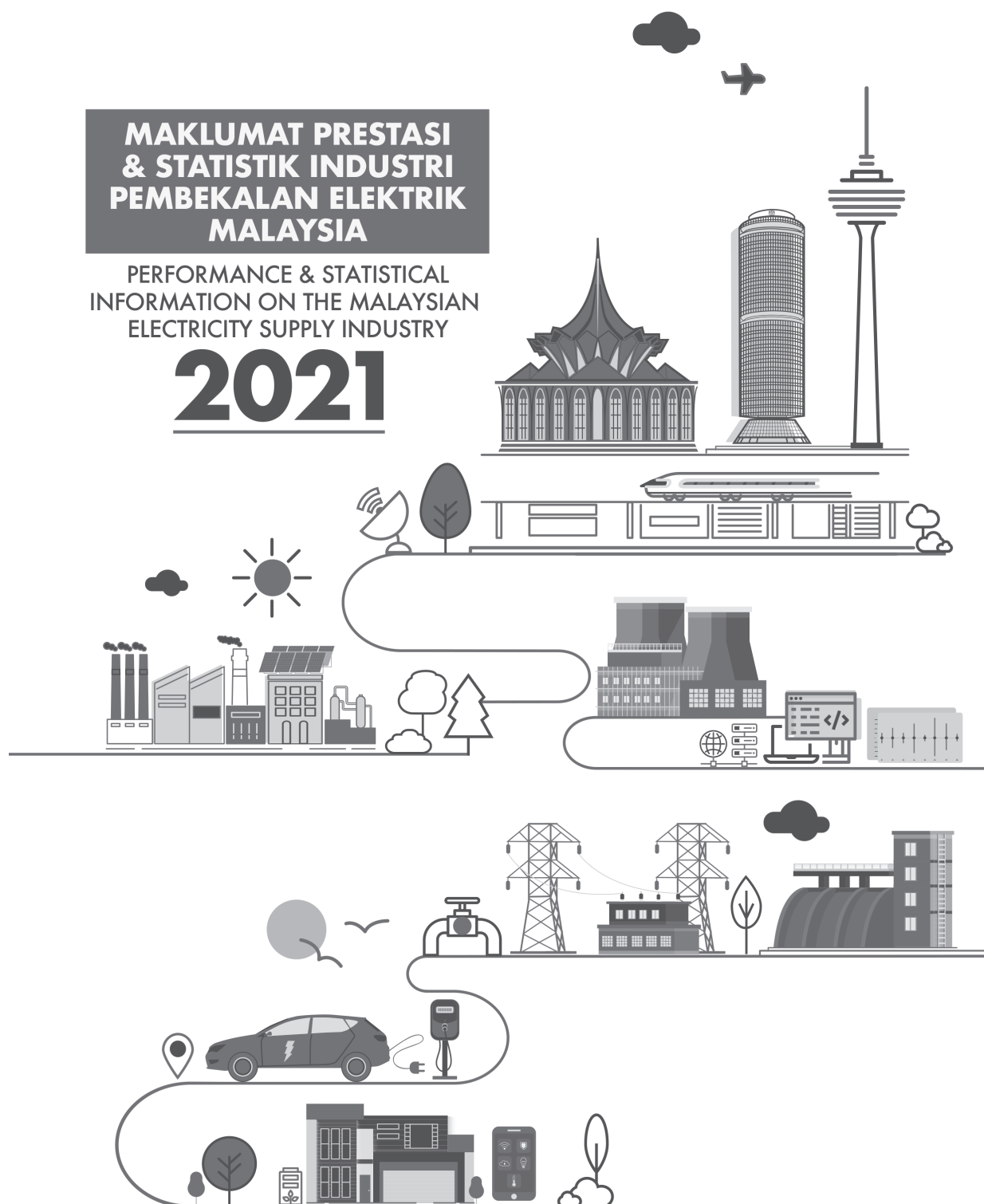
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# MAKLUMAT PRESTASI & STATISTIK INDUSTRI PEMBEKALAN ELEKTRIK MALAYSIA

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ELECTRICITY SUPPLY INDUSTRY

# 2021



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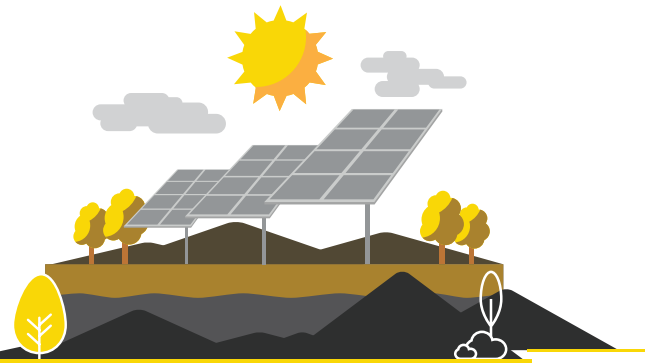


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## UNIT DAN AKRONIM UNITS AND ACRONYMS



### UNIT I UNIT

cct-km	kilometer litar I circuit kilometer
GW <sub>j</sub> I GWh	Gigawatt jam I Gigawatt hour
km	kilometer
kV	kilovolt
MVA	Megavolt Ampere
MW	Megawatt
MW <sub>j</sub> I MWh	Megawatt jam I Megawatt hour

### AKRONIM I ACRONYMS

CAIDI	Customer Average Interruption Duration Index
CCGT	Turbin Gas Kitar Padu I Combined Cycle Gas Turbine
Cogen	Cogeneration
DE	Enjin Diesel I Diesel Engine
DePUI	Delivery Point Unreliability Index
DOSM	Jabatan Perangkaan Malaysia I Department of Statistics Malaysia
EAF	Purata Faktor Kesediaan Setara I Average Equivalent Availability Factor
EFB	Tandan Sawit Kosong I Empty Fruit Bunch
EUOF	Purata Faktor Hentitugas Tidak Berjadual Setara I Average Equivalent Unplanned Outage Factor
FiT	Feed-In Tariff
FOR	Forced Outage Rate
GE	Enjin Gas I Gas Engine
IPP	Penjana Bebas I Independent Power Producer
KDNK I GDP	Keluaran Dalam Negara Kasar I Gross Domestic Products
LSS	Solar Berskala Besar I Large Scale Solar
MFO	Medium Fuel Oil
MUT	Kementerian Utiliti dan Telekomunikasi Sarawak I Ministry of Utility and Telecommunication of Sarawak
NEDA	New Enhanced Dispatched Arrangement
NEM	Net Energy Metering
NUR	NUR Power Sdn. Bhd.
OCGT	Turbin Gas Kitar Terbuka I Open Cycle Gas Turbine
OHL	Kabel Talian Atas I Overhead Cable
POME	Efluen Kilang Kelapa Sawit I Palm Oil Mill Effluent
PV	Fotovoltaik I Photovoltaic
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SARFI	System Average RMS Frequency Index
SEB	Sarawak Energy Berhad
SEDA	Sustainable Energy Development Authority
SELCO	Menjana elektrik untuk kegunaan sendiri I Generates electricity for self-consumption
SESB	Sabah Electricity Sdn. Bhd.
SJ	Stesen Jana Kuasa I Power Station
TAAC	Tested Annual Availability Capacity
TBB I RE	Tenaga Boleh Baharu I Renewable Energy
TNB	Tenaga Nasional Berhad
WP	Wilayah Persekutuan I Federal Territory





# RINGKASAN EKSEKUTIF EXECUTIVE SUMMARY

## RINGKASAN EKSEKUTIF EXECUTIVE SUMMARY



Penerbitan mengenai industri pembekalan elektrik Malaysia ini mengandungi dua bahagian utama iaitu pertama, maklumat prestasi dan kedua, statistik. Setiap bahagian disusun mengikut tiga kawasan utama iaitu Semenanjung Malaysia, Sabah dan Sarawak di mana data yang dipaparkan merangkumi sistem penjana, sistem penghantaran dan sistem pengagihan elektrik negara. Turut dimuatkan ialah peta lokasi stesen-stesen jana kuasa utama, laporan prestasi tahunan, jadual tarif, harga jualan purata dan kos penjana syarikat-syarikat utiliti utama di Malaysia. Bahagian apendiks pula memuatkan senarai pemegang lesen pelbagai kategori, khusus bagi lesen yang dikeluarkan pada tahun 2021.

This publication on Malaysia's electricity supply industry contains two main sections, firstly, the performance information and secondly, the statistics. Each section is organised according to three main regions, namely Peninsular Malaysia, Sabah and Sarawak where the data displayed includes the country's electricity generation system, transmission system and distribution system. Also included are the location maps of main power stations, annual performance reports, tariff schedules, average selling prices and generation costs of the main utility companies in Malaysia. The appendix contains a list of licensees of various categories, specifically for licences issued in 2021.



## STATISTIK INDUSTRI PEMBEKALAN ELEKTRIK MALAYSIA

Pada 2021, jumlah kapasiti penjanaan elektrik di Malaysia ialah 37,663 MW, merangkumi semua stesen jana kuasa utama yang bersambung kepada sistem Grid Nasional dan secara *off-grid*. Dari segi geografi, kapasiti penjanaan elektrik negara terletak di dua (2) kawasan utama iaitu 78% (29,546 MW) di Semenanjung Malaysia dan 22% di sebelah Timur Malaysia, dengan 1,970 MW di Sabah dan 6,147 MW di Sarawak. Negeri Sabah dan Sarawak terletak di Kepulauan Borneo yang dipisahkan dengan Semenanjung Malaysia oleh Laut China Selatan. Syarikat utiliti utama bagi Semenanjung Malaysia ialah Tenaga Nasional Berhad (TNB), manakala bagi Sabah ialah Sabah Electricity Sdn. Bhd. (SESB) dan bagi Sarawak ialah Sarawak Energy Berhad (SEB). Kehendak maksimum yang dicatatkan pada 2021 pula ialah 18,585 MW di Semenanjung Malaysia pada 13 Oktober 2021, 1,003 MW di Sabah pada 28 Mei 2021 dan 4,107 MW di Sarawak pada 2 Disember 2021.

Daripada 37,663 MW kapasiti penjanaan tersebut, 60.7% adalah daripada penjana-penjana bebas (IPP), 28.1% syarikat-syarikat utiliti utama (TNB, SESB, SEB), 4.1% *cogenerator*, 2.4% Solar Berskala Besar (LSS) dan Solar (bukan FiT), 2.7% Feed-in Tarif (FiT) dan *Net Energy Metering* (NEM) serta 1.9% penjana-penjana persendirian.

Dari segi campuran sumber tenaga pula, secara keseluruhan, 40.1% daripada kapasiti penjanaan di Malaysia adalah berasaskan gas asli, 35.3% berasaskan arang batu, 22.5% berasaskan tenaga boleh baharu (TBB), 1.2% berasaskan diesel dan 0.9% berasaskan lain-lain sumber. 73% daripada TBB ialah hidroelektrik, diikuti oleh 20% solar dan 7% kombinasi biojisim dan biogas.

Tahun 2021 juga menyaksikan penamatan operasi sebuah stesen jana kuasa Turbin Gas Turbin Kitar Padu (CCGT) iaitu YTL Power Generation Sdn. Bhd. berkapasiti 585 MW yang terletak di Paka, Terengganu, berikutan penamatan Perjanjian Pembelian Kuasa (PPA) pada 30 Jun 2021. Pada tahun yang sama, Southern Power Generation Sdn. Bhd., sebuah stesen jana kuasa CCGT yang terletak di Pasir Gudang, Johor, memulakan operasi pada 1 Januari 2021 dengan kapasiti 1,440 MW. Selain itu, satu lagi stesen jana kuasa CCGT iaitu EDRA Energy Sdn. Bhd. (blok 1) juga telah mulai beroperasi pada Disember 2021. Stesen jana kuasa yang terletak di Melaka ini mula beroperasi sepenuhnya pada Februari 2022.

## MALAYSIAN ELECTRICITY SUPPLY INDUSTRY STATISTICS

In 2021, the total installed capacity for electricity generation in Malaysia was 37,663 MW, which include all main power generating stations connected to the National Grid system and by off-grid. Geographically, the installed capacity for electricity generation is divided into two (2) main regions in which 78% (29,546 MW) is in Peninsular Malaysia and 22% is in Eastern Malaysia, with 1,970 MW in Sabah and 6,147 MW in Sarawak. The state of Sabah and Sarawak are in the island of Borneo which are separated from the Peninsular Malaysia by the South China Sea. The main utility company for Peninsular Malaysia is Tenaga Nasional Berhad (TNB), while for Sabah is Sabah Electricity Sdn. Bhd. (SESB) and for Sarawak is Sarawak Energy Berhad (SEB). The maximum demand recorded in 2021 was 18,585 MW in Peninsular Malaysia on 13 October 2021, 1,003 MW in Sabah on 28 May 2021, and 4,107 MW in Sarawak on 2 December 2021.

From the 37,663 MW generation capacity, 60.7% was from the independent power producers (IPP), 28.1% from the main utility companies (TNB, SESB, SEB), 4.1% from the cogenerators, 2.4% from Large Scale Solar (LSS) and Solar (non-FiT), 2.7% from Feed-in Tarif (FiT) and Net Energy Metering (NEM), as well as 1.9% from the self-generators.

In terms of mix energy sources, in overall, 40.1% of the generation capacity in Malaysia were based on natural gas, 35.3% coal-based, 22.5% renewable energy-based (RE), 1.2% diesel-based and 0.9% other energy sources. 73% of RE were from hydroelectric, followed by 20% of solar and 7% combination of biomass and biogas.

The year 2021 also witnessed the retirement of a Combined Cycle Gas Turbine (CCGT) power plant which was YTL Power Generation Sdn Bhd with a capacity of 585 MW located in Paka, Terengganu, due to the expiration of Power Purchase Agreement (PPA) on 30 June 2021. The same year, Southern Power Generation Sdn. Bhd., a CCGT power plant located in Pasir Gudang, Johor started commencing its operation on 1 January 2021 with a capacity of 1,440 MW. In addition, another CCGT power station which is EDRA Energy Sdn. Bhd. (block 1) also started to operate in December 2021. This power station to be in full operation in February 2022.

## RINGKASAN EKSEKUTIF EXECUTIVE SUMMARY



Sementara di Sabah pula, kapasiti boleh harap pada 2021 ialah sebanyak 1,788 MW berbanding 1,734 MW pada 2020. Peningkatan ini adalah berkait rapat dengan semakin semula keboleharapan yang dijalankan oleh pihak Grid System Operator (GSO) terhadap stesen jana kuasa SESB. Selain itu, ia juga disebabkan oleh penambahan kapasiti terpasang persendirian melebihi 5 MW pada senarai sedia ada. Di Sarawak, terdapat peningkatan pada kapasiti terpasang berbanding tahun sebelumnya daripada 5,720 MW kepada 5,731 MW, berikutan peningkatan stesen jana kuasa daripada sumber gas dan hidroelektrik mini.

Jumlah penjanaan elektrik pada 2021 ialah 174,231 GWj. Sebanyak 44.99% daripada penjanaan tersebut adalah daripada sumber arang batu, diikuti dengan 34.19% gas asli, 19.98% TBB, 0.61% diesel dan 0.23% daripada sumber tenaga lain. Dari segi pecahan mengikut kategori penjana, sebanyak 65.59% terdiri daripada IPP, 28.31% syarikat-syarikat utiliti utama (TNB, SESB, SEB), 3.43% *cogenerator*, 1.06% FiT dan NEM, 0.93% LSS dan solar (bukan FiT), 0.53% penjana-penjana persendirian dan 0.14% NEDA. Jumlah penjanaan daripada NEDA juga telah ditambah ke dalam senarai penjanaan bagi menambah baik pelaporan sedia ada.

Jualan tenaga elektrik pada 2021 meningkat sebanyak 1.9% daripada tahun sebelumnya (2020: 144,007 GWj; 2021: 146,778 GWj).

Bagi penggunaan elektrik keseluruhan, terdapat peningkatan dalam sektor perlombongan sebanyak 22.2%, diikuti dengan sektor domestik sebanyak 5.3% dan sektor industri yang mencatatkan kenaikan sebanyak 5.0%. Sementara itu, sektor komersial mencatatkan pengurangan sebanyak 4.3% diikuti dengan sektor pertanian sebanyak 0.7%. Dari segi eksport pula, terdapat pengurangan sebanyak 38.6% berbanding pada 2020 (2020: 1,586 GWj; 2021: 974 GWj).

Jika dibandingkan mengikut negeri dan sektor di Malaysia pula, sektor domestik rata-ratanya mencatatkan peningkatan. Peningkatan tertinggi dicatatkan di Putrajaya sebanyak 11.6%, diikuti Sarawak sebanyak 9.4% dan Selangor sebanyak 7.5%. Negeri-negeri lain mencatatkan peningkatan di antara 2.6% hingga 7.2%. Peningkatan ini berikutan Dasar Bekerja dari Rumah (BDR)

Meanwhile in Sabah, the dependable capacity in 2021 was 1,788 MW, compared to 1,734 MW in 2020. The increase was closely related to the reliability review conducted by the Grid System Operator (GSO) on SESB power stations. Besides that, this was also due to the addition of installed capacity for more than 5 MW of Self-Gen to the existing listing. In Sarawak, there was an increase in installed capacity compared to the previous year from 5,720 MW to 5,731 MW, resulted from the increase of gas and mini hydroelectric based power stations.

The total electricity generated in 2021 was 174,231 GWh. A total of 44.99% of that generation was from coal, followed by 34.19% of natural gas, 19.98% of RE, 0.61% of diesel, and 0.23% from other energy sources. In terms of the breakdown of energy producers, 65.59% was from IPP, 28.31% from main utility companies (TNB, SESB, SEB), 3.43% from the cogenerators, 1.06% from FiT and NEM, 0.93% from LSS and Solar (non-FiT), 0.53% from the self-generators and 0.14% from NEDA. Generation from NEDA was added to the listing to improve reporting.

Electricity sales in 2021 increased 1.92% compared to the previous year. (2020: 144,007 GWh; 2021: 146,778 GWh).

For total electricity consumption, there was an increase in the mining sector of 22.2%, followed by the residential sector with 5.3% and the industrial sector with 5.0%. Meanwhile, the commercial sector recorded a decrease of 4.3% followed by the agricultural sector with 0.7%. In terms of exports, there was a drop of 38.6% compared to 2020 (2020: 1,586 GWh; 2021: 974 GWh).

In comparison to the states and sectors in Malaysia, residential sector in most of the states recorded a raised. The highest increase for this sector recorded in Putrajaya with 11.6%, followed by Sarawak with 9.4% and Selangor with 7.5%. Other states recorded an increase of between 2.6% to 7.2%. The increase in electricity consumption in the residential sector may resulted from Work from Home (WFH) and home-based teaching and learning (PdPR) policy which remained in force under the Prevention and Control of Infectious Diseases Act 1988. This parallel with



dan Pengajaran dan Pembelajaran di Rumah (PdPR) yang masih dikekalkan susulan Perintah Kawalan Pergerakan (PKP) yang dikeluarkan di bawah Akta Pencegahan dan Pengawalan Penyakit Berjangkit 1988. Ini selari dengan arahan kerajaan berkuat kuasa pada 25 Mei 2021 untuk membenarkan 80% penjawat awam dan 40% pekerja di sektor swasta untuk bekerja dari rumah.

Peningkatan penggunaan elektrik bagi sektor perlombongan dan sektor industri berkemungkinan disebabkan oleh Fasa 2 Pelan Pemulihan Negara (PPN) di mana kesemua aktiviti tidak perlu dalam sektor pembuatan, pembinaan, perlombongan dan pengkuarian dibenarkan untuk kembali beroperasi bermula 16 Ogos 2021.

Berbeza bagi sektor komersial, rata-ratanya mencatatkan pengurangan penggunaan elektrik di antara negeri. Pengurangan tertinggi direkodkan bagi Kuala Lumpur iaitu sebanyak 6.8%, diikuti dengan Johor sebanyak 5.9%, Melaka sebanyak 5.8% dan Pulau Pinang sebanyak 5.3%. Negeri-negeri yang lain seperti Terengganu, Sabah, Negeri Sembilan, Selangor, Pahang, Kedah dan Perak mencatatkan pengurangan di antara 0.1% hingga 4.8%. Perlis, Kelantan dan Sarawak masing-masing mencatatkan peningkatan sebanyak 3.2%, 6.1% dan 1.4%.

Dari segi bilangan pengguna elektrik pula, peningkatan sebanyak 2.4% dicatatkan di kesemua sektor berbanding tahun sebelumnya (2021: 11,044,415; 2020: 10,782,968). Sektor perlombongan mencatatkan peningkatan tertinggi iaitu sebanyak 13.2% diikuti dengan sektor pertanian dan sektor industri yang masing-masing merekodkan peningkatan sebanyak 4.8% dan 3.6%.

the government measures which took effect on 25 May 2021 to allow 80% of government servants and 40% of private sectors workers to work from home.

The increase of electricity consumption in the mining and industrial sector may result from Phase 2 National Recovery Plan (NRP) where all non-essential activities in manufacturing, construction, mining and quarrying was allowed to operate starting 16 August 2021.

Contrary with commercial sector, most of them recorded a reduction in electricity consumption between states. The highest reduction recorded in Kuala Lumpur with 6.8%, followed by Johor with 5.9%, Malacca with 5.8% and Pulau Pinang with 5.3%. Other states like Terengganu, Sabah, Negeri Sembilan, Selangor, Pahang, Kedah and Perak recorded a reduction between 0.1% to 4.8%. Perlis, Kelantan and Sarawak each recorded an increase of 3.2%, 6.1% and 1.4% respectively.

In terms of the number of electricity consumers, most of the sectors shown an increment of 2.4% (2021: 11,044,415; 2020: 10,782,968). The mining sector recorded the highest increase of 13.2% followed by the agricultural sector and industrial sector with 4.8% to 3.6% respectively.

## RINGKASAN EKSEKUTIF EXECUTIVE SUMMARY

### PRESTASI INDUSTRI PEMBEKALAN ELEKTRIK MALAYSIA

Untuk memastikan bekalan tenaga elektrik berterusan kepada pengguna, beberapa indikator telah digunakan untuk mengukur prestasi sistem penjanaan, penghantaran dan pengagihan tenaga elektrik di Malaysia.

Di Semenanjung Malaysia, purata kecekapan termal merekodkan peningkatan sebanyak 1.8% bagi stesen jana kuasa CCGT TNB manakala stesen jana kuasa Turbin Gas Kitar Terbuka (OCGT) TNB mencatatkan penurunan sebanyak 16.7%. Stesen jana kuasa termal konvensional IPP pula mencatatkan peningkatan sebanyak 1.3% manakala stesen-stesen arang batu IPP menunjukkan penurunan sebanyak 0.4%. Purata Faktor Kesediaan Setara (EAF) juga rata-ratanya menunjukkan penurunan di antara 0.2% ke 13.6% berbanding tahun sebelumnya.

Purata tahap hentitugas akibat *forced and maintenance outages* dan *forced and maintenance deratings* yang diukur menggunakan Faktor Hentitugas Tidak Berjadual Setara (EUOF) telah meningkat sebanyak 300% pada stesen jana kuasa termal konvensional IPP, sebanyak 35.7% pada stesen jana kuasa CCGT TNB dan sebanyak 26.3% pada stesen jana kuasa CCGT IPP. Stesen jana kuasa hidroelektrik TNB kekal pada 1.13%. Manakala stesen jana kuasa OCGT TNB menunjukkan penurunan EUOF tertinggi sebanyak 75.5% diikuti dengan stesen jana kuasa arang batu IPP sebanyak 16.3%.

Bagi sistem penghantaran di Semenanjung Malaysia, sistem minit berada pada 0.09 minit iaitu peningkatan 12.5% berbanding tahun sebelumnya. *System Average Interruption Duration Index* (SAIDI) bagi sistem pengagihan juga mencatatkan bacaan di bawah sasaran 50 minit iaitu 45.25 minit/pelanggan/tahun. Petunjuk prestasi ini menunjukkan peningkatan pada sekuriti sistem pembekalan elektrik di Semenanjung Malaysia. Bagi sistem pengagihan pula, berlaku peningkatan sebanyak 9% iaitu sebanyak 70,004 bilangan gangguan direkodkan berbanding tahun sebelumnya. Jumlah bilangan pengguna yang terlibat dengan insiden junaman voltan juga meningkat sebanyak 40% pada 2022 terutamanya di Pulau Pinang dengan 115 pengguna (2020: 56 pengguna).

### THE PERFORMANCE OF THE MALAYSIAN ELECTRICITY SUPPLY INDUSTRY

To ensure the continuity of electricity supply to consumers, several indicators have been used to measure the performance of the electricity generation, transmission, and distribution system in Malaysia.

In Peninsular Malaysia, the average thermal efficiency recorded an increase of 1.8% for TNB'S CCGT power stations while TNB's Open Cycle Gas Turbine (OCGT) power stations recorded a decrease of 16.7%. IPP's conventional thermal power stations showed an increase of 1.3% while IPP's coal power stations showed a decrease of 0.4%. The Average Equivalent Availability Factor (EAF) mostly showed a decrease between 0.2% to 13.6% compared to the previous year.

The average level of outages due to forced and maintenance outages and forced and maintenance deratings measured using the Equivalent Unscheduled Outage Factor (EUOF) has increased by 300% for IPP's conventional thermal power stations, by 35.7% for TNB's CCGT power stations, and by 26.3% IPP's CCGT power stations. TNB's hydroelectric power stations remained at 1.13%. Whilst TNB's OCGT hydroelectric power stations showed the most EUOF decreased of 75.5% followed by IPP's coal power stations of 16.3%.

For transmission system in Peninsular Malaysia, system minutes was at 0.09 minutes, a 12.5% increase from the previous year. System Average Interruption Duration Index (SAIDI) for the distribution system also recorded a reading of below the 50 minutes target which is 45.25 minutes/customer/year. This performance indicator shows an improvement in the security of the electricity supply system in Peninsular Malaysia. For the distribution system, there was an increment of 9% where 70,004 electricity supply interruptions was recorded compared to the previous year. Number of consumers involved in voltage dip incidents also recorded an increase of 40% in 2022 especially in Penang with 115 consumers (2020: 56 consumers).

In Sabah, the thermal efficiency of SESB's and IPP's CCGT power stations only recorded an increase between 0.5% to 0.6%. SESB's diesel power plant on the other hand recorded a decrease of 0.8% from the previous year. The EAF of SESB's CCGT power stations, IPP's CCGT power stations



Di Sabah, kecekapan termal bagi stesen-stesen jana kuasa CCGT SESB dan IPP hanya mencatatkan peningkatan dalam lingkungan 0.5% hingga 0.6%. Stesen jana kuasa diesel SESB pula mencatatkan penurunan sebanyak 0.8% dari tahun sebelumnya. EAF bagi stesen jana kuasa CCGT SESB, CCGT IPP dan diesel SESB meningkat masing-masing dengan 5.0%, 2.4% dan 14.8%, manakala stesen jana kuasa hidroelektrik SESB mencatatkan peningkatan EAF sebanyak 1.2% pada 2021. Kadar hentitugas EUOF bagi stesen jana kuasa CCGT SESB mencatatkan peningkatan terbesar iaitu 288%, begitu juga dengan stesen jana kuasa hidroelektrik SESB yang meningkat sebanyak 151%. Penurunan EUOF dicatatkan pada stesen jana kuasa CCGT IPP dan stesen jana kuasa diesel SESB, masing-masing sebanyak 24% dan 9% berbanding tahun sebelumnya.

*Delivery Point Unreliability Index (DePUI)* bagi sistem penghantaran di Sabah merekodkan sistem minit sebanyak 40.74 minit, berbanding 13.96 minit pada 2020. SAIDI di Sabah mencatatkan peningkatan sebanyak 75% daripada 189.43 minit/pelanggan/tahun kepada 332.14 minit/pelanggan/tahun pada 2021. Rekod *Customer Average Interruption Duration Index (CAIDI)* iaitu tempoh gangguan bagi setiap pelanggan juga telah meningkat kepada 29.27 minit/pelanggan terlibat/tahun berbanding 15.26 minit/pelanggan terlibat/tahun pada 2020.

Di Sarawak, kecekapan termal bagi 2021 menunjukkan penurunan sebanyak 10% bagi stesen jana kuasa OCGT diikuti dengan 15% bagi stesen jana kuasa CCGT. Bagaimanapun, peningkatan sebanyak 16% dicatatkan bagi stesen jana kuasa diesel dan 10% bagi stesen jana kuasa arang batu. EAF bagi stesen arang batu, stesen jana kuasa CCGT dan stesen jana kuasa hidroelektrik telah meningkat masing-masing sebanyak 10%, 4% dan 1%. Kadar hentitugas (FOR) mencatatkan peningkatan tertinggi sebanyak 447% pada stesen jana kuasa CCGT, diikuti oleh stesen jana kuasa OCGT sebanyak 192% dan stesen arang batu sebanyak 79%. Stesen jana kuasa hidroelektrik mencatatkan penurunan sebanyak 33% berbanding tahun sebelumnya. Sistem minit penghantaran di Sarawak mencatatkan bacaan 14.64 minit, peningkatan daripada 0.45 minit berbanding tahun sebelumnya. Prestasi sistem pengagihan elektrik bagi Sarawak mencatatkan SAIDI sebanyak 84.78 minit/pelanggan/tahun, peningkatan sebanyak 9% berbanding tahun sebelumnya (2020: 77.68 minit/pelanggan/tahun). Selain itu, SAIFI bagi Sarawak mencatatkan penurunan sebanyak 1% sementara CAIDI mencatatkan peningkatan sebanyak 11%.

and SESB's diesel power stations increased by 5.0%, 2.4% and 14.8% respectively, while SESB's hydroelectric power stations recorded an increase of 1.2% in 2021. The outage rate EUOF for SESB's CCGT power stations shown the most increase of 288%, followed by SESB's hydroelectric power stations which increased by 151%. The decrease of EUOF recorded in IPP's CCGT power stations and SESB's diesel power stations, each with 24% and 9% respectively compared to the previous year.

The Delivery Point Unreliability Index (DePUI) of Sabah transmission system was recorded at 40.74 system minutes, compared to 13.96 minutes in 2020. SAIDI in Sabah rose by 75% from 189.43 minutes/customer/year to 332.14 minutes/customer/year in 2021. The Customer Average Interruption Duration Index (CAIDI), which records the duration of disruption per customer, has increased to 29.27 minutes/interrupted customer/year, compared to 15.26 minutes/interrupted customer/year in 2020.

In Sarawak, thermal efficiency in 2021 has shown a decrease of 10% for OCGT power stations followed by 15% decrease for CCGT power stations. However, an increase of 16% was recorded for diesel power stations and 10% for coal power stations. The EAF for coal power stations, CCGT power stations and hydroelectric power stations has increased with 10%, 4% and 1% respectively. The force outage rate (FOR) recorded the most increase of 447% for CCGT power stations, followed by OCGT power stations of 192% and coal power stations of 79%. Hydroelectric power stations recorded a decrease of 33% compared to the previous year. The transmission system minutes in Sarawak recorded a reading of 14.64 minutes, which is an increase from 0.45 minutes previous year. The performance of Sarawak's electricity distribution recorded a SAIDI of 84.78 minutes/customer/year, an increase of 9% from previous year (2020: 77.68 minutes/customer/year). In addition, Sarawak's SAIFI recorded a decrease of 1% while CAIDI showed an increase of 11%.

## MALAYSIA SEPINTAS LALU MALAYSIA AT A GLANCE

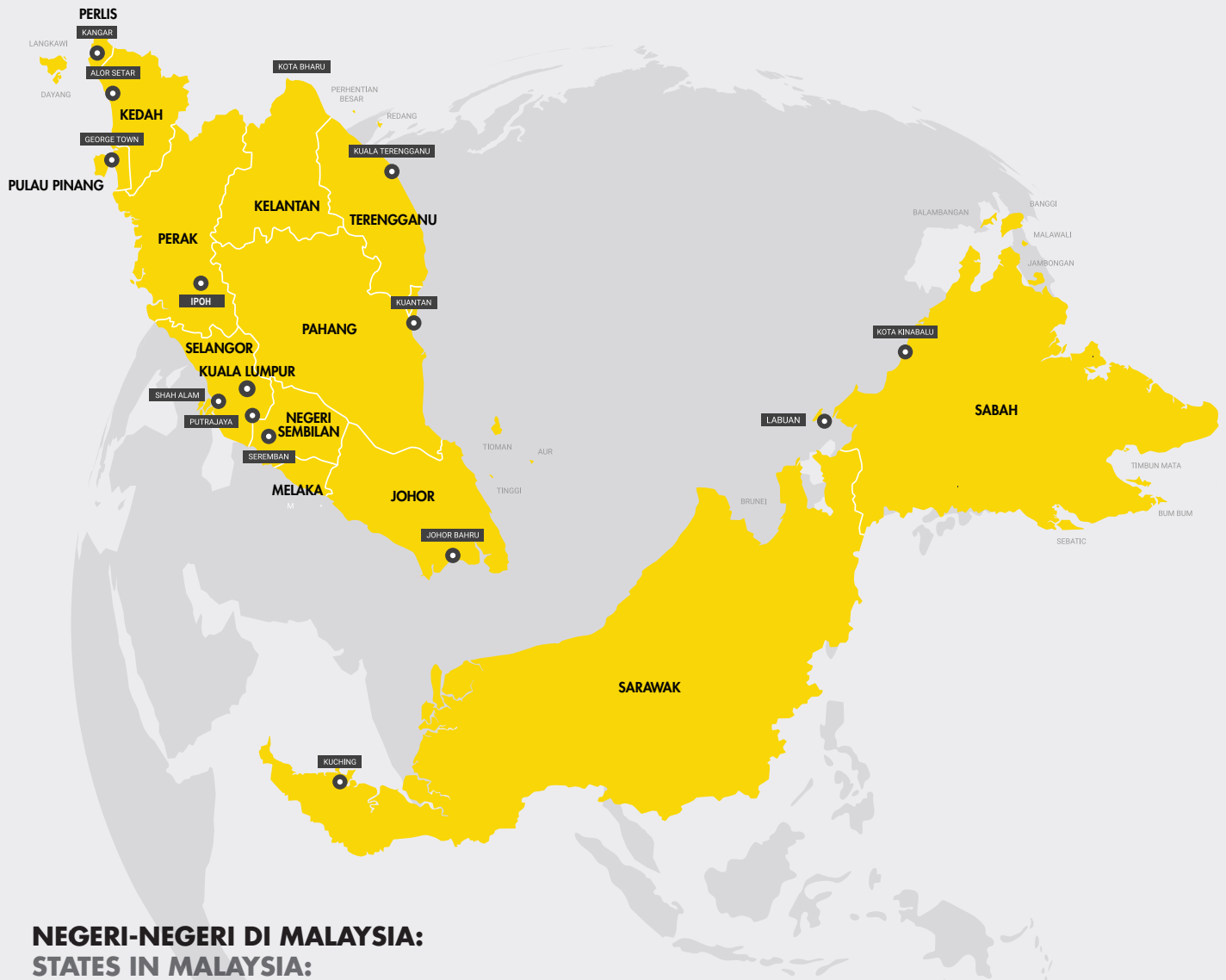
	2017	2018	2019	2020	2021
<b>Penduduk (Juta)</b> Population (Million)					
<b>Jumlah ('000)</b> Total ('000)	<b>32.0</b>	<b>32.4</b>	<b>32.5</b>	<b>32.6</b>	<b>32.6</b>
Lelaki Male	16.5	16.7	16.8	16.8	17.0
Perempuan Female	15.5	15.7	15.7	15.8	15.6
<b>KDNK</b> GDP					
KDNK Pada Harga Semasa (RM juta) GDP at Current Prices (RM million)	1,372,310	1,447,760	1,512,738	1,418,000	1,545,372
KDNK Pada Harga Malar 2015 (RM juta) GDP at Constant 2015 Prices (RM million)	1,300,769	1,363,766	1,423,952	1,345,144	1,386,738
Perubahan tahunan (%) Annual change (%)	5.7	4.8	4.4	-5.5	3.1
<b>Guna Tenaga</b> Employment					
Tenaga Buruh ('000 orang) Labour Force ('000 person)	14,980.1	15,280.3	15,581.6	15,667.7	15,797.2
Kadar pengangguran (%) Unemployment rate (%)	3.4	3.3	3.3	4.5	4.6

### Rujukan | Reference

Buku Tahunan Perangkaan Malaysia 2021, Jabatan Perangkaan Malaysia  
Malaysia Statistics Yearbook 2021, Department of Statistics Malaysia



# PETA MALAYSIA MAP OF MALAYSIA



## NEGERI-NEGERI DI MALAYSIA: STATES IN MALAYSIA:

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

Keluasan | Area:  
330,441 km<sup>2</sup>

Rujukan | Reference:  
Buku Tahunan Perangkaan Malaysia 2021,  
Jabatan Perangkaan Malaysia  
Malaysia Statistics Yearbook 2021,  
Department of Statistics Malaysia

Nota | Notes:  
\* Wilayah Persekutuan  
\* Federal Territory

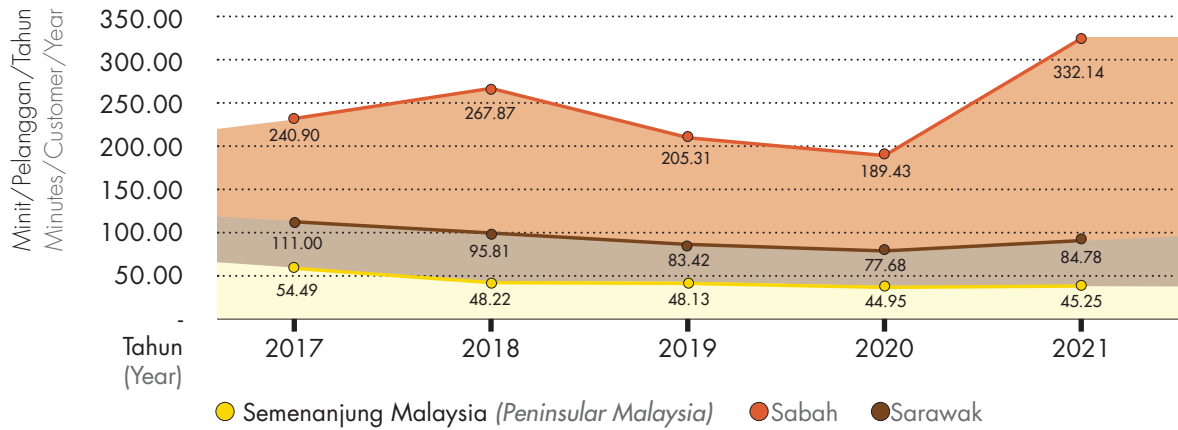


# RINGKASAN SUMMARY

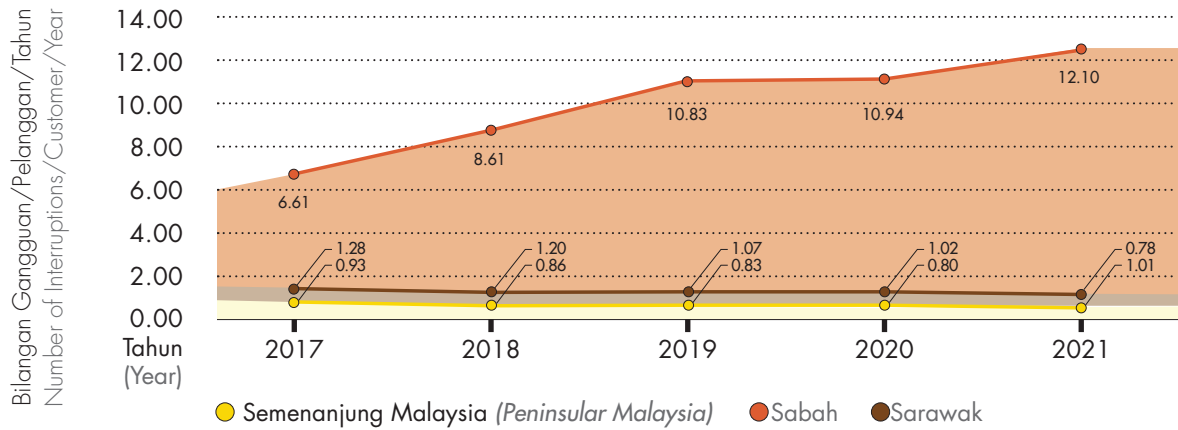
# SAIDI, SAIFI & CAIDI



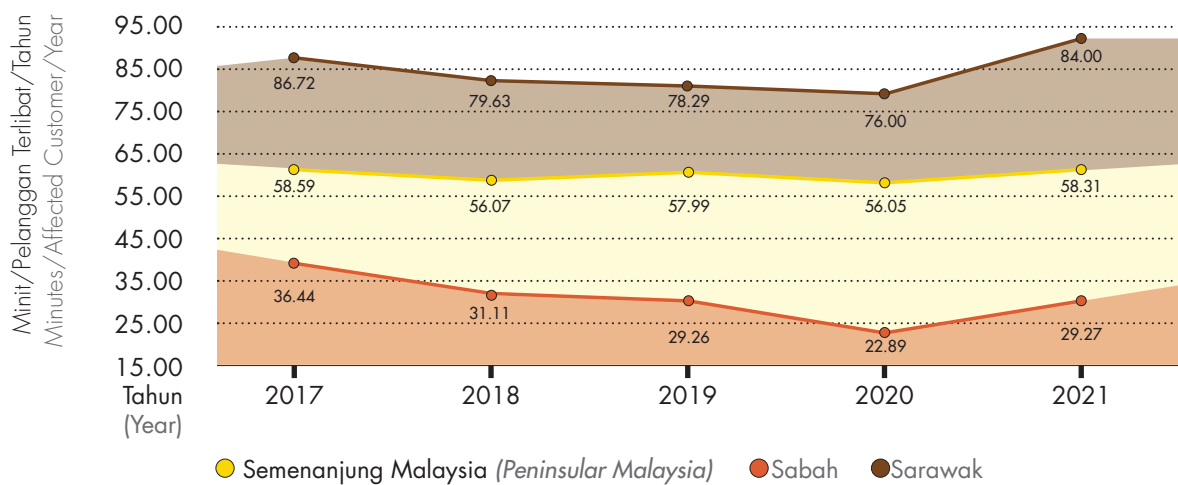
## SAIDI (2017 - 2021)



## SAIFI (2017 - 2021)

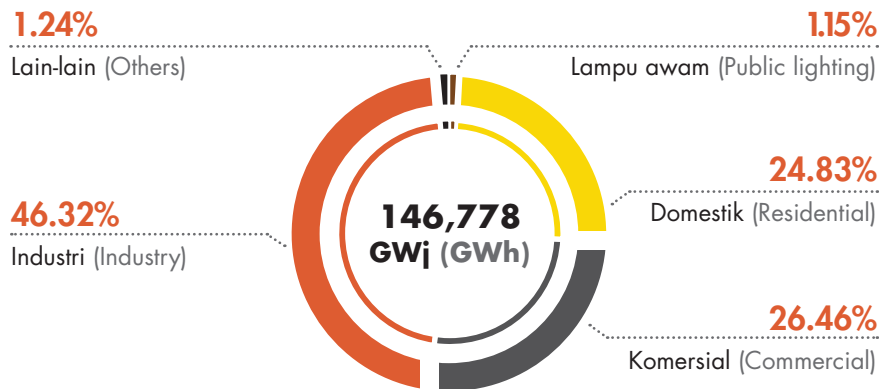


## CAIDI (2017 - 2021)



## PENGGUNAAN ELEKTRIK ELECTRICITY CONSUMPTION

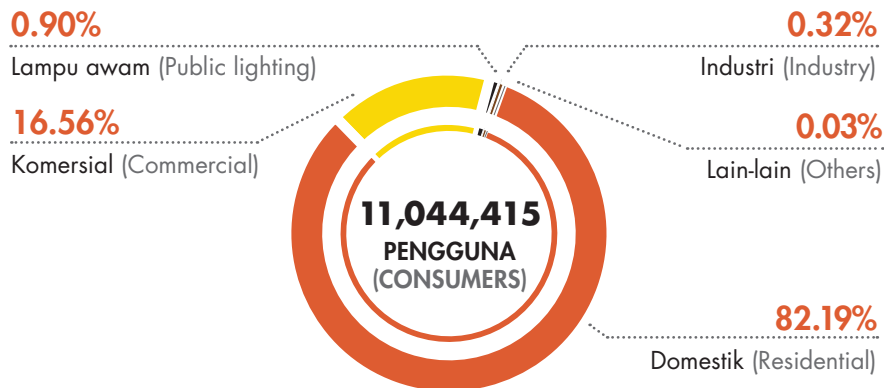
### Penggunaan Elektrik Mengikut Sektor (GWj) Electricity Consumption by Sector (GWh)



#### Nota | Notes:

1. Sektor komersial adalah termasuk unit percuma. Commercial sector includes free units.
2. Lain-lain: Perlombongan, Pertanian dan Eksport. Others: Mining, Agriculture and Export.

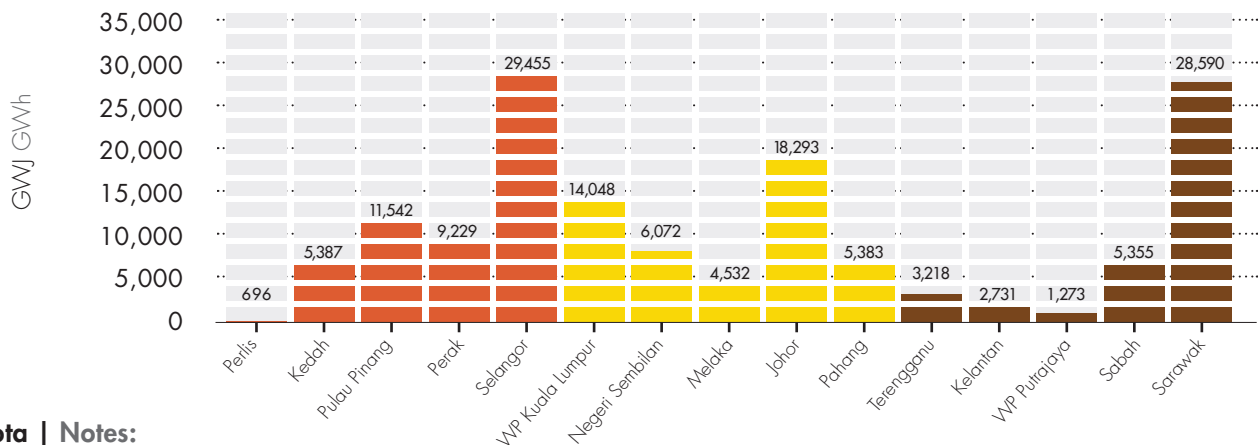
### Jumlah Pengguna Mengikut Sektor Number of Consumers by Sector



#### Nota | Notes:

1. Sektor komersial adalah termasuk unit percuma. Commercial sector includes free units.
2. Lain-lain: Perlombongan dan Pertanian. Others: Mining and Agriculture.

### Penggunaan Elektrik Mengikut Negeri Electricity Consumption by State

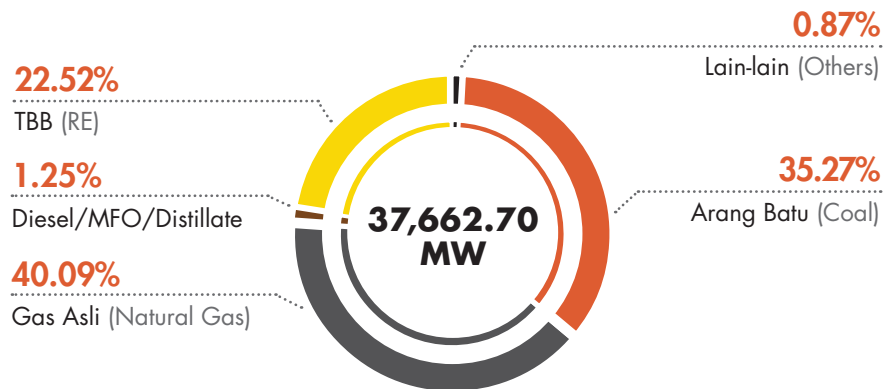


#### Nota | Notes:

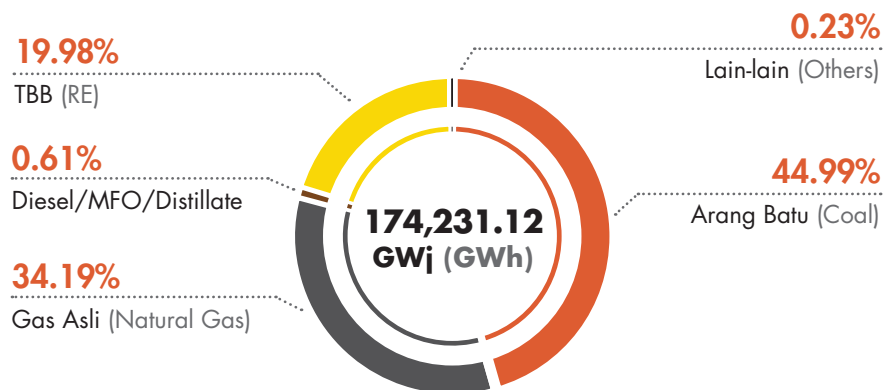
Tidak termasuk eksport. Excluding export.



Kapasiti Terpasang Mengikut Sumber Tenaga  
 Installed Capacity by Energy Source



Penjanaan Elektrik Mengikut Sumber Tenaga  
 Electricity Generation by Energy Source

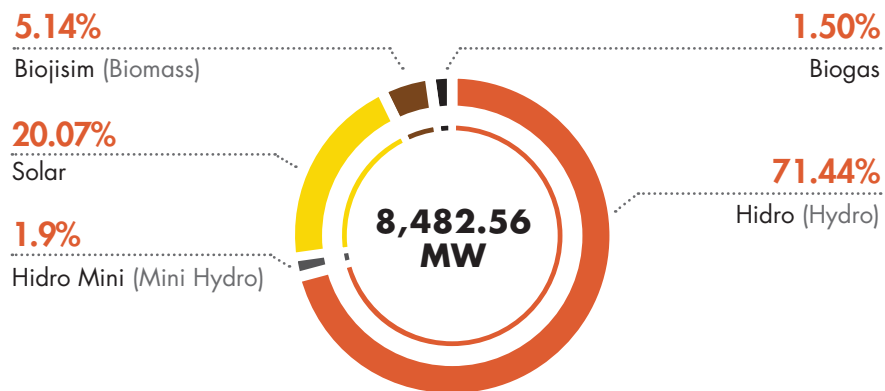


**Nota | Notes:**

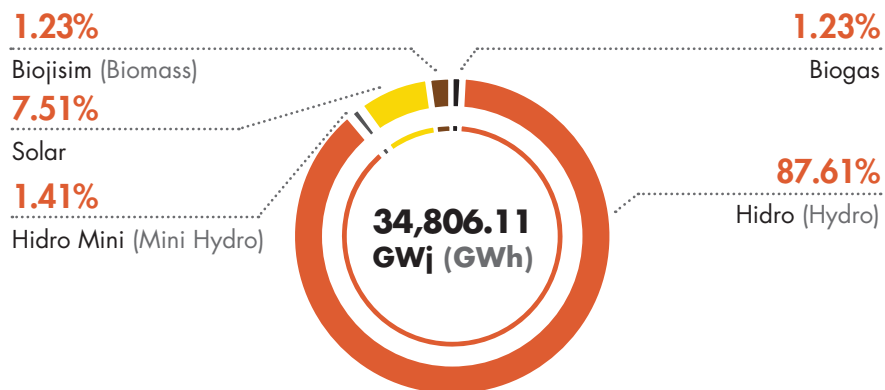
1. Termasuk kapasiti dari stesen jana kuasa yang bersambung di peringkat pengagihan dan *off-grid*.  
 Including the capacity from distribution level and off-grid power plants.
2. Lain-lain terdiri daripada haba sisa proses perindustrian dan sumber tenaga bukan tenaga boleh baharu (TBB).  
 Others consists of industrial process waste heat and other non-renewable energy (non-RE) resources.

**KAPASITI TERPASANG DAN PENJANAAN ELEKTRIK TENAGA  
BOLEH BAHARU (TBB) MENGIKUT SUMBER TENAGA**  
**INSTALLED CAPACITY AND ELECTRICITY GENERATION OF  
RENEWABLE ENERGY (RE) BY ENERGY SOURCE**

**Kapasiti Terpasang Mengikut Sumber Tenaga**  
**Installed Capacity by Energy Source**



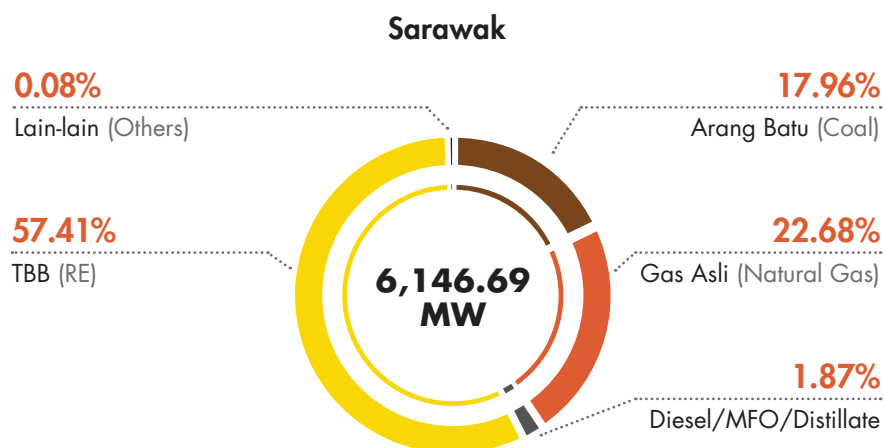
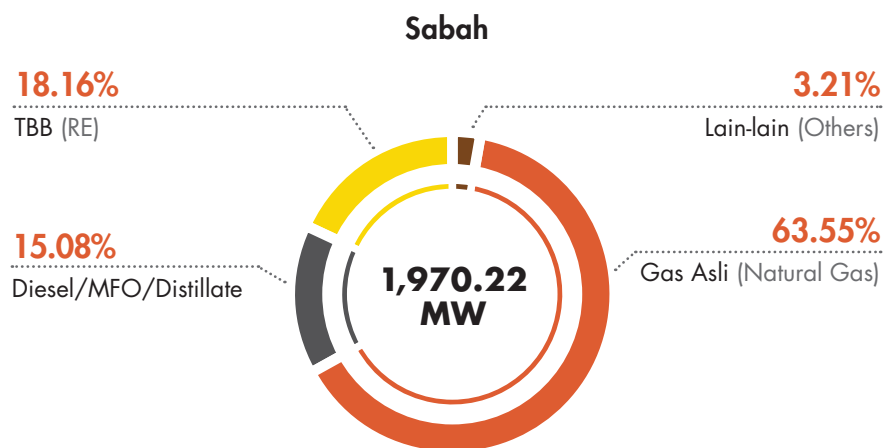
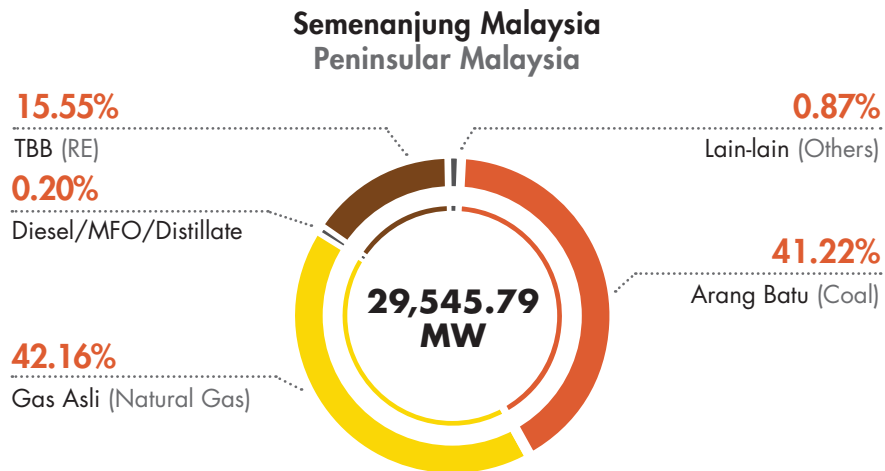
**Penjanaan Elektrik Mengikut Sumber Tenaga**  
**Electricity Generation by Energy Source**



**Nota | Notes:**

Termasuk kapasiti dari stesen jana kuasa yang bersambung di peringkat pengagihan dan *off-grid*.  
Including the capacity from distribution level and off-grid power plants.

## KAPASITI TERPASANG MENGIKUT KAWASAN DAN SUMBER TENAGA INSTALLED CAPACITY BY REGION AND ENERGY SOURCE

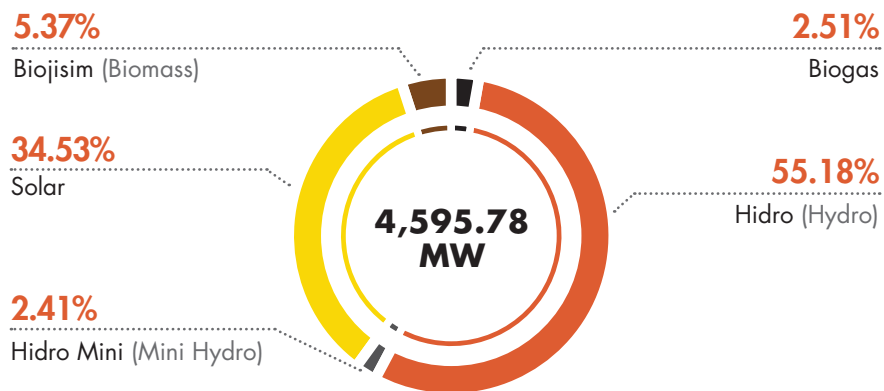


### Nota | Notes:

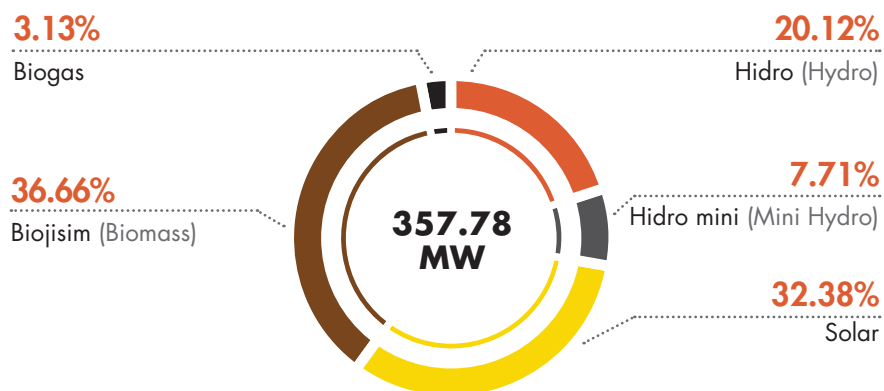
1. Termasuk kapasiti dari stesen jana kuasa yang bersambung di peringkat pengagihan dan *off-grid*.  
Including the capacity from distribution level and off-grid power plants.
2. Lain-lain terdiri daripada haba sisa proses perindustrian dan sumber tenaga bukan TBB.  
Others consists of industrial process waste heat and other non-RE resources.

**KAPASITI TERPASANG TENAGA BOLEH BAHARU (TBB)  
MENGIKUT KAWASAN DAN SUMBER TENAGA  
INSTALLED CAPACITY OF RENEWABLE ENERGY (RE)  
BY REGION AND ENERGY SOURCE**

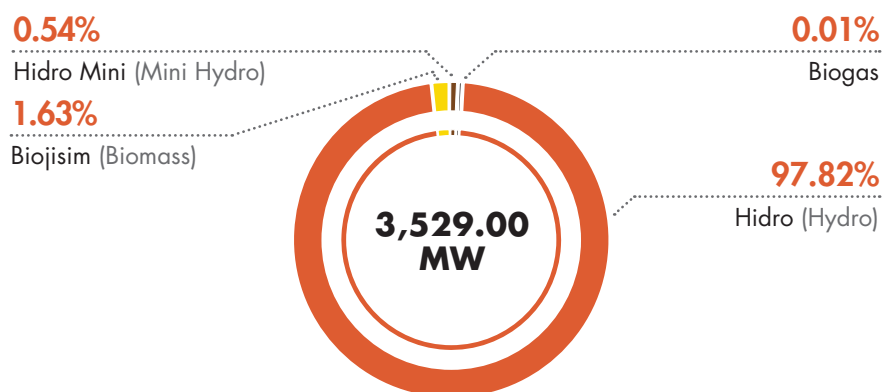
**Semenanjung Malaysia  
Peninsular Malaysia**



**Sabah**



**Sarawak**

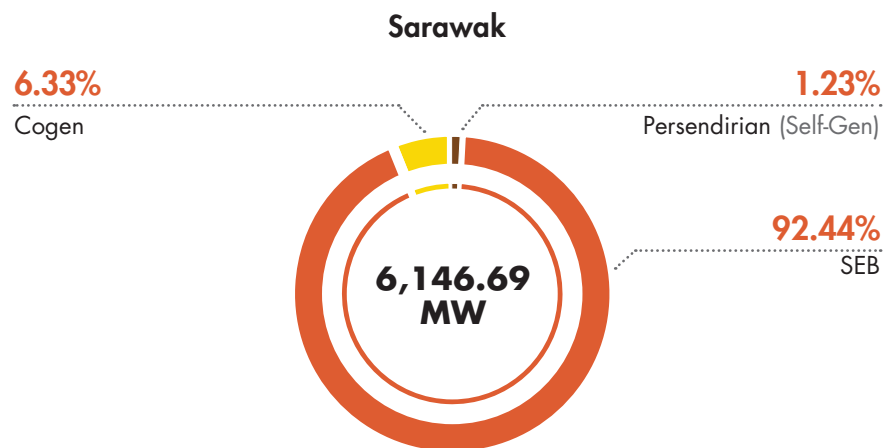
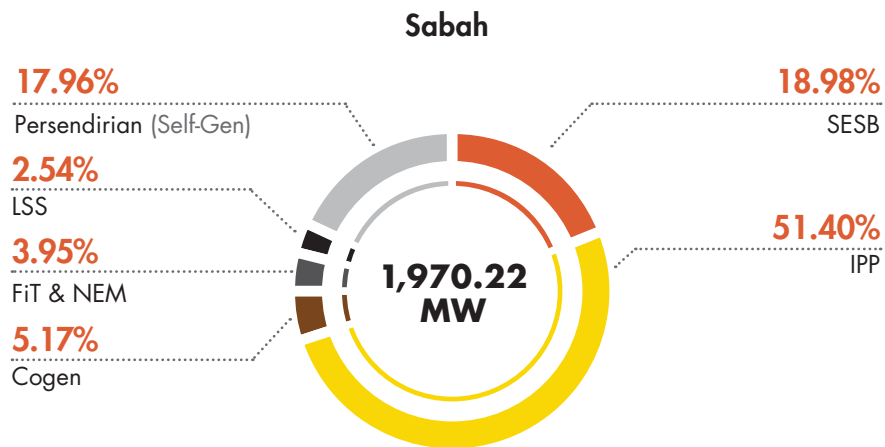
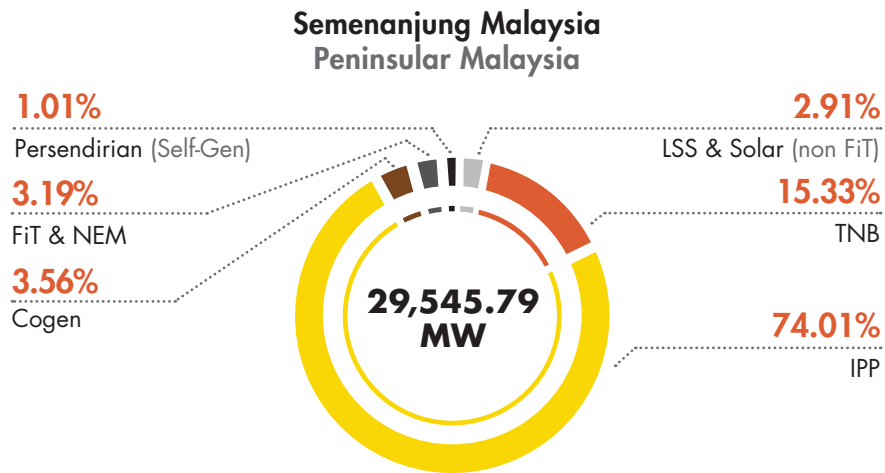


**Nota | Notes:**

Termasuk kapasiti dari stesen jana kuasa yang bersambung di peringkat pengagihan dan *off-grid*.  
Including the capacity from distribution level and off-grid power plants.



## KAPASITI TERPASANG MENGIKUT KAWASAN DAN KATEGORI PENJANA INSTALLED CAPACITY BY REGION AND PRODUCERS

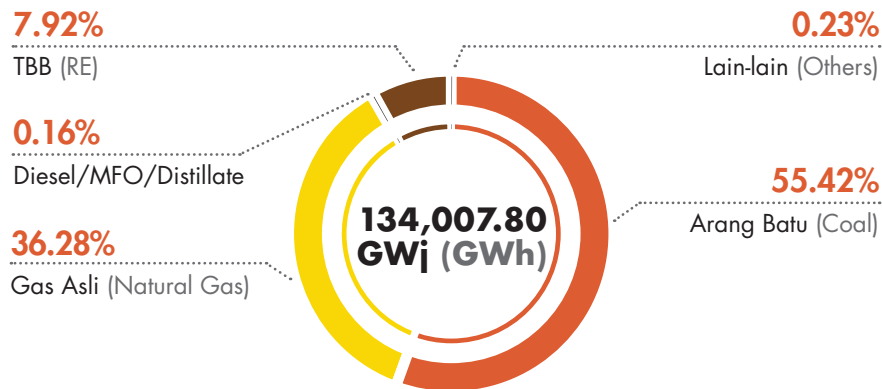


### Nota | Notes:

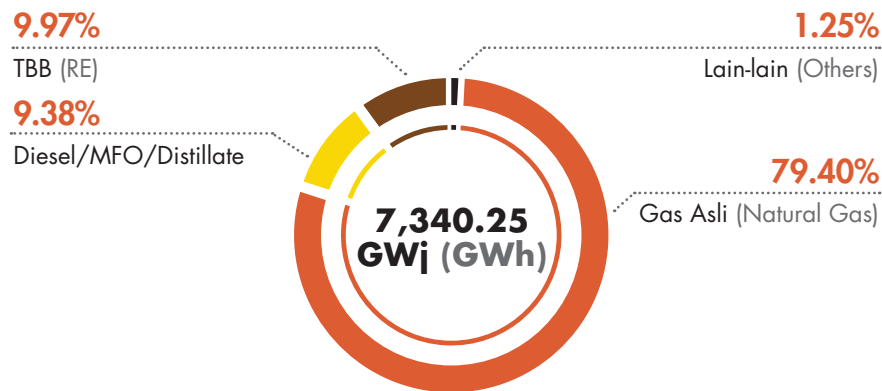
Termasuk kapasiti dari stesen jana kuasa yang bersambung di peringkat pengagihan dan *off-grid*.  
Including the capacity from distribution level and off-grid power plants.

## PENJANAAN MENGIKUT KAWASAN DAN SUMBER TENAGA GENERATION BY REGION AND ENERGY SOURCE

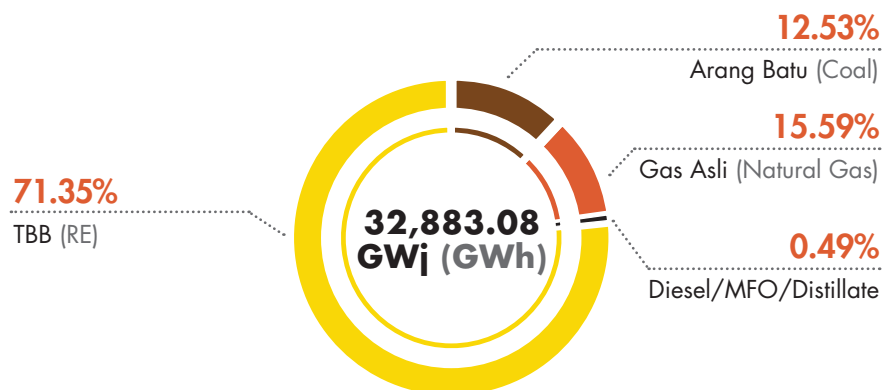
### Semenanjung Malaysia Peninsular Malaysia



### Sabah



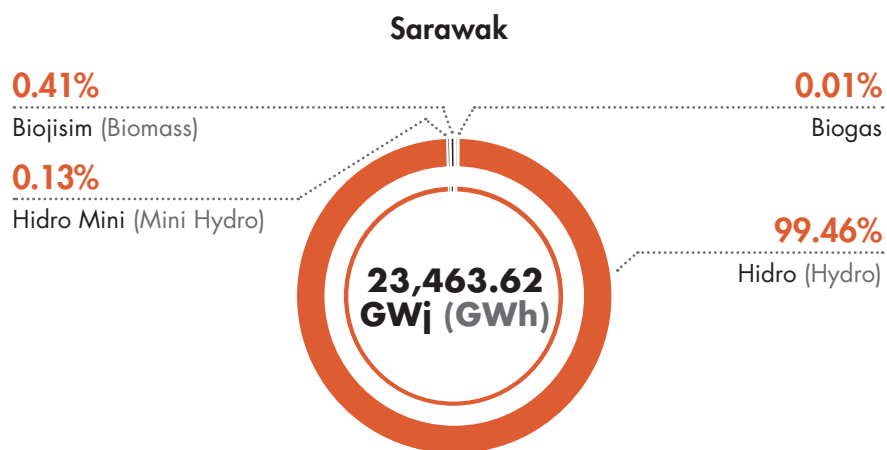
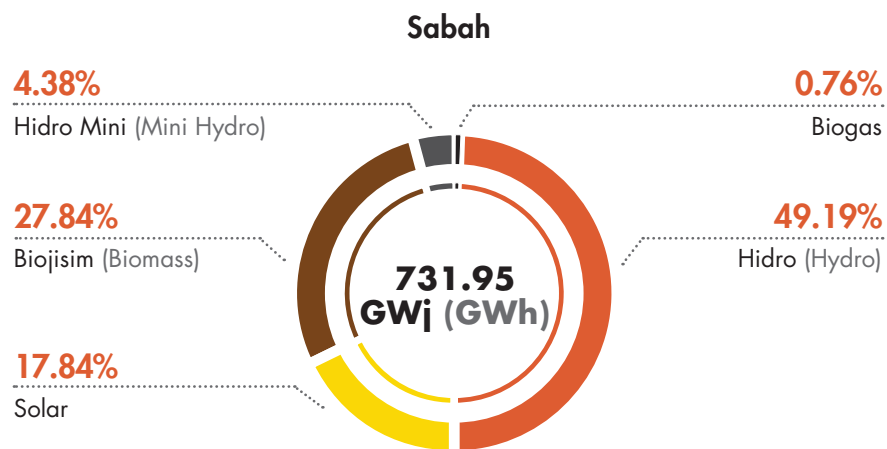
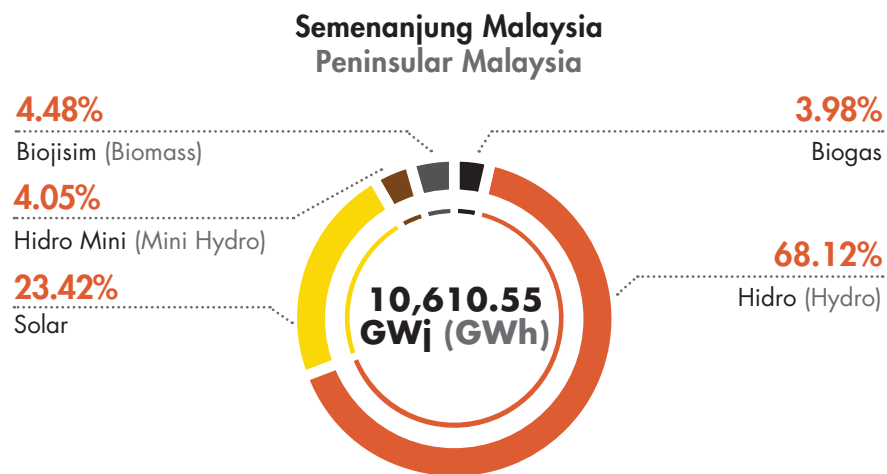
### Sarawak



#### Nota | Notes:

1. Termasuk kapasiti dari stesen jana kuasa yang bersambung di peringkat pengagihan dan *off-grid*.  
Including the capacity from distribution level and off-grid power plants.
2. Lain-lain terdiri daripada haba sisa proses perindustrian dan sumber tenaga bukan TBB.  
Others consists of industrial process waste heat and other non-RE resources.

**PENJANAAN TENAGA BOLEH BAHARU (TBB)  
MENGIKUT KAWASAN DAN SUMBER TENAGA  
ELECTRICITY GENERATION OF RENEWABLE ENERGY (RE)  
BY REGION AND ENERGY SOURCE**



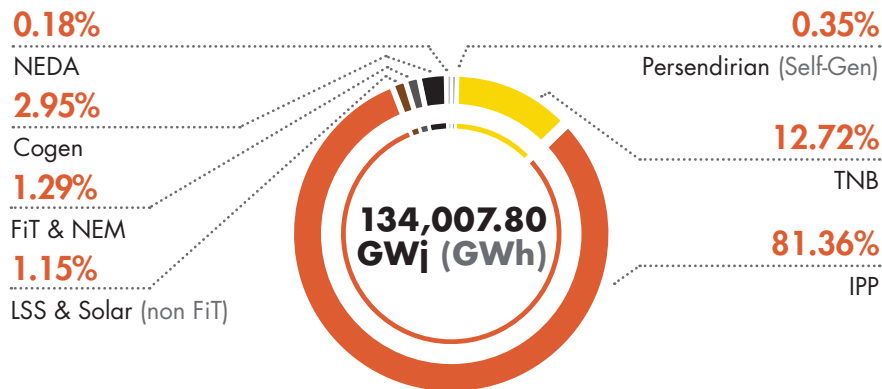
**Nota | Notes:**

Termasuk kapasiti dari stesen jana kuasa yang bersambung di peringkat pengagihan dan *off-grid*.  
Including the capacity from distribution level and off-grid power plants.

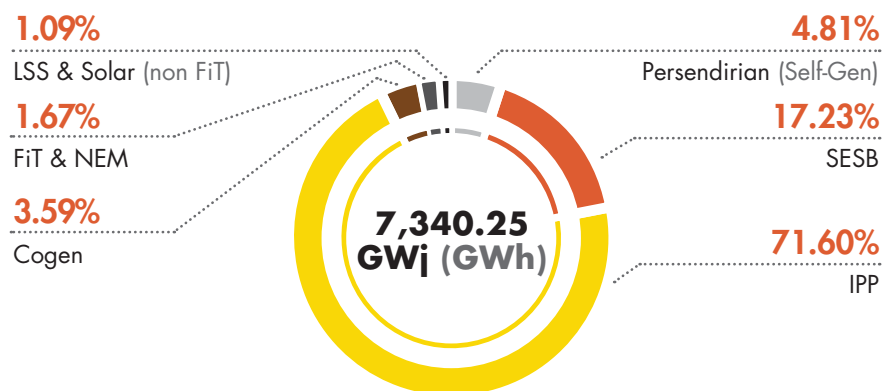
## PENJANAAN MENGIKUT KAWASAN DAN KATEGORI PENJANA GENERATION BY REGION AND PRODUCERS



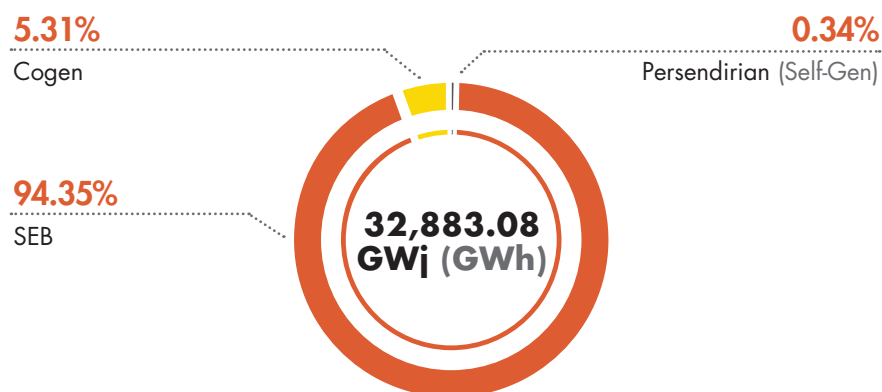
### Semenanjung Malaysia Peninsular Malaysia



### Sabah

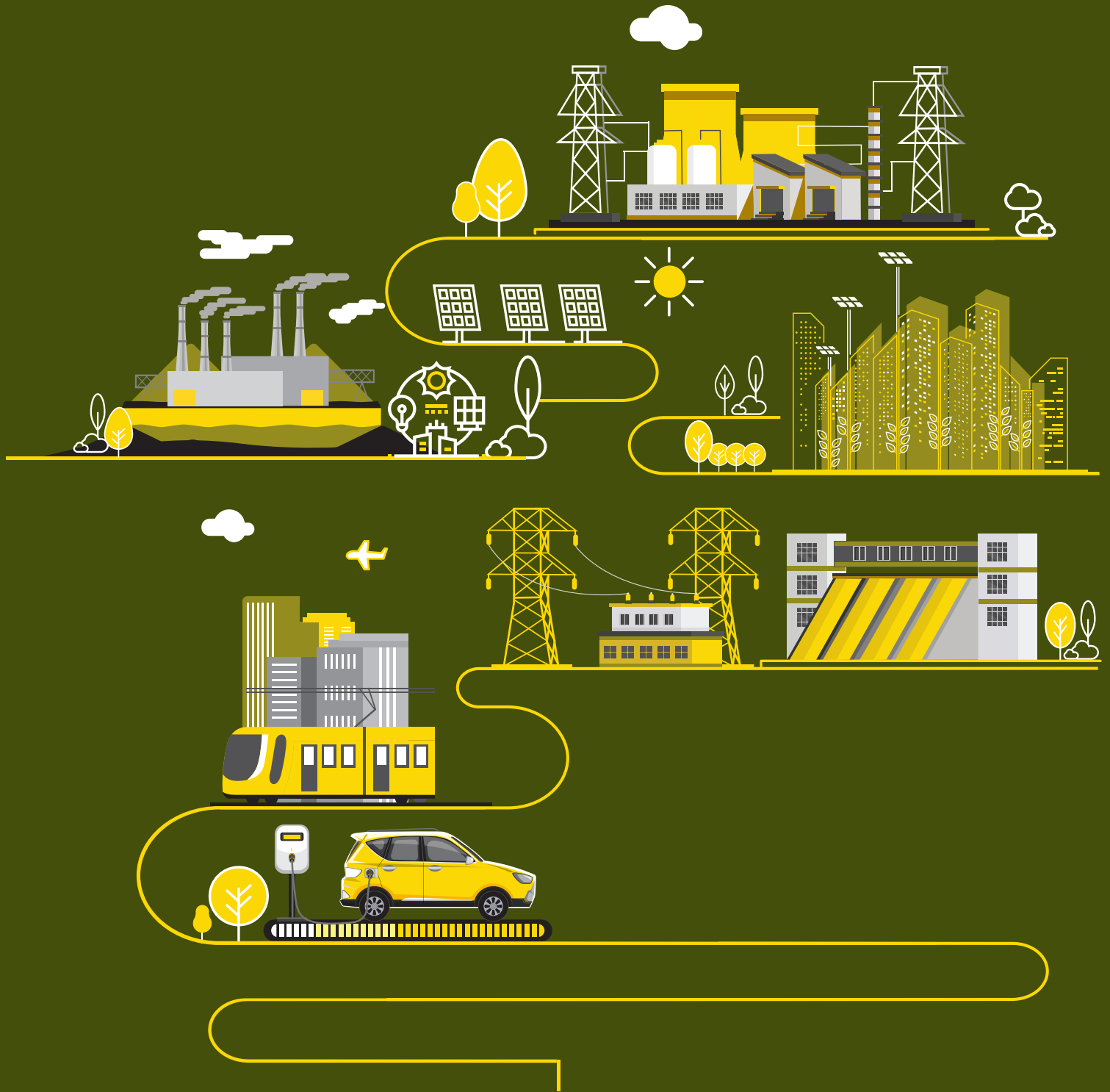


### Sarawak



#### Nota | Notes:

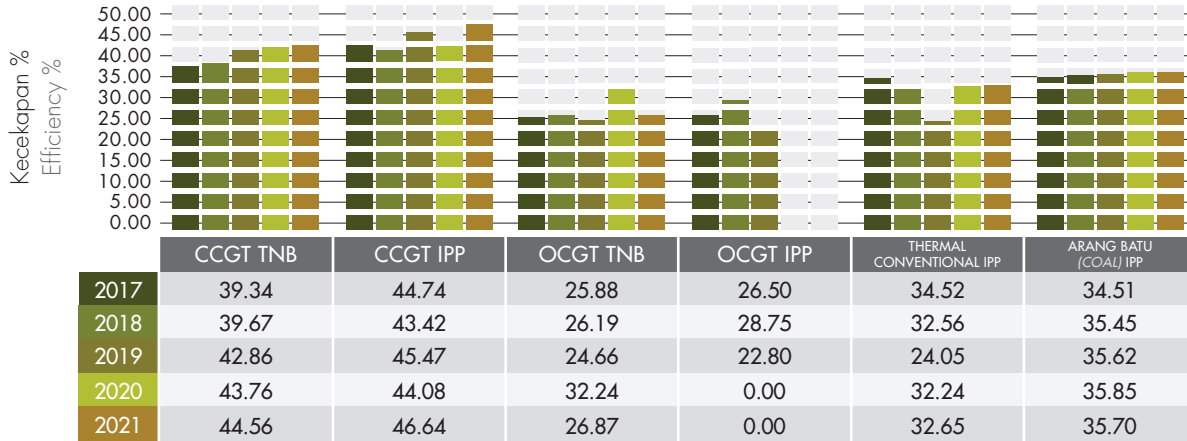
Termasuk kapasiti dari stesen jana kuasa yang bersambung di peringkat pengagihan dan *off-grid*.  
Including the capacity from distribution level and off-grid power plants.



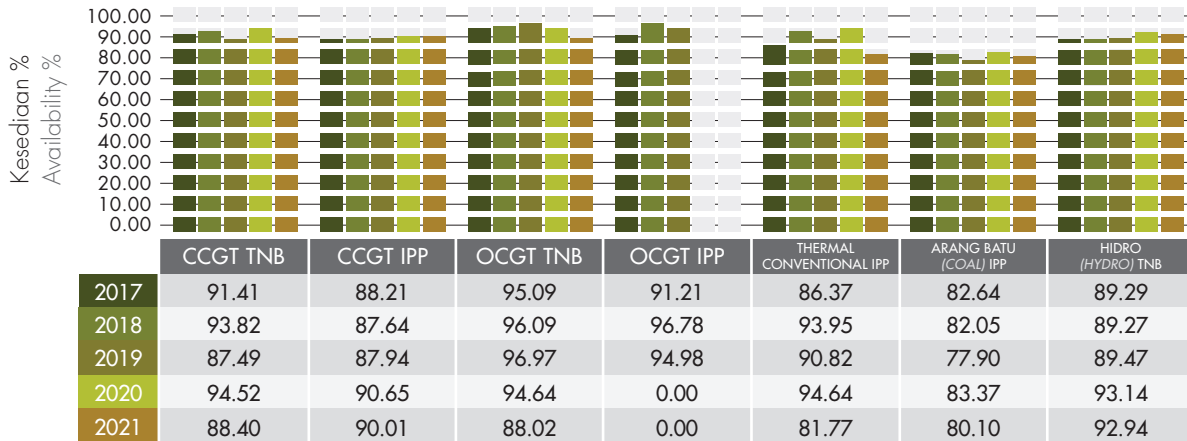
**PRESTASI PEMBEKALAN ELEKTRIK  
DI SEMENANJUNG MALAYSIA  
ELECTRICITY SUPPLY PERFORMANCE  
IN PENINSULAR MALAYSIA**

# PRESTASI SISTEM PENJANAAN DI SEMENANJUNG MALAYSIA GENERATION SYSTEM PERFORMANCE IN PENINSULAR MALAYSIA

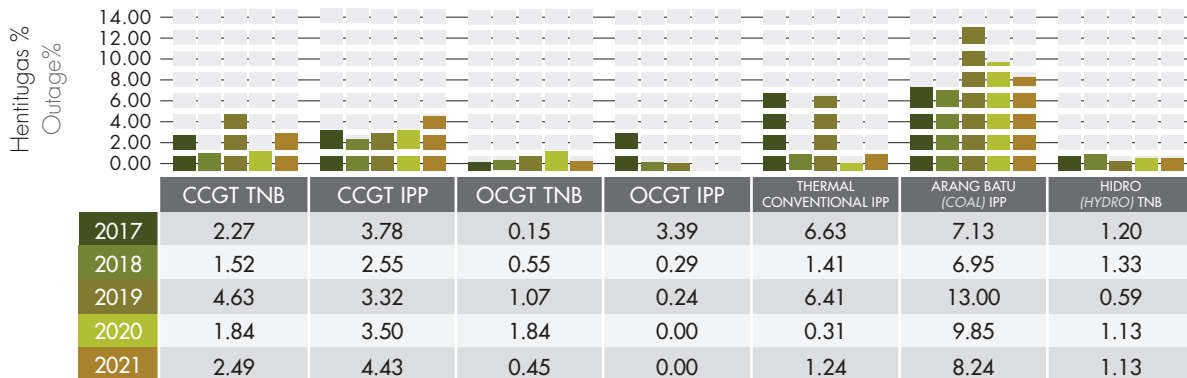
**Carta 1: Purata Kecekapan Termal Stesen Jana Kuasa TNB dan IPP**  
**Chart 1: Average Thermal Efficiency of TNB and IPP Power Plants**



**Carta 2: EAF Stesen Jana Kuasa TNB dan IPP**  
**Chart 2: EAF of TNB and IPP Power Plants**



**Carta 3: EUOF Stesen Jana Kuasa TNB dan IPP**  
**Chart 3: EUOF of TNB and IPP Power Plants**





**Jadual 1: Pelantikan Sistem Penghantaran TNB dengan Kehilangan Beban Sebanyak 50 MW dan ke atas**

**Table 1: TNB Transmission System Trippings with Load Loss of 50 MW and above**

PETUNJUK INDICATOR	2017	2018	2019	2020	2021
Bilangan Pelantikan Tanpa Lucutan Beban Number of Trippings Without Load Shedding	1	5	2	1	0
Tenaga yang Tidak Dibekalkan semasa Pelantikan (MWj) Unsupplied Energy During Trippings (MWh)	40.30	35.05	45.78	0.95	0
Bilangan Pelantikan dengan Lucutan Beban Number of Trippings with Load Shedding	0	0	0	0	0
Tenaga yang Tidak Dibekalkan semasa Lucutan Beban (MWj) Unsupplied Energy During Load Shedding (MWh)	0	0	0	0	0

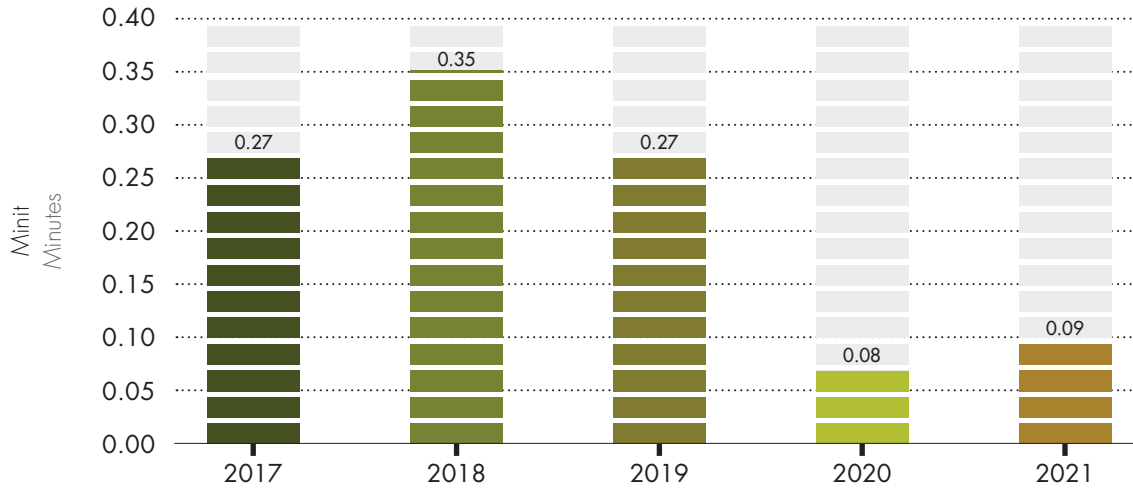
**Jadual 2: Pelantikan Bulanan Sistem Penghantaran TNB dengan Kehilangan Beban 50 MW dan ke atas**

**Table 2: TNB Monthly Transmission System Trippings with Load Loss of 50 MW and above**

PETUNJUK INDICATOR	2021											
	Jan Jan	Feb Feb	Mac Mar	Apr Apr	Mei May	Jun June	Jul July	Ogos Aug	Sep Sept	Okt Oct	Nov Nov	Dis Dec
Bilangan Pelantikan Tanpa Lucutan Beban Number of Trippings Without Load Shedding	0	0	0	0	0	0	0	0	0	0	0	0
Bilangan Pelantikan dengan Lucutan Beban Number of Trippings with Load Shedding	0	0	0	0	0	0	0	0	0	0	0	0
Kehilangan Beban Maksimum (MW) Maximum Load Losses (MW)	0	0	0	0	0	0	0	0	0	0	0	0
Tenaga yang Tidak Dibekalkan semasa Pelantikan (MWj) Unsupplied Energy During Trippings (MWh)	0	0	0	0	0	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	0	0
Purata Tempoh Setiap Pelantikan (Minit) Average Duration Per Tripping (Minutes)	0	0	0	0	0	0	0	0	0	0	0	0
Tenaga Tidak Dibekalkan semasa Lucutan Beban (MWj) Unsupplied Energy During Load Shedding (MWh)	0	0	0	0	0	0	0	0	0	0	0	0

**PRESTASI SISTEM PENGHANTARAN DI SEMENANJUNG MALAYSIA**  
**TRANSMISSION SYSTEM PERFORMANCE IN PENINSULAR MALAYSIA**

**Carta 4: DePUI - Sistem Minit TNB**  
**Chart 4: DePUI - TNB System Minutes**

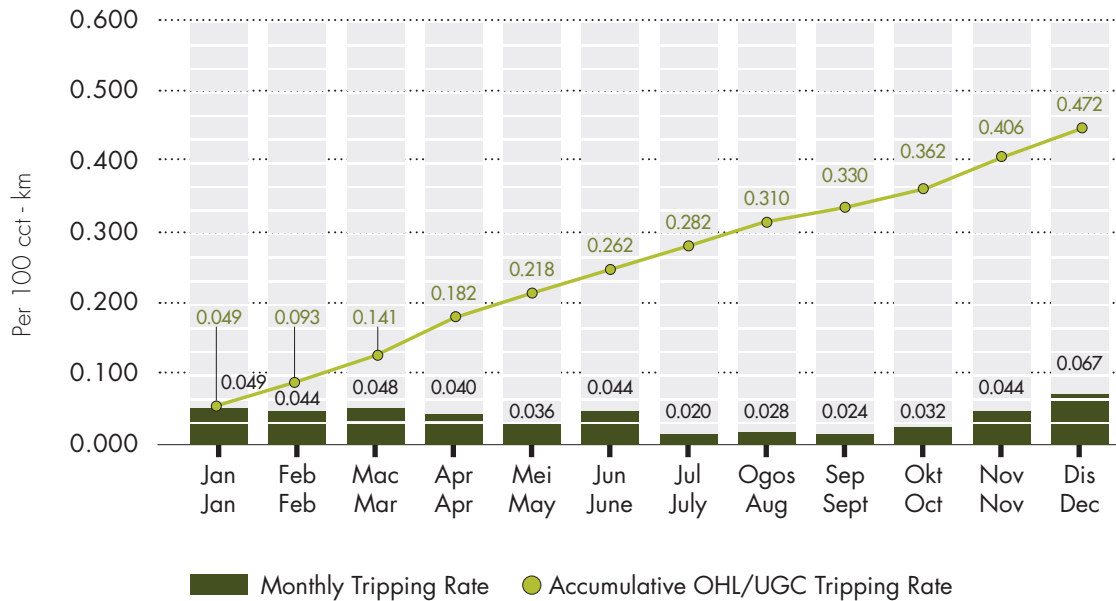


**Nota | Notes:**

2015-2017: Tahun Kewangan | Financial Year

2018-2021: Tahun Kalendar | Calendar Year

**Carta 5: Insiden Pelantikan Bulanan TNB Bagi Talian/ Kabel Per 100 cct-km di Semenanjung Malaysia**  
**Chart 5: TNB Monthly Tripping Incidents for Lines/ Cables Per 100 cct-km in Peninsular Malaysia**



**Nota | Notes:**

Data diperoleh daripada data tahun kewangan Laporan Syarat Lesen 25 (4) TNB 2021

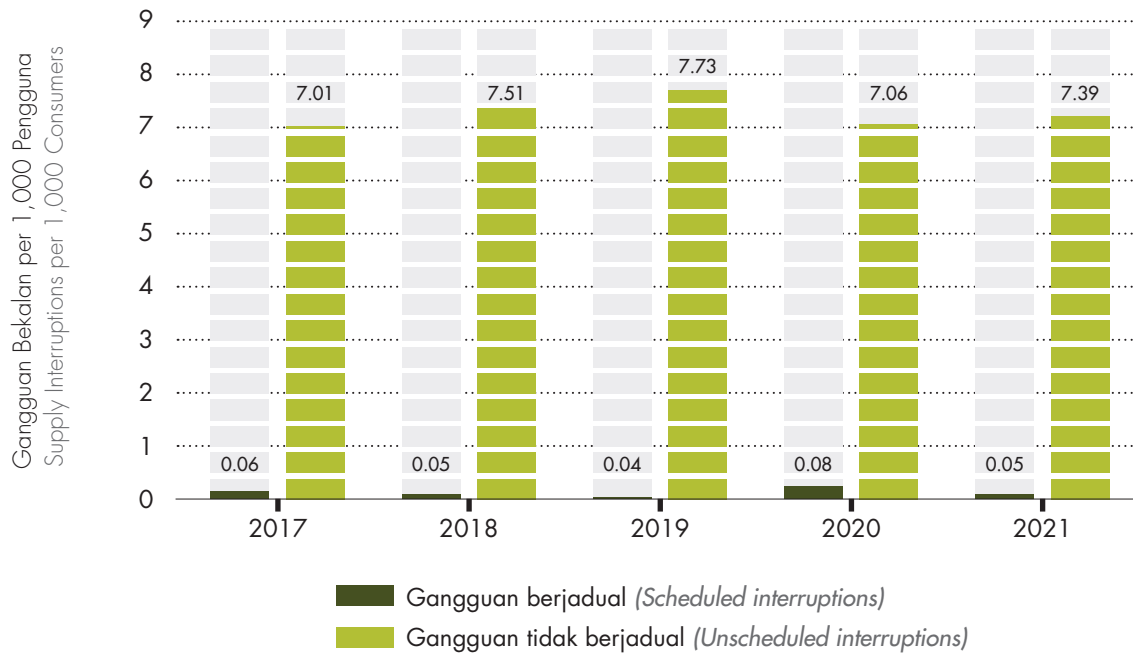
Financial year data obtained from License Condition 25 (4) TNB 2021



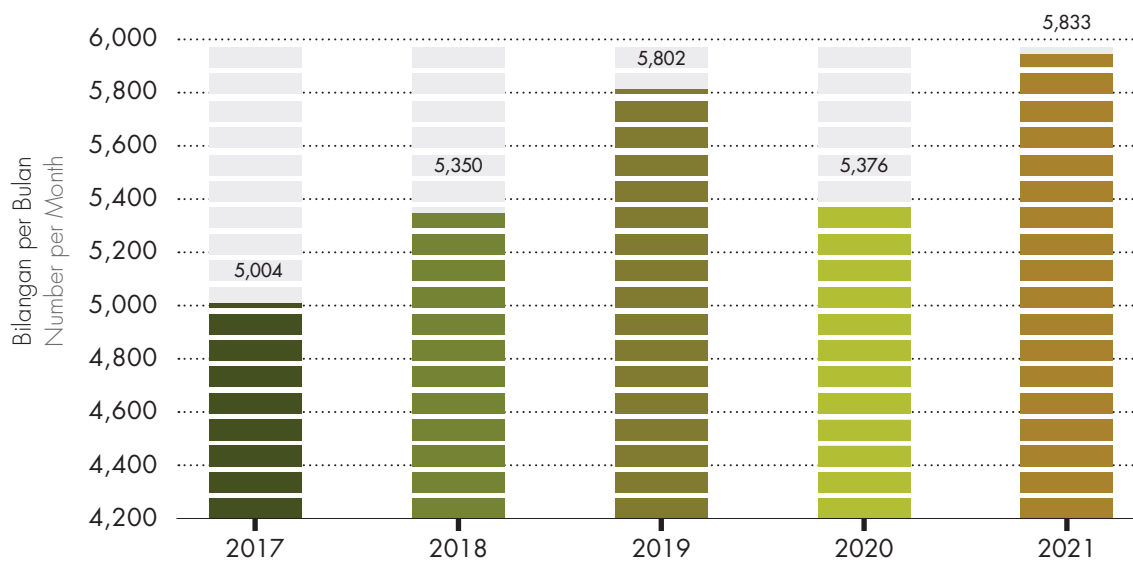


**GANGGUAN BEKALAN ELEKTRIK  
ELECTRICITY SUPPLY INTERRUPTION**

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

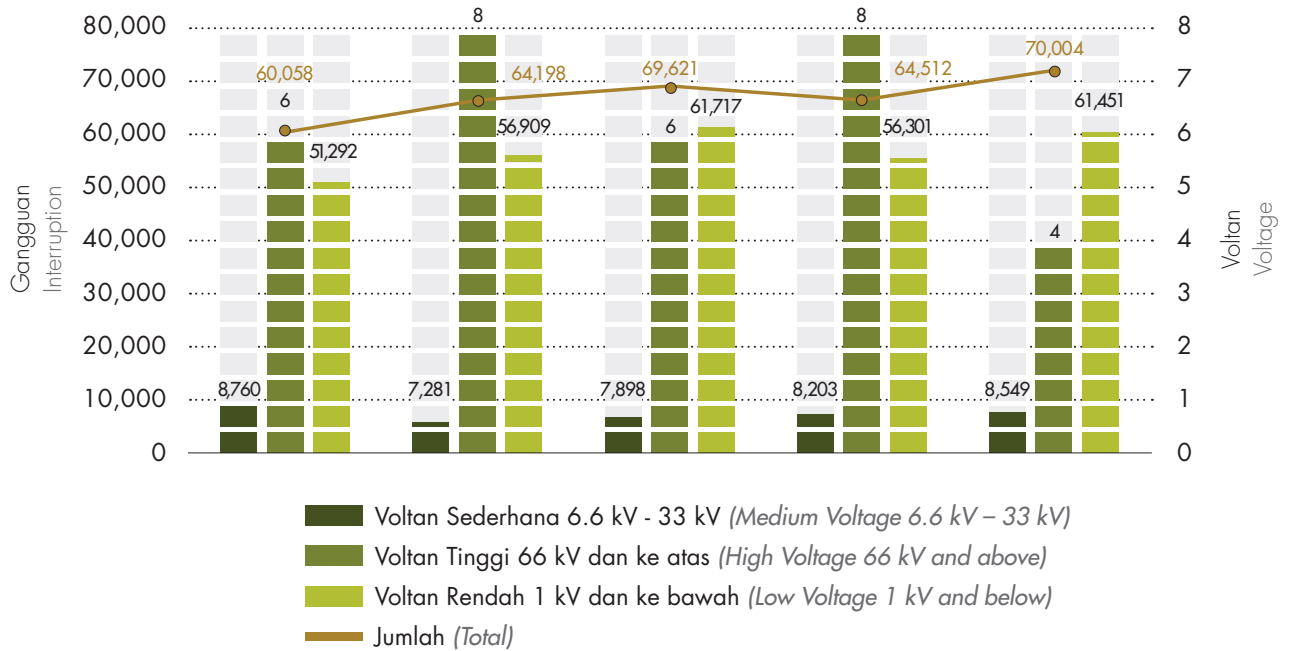


**Carta 7: Purata Gangguan Bekalan Elektrik Bulanan  
Chart 7: Monthly Average Electricity Supply Interruptions**



## PRESTASI SISTEM PENGAGIHAN DI SEMENANJUNG MALAYSIA DISTRIBUTION SYSTEM PERFORMANCE IN PENINSULAR MALAYSIA

**Carta 8: Gangguan Bekalan Elektrik Mengikut Tahap Voltan**  
**Chart 8: Electricity Supply Interruptions by Voltage Level**



**Jadual 3: Gangguan Bekalan Elektrik Mengikut Negeri**  
**Table 3: Electricity Supply Interruptions by State**

NEGERI STATE	2017	2018	2019	2020	2021
Johor	6,509	4,839	4,793	4,910	5,664
Kedah	4,715	3,751	4,249	3,482	4,053
Kelantan	4,135	4,401	5,602	4,933	5,827
WP Kuala Lumpur	6,685	8,713	9,335	7,589	7,295
Melaka	717	917	654	971	1,295
Negeri Sembilan	4,078	2,750	2,604	1,420	2,212
Pulau Pinang	3,221	2,899	4,327	3,958	3,649
Pahang	9,761	9,016	7,298	6,969	7,609
Perak	7,458	7,608	9,560	10,527	9,945
Perlis	513	699	1,088	475	746
WP Putrajaya & Cyberjaya	16	14	4	18	20
Selangor	10,163	15,132	15,993	15,592	17,189
Terengganu	2,087	3,459	4,114	3,668	4,500
<b>JUMLAH (TOTAL)</b>	<b>60,058</b>	<b>64,198</b>	<b>69,621</b>	<b>64,512</b>	<b>70,004</b>



**Jadual 4: Bilangan Gangguan Bekalan Elektrik**  
**Table 4: Number of Electricity Supply Interruptions**

BILANGAN NUMBER	2017	2018	2019	2020	2021
Gangguan Tidak Berjadual Unscheduled Interruptions	59,560	63,784	69,251	63,809	69,578
Gangguan Berjadual Scheduled Interruptions	498	414	370	703	426
<b>JUMLAH (TOTAL)</b>	<b>60,058</b>	<b>64,198</b>	<b>69,621</b>	<b>64,512</b>	<b>70,004</b>

**Jadual 5: Gangguan Bekalan Elektrik Tidak Berjadual Mengikut  
Jenis Gangguan (Tidak Termasuk Gangguan Voltan Tinggi)**  
**Table 5: Number of Unscheduled Electricity Supply Interruptions by  
Type of Interruptions (Excluding High Voltage Interruptions)**

KATEGORI CATEGORY	2017	2018	2019	2020	2021
Alat Ubah   Transformer	30	37	42	17	13
Auto   Reclose	211	1	0	0	0
Banjir   Flood	68	23	422	2	6
Feeder   Pillar	1,970	2,382	3,049	2,404	2,847
Fius   Fuse	2,109	2,737	4,045	2,390	3,675
Haiwan   Animal	537	409	641	756	806
Insulating Piercing Connectors (IPC)	14,976	24,808	24,124	17,441	23,019
Jumper	7	6	3	1	1
Kabel   Cable	2,819	2,703	3,590	4,037	2,574
Konduktor   Conductor	7,710	9,362	11,646	13,520	11,462
Kotak Fius   Fuse Box	3,975	4,164	4,522	8,383	7,301
Lain-lain   Others	6163	33	199	13	186
Null	885	0	50	236	826
Pautan   Link	28	67	109	33	106
Penamatan   Termination	93	108	509	206	270
Penebat   Insulator	4	6	11	1	3
Peralatan Suis   Switchgear	65	39	26	10	29
Pihak Ketiga   Third Party	3,323	3,463	3,530	2,741	3,153
Pokok   Tree	7,215	6,391	6,348	5,612	6,007
Relay	7	4	13	1	5
Ribut   Storm	98	78	161	78	69
Sambungan   Joint	4,650	4,279	3,603	4,209	4,858
Tiang   Pole	1,722	2,414	2,225	2	2,015
Ubahtika   Transient	43	78	40	6	28
Vandalisme   Vandalism	846	184	337	193	11
<b>JUMLAH (TOTAL)</b>	<b>59,554</b>	<b>63,776</b>	<b>69,245</b>	<b>62,292</b>	<b>69,270</b>

## PRESTASI SISTEM PENGAGIHAN DI SEMENANJUNG MALAYSIA DISTRIBUTION SYSTEM PERFORMANCE IN PENINSULAR MALAYSIA

### SAIDI, SAIFI & CAIDI

Jadual 6: SAIDI Mengikut Tahap Voltan

Table 6: SAIDI by Voltage Level

TAHAP VOLTAN VOLTAGE LEVEL	MINIT/PELANGGAN/TAHUN MINUTES/CUSTOMER/YEAR				
	2017	2018	2019	2020	2021
Voltan Tinggi (66 kV dan ke atas) High Voltage (66 kV and above)	0.36	0.03	0.00	0.01	0.01
Voltan Sederhana (6.6 kV – 33 kV) Medium Voltage (6.6 kV – 33 kV)	51.78	46.02	45.51	41.97	41.04
Voltan Rendah (1 kV dan ke bawah) Low Voltage (1 kV and below)	2.35	2.17	2.62	2.97	4.20
<b>JUMLAH TOTAL</b>	<b>54.49</b>	<b>48.22</b>	<b>48.13</b>	<b>44.95</b>	<b>45.25</b>

Jadual 7: SAIDI Mengikut Negeri

Table 7: SAIDI by State

NEGERI STATE	MINIT/PELANGGAN/TAHUN MINUTES/CUSTOMER/YEAR				
	2017	2018	2019	2020	2021
Johor	56.04	41.73	41.91	42.98	46.86
Kedah	82.51	73.30	65.76	64.98	57.94
Kelantan	59.34	49.91	39.33	42.69	37.94
WP Kuala Lumpur	41.01	28.59	26.68	28.19	30.04
Melaka	42.62	18.59	21.99	27.28	23.51
Negeri Sembilan	35.56	57.37	37.58	43.96	35.98
Pulau Pinang	58.12	46.01	60.84	45.80	40.63
Pahang	51.30	43.89	43.26	43.20	54.60
Perak	52.83	56.67	61.72	41.45	38.42
Perlis	144.10	78.66	89.34	51.74	49.22
WP Putrajaya & Cyberjaya	0.55	0.73	0.04	0.08	1.22
Selangor	52.34	64.77	61.55	58.52	61.46
Terengganu	42.82	36.67	30.70	33.62	35.84
<b>SEMENANJUNG MALAYSIA PENINSULAR MALAYSIA</b>	<b>54.49</b>	<b>48.22</b>	<b>48.13</b>	<b>44.95</b>	<b>45.25</b>



SAIDI, SAIFI & CAIDI

Jadual 8: SAIFI Mengikut Tahap Voltan  
Table 8: SAIFI by Voltage Level

TAHAP VOLTAN VOLTAGE LEVEL	BILANGAN GANGGUAN/PELANGGAN/TAHUN NUMBER OF INTERRUPTIONS/CUSTOMER/YEAR				
	2017	2018	2019	2020	2021
Voltan Tinggi (66 kV dan ke atas) High Voltage (66 kV and above)	0.00	0.00	0.00	0.00	0.01
Voltan Sederhana (6.6 kV – 33 kV) Medium Voltage (6.6 kV – 33 kV)	0.93	0.86	0.83	0.79	0.77
Voltan Rendah (1 kV dan ke bawah) Low Voltage (1 kV and below)	0.00	0.00	0.00	0.01	0.00
<b>JUMLAH TOTAL</b>	<b>0.93</b>	<b>0.86</b>	<b>0.83</b>	<b>0.80</b>	<b>0.78</b>

Jadual 9: SAIFI Mengikut Negeri di Semenanjung Malaysia  
Table 9: SAIFI by State in Peninsular Malaysia

NEGERI STATE	BILANGAN GANGGUAN/PELANGGAN/TAHUN NUMBER OF INTERRUPTIONS/CUSTOMER/YEAR				
	2017	2018	2019	2020	2021
Johor	0.55	0.63	0.75	0.90	0.75
Kedah	1.19	1.26	1.22	1.24	1.11
Kelantan	1.53	1.47	1.02	1.12	1.19
WP Kuala Lumpur	0.61	0.46	0.43	0.50	0.46
Melaka	0.55	0.28	0.44	0.48	0.44
Negeri Sembilan	0.44	0.77	0.51	0.70	0.71
Pulau Pinang	0.69	0.65	0.82	0.66	0.61
Pahang	1.39	1.41	1.48	1.37	1.45
Perak	0.71	0.79	1.02	0.60	0.67
Perlis	2.32	1.68	1.37	1.64	1.56
WP Putrajaya & Cyberjaya	0.00	0.09	0.00	0.02	0.10
Selangor	0.60	0.94	0.76	0.75	0.73
Terengganu	1.10	1.00	0.93	0.76	0.82
<b>SEMENANJUNG MALAYSIA PENINSULAR MALAYSIA</b>	<b>0.93</b>	<b>0.86</b>	<b>0.83</b>	<b>0.80</b>	<b>0.78</b>

## PRESTASI SISTEM PENGAGIHAN DI SEMENANJUNG MALAYSIA DISTRIBUTION SYSTEM PERFORMANCE IN PENINSULAR MALAYSIA

### SAIDI, SAIFI & CAIDI

**Jadual 10: CAIDI Mengikut Tahap Voltan**  
**Table 10: CAIDI by Voltage Level**

TAHAP VOLTAN VOLTAGE LEVEL	MINIT/PELANGGAN TERLIBAT/TAHUN MINUTES/AFFECTED CUSTOMER/YEAR				
	2017	2018	2019	2020	2021
Voltan Tinggi (66 kV dan ke atas) High Voltage (66 kV and above)	0.00	0.00	0.00	0.00	0.00
Voltan Sederhana (6.6 kV – 33 kV) Medium Voltage (6.6 kV – 33 kV)	55.68	53.51	54.83	53.27	53.85
Voltan Rendah (1 kV dan ke bawah) Low Voltage (1 kV and below)	0.00	0.00	0.00	0.00	0.00
<b>JUMLAH TOTAL</b>	<b>58.59</b>	<b>56.07</b>	<b>57.99</b>	<b>56.05</b>	<b>58.31</b>

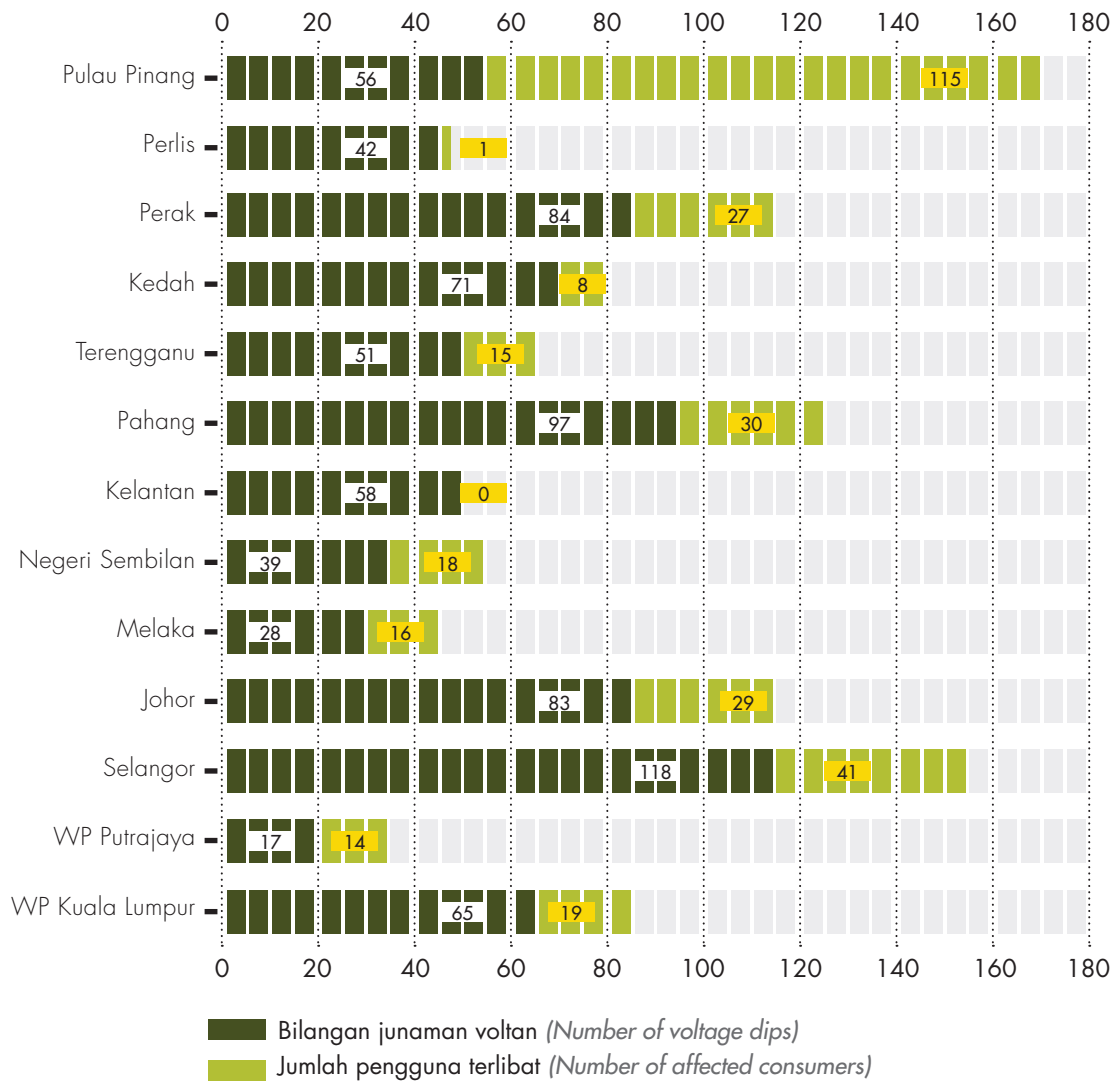
**Jadual 11: CAIDI Mengikut Negeri**  
**Table 11: CAIDI by State**

NEGERI STATE	MINIT/PELANGGAN/TAHUN MINUTES/CUSTOMER/YEAR				
	2017	2018	2019	2020	2021
Johor	101.89	66.24	55.88	48.02	62.90
Kedah	69.33	58.17	53.90	52.57	52.10
Kelantan	38.78	33.95	38.56	38.04	31.85
WP Kuala Lumpur	67.23	62.15	62.05	56.05	65.68
Melaka	77.50	66.39	49.98	57.07	53.91
Negeri Sembilan	80.81	74.51	73.69	62.80	50.89
Pahang	84.23	31.13	74.20	69.08	66.83
Perak	36.91	71.73	29.23	31.53	37.60
Perlis	74.41	46.82	60.51	68.73	57.78
Pulau Pinang	62.11	70.78	65.21	31.53	31.51
WP Putrajaya & Cyberjaya	0.00	8.11	0.00	3.71	12.05
Selangor	87.23	68.90	80.99	78.45	84.08
Terengganu	42.39	36.67	33.01	44.24	43.81
<b>SEMENANJUNG MALAYSIA PENINSULAR MALAYSIA</b>	<b>58.59</b>	<b>56.07</b>	<b>57.99</b>	<b>56.05</b>	<b>58.31</b>



KUALITI PEMBEKALAN ELEKTRIK  
ELECTRICITY SUPPLY QUALITY

Carta 9: Kejadian Junaman Voltan Mengikut Negeri dan Bilangan Pengguna yang Terlibat  
Chart 9: Voltage Dip Incidents by State and Number of Consumers Involved



**Nota | Notes:**

Jumlah bilangan kejadian junaman voltan bukan hasil tambah bilangan jumlah junaman voltan bagi setiap negeri kerana terdapat kejadian yang sama dirakamkan di beberapa buah negeri.

The total number of occurrences of voltage dips is not summarised by the number of voltage dips in each state as there are similar events recorded in some states.

## PRESTASI SISTEM PENGAGIHAN DI SEMENANJUNG MALAYSIA DISTRIBUTION SYSTEM PERFORMANCE IN PENINSULAR MALAYSIA

**Jadual 12: Bilangan Pengguna Terlibat dengan Insiden Junaman Voltan Mengikut Negeri**  
**Table 12: Number of Consumers Involved in Voltage Dip Incidents by State**

NEGERI STATE	2017	2018	2019	2020	2021
Johor	35	59	45	34	29
Kedah	2	5	6	6	8
Kelantan	2	0	0	4	0
Melaka	17	21	25	15	16
Negeri Sembilan	10	26	4	4	18
Pahang	11	25	26	21	30
Perak	20	23	16	28	27
Perlis	0	0	0	0	1
Pulau Pinang	57	74	59	56	115
Selangor	28	67	50	21	41
Terengganu	7	14	13	14	15
WP Kuala Lumpur	25	40	38	23	19
WP Putrajaya & Cyberjaya	2	11	10	12	14
<b>SEMENANJUNG MALAYSIA PENINSULAR MALAYSIA</b>	<b>216</b>	<b>365</b>	<b>292</b>	<b>238</b>	<b>333</b>

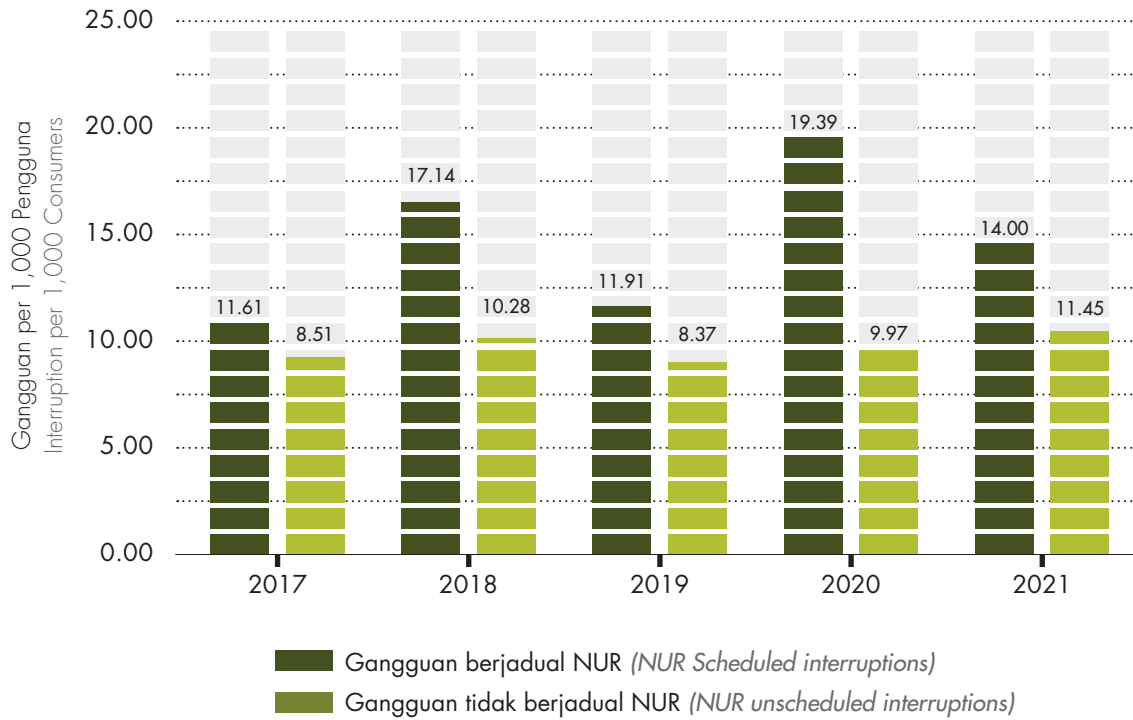
**Jadual 13: SARFI**  
**Table 13: SARFI**

SISTEM TNB TNB SYSTEM	2017			2018			2019			2020			2021		
	SARFI 90	SARFI 80	SARFI 70	SARFI 90	SARFI 80	SARFI 70	SARFI 90	SARFI 80	SARFI 70	SARFI 90	SARFI 80	SARFI 70	SARFI 90	SARFI 80	SARFI 70
11 kV	5.54	3.15	2.03	13.40	4.46	2.01	13.60	3.67	1.73	10.32	3.35	1.46	11.99	4.56	2.18
22 kV	6.71	3.00	2.43	18.93	5.71	1.93	12.87	4.80	1.73	10.47	4.53	2.40	9.27	4.53	2.07
33 kV	5.30	2.29	1.08	16.34	4.35	1.31	14.04	3.28	0.89	9.87	2.36	0.69	14.41	3.80	1.57
<b>SISTEM KESELURUHAN OVERALL SYSTEM</b>	<b>4.99</b>	<b>2.50</b>	<b>1.52</b>	<b>1.34</b>	<b>0.36</b>	<b>0.16</b>	<b>13.73</b>	<b>3.60</b>	<b>1.38</b>	<b>10.13</b>	<b>3.02</b>	<b>1.21</b>	<b>12.81</b>	<b>4.25</b>	<b>1.91</b>

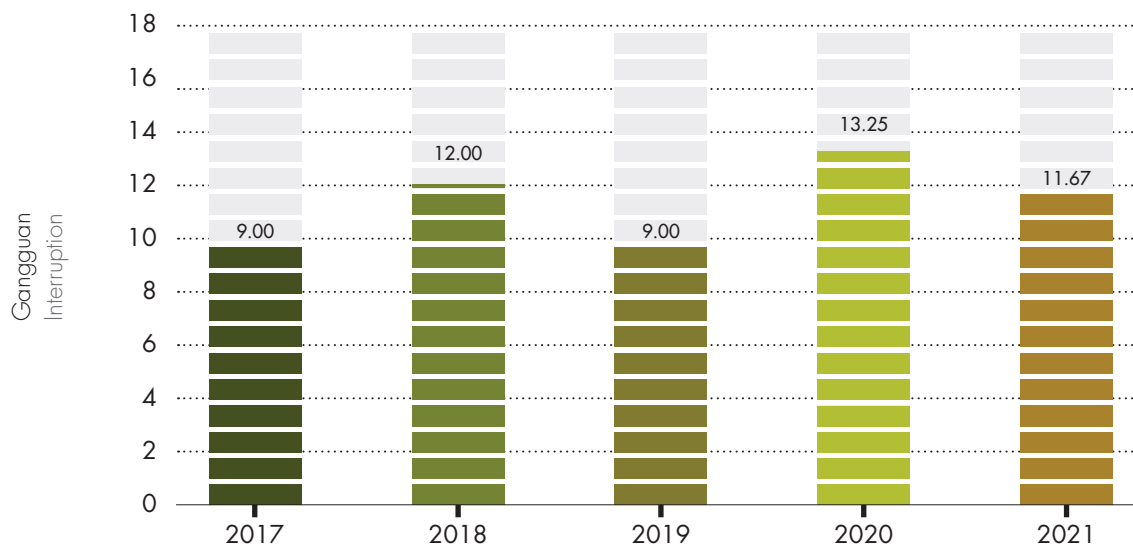




**Carta 10: Gangguan Bekalan Elektrik per 1,000 Pengguna**  
**Chart 10: Electricity Supply Interruptions per 1,000 Consumers**



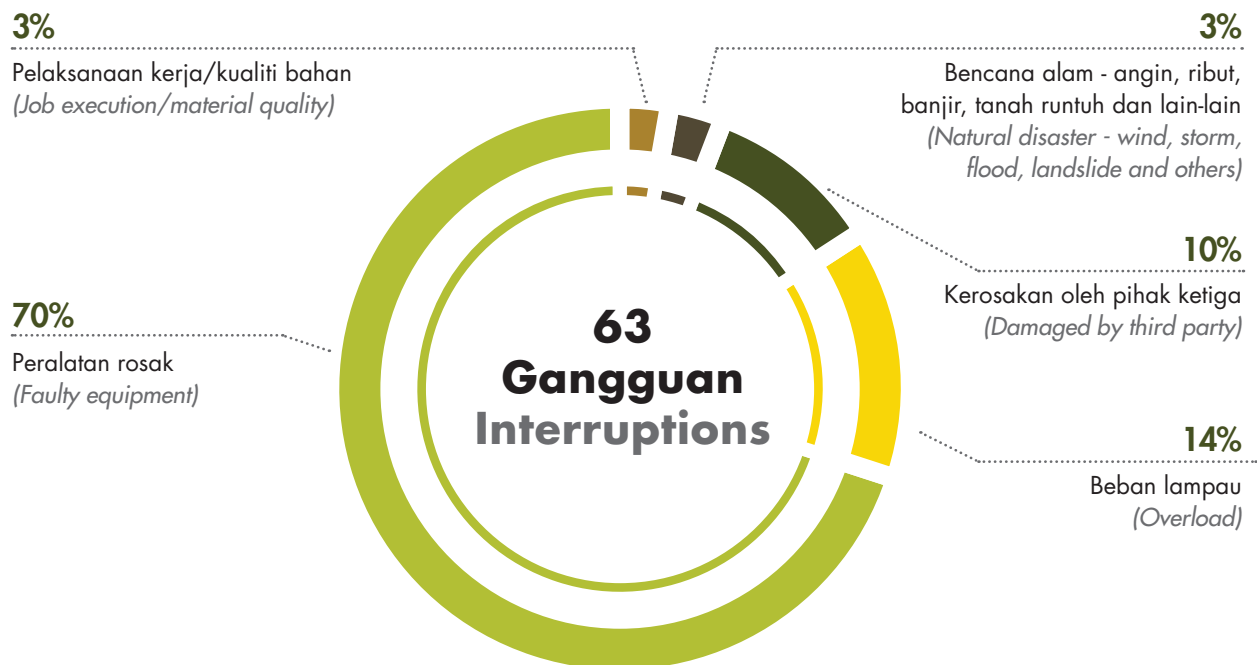
**Carta 11: Purata Gangguan Bekalan Elektrik Bulanan**  
**Chart 11: Monthly Average of Electricity Supply Interruptions**



**Jadual 14: Bilangan Gangguan Bekalan Elektrik**  
**Table 14: Number of Electricity Supply Interruptions**

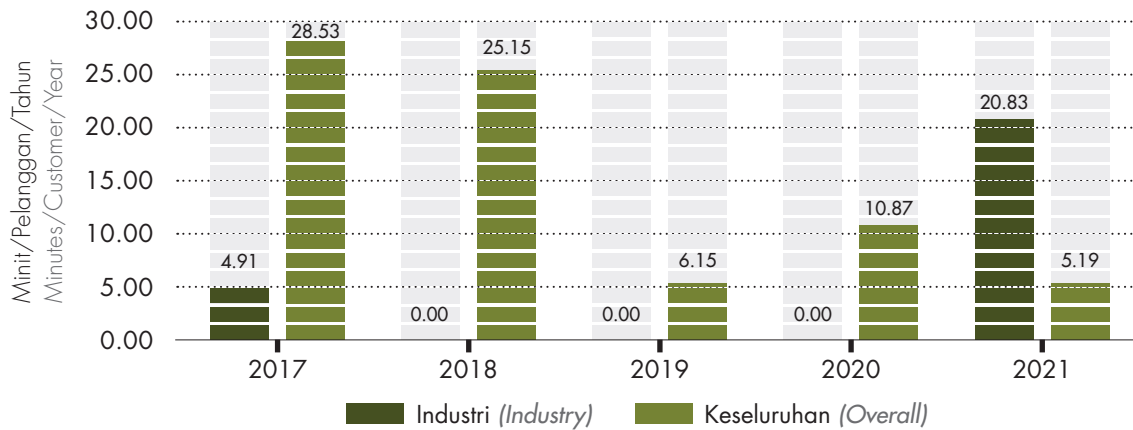
BILANGAN NUMBER	2017	2018	2019	2020	2021
Gangguan Tidak Berjadual Unscheduled Interruptions	44	54	45	54	63
Gangguan Berjadual Scheduled Interruptions	60	90	64	105	77
<b>JUMLAH TOTAL</b>	<b>104</b>	<b>144</b>	<b>109</b>	<b>159</b>	<b>140</b>

**Carta 12: Gangguan Bekalan Elektrik Tidak Berjadual Mengikut Jenis Gangguan**  
**Chart 12: Unscheduled Supply Interruption by Type of Interruptions**

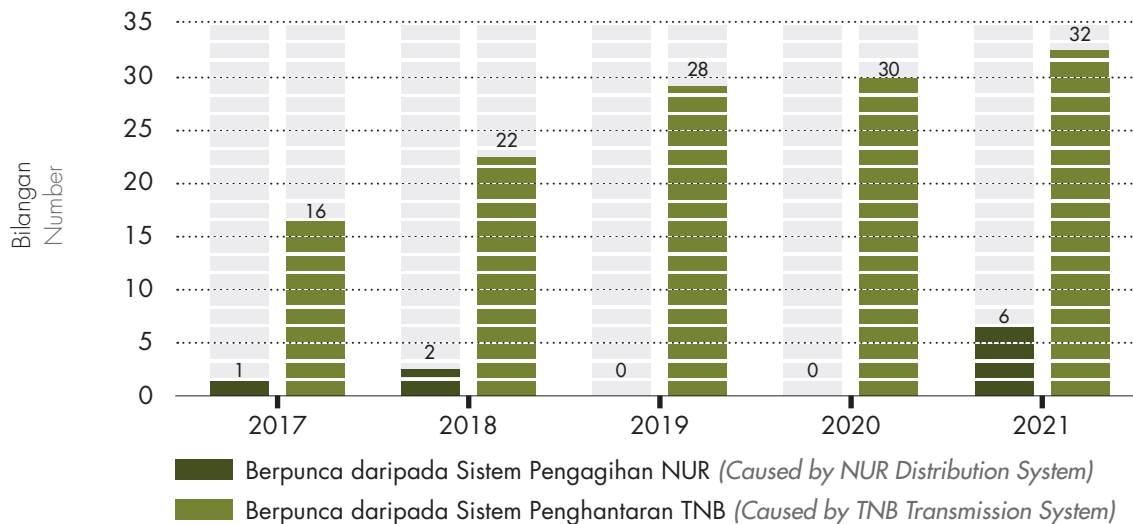




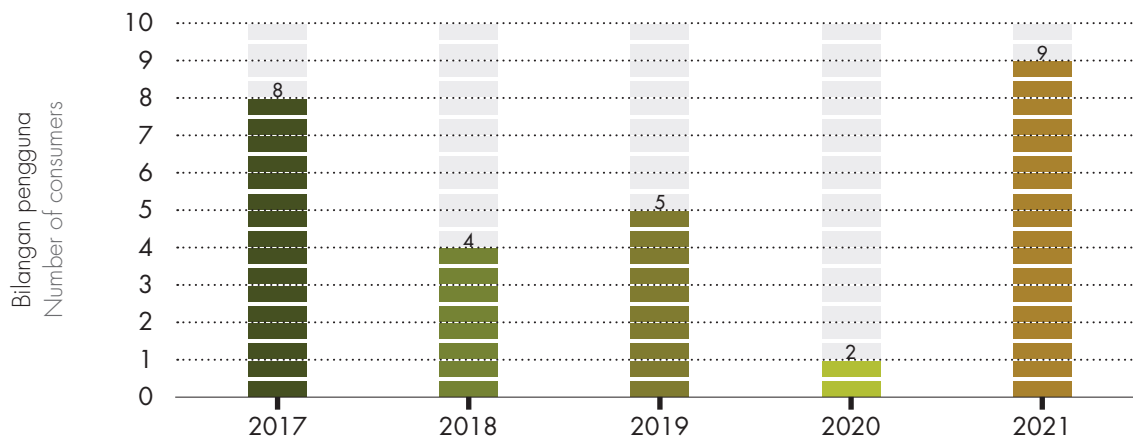
**Carta 13: SAIDI**  
**Chart 13: SAIDI**

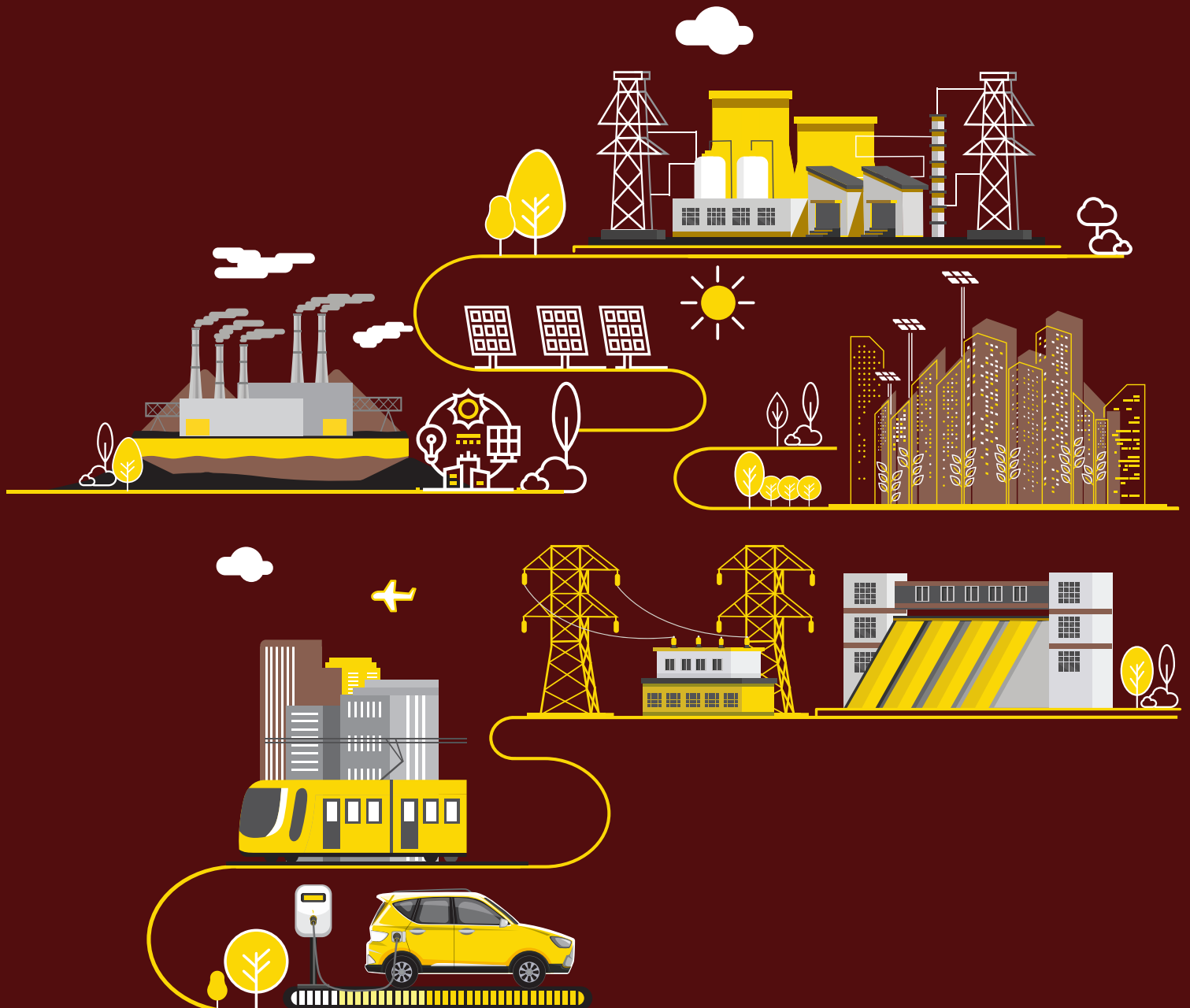


**Carta 14: Kejadian Junaman Voltan yang Dilaporkan di Kulim Hi-Tech Park (KHTP)**  
**Chart 14: Voltage Dips Incidents Reported in Kulim Hi-Tech Park (KHTP)**



**Carta 15: Bilangan Pengguna Terlibat dengan Insiden Junaman Voltan**  
**Chart 15: Number of Consumers Involved in Voltage Dip Incidents**



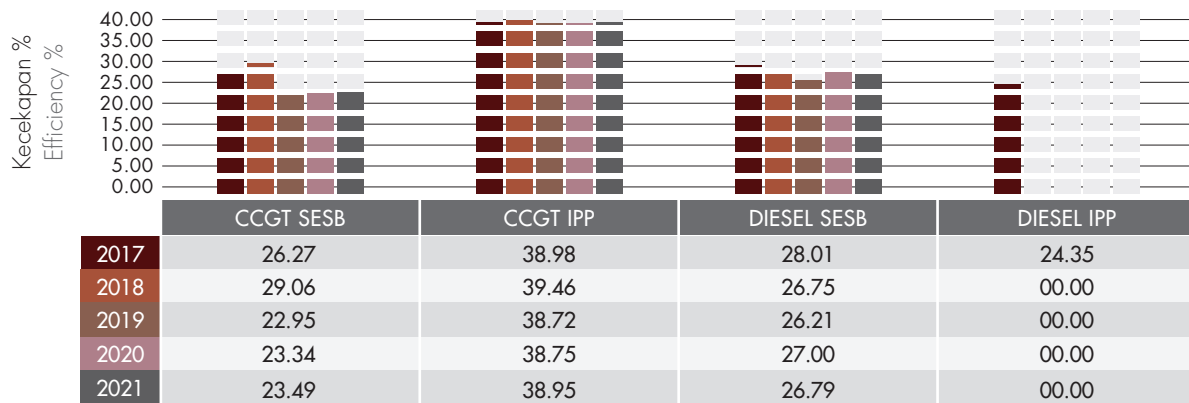


**PRESTASI PEMBEKALAN  
ELEKTRIK DI SABAH  
ELECTRICITY SUPPLY  
PERFORMANCE IN SABAH**

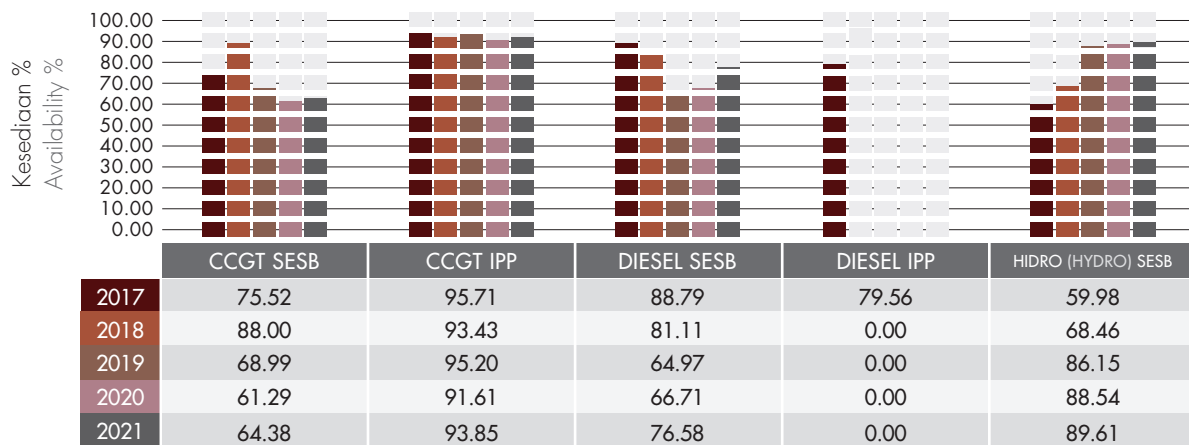
## PRESTASI SISTEM PENJANAAN DI SABAH GENERATION SYSTEM PERFORMANCE IN SABAH



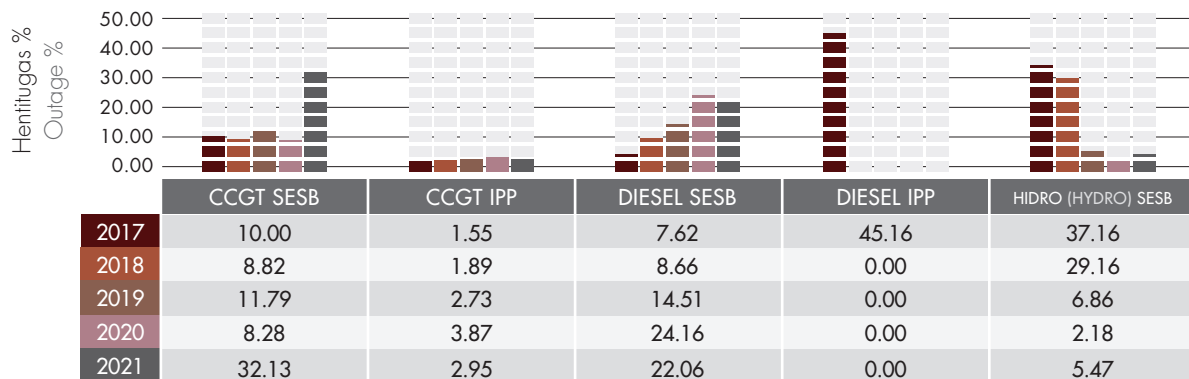
**Carta 16: Purata Kecekapan Termal Loji Jana Kuasa SESB dan IPP**  
**Chart 16: Average Thermal Efficiency of SESB and IPP Power Plants**



**Carta 17: EAF Loji Jana Kuasa SESB dan IPP**  
**Chart 17: EAF of SESB and IPP Power Plants**



**Carta 18: EUOF Mengikut Loji Jana Kuasa SESB dan IPP**  
**Chart 18: EUOF of SESB and IPP Power Plants**



**Nota untuk semua carta di atas | Notes for all charts above:**

- Sehingga 2019, satu-satunya stesen jana kuasa diesel IPP di bawah tempoh lesen ialah Stratavest, tetapi ia tidak beroperasi sepanjang tahun disebabkan oleh *forced outage*.  
As of 2019, the only IPP diesel power plant under the license period was Stratavest, which was not operating throughout the year due to forced outage.
- Stesen jana kuasa diesel Serudong telah tamat operasi pada Disember 2017.  
Serudong diesel power station ended operations in December 2017.

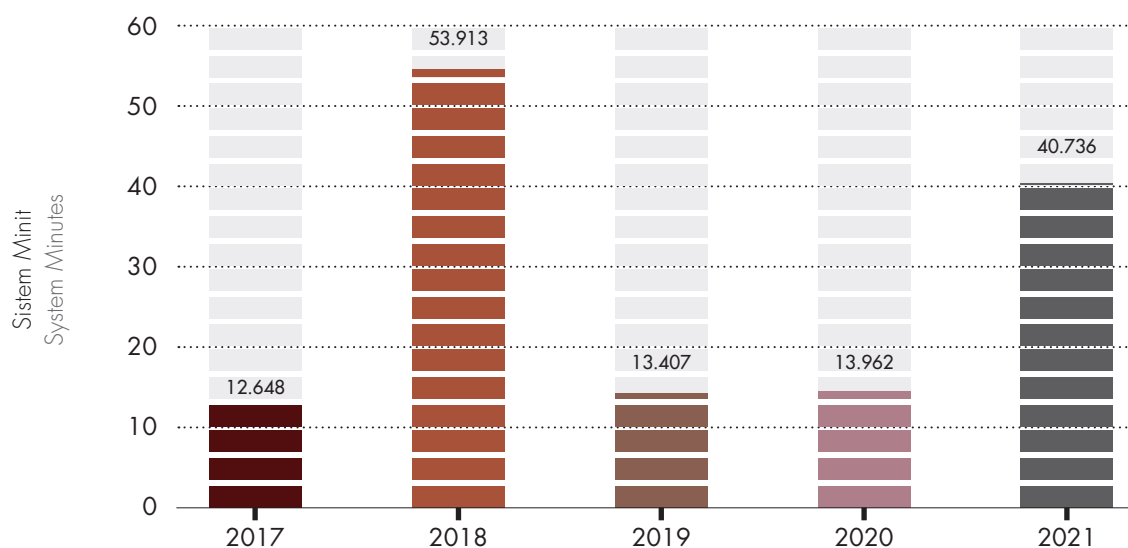
## PRESTASI SISTEM PENGHANTARAN DI SABAH TRANSMISSION SYSTEM PERFORMANCE IN SABAH

**Jadual 15: Pelantikan Sistem Penghantaran dengan  
Kehilangan Beban Sebanyak 50 MW dan ke atas**  
**Table 15: Transmission System Trippings with  
Load Loss of 50 MW and above**

2021												
PETUNJUK INDICATOR	JAN JAN	FEB FEB	MAC MAR	APR APR	MEI MAY	JUN JUNE	JUL JULY	OGOS AUG	SEP SEPT	OKT OCT	NOV NOV	DIS DEC
Bilangan Pelantikan Tanpa Lucutan Beban Number of Trippings Without Load Shedding	0	1	0	0	0	0	1	0	0	0	1	0
Bilangan Pelantikan dengan Lucutan Beban Number of Trippings with Load Shedding	0	0	0	1	0	0	0	0	0	0	0	1
Kehilangan Beban Maksimum (MW) Maximum Load Losses (MW)	0.00	120.61	0.00	147.68	0.00	0.00	95.64	0.00	0.00	0.00	72.34	129.82
Tenaga yang Tidak Dibekalkan Semasa Pelantikan (MWj) Unsupplied Energy During Trippings (MWh)	0.00	102.10	0.00	233.84	0.00	0.00	45.98	0.00	0.00	0.00	33.31	190.46
Purata Tenaga yang Tidak Dibekalkan Semasa Pelantikan (MWj) Average Unsupplied Energy During Trippings (MWh)	0.00	102.10	0.00	233.84	0.00	0.00	45.98	0.00	0.00	0.00	33.31	190.46
Purata Tempoh Setiap Pelantikan (Minit) Average Duration per Tripping (Minutes)	0	1:05:00	0	3:40:00	0	0	71:11:00	0	0	0	0:26:00	0:16:00
Tenaga Tidak Dibekalkan Semasa Lucutan Beban (MWj) Unsupplied Energy During Load Shedding (MWh)	0.00	0.00	0.00	233.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	190.46



Carta 19: DePUI - Sistem Minit  
Chart 19: DePUI - System Minutes



Jadual 16: Insiden Pelantikan bagi Talian/Kabel Per 100 cct-km  
Mengikut Tahap Voltan (dengan Kehilangan Beban)  
Table 16: Tripping Incidents for Lines/Cables per 100 cct-km  
by Voltage Level (with Load Loss)

KATEGORI CATEGORY	VOLTAN VOLTAGE	2017	2018	2019	2020	2021
Dengan Kehilangan Beban With Load Loss	275 kV	0.000	0.669	0.000	0.000	0.000
	132 kV	0.618	0.551	0.480	0.625	0.400
	66 kV	3.175	3.175	3.501	0.000	5.850
Tanpa Kehilangan Beban Without Load Loss	275 kV	1.338	0.502	1.337	0.334	1.080
	132 kV	1.081	1.302	0.480	0.759	0.710
	66 kV	1.058	6.659	9.335	0.973	0.000

**Nota | Notes**

Bilangan pelantikan bagi setiap 100 litar km

$$= \frac{\text{Jumlah bilangan pelantikan talian penghantaran mengikut voltan} \times 100 \text{ km}}{\text{Jumlah litar km bagi setiap kategori}}$$

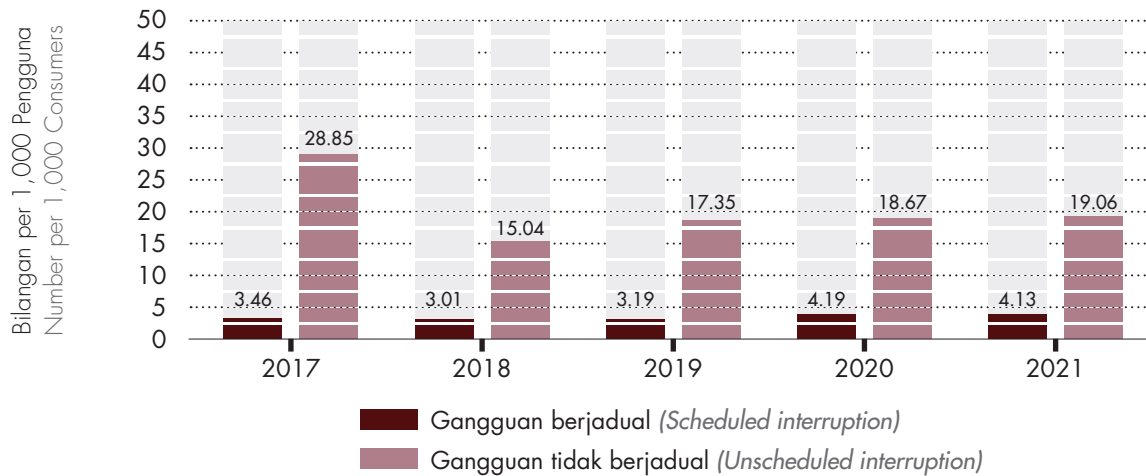
Number of tripping per 100 km circuit

$$= \frac{\text{Total number of transmission line tripping by voltage} \times 100 \text{ km}}{\text{Number of km circuit for each category}}$$

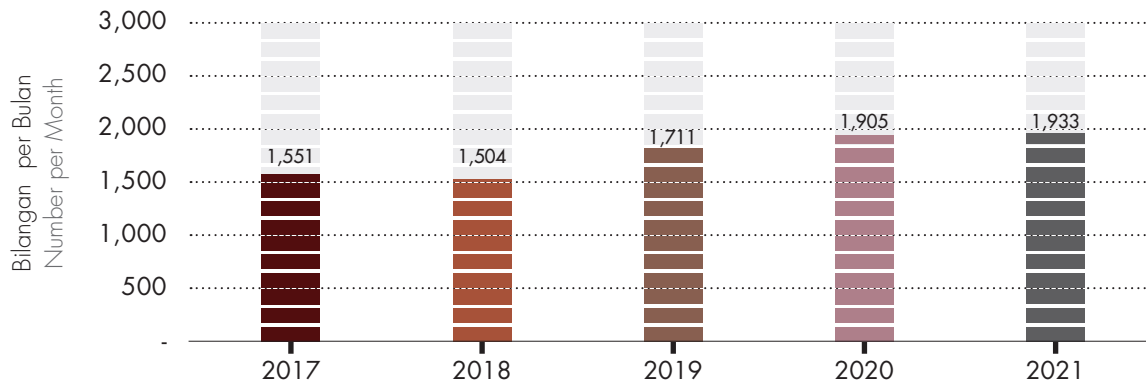
## PRESTASI SISTEM PENGAGIHAN DI SABAH DISTRIBUTION SYSTEM PERFORMANCE IN SABAH

### GANGGUAN BEKALAN ELEKTRIK ELECTRICITY SUPPLY INTERRUPTIONS

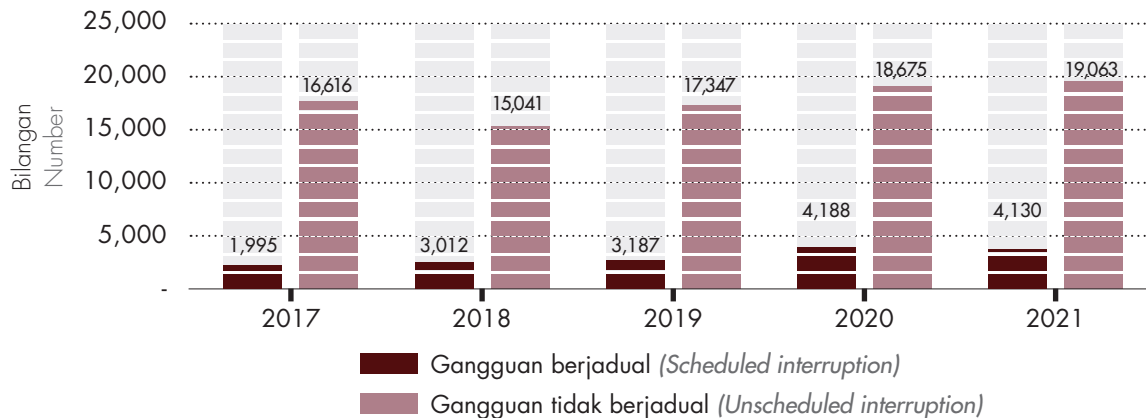
**Carta 20: Gangguan Bekalan Elektrik per 1,000 Pengguna**  
**Chart 20: Electricity Supply Interruptions per 1,000 Consumers**



**Carta 21: Purata Gangguan Bekalan Elektrik Bulanan**  
**Chart 21: Monthly Average Electricity Supply Interruptions**



**Carta 22: Bilangan Gangguan Bekalan Elektrik**  
**Chart 22: Number of Electricity Supply Interruptions**





PRESTASI SISTEM PENGAGIHAN DI SABAH  
DISTRIBUTION SYSTEM PERFORMANCE IN SABAH



Jadual 17: Gangguan Bekalan Elektrik Tidak Berjadual  
Table 17: Unscheduled Electricity Supply Interruptions

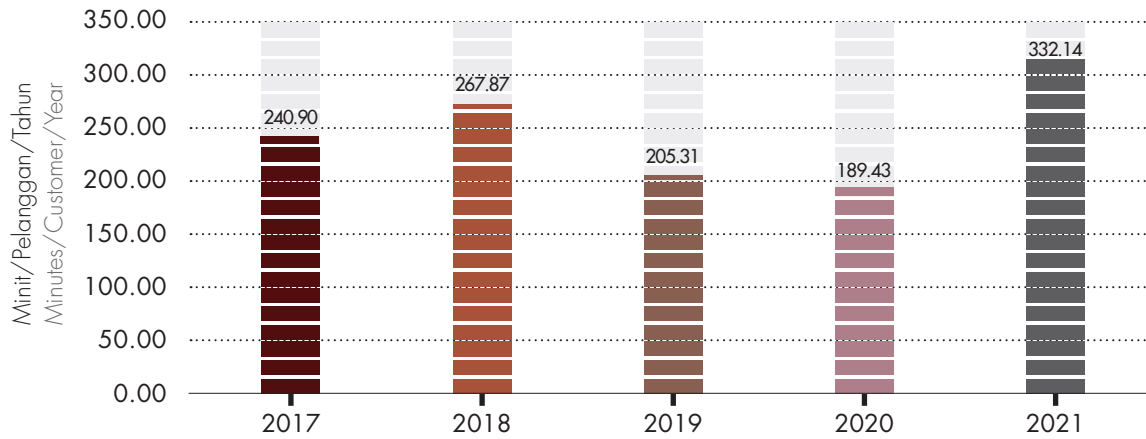
JENIS GANGGUAN TYPE OF INTERRUPTIONS	2017	2018	2019	2020	2021
Banjir Flood	163	0	0	0	0
Beban Lampau Overload	3,018	3,050	2,272	1,918	1,253
Binatang Animal	1,017	1,445	1,960	2,372	1,882
Hubungan Tidak Baik Poor Contact	2,182	2,033	2,727	2,383	2,411
Cuaca Buruk (Angin, Ribut, Petir) Bad Weather (Wind, Storm, Lightning)	1,048	428	1,168	2,028	2,153
Disebabkan oleh Pihak Lain (Kena Langgar, Khianat, Kena Curi dan Penyambungan Haram) Caused by Other Parties (Hit, Treachery, Theft and Illegal Connection)	1,394	246	1,217	2,052	2,989
Kabel Cable	462	796	884	962	584
Kebakaran Fire	24	44	60	58	46
Kena <i>Guard Wire</i> / Kendur Touched with <i>Guard Wire</i> / Sagging	499	708	1,011	0	0
Kerosakan Peralatan Faulty Equipment	43	0	0	0	0
Kualiti Barang Quality Of Material	63	152	298	311	272
Lain-Lain (Tiada Data, Tiada Operasi, Tiada Bekalan) Others (Unavailable Data, Shut Down, No Supply)	1,652	1,452	627	1,333	1,486
Lanjut Usia / Reput Old / Decayed	490	675	802	1,214	1,350
Pencawang Substation	426	0	0	0	0
Pokok Tree	3,038	3,246	3,694	4,044	4,637
Tanah Runtuh Landslide	34	0	0	0	0
Tidak Diketahui Unknown	0	0	0	0	0
Ubahtika Transient	1,063	1,948	627	0	0
<b>JUMLAH TOTAL</b>	<b>16,616</b>	<b>16,223</b>	<b>17,347</b>	<b>18,675</b>	<b>19,063</b>

# PRESTASI SISTEM PENGAGIHAN DI SABAH DISTRIBUTION SYSTEM PERFORMANCE IN SABAH

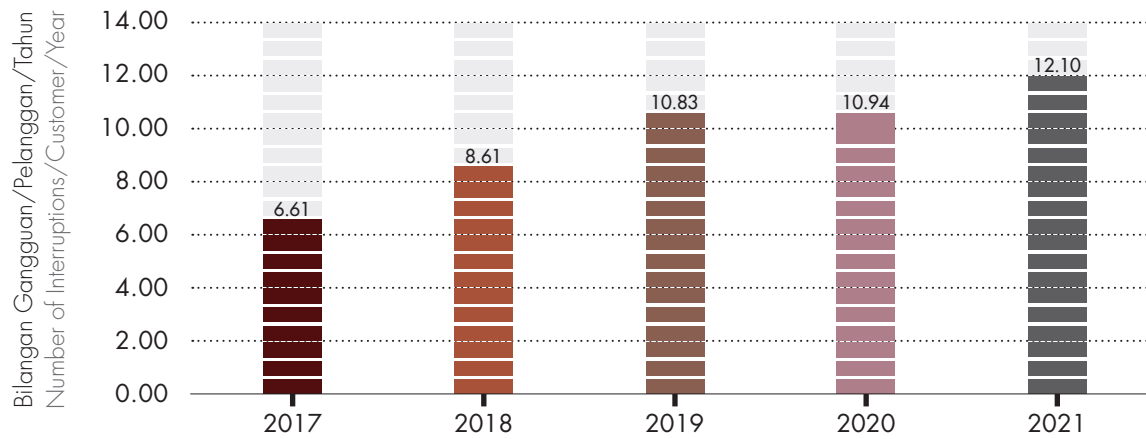


## SAIDI, SAIFI & CAIDI

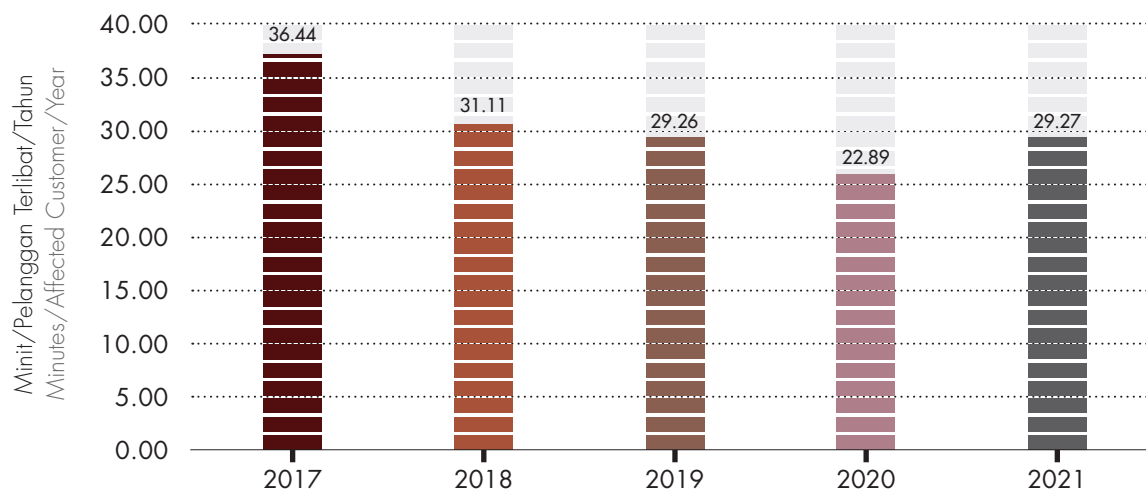
**Carta 23: SAIDI**  
**Chart 23: SAIDI**

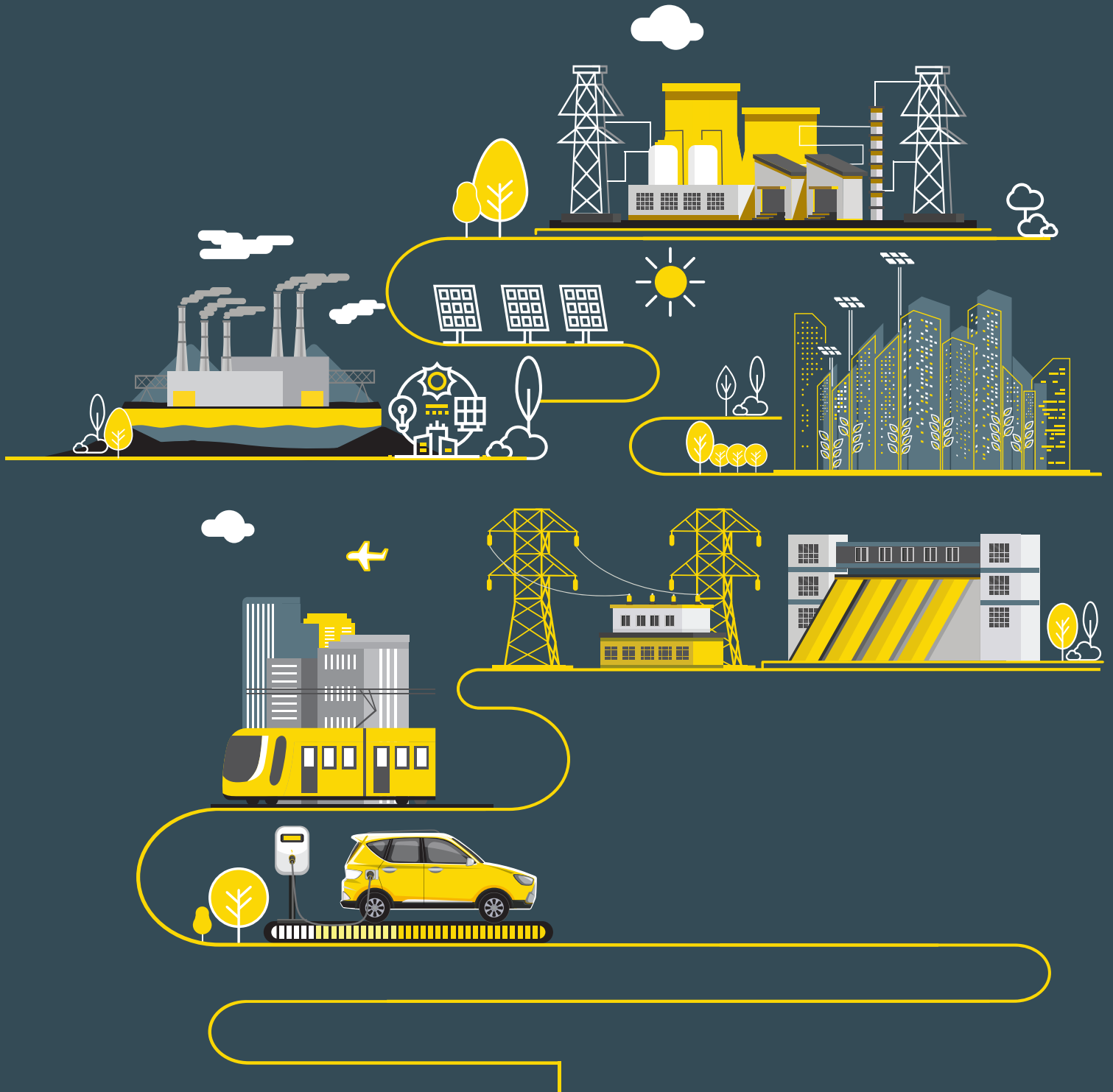


**Carta 24: SAIFI**  
**Chart 24: SAIFI**



**Carta 25: CAIDI**  
**Chart 25: CAIDI**

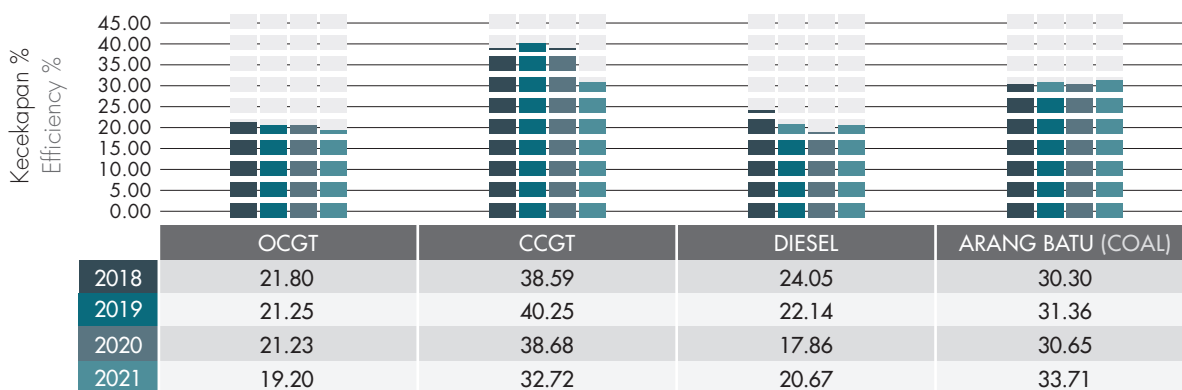




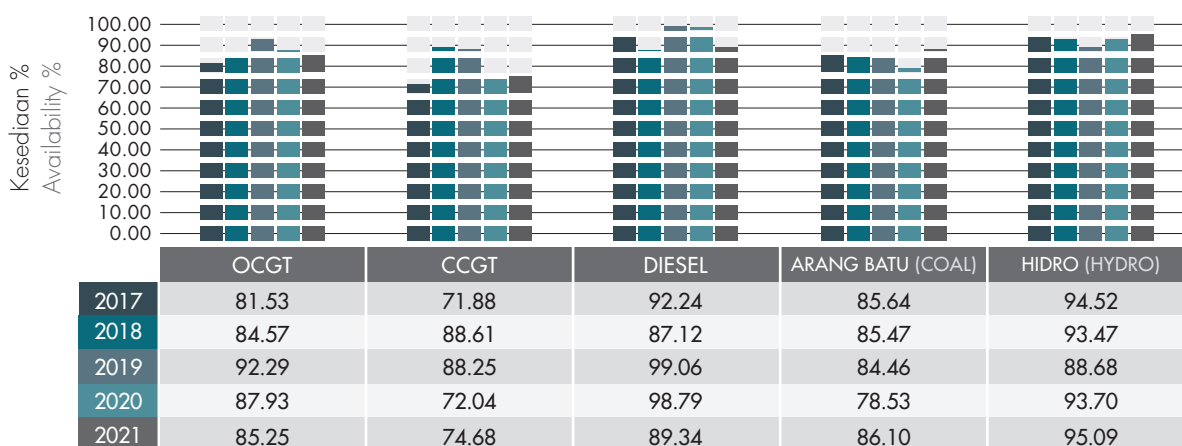
**PRESTASI PEMBEKALAN  
ELEKTRIK DI SARAWAK  
ELECTRICITY SUPPLY  
PERFORMANCE IN SARAWAK**

## PRESTASI SISTEM PENJANAAN DI SARAWAK GENERATION SYSTEM PERFORMANCE IN SARAWAK

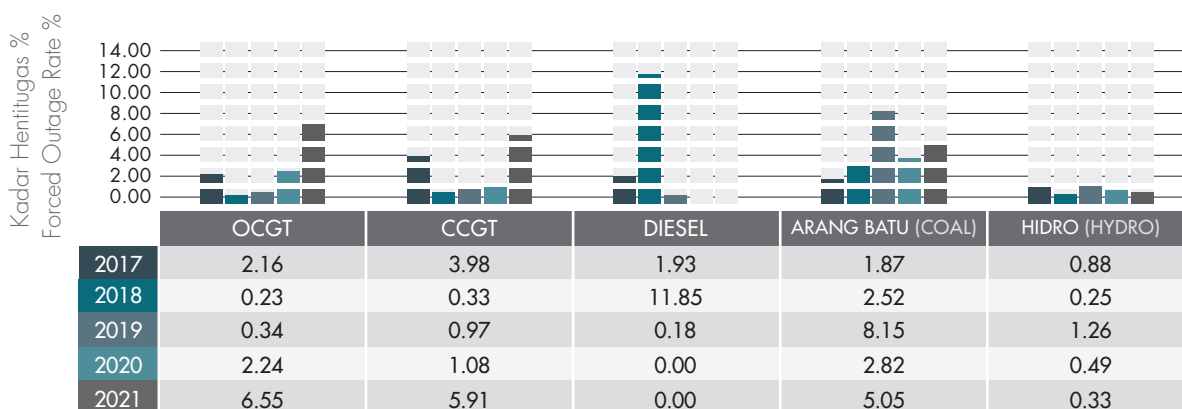
**Carta 26: Purata Kecekapan Termal Loji Jana Kuasa SEB**  
**Carta 26: Average Thermal Efficiency of SEB Power Plants**



**Carta 27: EAF Mengikut Loji Jana Kuasa SEB**  
**Chart 27: EAF of SEB Power Plants**



**Carta 28: Purata Kadar Hentitugas Tidak Berjadual (FOR) Loji Jana Kuasa SEB**  
**Chart 28: Forced Outage Rate (FOR) of SEB Power Plants**

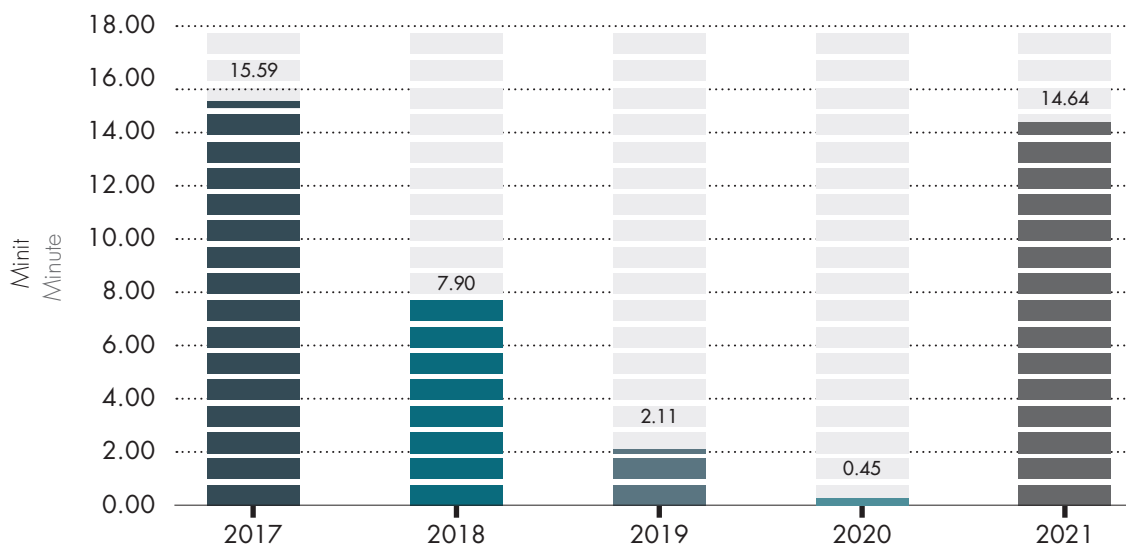




Jadual 18: Petunjuk Prestasi Sistem Penghantaran SEB  
Table 18: Transmission System Performance Indicators SEB

2021												
PETUNJUK INDICATOR	JAN JAN	FEB FEB	MAC MAR	APR APR	MEI MAY	JUN JUNE	JUL JULY	OGOS AUG	SEP SEPT	OKT OCT	NOV NOV	DIS DEC
Bilangan Pelantikan Number of Trippings		1	1	1	1		1	1	1	1		
Kehilangan Beban Maksimum (MW) Maximum Load Losses (MW)		33.25	8.70	8.10	8.36		589.00	8.00	39.63	628.16		
Tenaga yang Tidak Dibekalkan semasa Pelantikan (MWj) Unsupplied Energy During Trippings (MWh)	-	24.00	1.65	0.54	1.25	-	324.11	3.47	7.93	960.53	-	-
Purata Tenaga yang Tidak Dibekalkan semasa Pelantikan (MWj) Average Unsupplied Energy During Trippings (MWh)		24.00	1.65	0.54	1.25		324.11	3.47	7.93	960.53		
Purata Tempoh Setiap Pelantikan (Minit) Average Duration per Tripping (minutes)		65.00	12.00	4.00	9.00		83.00	26.00	12.00	187.00		
Bilangan Lucutan Beban Number of Load Shedding	2											
Tenaga yang Tidak Dibekalkan semasa Lucutan Beban (MWj) Unsupplied Energy During Load Shedding (MWh)	1,284.64											

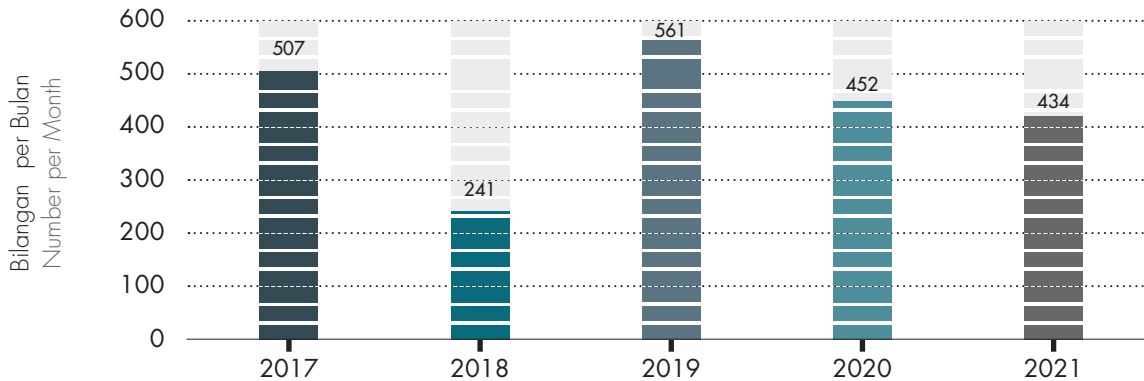
Carta 29: DePUI - Sistem Minit SEB (Tahun Kewangan)  
Chart 29: DePUI - System Minutes of SEB (Financial Year)



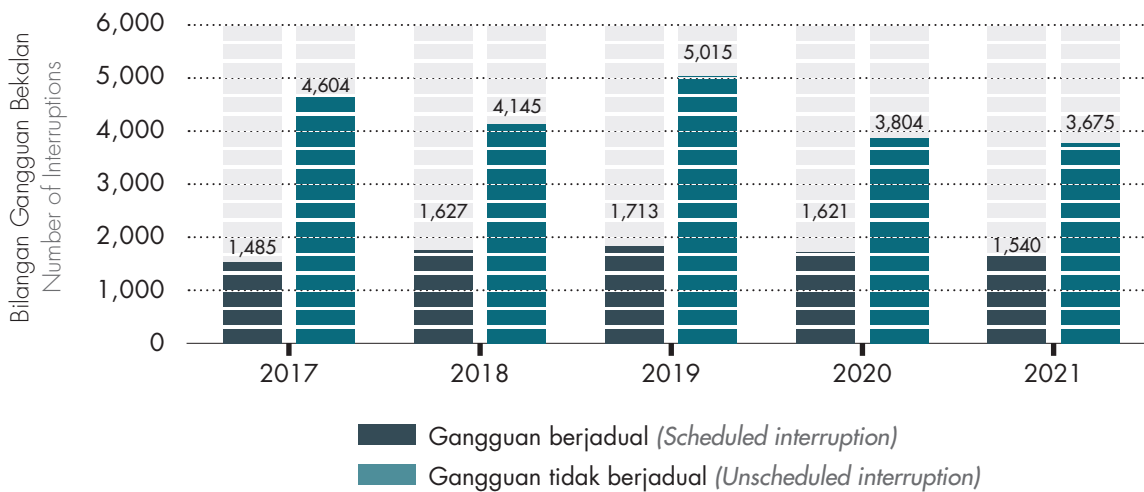
**PRESTASI SISTEM PENGAGIHAN DI SARAWAK**  
**DISTRIBUTION SYSTEM PERFORMANCE IN SARAWAK**

**GANGGUAN BEKALAN ELEKTRIK**  
**ELECTRICITY SUPPLY INTERRUPTIONS**

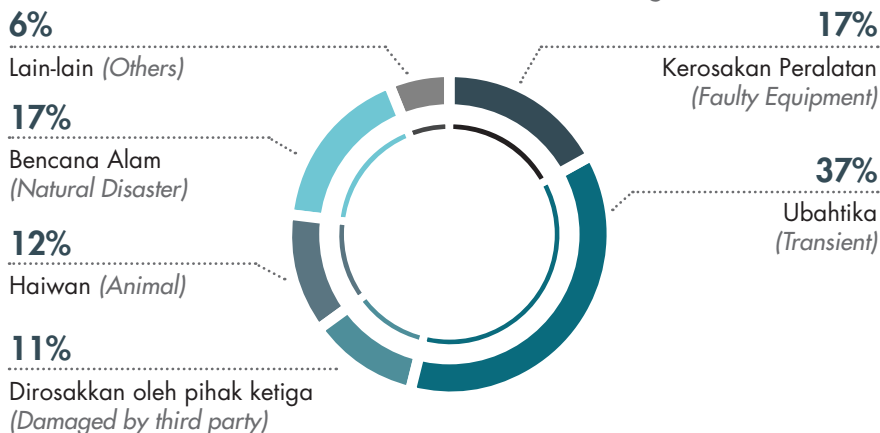
**Carta 30: Purata Gangguan Bekalan Elektrik Bulanan**  
**Chart 30: Monthly Average Electricity Supply Interruptions**



**Carta 31: Bilangan Gangguan Bekalan Elektrik**  
**Chart 31: Number of Electricity Supply Interruptions**



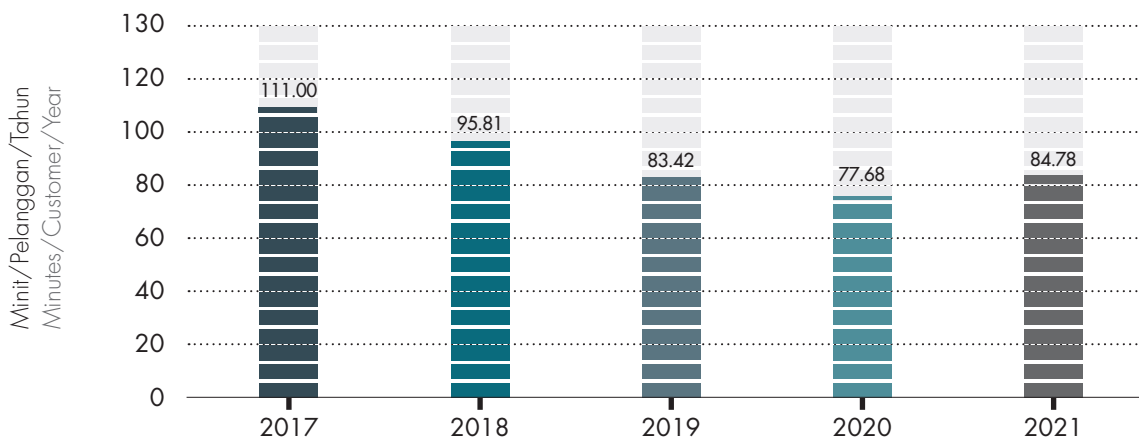
**Carta 32: Punca-punca Gangguan Bekalan Elektrik**  
**Chart 32: Causes of Power Outages**



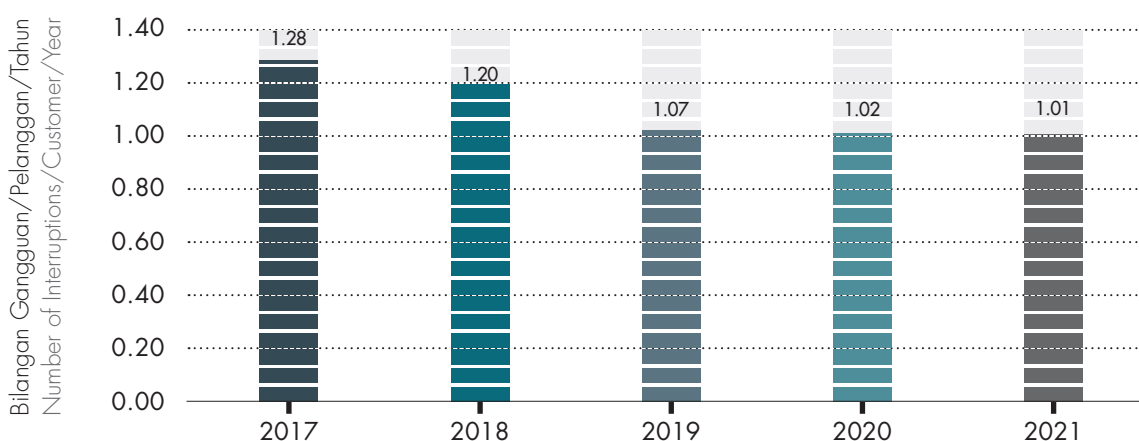


SAIDI, SAIFI & CAIDI

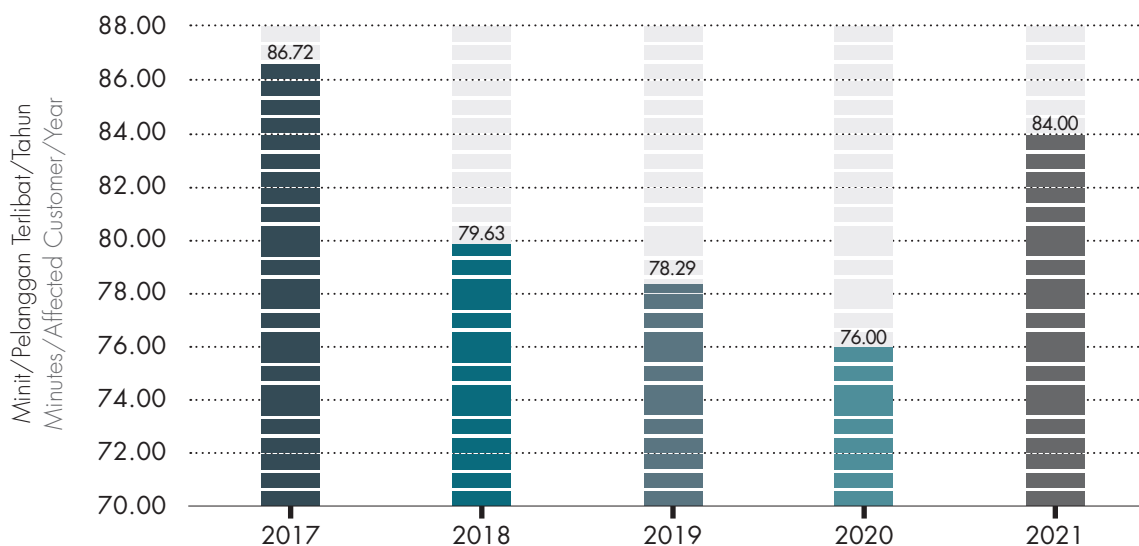
Carta 33: SAIDI  
Chart 33: SAIDI



Carta 34: SAIFI  
Chart 34: SAIFI



Carta 35: CAIDI  
Chart 35: CAIDI





**MAKLUMAT INDUSTRI PEMBEKALAN ELEKTRIK  
DI SEMENANJUNG MALAYSIA**  
**INFORMATION ON THE ELECTRICITY SUPPLY  
INDUSTRY IN PENINSULAR MALAYSIA**





**Jadual 19: Maklumat Utama Prestasi TNB**  
**Table 19: Key information on the Performance of TNB**

KATEGORI CATEGORY	UNIT	2017	2018	2019	2020	2021
Kehendak Maksimum Maximum Demand	MW	17,790	18,338	18,566	18,808	18,585 <sup>1</sup>
Jumlah Unit Penjanaan <sup>2</sup> Total Units Generated <sup>2</sup>	GWj GWh	22,239	17,827	16,735	16,642	17,041
Jumlah Unit Jualan <sup>3</sup> Total Units Sold <sup>3</sup>	GWj GWh	110,567	113,469	116,525	110,879	111,858
Hasil Jualan Elektrik Sales Revenue Of Electricity	RM Juta RM Million	43,703	45,029	46,487	44,435	44,654
Kapasiti Terpasang <sup>4</sup> Installed Capacity <sup>4</sup>	MW	5,066	5,066	4,766	4,509	4,529
Jumlah Kakitangan <sup>5</sup> Number Of Employees <sup>5</sup>	Orang Person	27,990	28,371	28,825	27,957	27,243
Hasil Jualan Elektrik Per Kakitangan Sales Revenue Of Electricity Per Employee	RM Juta/Kakitangan RM Million/Employee	1.56	1.59	1.61	1.59	1.64
Unit Jualan Per Kakitangan Units Sold Per Employee	GWj/Kakitangan GWh/Employee	3.95	4.00	4.04	3.96	4.11
Kapasiti Terpasang Per Kakitangan Installed Capacity Per Employee	MW/Kakitangan MW/Employee	0.18	0.18	0.17	0.16	0.17
Jumlah Unit Pembelian <sup>6</sup> Total Purchased Units <sup>6</sup>	GWj GWh	99,899	108,912	112,899	110,059	116,356
Jumlah Unit yang Dieksporth Total Exported Units	GWj GWh	4.81	0.08	0.26	3.00	1.00
Jumlah Unit yang Diimport Total Imported Units	GWj GWh	7.41	19.98	40.58	18.00	34.00

**Nota | Notes:**

- <sup>1</sup> 13 Oktober 2021  
<sup>1</sup> 13 October 2021
- <sup>2</sup>Penjanaan oleh stesen jana kuasa TNB yang bersambung di peringkat penghantaran, tidak termasuk IPP  
<sup>2</sup>Units generated of TNB power plants connected at transmission level, excluding IPP
- <sup>3</sup>Tidak termasuk eksport  
<sup>3</sup>Excluding export
- <sup>4</sup>Kapasiti terpasang bagi stesen jana kuasa TNB yang bersambung di peringkat penghantaran, tidak termasuk IPP  
<sup>4</sup>Installed capacity of TNB power plants connected at transmission level, excluding IPP
- <sup>5</sup>Tidak termasuk anak syarikat milik penuh TNB dan anak syarikat dengan pemilikan majoriti  
<sup>5</sup>Excluding TNB wholly owned subsidiaries and TNB majority owned subsidiaries
- <sup>6</sup>Unit yang dibeli daripada IPP  
<sup>6</sup>Units purchased from IPP

## MAKLUMAT INDUSTRI PEMBEKALAN ELEKTRIK DI SEMENANJUNG MALAYSIA INFORMATION ON THE ELECTRICITY SUPPLY INDUSTRY IN PENINSULAR MALAYSIA

**Jadual 20: Kapasiti Terpasang (MW) & Kebolehdapatan Keseluruhan TNB**  
**Table 20: TNB Installed Capacity (MW) & Overall Availability**

SUMBER TENAGA ENERGY SOURCE	2017	2018	2019	2020	2021
Hidro   Hydro	2,536	2,536	2,536	2,536	2,556
Gas Asli   Natural Gas	2,530	2,530	2,230	1,973	1,973
<b>JUMLAH   TOTAL</b>	<b>5,066</b>	<b>5,066</b>	<b>4,766</b>	<b>4,509</b>	<b>4,529</b>
Kebolehdapatan keseluruhan   Overall availability	91.37%	91.77%	91.31%	94.10%	89.78%

**Nota | Notes:**

Kapasiti terpasang bagi stesen jana kuasa TNB yang bersambung di talian penghantaran, tidak termasuk IPP.  
Installed capacity of TNB power plants connected at transmission level, excluding IPP.

**Jadual 21: Campuran Penjanaan TNB (GWj)**  
**Table 21: TNB Generation Mix (GWh)**

SUMBER TENAGA ENERGY SOURCE	2017	2018	2019	2020	2021
Hidro   Hydro	7,089	4,915	3,919	5,426	6,840
Gas Asli   Natural Gas	15,149	12,911	12,816	11,216	10,201
MFO / Diesel / Distillate	2	0	0.43	0	0
<b>JUMLAH   TOTAL</b>	<b>22,239</b>	<b>17,827</b>	<b>16,735</b>	<b>16,642</b>	<b>17,041</b>

**Nota | Notes:**

1. Penjanaan oleh stesen jana kuasa TNB yang bersambung di talian penghantaran, tidak termasuk IPP. Units generated of TNB power plants connected at transmission level, excluding IPP.
2. Penjanaan adalah merujuk kepada penjanaan bersih. Generation refers to the net-generation.

**Jadual 22: Bilangan Pengguna TNB**  
**Table 22: Number of TNB Consumers**

TAHUN YEAR	2017	2018	2019	2020	2021
Domestik   Domestic	7,181,846	7,378,425	7,553,229	7,728,383	7,916,379
Komersial   Commercial	1,510,341	1,553,607	1,575,198	1,590,434	1,618,366
Industri   Industry	28,867	29,749	30,520	31,637	32,846
Lampu Awam   Public Lighting	70,402	72,554	75,463	77,982	80,866
Perlombongan   Mining	38	45	53	53	60
Pertanian   Agriculture	2,112	2,228	2,326	2,431	2,548
Unit Percuma   Free Units	2,559	2,589	2,622	2,641	2,732
<b>JUMLAH   TOTAL</b>	<b>8,796,165</b>	<b>9,039,197</b>	<b>9,239,411</b>	<b>9,433,561</b>	<b>9,653,797</b>

**Nota | Notes:**

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 refers 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.



**Jadual 23: Jualan Tenaga Elektrik TNB (GWj)**  
**Table 23: TNB Electricity Sales (GWh)**

TAHUN YEAR	2017	2018	2019	2020	2021
Domestik   Domestic	24,828	25,522	27,267	29,961	31,485
Komersial   Commercial	39,086	39,265	40,428	35,831	34,060
Industri   Industry	44,457	46,440	46,403	42,790	43,967
Lampu Awam   Public Lighting	1,482	1,476	1,590	1,475	1,499
Perlombongan   Mining	131	149	175	134	164
Pertanian   Agriculture	583	617	663	688	683
Eksport   Export	4.81	0.08	0.26	3.00	1.00
<b>JUMLAH   TOTAL</b>	<b>110,572</b>	<b>113,469</b>	<b>116,526</b>	<b>110,882</b>	<b>111,859</b>

**Jadual 24: Penggunaan Tenaga Elektrik (GWj) Mengikut Negeri di Semenanjung Malaysia**  
**Table 24: Electricity Consumption (GWh) by States in Peninsular Malaysia**

NEGERI STATE	2017	2018	2019	2020	2021
Perlis	750	749	716	685	696
Kedah	5,235	5,415	5,489	5,298	5,387
Pulau Pinang	11,425	11,862	11,922	11,179	11,542
Perak	8,936	9,149	9,443	9,096	9,229
Selangor	28,853	29,613	30,111	28,772	29,455
WP Kuala Lumpur	15,186	15,072	15,440	14,523	14,048
Negeri Sembilan	5,979	6,047	6,205	5,988	6,072
Melaka	4,625	4,643	4,860	4,591	4,532
Johor	17,807	18,546	19,343	18,361	18,293
Pahang	5,187	5,581	5,737	5,315	5,383
Terengganu	2,953	3,079	3,350	3,144	3,218
Kelantan	2,375	2,449	2,589	2,650	2,731
WP Putrajaya	1,258	1,266	1,319	1,276	1,273
<b>JUMLAH TOTAL</b>	<b>110,567</b>	<b>113,469</b>	<b>116,526</b>	<b>110,879</b>	<b>111,858</b>

Jadual 25: Sistem Penghantaran TNB  
 Table 25: TNB Transmission System

TAHUN YEAR	2017	2018	2019	2020	2021
<b>TALIAN &amp; KABEL SISTEM PENGHANTARAN TRANSMISSION SYSTEM LINES &amp; CABLES</b>					
500 kV (cct-km)	784	1,628	1,886	2,176	2,567
275 kV (cct-km)	9,637	9,047	9,597	9,406	9,526
132 kV (cct-km)	12,420	12,407	12,482	12,697	12,761
<b>PENCAWANG PENGHANTARAN TRANSMISSION SUBSTATIONS</b>					
Bilangan Number	439	443	457	462	472
Keupayaan (MVA) Capacity (MVA)	109,210	115,120	121,590	125,490	130,710

Jadual 26: Sistem Pengagihan TNB  
 Table 26: TNB Distribution System

TAHUN YEAR	2017	2018	2019	2020	2021
<b>TALIAN &amp; KABEL SISTEM PENGAGIHAN DISTRIBUTION SYSTEM LINES &amp; CABLES</b>					
Talian Atas (km) Overhead Lines (km)	339,793	352,565	366,568	379,468	392,894
Kabel Bawah Tanah (km) Underground Cables (km)	305,464	307,474	316,439	323,844	330,241
<b>PENCAWANG PENGAGIHAN DISTRIBUTION SUBSTATIONS</b>					
Bilangan Number	79,450	81,327	83,467	85,127	86,468
Keupayaan (MVA) Capacity (MVA)	111,842	114,089	117,436	120,301	123,084

**Nota | Notes:**

Data tahun 2017 dan ke atas ialah data selepas *data cleansing* dijalankan. Data for 2017 and above is data after data cleansing exercise.



**Jadual 27: Kapasiti Terpasang di Semenanjung Malaysia**  
**Table 27: Peninsular Malaysia Installed Capacity**

	STESEN JANA KUASA POWER STATION	SUMBER TENAGA ENERGY SOURCE	KAPASITI TERPASANG (MW) INSTALLED CAPACITY (MW)	TAAC (MW)
TNB	Sj Temenggor - Sg Perak Scheme	Hidro I Hydro	348.00	345.58
	Sj Bersia Sg - Perak Scheme	Hidro I Hydro	72.00	72.00
	Sj Kenering - Sg Perak Scheme	Hidro I Hydro	120.00	119.27
	Sj Chenderoh - Sg Perak Scheme	Hidro I Hydro	40.50	39.84
	Sg Piah Upper - Sg Perak Scheme	Hidro I Hydro	68.60	68.60
	Sg Piah Lower- Sg Perak Scheme	Hidro I Hydro		
	Sj Pergau	Hidro I Hydro	600.00	600.00
	Sj Sultan Mahmud, Kenyir-Hydro	Hidro I Hydro	400.00	400.00
	Sj Jor	Hidro I Hydro	100.00	100.00
	Sj Woh	Hidro I Hydro	150.00	150.00
	Sj Hulu Terengganu-Hydro	Hidro I Hydro	265.00	265.00
	Sj Tembat -Hydro	Hidro I Hydro		
	Sj Ulu Jelai -Hydro	Hidro I Hydro	372.00	372.00
	Sj Hidro mini <sup>d</sup> Mini hydro power stations <sup>d</sup>	Hidro mini I Mini hydro	20.16	17.31
	Sj Putrajaya	Gas asli I Natural gas - OCGT	252.00	252.00
	Sj Gelugor	Gas asli I Natural gas - CCGT	310.00	310.00
	Sj Tuanku Jaafar, Port Dickson	Gas asli I Natural gas - CCGT	1,411.00	1,411.00
		<b>JUMLAH TNB TOTAL TNB</b>	<b>4,529.26</b>	<b>4,522.60</b>

**MAKLUMAT INDUSTRI PEMBEKALAN ELEKTRIK DI SEMENANJUNG MALAYSIA**  
**INFORMATION ON THE ELECTRICITY SUPPLY INDUSTRY IN PENINSULAR MALAYSIA**

**Jadual 27: Kapasiti Terpasang di Semenanjung Malaysia**  
**Table 27: Peninsular Malaysia Installed Capacity**

	<b>STESEN JANA KUASA POWER STATION</b>	<b>SUMBER TENAGA ENERGY SOURCE</b>	<b>KAPASITI TERPASANG (MW) INSTALLED CAPACITY (MW)</b>	<b>TAAC (MW)</b>	
IPP	GB3 Sdn. Bhd., Lumut	Gas asli   Natural gas-CCGT	640.00	640.00	
	Kuala Langat Power Plant Sdn. Bhd., Kuala Langat	Gas asli   Natural gas-CCGT	675.00	675.00	
	Panglima Power Berhad, Telok Gong	Gas asli   Natural gas-CCGT	720.00	720.00	
	Prai Power Sdn. Bhd., Prai	Gas asli   Natural gas-CCGT	350.00	350.00	
	Segari Energy Ventures Sdn. Bhd., Lumut	Gas asli   Natural gas-CCGT	1,303.00	1,303.00	
	Teknologi Tenaga Perlis Consortium Sdn. Bhd., Perlis	Gas asli   Natural gas-CCGT	650.00	650.00	
	EDRA Energy Sdn. Bhd.	Gas asli   Natural gas-CCGT	747.38	747.38	
	TNB Pasir Gudang Energy Sdn. Bhd.	Gas asli   Natural gas-CCGT	275.00	275.00	
	TNB Connaught Bridge Sdn. Bhd.	Gas asli   Natural gas-CCGT	375.00	375.00	
	TNB Prai Sdn. Bhd.	Gas asli   Natural gas-CCGT	1,071.43	1,071.43	
	Southern Power Generation Sdn. Bhd.	Gas asli   Natural gas-CCGT	1,440.00	1,440.00	
	NUR Generation Sdn. Bhd. <sup>d</sup>	Gas asli   Natural gas-CCGT	220.00	212.50	
	Pengerang Power Sdn. Bhd.	Gas asli   Natural gas-Cogen	600.00	600.00	
	Kapar Energy Ventures Sdn. Bhd. (GF1)	Gas asli   Natural gas -Conventional Thermal	600.00	582.88	
	Jimah Energy Ventures Sdn. Bhd.	Arang batu   Coal - Thermal	1,400.00	1,400.00	
	Tanjung Bin Power Sdn. Bhd.	Arang batu   Coal - Thermal	2,100.00	2,100.00	
	Tanjung Bin Energy Sdn. Bhd.	Arang batu   Coal - Thermal	1,000.00	1,000.00	
	Kapar Energy Ventures Sdn. Bhd. (GF2)	Arang batu   Coal - Thermal	600.00	566.71	
	Kapar Energy Ventures Sdn. Bhd. (GF3)	Arang batu   Coal - Thermal	1,000.00	910.63	
	TNB Janamanjung (1,2,3) Sdn. Bhd.	Arang batu   Coal - Thermal	2,070.00	2,070.00	
	TNB Janamanjung (4) Sdn. Bhd.	Arang batu   Coal - Thermal	1,010.00	1,010.00	
	TNB Manjung Five Sdn. Bhd.	Arang batu   Coal - Thermal	1,000.00	890.00	
	Jimah East Power Sdn. Bhd.	Arang batu   Coal - Thermal	2,000.00	2,000.00	
	Musteq Hydro Sdn. Bhd. <sup>d</sup>	Hidro Mini   Mini Hydro	20.00	0.00	
		<b>JUMLAH IPP TOTAL IPP</b>		<b>21,866.81</b>	<b>21,589.53</b>
		<b>JUMLAH (TNB + IPP) TOTAL (TNB + IPP)</b>		<b>26,396.07</b>	<b>26,112.13</b>



Jadual 27: Kapasiti Terpasang di Semenanjung Malaysia  
 Table 27: Peninsular Malaysia Installed Capacity

LAIN-LAIN   OTHERS	KATEGORI CATEGORY	SUMBER TENAGA ENERGY SOURCE	KAPASITI TERPASANG (MW) INSTALLED CAPACITY (MW)
	Cogen Awam <sup>d</sup> Public Cogeneration <sup>d</sup>		Gas asli   Natural gas*
		Sisa proses industri Process industrial waste	1.87
		Haba sisa proses perindustrian Industrial process waste heat	7.00
		<b>JUMLAH   TOTAL</b>	<b>478.66</b>
Cogen Persendirian <sup>o</sup> Private Cogeneration <sup>o</sup>		Gas asli   Natural gas	334.61
		Haba sisa proses perindustrian Industrial process waste heat	225.00
		Biojisim   Biomass	12.44
		<b>JUMLAH   TOTAL</b>	<b>572.05</b>
Feed-in-Tariff (FiT) & MySuria <sup>d</sup>		Biogas	114.71
		Biojisim   Biomass	44.85
		Hidro mini   Mini hydro	67.80
		Solar	288.13
		<b>JUMLAH   TOTAL</b>	<b>515.49</b>
Net Energy Metering (NEM) <sup>d</sup>		Solar	426.84
		<b>JUMLAH   TOTAL</b>	<b>426.84</b>
Lesen TBB bukan FiT   RE licence non-FiT		Solar	0.14
		<b>JUMLAH   TOTAL</b>	<b>0.14</b>
Large Scale Solar (LSS)		< 30 MW <sup>d</sup>	250.46
		> 30 MW	608.91
		<b>JUMLAH   TOTAL</b>	<b>859.36</b>
Persendirian < 5MW <sup>s</sup> Self-Gen < 5MW <sup>s</sup>		Gas asli   Natural gas	10.28
		Diesel/Minyak/Distillate Diesel/Oil/Distillate	52.58
		Hidro mini   Mini hydro	2.66
		Solar	12.42
		Biojisim   Biomass	159.97
		Biogas	0.55
		Lain-lain   Others	17.92
		<b>JUMLAH   TOTAL</b>	<b>256.38</b>
Persendirian > 5MW <sup>s</sup> Self-Gen > 5MW <sup>s</sup>		Diesel/Minyak/Distillate Diesel/Oil/Distillate	5.14
		Biojisim   Biomass	29.66
		Lain-lain   Others	6.00
		<b>JUMLAH   TOTAL</b>	<b>40.80</b>
		<b>TOTAL LAIN-LAIN TOTAL OTHERS</b>	<b>3,149.72</b>
		<b>JUMLAH BESAR (TNB + IPP + LAIN-LAIN) GRAND TOTAL (TNB + IPP + OTHERS)</b>	<b>29,545.79</b>

**Nota | Notes:**

- <sup>d</sup>Bersambung di peringkat pengagihan. <sup>d</sup>Connected at the distribution level.
- \*Termasuk 100 MW yang bersambung di peringkat penghantaran. \*Including 100 MW connected at the transmission level.
- <sup>o</sup>Cogen persendirian menjana elektrik untuk kegunaan sendiri. <sup>o</sup>Private cogens generate electricity for their own consumption.
- <sup>s</sup>SELCO
- Tambahan baru kapasiti penjana Persendirian melebihi 5 MW. New addition of installed capacity from Self-Gen more than 5 MW.

**Jadual 27a: Kapasiti Terpasang Mengikut Sumber Tenaga di Semenanjung Malaysia (MW)**  
**Table 27a: Peninsular Malaysia Installed Capacity by Energy Source (MW)**

PENJANA GENERATOR	SUMBER TENAGA   ENERGY SOURCE												JUMLAH TOTAL	%	
	ARANG BATU COAL	GAS ASLI NATURAL GAS	DIESEL/OIL/ DISTILLATE	HIDRO HYDRO	HIDRO MINI MINI HYDRO	SOLAR	BIOJISIM BIOMASS	BIOGAS	SISA INDUSTRIAL WASTE	HABA SISA WASTE HEAT	LAIN-LAIN OTHERS				
TNB	-	1,973.00	-	2,536.10	20.16	-	-	-	-	-	-	-	-	4,529.26	15.33
IPP	12,180.00	9,666.81	-	-	20.00	-	-	-	-	-	-	-	-	21,866.81	74.01
Cogen Awam Public Cogen	-	469.79	-	-	-	-	-	-	1.87	7.00	-	-	-	478.66	1.62
Cogen Persendirian Private Cogen	-	334.61	-	-	-	-	12.44	-	-	225.00	-	-	-	572.05	1.94
FiT & Mysuria	-	-	-	-	67.80	288.13	44.85	114.71	-	-	-	-	-	515.49	1.74
NEM	-	-	-	-	-	426.84	-	-	-	-	-	-	-	426.84	1.44
lesen TBB bukan FiT RE licence non-FiT	-	-	-	-	-	0.14	-	-	-	-	-	-	-	0.14	0.00
LSS < 30 MW	-	-	-	-	-	250.46	-	-	-	-	-	-	-	250.46	0.85
LSS > 30 MW	-	-	-	-	-	608.91	-	-	-	-	-	-	-	608.91	2.06
Persendirian < 5 MW Self-Gen < 5 MW	-	10.28	52.58	-	2.66	12.42	159.97	0.55	-	-	17.92	-	-	256.38	0.99
Persendirian > 5 MW Self-Gen > 5 MW	-	-	5.14	-	-	-	29.66	-	-	-	6.00	-	-	40.80	0.14
<b>JUMLAH TOTAL</b>	<b>12,180.00</b>	<b>12,454.49</b>	<b>57.72</b>	<b>2,536.10</b>	<b>110.62</b>	<b>1,585.90</b>	<b>246.92</b>	<b>115.26</b>	<b>1.87</b>	<b>232.00</b>	<b>23.92</b>	<b>1.87</b>	<b>232.00</b>	<b>29,545.79</b>	<b>100.00</b>
<b>%</b>	<b>41.22</b>	<b>42.15</b>	<b>0.20</b>	<b>8.58</b>	<b>0.37</b>	<b>5.37</b>	<b>0.84</b>	<b>0.39</b>	<b>0.01</b>	<b>0.79</b>	<b>0.08</b>	<b>0.01</b>	<b>0.79</b>	<b>100.00</b>	

**Nota | Notes:**

1. Termasuk stesen jana kuasa yang bersambung di peringkat pengagihan dan *off-grid*. Includes the distribution level and off-grid power plan.
2. Lain-lain merujuk kepada sumber tenaga selain daripada tenaga boleh baharu. Others refers to nonrenewable energy sources.
3. Tambahan baru kapasiti penjana Persendirian melebihi 5 MW. New addition of installed capacity from Self-Gen more than 5 MW.



**Jadual 28: Penjanaan Elektrik Mengikut Sumber Tenaga di Semenanjung Malaysia (GWj)**  
**Table 28: Peninsular Malaysia Electricity Generation by Energy Source (GWh)**

PENJANA GENERATOR	SUMBER TENAGA   ENERGY SOURCE												JUMLAH TOTAL	%	
	ARANG BATU COAL	GAS ASLI NATURAL GAS	DIESEL/OIL/DISTILLATE	HIDRO HYDRO	HIDRO MINI MINI HYDRO	SOLAR	BIOJISIM BIOMASS	BIOGAS	SISA INDUSTRI INDUSTRIAL WASTE	HABA SISA WASTE HEAT	LAIN-LAIN OTHERS				
TNB	-	10,201.16	-	6,798.79	41.42	-	-	-	-	-	-	-	-	17,041.37	12.72
IPP	74,262.47	34,475.13	179.71	-	111.48	-	-	-	-	-	-	-	-	109,028.80	81.36
NEDA	-	240.87	-	-	-	-	-	-	-	-	-	-	-	240.87	0.18
Cogen Awam Public Cogen	-	2,134.09	-	-	-	-	-	-	-	-	-	-	7.04	2,141.14	1.60
Cogen Persendirian Private Cogen	-	1,511.45	0.61	-	-	-	-	13.31	-	290.12	-	-	-	1,815.49	1.35
FiT & Mysuria	-	-	-	-	271.82	402.31	106.70	422.15	-	-	-	-	-	1,202.98	0.90
NEM	-	-	-	-	-	523.48	-	-	-	-	-	-	-	523.48	0.39
lesen TBB bukan FiT RE Licence non-FiT	-	-	-	-	-	435.60	-	-	-	-	-	-	-	435.60	0.33
LSS < 30 MW	-	-	-	-	-	0.11	-	-	-	-	-	-	-	0.11	0.00
LSS > 30 MW	-	-	-	-	-	1,111.00	-	-	-	-	-	-	-	1,111.00	0.83
Persendirian < 5 MW Self-Gen < 5 MW	-	49.61	33.70	-	4.49	12.47	335.48	0.34	-	-	10.30	-	-	446.39	0.33
Persendirian > 5 MW Self-Gen > 5 MW	-	-	0.98	-	-	-	19.60	-	-	-	0.00	-	-	20.58	0.02
<b>JUMLAH TOTAL</b>	<b>74,262.47</b>	<b>48,612.59</b>	<b>214.99</b>	<b>6,798.79</b>	<b>429.22</b>	<b>2,484.97</b>	<b>475.08</b>	<b>422.49</b>	<b>7.04</b>	<b>290.12</b>	<b>10.30</b>	<b>-</b>	<b>-</b>	<b>134,007.80</b>	<b>100.00</b>
<b>%</b>	<b>55.42</b>	<b>36.28</b>	<b>0.16</b>	<b>5.07</b>	<b>0.32</b>	<b>1.85</b>	<b>0.35</b>	<b>0.32</b>	<b>0.01</b>	<b>0.22</b>	<b>0.01</b>	<b>-</b>	<b>-</b>	<b>100.00</b>	<b>-</b>

**Nota | Notes:**

1. Termasuk stesen jana kuasa yang bersambung di peringkat pengagihan dan offgrid. Includes the distribution level and offgrid power plants.
2. Penjanaan elektrik daripada TNB, IPP dan NEDA merujuk kepada penjanaan bersih. Electricity generation from TNB, IPP and NEDA refers to net-generation.
3. Lain-lain merujuk kepada sumber tenaga selain daripada tenaga boleh baharu. Others refers to nonrenewable energy sources.
4. Tambahan baru data penjanaan NEDA dan penjana Persendirian melebihi 5 MW. New addition of NEDA's and Self-Gen more than 5 MW generation data.



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**Jadual 29: Maklumat Utama Prestasi SESB**  
**Table 29: Key Information on SESB Performance**

PETUNJUK INDICATOR	UNIT	2017	2018	2019	2020	2021
Kehendak Maksimum Maximum Demand	MW	938	955	1,000.8	987.1	1,003 <sup>1</sup>
Jumlah Unit Penjanaaan Total Units Generated	GWj GWh	919	1,033	1,124	1,178	1,250
Jumlah Unit Jualan Total Units Sold	GWj GWh	5,173	5,345	5,576	5,331	5,356
Hasil Jualan Elektrik Sales Revenue Of Electricity	RM Juta RM Million	1,723	1,830	1,913	1,828	1,843
Kapasiti Penjanaaan Boleh Harap Dependable Generation Capacity	MW	319	328	328	329	311
Jumlah Kakitangan Number Of Employees	Orang Person	3,260	3,179	3,180	3,134	3,197
Hasil Jualan Elektrik Per Kakitangan Sales Revenue Of Electricity Per Employee	RM Juta/Kakitangan RM Million/Employee	0.53	0.58	0.60	0.58	0.58
Unit Jualan Per Kakitangan Units Sold Per Employee	GWj/Kakitangan GWh/Employee	1.59	1.68	1.75	1.70	1.68
Kapasiti Boleh Harap Per Kakitangan Dependable Capacity Per Employee	MW/Kakitangan MW/Employee	0.10	0.10	0.10	0.10	0.10
Jumlah Unit Pembelian <sup>2</sup> Total Purchased Units <sup>2</sup>	GWj GWh	5,063	5,382	5,597	5,072	5,263
Jumlah Unit yang Dieksport Total Exported Units	GWj GWh	-	-	-	-	-
Jumlah Unit yang Diimport Total Imported Units	GWj GWh	-	-	-	-	-

**Nota | Notes:**

- <sup>1</sup>28 Mei 2021  
<sup>1</sup>28 May 2021
- <sup>2</sup>Unit yang dibeli daripada IPP  
<sup>2</sup>Units purchased from the IPPs

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**Jadual 30: Kapasiti Penjanaan Boleh Harap (MW) & Ketersediaan Keseluruhan SESB**  
**Table 30: SESB Dependable Capacity (MW) & Overall Availability**

SUMBER TENAGA ENERGY SOURCE	2017	2018	2019	2020	2021
Hidro & Hidro Mini   Hydro & Mini Hydro	74.6	74.6	79.9	69.3	78.0
Gas Asli   Natural Gas	103.4	103.4	103.4	101.2	103.5
Diesel/MFO	141.1	150.1	149.7	158.0	158.0
<b>JUMLAH   TOTAL</b>	<b>319.1</b>	<b>328.1</b>	<b>328.0</b>	<b>328.5</b>	<b>311.3</b>
Kebolehdapatan keseluruhan   Overall availability	83.81%	79.19%	69.51%	65.70%	76.86%

**Nota | Notes:**

Kapasiti boleh harap bagi stesen jana kuasa SESB yang bersambung di talian penghantaran, kecuali Melawa *Mobile Gen Set* yang hanya diguna pakai semasa kerja penutupan berjadual atau tidak berjadual. Dependable capacity of SESB power plants connected at transmission level, except Melawa *Mobile Gen Set* which is used for planned or emergency shutdown.

**Jadual 31: Penjanaan SESB (GWj)**  
**Table 31: SESB Generation (GWh)**

SUMBER TENAGA ENERGY SOURCE	2017	2018	2019	2020	2021
Hidro & Hidro Mini   Hydro & Mini Hydro	309.8	354.6	337.8	416.8	374.8
Gas Asli   Natural Gas	409.9	417.4	384.8	381.8	369.5
Diesel/MFO	199.5	260.7	311.3	311.5	520.8
<b>JUMLAH   TOTAL</b>	<b>919.2</b>	<b>1,032.6</b>	<b>1,033.9</b>	<b>1,110.1</b>	<b>1,265.1</b>

**Nota | Notes:**

Penjanaan oleh stesen jana kuasa SESB yang bersambung di talian penghantaran, termasuk Melawa *Mobile Gen Set*. Units generated of SESB power plants connected at transmission level, including Melawa *Mobile Gen Set*.

**Jadual 32: Bilangan Pengguna SESB**  
**Table 32: Number of SESB Consumers**

SEKTOR SECTOR	2017	2018	2019	2020	2021
Domestik   Domestic	491,809	505,239	519,308	529,185	544,186
Komersial   Commercial	93,738	96,167	98,479	99,974	103,352
Industri   Industry	1,550	1,589	1,598	1,603	1,614
Lampu Awam   Public Lighting	6,061	6,129	6,335	6,535	6,585
<b>JUMLAH   TOTAL</b>	<b>593,158</b>	<b>609,124</b>	<b>625,720</b>	<b>637,297</b>	<b>655,737</b>

**Jadual 33: Jualan Tenaga Elektrik SESB (GWj)**  
**Table 33: SESB Electricity Sales (GWh)**

SEKTOR SECTOR	2017	2018	2019	2020	2021
Domestik   Domestic	1,721	1,774	1,863	2,035	2,092
Komersial   Commercial	2,324	2,377	2,490	2,171	2,166
Industri   Industry	1,055	1,118	1,147	1,043	1,023
Lampu awam   Public lighting	72	77	76	82	75
<b>JUMLAH   TOTAL</b>	<b>5,173</b>	<b>5,345</b>	<b>5,576</b>	<b>5,331</b>	<b>5,355</b>



**Jadual 34: Sistem Penghantaran SESB**  
**Table 34: SESB Transmission System**

TAHUN YEAR	2017	2018	2019	2020	2021
<b>TALIAN &amp; KABEL SISTEM PENGHANTARAN TRANSMISSION SYSTEM LINES &amp; CABLES</b>					
275 kV (km)	598	598	598	598	807
132 kV (km)	2,075	2,180	2,217	2,240	2,244
66 kV (km)	119	110	103	103	103
<b>PENCAWANG PENGHANTARAN TRANSMISSION SUBSTATIONS</b>					
Bilangan Number	44	45	46	48	49
Keupayaan (MVA) Capacity (MVA)	4,984	5,049	5,489	5,399	6,349

**Jadual 35: Sistem Pengagihan SESB**  
**Table 35: SESB Distribution System**

TAHUN YEAR	2017	2018	2019	2020	2021
<b>TALIAN &amp; KABEL SISTEM PENGAGIHAN DISTRIBUTION SYSTEM LINES &amp; CABLES</b>					
Talian Atas (km) <sup>1</sup> Overhead Lines (km) <sup>1</sup>	9,848	9,465	10,048	9,840	10,694
Kabel Bawah Tanah (km) <sup>1,2</sup> Underground Cables (km) <sup>1,2</sup>	662	1,109	1,616	1,612	1,697
<b>PENCAWANG PENGAGIHAN DISTRIBUTION SUBSTATIONS</b>					
Bilangan Number	7,382	7,957	8,597	8,610	118*
Keupayaan (MVA) Capacity (MVA)	5,969	5,441	6,091	6,114	2,695*

**Nota | Notes:**

- <sup>1</sup> Sistem 11 kV dan 33 kV sahaja  
11 kV and 33 kV only
- <sup>2</sup> Data Tahun Kewangan SESB  
<sup>2</sup>SESB Financial Year Data
- \*33 kV Substations (PPU)

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**Jadual 36: Kapasiti Terpasang dan Kapasiti Boleh Harap di Sabah**  
**Table 36: Sabah Installed and Dependable Capacity**

	STESAN JANA KUASA POWER STATION	SUMBER TENAGA ENERGY SOURCE	KAPASITI TERPASANG (MW) INSTALLED CAPACITY (MW)	KAPASITI BOLEH HARAP (MW) DEPENDABLE CAPACITY (MW)
<b>SESB</b>	Sj Tenom Pangi	Hidro I Hydro	72.00	72.00
	Hidro mini Mini hydro Merotai	Hidro Mini I Mini Hydro	1.00	0.50
	Hidro mini Mini hydro Bombalai	Hidro Mini I Mini Hydro	1.00	0.50
	Hidro mini Mini hydro Melangkap	Hidro Mini I Mini Hydro	1.00	1.00
	Hidro mini Mini hydro Sayap	Hidro Mini I Mini Hydro	1.00	1.00
	Hidro mini Mini hydro Carabau <sup>d</sup>	Hidro Mini I Mini Hydro	2.00	1.80
	Hidro mini Mini hydro Naradau <sup>d</sup>	Hidro Mini I Mini Hydro	1.60	1.20
	Sj Patau-Patau	Gas asli I Natural gas-CCGT	112.00	103.50
	Sj Tawau	Diesel/MFO - DE	24.00	13.00
	Sj Kubota	Diesel/MFO - DE	64.00	64.00
	Sj Sandakan	Diesel/MFO - DE	20.00	17.40
	Ranau - Minor Station <sup>o</sup>	Diesel/MFO - DE	22.40	16.90
	Telupid - Minor Station <sup>o</sup>	Diesel/MFO - DE	11.30	9.20
	Tawau Canopy - Minor Station	Diesel/MFO - DE	8.90	8.00
	Stesen-stesen pedalaman Rural stations	Diesel/MFO - DE <sup>d,o</sup> Solar - Solar Hybrid <sup>o</sup>	1.79 29.88	1.34 28.03
	<b>JUMLAH SESB SESB TOTAL</b>	<b>373.87</b>	<b>339.37</b>	
<b>IPP</b>	Ranhill Powertron Sdn. Bhd. (Teluk Salut)	Gas asli I Natural gas-CCGT	208.64	190.00
	Sepanggar Bay Power Corporation	Gas asli I Natural gas-CCGT	113.80	100.00
	Powertron II (Rugading)	Gas asli I Natural gas-CCGT	214.80	190.00
	Kimanis Power Sdn. Bhd.	Gas asli I Natural gas-CCGT	367.20	285.00
	SPR Energy (M) Sdn. Bhd.	Gas asli I Natural gas-CCGT	108.20	100.00
		<b>JUMLAH SESB SESB TOTAL</b>	<b>1,012.64</b>	<b>865.00</b>
	<b>JUMLAH SESB + IPP SESB + IPP TOTAL</b>	<b>1,386.51</b>	<b>1,204.37</b>	

## MAKLUMAT INDUSTRI PEMBEKALAN ELEKTRIK DI SABAH INFORMATION ON THE ELECTRICITY SUPPLY INDUSTRY IN SABAH



LAIN-LAIN   OTHERS	STESEN JANA KUASA POWER STATION	SUMBER TENAGA ENERGY SOURCE	KAPASITI TERPASANG (MW) INSTALLED CAPACITY (MW)	KAPASITI BOLEH HARAP (MW) DEPENDABLE CAPACITY (MW)
	Cogen Awam <sup>d</sup> Public Cogen <sup>d</sup>	Biojisim   Biomass	29.45	29.45
		<b>JUMLAH   TOTAL</b>	<b>29.45</b>	<b>29.45</b>
	Cogen Persendirian** Public Cogen**	Gas Asli   Natural Gas	65.00	65.00
		Biojisim   Biomass	7.50	7.50
		<b>JUMLAH   TOTAL</b>	<b>72.50</b>	<b>72.50</b>
	FiT <sup>d</sup>	Biojisim   Biomass	13.80	13.80
		Biogas	9.60	9.60
		Hidro Mini   Mini Hydro	20.00	20.00
		Solar	34.38	34.38
<b>JUMLAH   TOTAL</b>		<b>77.78</b>	<b>77.78</b>	
NEM	Solar	0.03	0.03	
	<b>JUMLAH   TOTAL</b>	<b>0.03</b>	<b>0.03</b>	
LSS	LSS < 30MW	2.00	2.00	
	LSS > 30MW <sup>d</sup>	48.00	48.00	
	<b>JUMLAH   TOTAL</b>	<b>50.00</b>	<b>50.00</b>	
Persendirian < 5MW <sup>s</sup> Self-Gen < 5 MW <sup>s</sup>	Gas Asli   Natural Gas	2.23	2.23	
	Diesel/MFO - DE	104.79	104.79	
	Solar	1.55	1.55	
	Biojisim   Biomass	75.32	75.32	
	Biogas	1.59	1.59	
	Lain-lain   Others	48.19	48.19	
	<b>JUMLAH   TOTAL</b>	<b>233.67</b>	<b>233.67</b>	
Persendirian > 5MW <sup>s</sup> Self-Gen > 5 MW <sup>s</sup>	Gas Asli   Natural Gas	60.27	60.27	
	Diesel/MFO - DE	39.87	39.87	
	Biojisim   Biomass	5.08	5.08	
	Sisa Industri   Industrial waste	15.06	15.06	
	<b>JUMLAH   TOTAL</b>	<b>120.28</b>	<b>120.28</b>	
<b>JUMLAH LAIN-LAIN OTHERS TOTAL</b>			<b>60.27</b>	<b>583.71</b>
<b>JUMLAH BESAR GRAND TOTAL</b>			<b>39.87</b>	<b>1,788.08</b>

### Nota | Notes:

- <sup>d</sup>Bersambung di peringkat pengagihan. <sup>d</sup>Connected at the distribution level
- \*\*Cogeneration persendirian menjana elektrik untuk kegunaan sendiri. \*\*Private cogenerations generate electricity for their own consumption
- <sup>s</sup>SELCO
- <sup>o</sup>Off-grid
- Tambahan baru kapasiti penajaan Persendirian melebihi 5 MW. New addition of installed capacity from Self-Gen more than 5 MW.

**Jadual 36a: Kapasiti Terpasang Mengikut Sumber Tenaga di Sabah (MW)**  
**Table 36a: Sabah Installed Capacity by Energy Sources (MW)**

PENJANA GENERATOR	SUMBER TENAGA   ENERGY SOURCE										JUMLAH TOTAL	%
	GAS ASLI NATURAL GAS	DIESEL/MFO	HIDRO HYDRO	HIDRO MINI MINI HYDRO	SOLAR	BIOJISIM BIOMASS	BIOGAS	SISA INDUSTRIAL WASTE	LAIN-LAIN OTHERS			
SESB	112.00	152.39	72.00	7.60	29.88	-	-	-	-	-	373.87	18.98
IPP	1,012.64	-	-	-	-	-	-	-	-	-	1,012.64	51.40
Cogen Awam Public Cogen	-	-	-	-	-	29.45	-	-	-	-	29.45	1.49
Cogen Persendirian Private Cogen	65.00	-	-	-	-	7.50	-	-	-	-	72.50	3.68
FiT & Mysuria	-	-	-	20.00	34.38	13.80	9.60	-	-	-	77.78	3.95
NEM	-	-	-	-	0.03	-	-	-	-	-	0.03	0.00
LSS < 30 MW	-	-	-	-	2.00	-	-	-	-	-	2.00	0.10
LSS > 30 MW	-	-	-	-	48.00	-	-	-	-	-	48.00	2.44
Persendirian < 5 MW Self-Gen < 5 MW	2.23	104.79	-	-	1.55	75.32	1.59	-	48.19	-	233.67	11.86
Persendirian > 5 MW Self-Gen > 5 MW	60.27	39.87	-	-	-	5.08	-	15.06	-	-	120.28	6.10
<b>JUMLAH TOTAL</b>	<b>1,252.14</b>	<b>297.05</b>	<b>72.00</b>	<b>27.60</b>	<b>115.84</b>	<b>131.15</b>	<b>11.19</b>	<b>15.06</b>	<b>48.19</b>	<b>1,970.22</b>	<b>100.00</b>	
<b>%</b>	<b>63.55</b>	<b>15.08</b>	<b>3.65</b>	<b>1.40</b>	<b>5.88</b>	<b>6.66</b>	<b>0.57</b>	<b>0.76</b>	<b>2.45</b>	<b>100.00</b>		

**Nota | Notes:**

1. Termasuk stesen jana kuasa yang bersambung di peringkat pengagihan dan off-grid. Includes the distribution level and off-grid power plan.
2. Lain-lain merujuk kepada sumber tenaga selain daripada tenaga boleh baharu. Others refers to non-renewable energy sources.
3. Tambahan baru kapasiti penjana Persendirian melebihi 5 MW. New addition of installed capacity from Self-Gen more than 5 MW.



**Jadual 37: Penjanaaan Elektrik Mengikut Sumber Tenaga di Sabah (GWj)**  
**Table 37: Sabah Electricity Generation by Energy Source (GWj)**

PENJANA GENERATOR	SUMBER TENAGA   ENERGY SOURCE										Jumlah TOTAL	%
	GAS ASLI NATURAL GAS	DIESEL/MFO	HIDRO HYDRO	HIDRO MINI MINI HYDRO	SOLAR	BIOJISIM BIOMASS	BIOGAS	SISA INDUSTRIAL WASTE	LAIN-LAIN OTHERS			
SESB	369.45	520.76	360.01	14.75	-	-	-	-	-	-	1,264.98	17.23
IPP	5,227.17	28.56	-	-	-	-	-	-	-	-	5,255.73	71.60
Cogen Awam Public Cogen	-	1.96	-	-	-	35.36	-	-	-	-	37.32	0.51
Cogen Persendirian Private Cogen	216.60	2.51	-	-	-	7.40	-	-	-	-	226.50	3.09
FiT & Mysuria	-	-	-	17.29	48.93	53.69	2.99	-	-	-	122.90	1.67
NEM	-	-	-	-	0.04	-	-	-	-	-	0.04	0.00
LSS < 30 MW	-	-	-	-	3.08	-	-	-	-	-	3.08	0.04
LSS > 30 MW	-	-	-	-	76.83	-	-	-	-	-	76.83	1.05
Persendirian < 5 MW Self-Gen < 5 MW	8.00	116.08	-	-	1.69	78.93	2.59	-	77.82	-	285.10	3.88
Persendirian > 5 MW Self-Gen > 5 MW	6.81	18.54	-	-	-	28.37	-	8.20	5.84	-	67.76	0.92
<b>Jumlah TOTAL</b>	<b>5,828.03</b>	<b>688.41</b>	<b>360.01</b>	<b>32.04</b>	<b>130.57</b>	<b>203.74</b>	<b>5.58</b>	<b>8.20</b>	<b>83.66</b>	<b>7,340.25</b>	<b>100.00</b>	
<b>%</b>	<b>79.40</b>	<b>9.38</b>	<b>4.90</b>	<b>0.44</b>	<b>1.78</b>	<b>2.78</b>	<b>0.08</b>	<b>0.11</b>	<b>1.14</b>	<b>100.00</b>		

**Nota | Notes:**

1. Termasuk stesen jana kuasa yang bersambung di peringkat pengagihan dan off-grid. Includes the distribution level and off-grid power plants.
2. Lain-lain merujuk kepada sumber tenaga selain daripada tenaga boleh baharu. Others refers to non-renewable energy sources.
3. Tambahan baru data penjanaaan Persendirian melebihi 5 MW. New addition of generation data from Self-Gen more than 5 MW



**MAKLUMAT INDUSTRI  
PEMBEKALAN ELEKTRIK DI SARAWAK  
INFORMATION ON THE ELECTRICITY  
SUPPLY INDUSTRY IN SARAWAK**



**Jadual 38: Maklumat Utama Prestasi SEB**  
**Table 38: Key Information on SEB Performance**

PETUNJUK INDICATOR	UNIT	2017	2018	2019	2020	2021
Kehendak Maksimum Maximum Demand	MW	3,302	3,504	3,777	3,664	4,107 <sup>1</sup>
Jumlah Unit Penjanaan Total Units Generated	GWj GWh	25,580 <sup>2</sup>	27,177	29,457	28,088	31,025
Jumlah Unit Jualan Total Units Sold	GWj GWh	22,557	24,316	25,492	26,211	28,590
Hasil Jualan Elektrik Sales Revenue of Electricity	RM Juta RM Million	4,707	5,266	5,585	5,460	5,880
Kapasiti Terpasang Installed Capacity	MW	4,641 <sup>2</sup>	4,641	5,204	5,242	5,682
Jumlah Kakitangan Number of Employees	Orang Person	4,713	4,841	5,207	5,380	5,442
Hasil Jualan Elektrik Per Kakitangan Sales Revenue of Electricity Per Employee	RM Juta/Kakitangan RM Million/Employee	1.0	1.09	1.07	1.01	0.41
Unit Jualan Per Kakitangan Units Sold Per Employee	GWj/Kakitangan GWh/Employee	4.8	5.3	5.2	4.9	5.3
Kapasiti Boleh Harap Per Kakitangan Dependable Capacity Per Employee	MW/Kakitangan MW/Employee	0.48 <sup>3</sup>	0.96	1.00	0.97	1.04
Jumlah Unit Pembelian <sup>2</sup> Total Purchased Units <sup>2</sup>	GWj GWh	-	-	-	-	-
Jumlah Unit yang Dieksport Total Exported Units	GWj GWh	1,119	1,509	1,697	1,568	973
Jumlah Unit yang Diimport Total Imported Units	GWj GWh	-	-	-	-	-

**Nota | Notes:**

- <sup>1</sup>2 Disember 2021  
<sup>1</sup>2 December 2021
- <sup>2</sup>Pemilikan Bakun Hydro mulai suku ke-3 2017  
<sup>2</sup>Acquisition of Bakun Hydro in Q3 2017
- <sup>3</sup>Dikira berdasarkan kapasiti terpasang SEB sebanyak 2,241 MW  
<sup>3</sup>Calculated based on 2,241 MW installed capacity of SEB

## MAKLUMAT INDUSTRI PEMBEKALAN ELEKTRIK DI SARAWAK INFORMATION ON THE ELECTRICITY SUPPLY INDUSTRY IN SARAWAK

**Jadual 39: Kapasiti Terpasang SEB (MW)**  
**Table 39: SEB Installed Capacity (MW)**

SUMBER TENAGA ENERGY SOURCE	2017	2018	2019	2020	2021
Hidro   Hydro	3,452 <sup>1</sup>	3,452 <sup>2</sup>	3,452 <sup>2</sup>	3,452 <sup>2</sup>	3,452 <sup>2</sup>
Gas Asli   Natural Gas	595	595	584	584	1,005
Arang Batu   Coal	480	480	1,104	1,104	1,104
Diesel	114	114	64 <sup>3</sup>	103	102
<b>JUMLAH   TOTAL</b>	<b>4,641</b>	<b>4,641</b>	<b>5,204</b>	<b>5,242</b>	<b>5,682</b>

**Nota | Notes:**

- <sup>1</sup>Pemilikan Bakun Hidro pada suku ke-3 2017  
<sup>1</sup>Acquisition of Bakun Hydro in Q3 2017
- <sup>2</sup>Termasuk SJ Batang Ai, Murum dan Bakun  
<sup>2</sup>Inclusive of Batang Ai, Murum and Bakun power stations
- <sup>3</sup>Data diesel tidak termasuk Stesen Jana Kuasa Limbang & Lawas  
<sup>3</sup>Diesel figure does not include Limbang & Lawas Power Station

**Jadual 40: Jualan Tenaga Elektrik SEB (GWj)**  
**Table 40: SEB Electricity Sales (GWh)**

SEKTOR SECTOR	2017	2018	2019	2020	2021
Domestik   Domestic	2,149	2,368	2,401	2,620	2,867
Komersial   Commercial	2,562	2,857	2,753	2,584	2,621
Industri   Industry	17,758	18,981	20,234	20,898	22,993
Lampu Awam   Public Lighting	88	110	104	109	108
Ekspori   Export	1,119	1,509	1,697	1,568	973
<b>JUMLAH   TOTAL</b>	<b>23,675</b>	<b>25,825</b>	<b>27,189</b>	<b>27,779</b>	<b>29,563</b>

**Jadual 41: Bilangan Pengguna SEB**  
**Table 41: Number of SEB Consumers**

SEKTOR SECTOR	2017	2018	2019	2020	2021
Domestik   Domestic	554,467	568,712	583,613	598,106	617,255
Komersial   Commercial	93,627	96,416	99,774	101,453	104,537
Industri   Industry	1,051	1,066	1,059	1,067	1,072
Lampu Awam   Public Lighting	10,040	10,491	11,146	11,484	12,071
Ekspori   Export	4	4	4	-	1
<b>JUMLAH   TOTAL</b>	<b>659,189</b>	<b>676,689</b>	<b>695,596</b>	<b>712,110</b>	<b>734,936</b>



**Jadual 42: Sistem Penghantaran SEB**  
**Table 42: SEB Transmission System**

TAHUN YEAR	2017	2018	2019	2020	2021
<b>TALIAN &amp; KABEL SISTEM PENGHANTARAN TRANSMISSION SYSTEM LINES &amp; CABLES</b>					
500 kV (km)	754	753	753	377	753
275 kV (km)	2,761	2,810	3,068	1,559	3,100
132 kV (km)	826	840	916	454	1,200
66 kV (km)	–	–	–	–	–
<b>PENCAWANG PENGHANTARAN TRANSMISSION SUBSTATIONS</b>					
Bilangan Number	33	37	42	43	46
Keupayaan (MVA) Capacity (MVA)	8,809	10,246	10,726	11,936	13,586

**Jadual 43: Sistem Pengagihan SEB**  
**Table 43: SEB Distribution System**

TAHUN YEAR	2017	2018	2019	2020	2021
<b>TALIAN &amp; KABEL SISTEM PENGAGIHAN DISTRIBUTION SYSTEM LINES &amp; CABLES</b>					
Talian Atas (km) Overhead Lines (km)	11,998	26,236	26,850	27,634	28,427
Kabel Bawah Tanah (km) Underground Cables (km)	5,175	8,769	9,098	9,540	10,320
<b>PENCAWANG PENGAGIHAN DISTRIBUTION SUBSTATIONS</b>					
Bilangan Number	13,076	13,824	13,544	14,395	12,264
Keupayaan (MVA) Capacity (MVA)	9,061	9,600	5,940	9,845	10,126



Jadual 44: Kapasiti dan Penjanaan Elektrik di Sarawak  
 Table 44: Sarawak Capacity and Electricity Generation

PENJANA GENERATOR	SUMBER TENAGA ENERGY SOURCE	KAPASITI TERPASANG (MW) INSTALLED CAPACITY (MW)	KAPASITI TERSEDIA (MW) AVAILABLE CAPACITY (MW)	PENJANAAN BERSIH (GWj) NET GENERATION (GWh)
SEB	Arang Batu   Coal	1,104.00	1,001.00	4,121.16
	Hidro   Hydro	3,452.00	3,438.00	23,336.01
	Hidro Mini   Mini Hydro	18.90	18.90	30.26
	Gas Asli   Natural Gas	1,005.00	883.00	3,380.49
	Diesel	102.10	98.10	156.68
	Solar	0.09	0.09	0.05
	<b>JUMLAH SEB TOTAL SEB</b>	<b>5,682.00</b>	<b>5,439.00</b>	<b>31,024.60</b>
Cogen	Gas Asli   Natural Gas	389.00	369.00	1,747.30
	<b>JUMLAH COGEN TOTAL COGEN</b>	<b>389.00</b>	<b>369.00</b>	<b>1,747.30</b>
Self Gen	Diesel/MFO	12.54	10.84	5.83
	Biojisim   Biomass	57.60	45.40	96.34
	Biogas	0.50	0.50	1.00
	Lain-lain, bukan TBB Others, non-RE	5.05	5.05	8.00
	<b>JUMLAH SELF-GEN TOTAL SELF-GEN</b>	<b>75.69</b>	<b>61.79</b>	<b>111.18</b>
<b>JUMLAH BESAR GRAND TOTAL</b>		<b>6,146.69</b>	<b>5,869.79</b>	<b>32,883.08</b>

**Nota | Notes:**

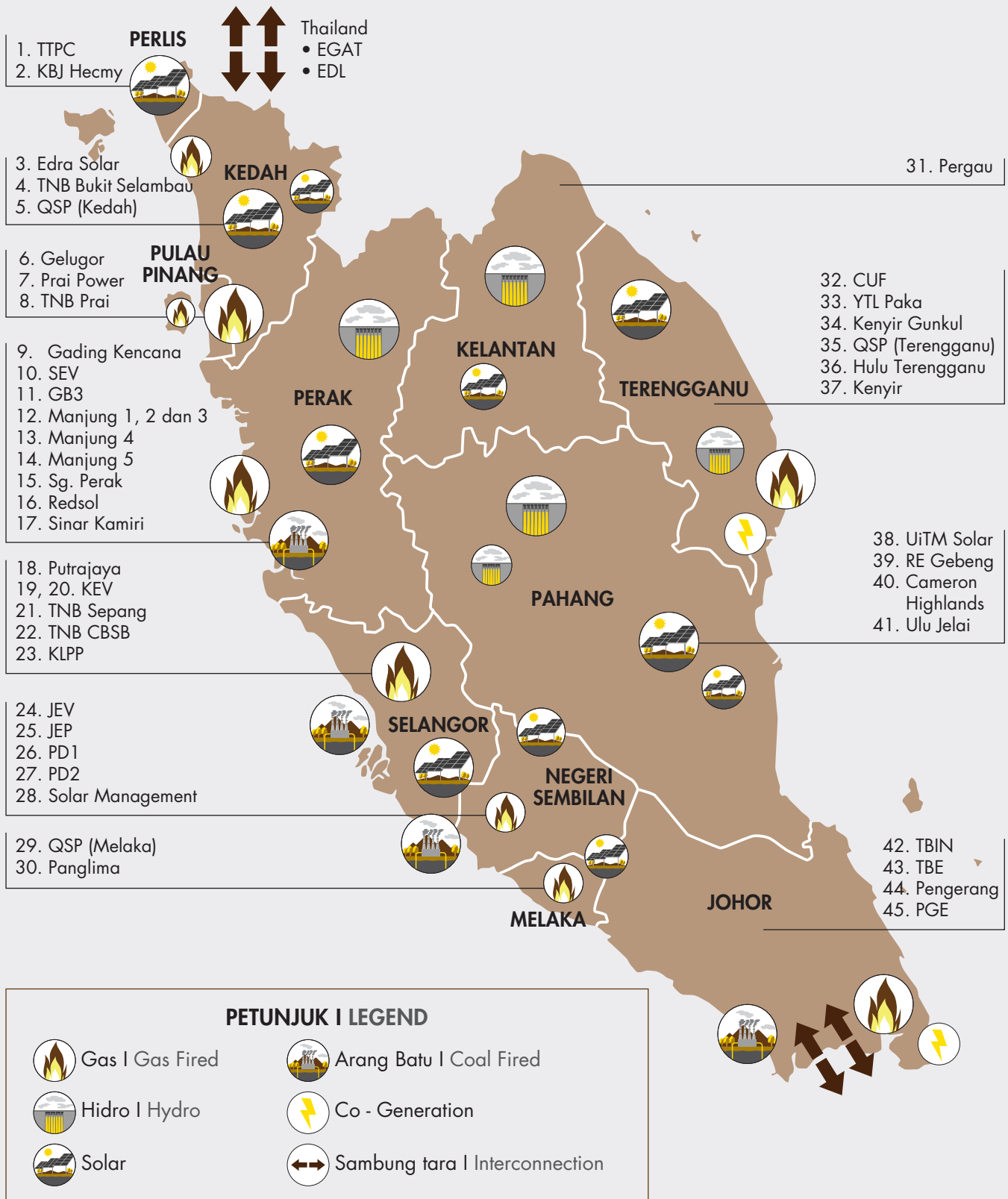
Termasuk semua penjana kuasa yang bersambung di peringkat penghantaran, pengagihan dan *off-grid*.  
 Includes all power generators connected at the transmission, distribution and off-grid levels.



**PETA LOKASI STESEN JANA  
KUASA UTAMA DAN SISTEM GRID  
LOCATION MAPS OF MAJOR POWER  
STATIONS AND GRID SYSTEMS**

## PETA LOKASI STESEN JANA KUASA UTAMA DAN SISTEM GRID LOCATION MAPS OF MAJOR POWER STATIONS AND GRID SYSTEMS

**Peta 1: Lokasi Stesen Jana Kuasa Utama di Semenanjung Malaysia setakat 31 Disember 2021**  
Map 1: Location of Peninsular Malaysia Major Power Stations as of 31 December 2021



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



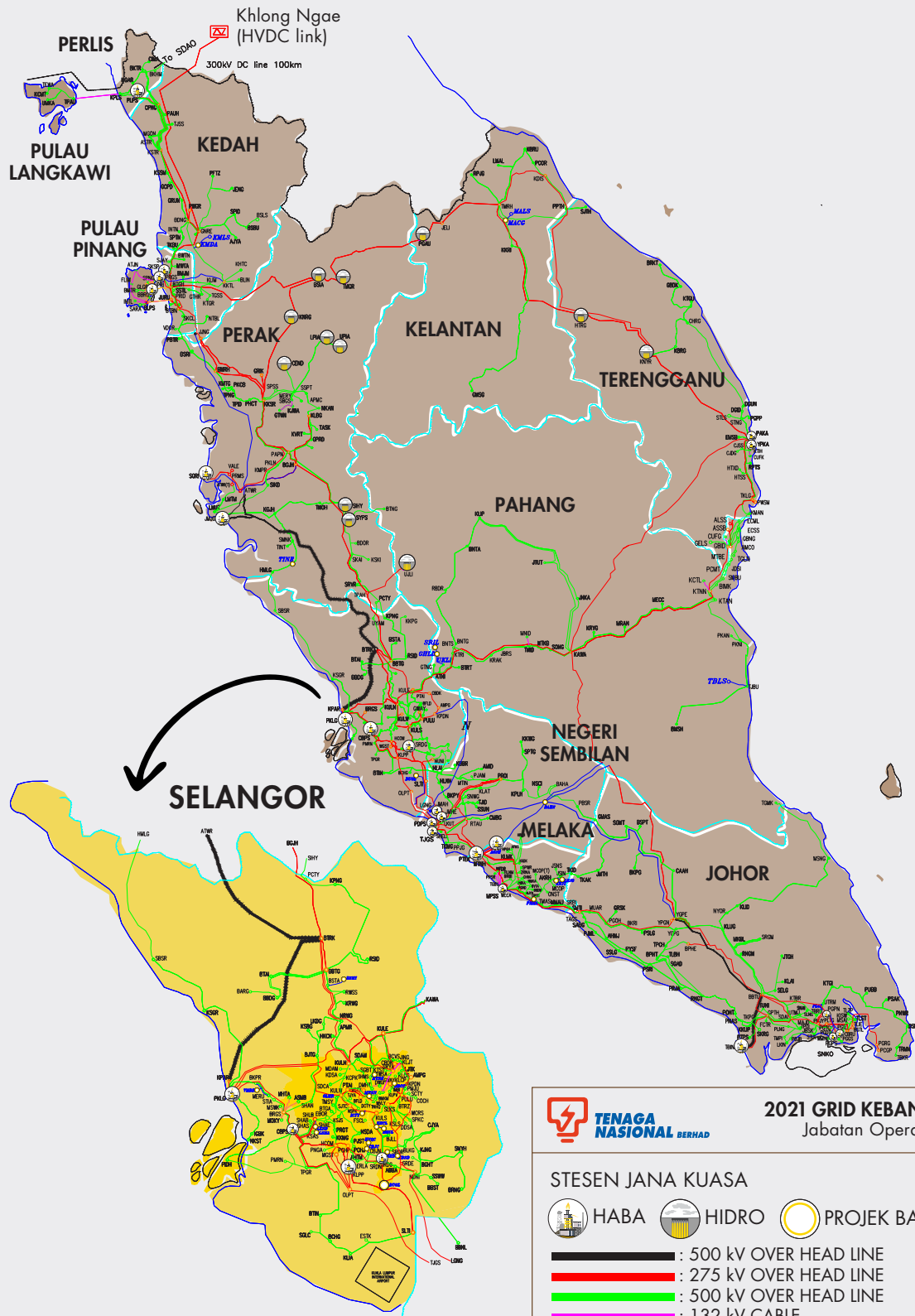
## PETA LOKASI STESEN JANA KUASA UTAMA DAN SISTEM GRID LOCATION MAPS OF MAJOR POWER STATIONS AND GRID SYSTEMS



STESEN JANA KUASA   POWER PLANTS		JENIS   TYPE
1.	TTPC: Teknologi Tenaga Perlis Consortium Sdn. Bhd.	Gas
2.	KBJ Hecmy: KBJ Hecmy Sdn. Bhd.	Solar
3.	Edra Solar: Edra Solar Sdn. Bhd.	Solar
4.	TNB Bukit Selambau: TNB Bukit Selambau Solar Sdn. Bhd.	Solar
5.	QSP (Kedah): Quantum Solar Park (Kedah) Sdn. Bhd.	Solar
6.	Gelugor: Gelugor Power Station	Gas
7.	Prai: Power Prai Power Sdn. Bhd.	Gas
8.	TNB Prai: TNB Prai Sdn. Bhd.	Gas
9.	Gading Kencana: Gading Kencana Development Sdn. Bhd.	Solar
10.	SEV: Segari Energy Ventures Sdn. Bhd.	Gas
11.	GB3: GB3 Sdn. Bhd.	Gas
12.	Manjung 1 23: TNB Janamanjung Sdn. Bhd. (Unit 1 to 3)	Arang batu   Coal
13.	Manjung 4: TNB Janamanjung Sdn. Bhd. (Unit 4)	Arang batu   Coal
14.	Manjung 5: TNB Manjung Five Sdn. Bhd.	Arang batu   Coal
15.	Sg Perak: Sungai Perak Power Station	Hidro   Hydro
16.	Redsol: Redsol Sdn. Bhd.	Solar
17.	Sinar Kamiri: Sinar Kamiri Sdn. Bhd.	Solar
18.	Putrajaya: Putrajaya Power Station	Gas
19.	KEV: Kapar Energy Ventures Sdn. Bhd. (GF1)	Gas
20.	KEV: Kapar Energy Ventures Sdn. Bhd. (GF2 and GF3)	Arang batu   Coal
21.	TNB Sepang: TNB Sepang Solar Sdn. Bhd.	Solar
22.	TNB CBSB: TNB Connaught Bridge Sdn. Bhd.	Gas
23.	KLPP: Kuala Langat Power Plant Sdn. Bhd.	Gas
24.	JEV: Jimah Energy Ventures Sdn. Bhd.	Arang batu   Coal
25.	JEP: Jimah East Power Sdn. Bhd.	Arang batu   Coal
26.	PD1: Tuanku Jaafar Power Station	Gas
27.	PD2: Tuanku Jaafar Power Station	Gas
28.	Solar Management: Solar Management (Seremban) Sdn. Bhd.	Solar
29.	QSP (Melaka): Quantum Solar Park (Melaka) Sdn. Bhd.	Solar
30.	Panglima: Panglima Power Sdn. Bhd.	Gas
31.	Pergau: Pergau Power Station	Hidro   Hydro
32.	CUF: Petronas Gas Bhd.	Gas
33.	YTL Paka: YTL Power Generation Sdn. Bhd.	Gas
34.	Kenyir Gunkul: Kenyir Gunkul Solar Sdn. Bhd.	Solar
35.	QSP (Terengganu): Quantum Solar Park (Terengganu) Sdn. Bhd.	Solar
36.	Hulu Terengganu: Hulu Terengganu Power Station	Hidro   Hydro
37.	Kenyir: Sultan Mahmud Power Station	Hidro   Hydro
38.	UiTM Solar: UiTM Solar Power Sdn. Bhd.	Solar
39.	RE Gebeng: RE Gebeng Sdn. Bhd.	Solar
40.	Cameron Highlands: Sultan Yusof Power Station	Hidro   Hydro
41.	Ulu Jelai: Ulu Jelai Power Station	Hidro   Hydro
42.	TBIN: Tanjung Bin Power Sdn. Bhd.	Arang batu   Coal
43.	TBE: Tanjung Bin Energy Sdn. Bhd.	Arang batu   Coal
44.	Pengerang: Pengerang Power Sdn. Bhd.	Gas
45.	PGE: TNB Pasir Gudang Energy Sdn. Bhd.	Gas

# PETA LOKASI STESEN JANA KUASA UTAMA DAN SISTEM GRID LOCATION MAPS OF MAJOR POWER STATIONS AND GRID SYSTEMS

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



PERFORMANCE & STATISTICAL INFORMATION ON THE MALAYSIAN ELECTRICITY SUPPLY INDUSTRY 2021

Sumber | Source: TNB

**PETA LOKASI STESEN JANA KUASA UTAMA DAN SISTEM GRID**  
**LOCATION MAPS OF MAJOR POWER STATIONS AND GRID SYSTEMS**



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



**PETUNJUK | LEGEND**

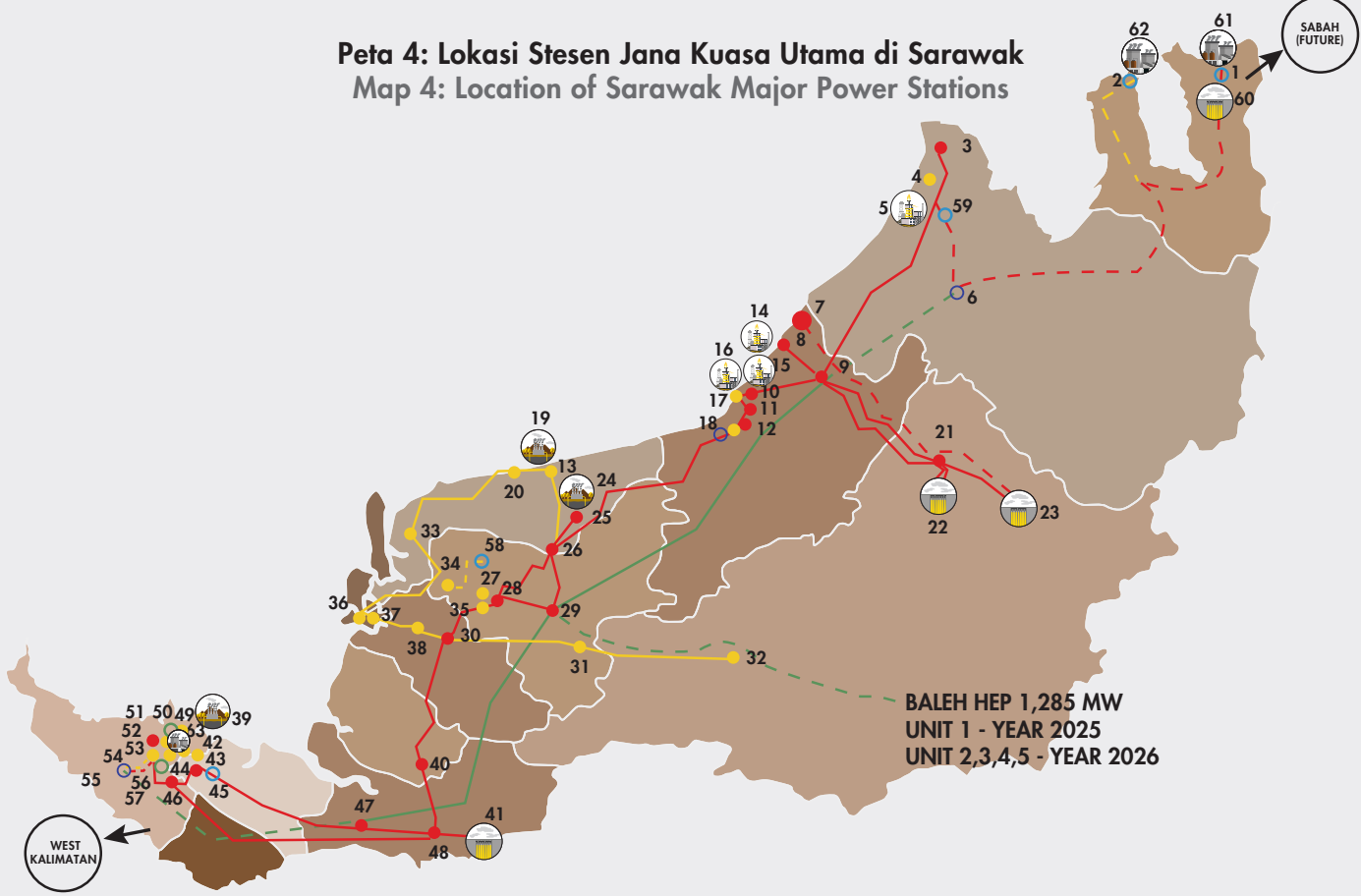
275 kV	132 kV	Akan Datang (Future)
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Sumber | Source: SESB

**PETA LOKASI STESEN JANA KUASA UTAMA DAN SISTEM GRID**  
**LOCATION MAPS OF MAJOR POWER STATIONS AND GRID SYSTEMS**



**Peta 4: Lokasi Stesen Jana Kuasa Utama di Sarawak**  
**Map 4: Location of Sarawak Major Power Stations**



**BALEH HEP 1,285 MW**  
**UNIT 1 - YEAR 2025**  
**UNIT 2,3,4,5 - YEAR 2026**

PERFORMANCE & STATISTICAL INFORMATION ON THE MALAYSIAN ELECTRICITY SUPPLY INDUSTRY 2021

- |  |   |                                      |
|--|---|--------------------------------------|
| 1. Lawas 275/33kV S/S                  | 22. Bakun HEP 2,400MW                     | 43. Samajaya 132/33kV S/S            |
| 2. Limbang Town 275/33kV S/S           | 23. Murum HEP 944MW                       | 44. Entinggan 275/132/33kV S/S       |
| 3. Tudan 275/132/33kV S/S              | 24. Balingian P/S 624MW                   | 45. Entinggan B 275/132/33kV S/S     |
| 4. Eastwood 132/33kV S/S               | 25. Balingian 275/33kV                    | 46. Mambong 275/132/33kV S/S         |
| 5. Miri OCGT P/S 102MW                 | 26. Selangau 275/132/33kV S/S             | 47. Lachau 275/33kV S/S              |
| 6. Bunut 500/275/33kV S/S              | 27. Deshon 132/33kV S/S                   | 48. Engkilili 275/33/11kV S/S        |
| 7. Samalaju B 275/132/33kV S/S         | 28. Oya 275/132/33/11kV S/S               | 49. Sejingkat 132/33kV S/S           |
| 8. Samalaju 275/132/33kV S/S           | 29. Mapai 500/275/33kV S/S                | 50. Astana 132/33kV S/S              |
| 9. Similajau 500/275/33kV S/S          | 30. Kemantan 275/132/33/11kV S/S          | 51. Mendu 132/33kV S/S               |
| 10. Bintulu 275/132kV S/S              | 31. Song 132/33/11kV S/S                  | 52. Matang 275/132/33kV S/S          |
| 11. Bintulu B 275/132kV S/S            | 32. Kapit 132/33/11kV S/S                 | 53. Transmitting 132/33kV S/S        |
| 12. Kemena 275/132/33kV S/S            | 33. Daro 132/33kV S/S                     | 54. Tondong 500/275/33kV S/S         |
| 13. Matadeng 132/33kV S/S              | 34. Sg Maaw 132/33kV S/S                  | 55. Semenggo 132/33kV S/S            |
| 14. Tanjung Kidurong CCGT P/S 421MW    | 35. Salim 132/33kV S/S                    | 56. Stakan 132/33kV S/S              |
| 15. Sarawak Power Generation P/S 317MW | 36. Tanjung Manis B 132/33kV S/S          | 57. MJC 132/33kV S/S                 |
| 16. Bintulu OCGT P/S 165MW             | 37. Tanjung Manis 132/33/11kV S/S         | 58. Sungai Merah 132kV S/S           |
| 17. Tanjung Kidurong 132/33/11kV S/S   | 38. Sarikei 132/33/11kV S/S               | 59. Marudi Junction 275/132/33kV S/S |
| 18. Sibiyu 132/33/11kV S/S             | 39. Sejingkat Power Corporation P/S 210MW | 60. Kota 2 HEP 11.1MW                |
| 19. Mukah Power Generation P/S 270MW   | 40. Serudit 275/132/33kV S/S              | 61. Lawas P/S 15.6MW                 |
| 20. Petian 132/33kV S/S                | 41. Batang Ai HEP 108MW                   | 62. Limbang P/S 22MW                 |
| 21. Murum Junction 275/33kV S/S        | 42. Muara Tabuan 132/33kV S/S             | 63. Tunku Abdul Rahman (Biawak) 64MW |

**PETUNJUK I LEGEND**

<span style="color: red;">●</span> Existing 275kV Substation	<span style="color: green;">---</span> Future 500kV Transmission Line	Stesen Jana Kuasa Arang Batu Coal Power Plant
<span style="color: yellow;">●</span> Existing 132kV Substation	<span style="color: red;">---</span> Future 275kV Transmission Line	Stesen Jana Kuasa Diesel Diesel Power Plant
<span style="color: blue;">○</span> Future 500/127/511/32kV Substations	<span style="color: green;">---</span> 500kV Transmission Line Energised at 275kV	Stesen Jana Kuasa Hidroelektrik Hydroelectric Power Plant
<span style="color: red;">---</span> Existing 275kV Transmission line	<span style="color: yellow;">---</span> Future 132kV Transmission Line	Stesen Jana Kuasa Gas Gas Power Plant
<span style="color: yellow;">---</span> Existing 132kV Transmission Line	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">○</span> Power Exchange	



# APENDIKS APPENDIX

## Apendiks 1: Laporan Prestasi TNB - Guaranteed Service Level (GSL) Januari-Disember Appendix 1: Performance Report of TNB - Guaranteed Service Level (GSL) January-December

ITEM	ITEM DETAILS	SERVICE IND.	SERVICE DEFINITION	SERVICE STANDARD	SERVICE DETAILS	JOHOR	KEDAH	KELANTAN	KUALA LUMPUR	MELAKA	NEGERI SEMBILAN	PULAU PINANG	PAHANG	PERAK	PERLIS	PUTRAJAYA	SELANGOR	TERENGGANU	TOTAL / AVG %		
GSL 1 (Note: Jan 2021- Dec 2021)	Availability of Supply	Number of unplanned interruptions experienced by a consumer within the administration of Bandaraya Kuala Lumpur, Putrajaya and Other Areas	Total Number of Breakdown	4-5 per year		1,494	652	418	726	236	464	431	828	1,021	94	6	1,865	325	8,560		
<b>TOTAL NO. OF BREAKDOWN THAT COMPLY</b>						1,494	652	418	726	236	464	431	828	1,021	94	6	1,865	325	8,560		
<b>TOTAL PENALTY (RM)</b>						0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	
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%	
GSL 2 (Note: Jan 2021- Dec 2021)	Availability of Supply	Time taken to restore electricity supply following outage caused by minor distribution network fault	Total Number of Breakdown	4 hour - MV with feedback		1,494	652	418	726	236	464	431	828	1,021	94	6	1,865	325	8,560		
<b>TOTAL NO. OF BREAKDOWN THAT COMPLY</b>						1,375	644	394	705	230	446	415	735	993	94	6	1,735	319	8,091		
<b>TOTAL PENALTY (RM)</b>						1,088,220	80,330	97,760	733,330	165,550	393,780	76,860	934,900	810,710	0	0	0	2,033,880	45,750	6,461,070	
COMPLIANCE						92.03%	98.77%	94.26%	97.11%	97.46%	96.12%	96.29%	88.77%	97.26%	100.00%	100.00%	100.00%	93.03%	98.15%	94.52%	
GSL 3 (Note: Jan 2021- Dec 2021)	Providing Supply	Time taken to implement service connection (Overhead line) requiring low voltage cable installation work	Total service connection	5 working days		7,164	4,957	7,226	895	1,869	2,163	1,687	2,502	5,111	984	0	4,583	4,912	44,053		
<b>TOTAL SERVICE CONNECTION COMPLETED WITHIN 5 WORKING DAYS</b>						7,164	4,956	7,096	895	1,869	2,163	1,686	2,235	4,866	984	0	4,583	4,506	43,003		
<b>TOTAL PENALTY (RM)</b>						0	50	6,500	0	0	0	50	13,350	12,250	0	0	0	0	0	20,300	52,500
COMPLIANCE						100.00%	99.98%	98.20%	100.00%	100.00%	100.00%	99.94%	89.33%	95.21%	100.00%	100.00%	NA	100.00%	91.73%	97.62%	

## Apendiks 1: Laporan Prestasi TNB - Guaranteed Service Level (GSL) Januari-Disember Appendix 1: Performance Report of TNB - Guaranteed Service Level (GSL) January-December

ITEM	ITEM DETAILS	SERVICE IND.	SERVICE DEFINITION	SERVICE STANDARD	SERVICE DETAILS	JOHOR	KEDAH	KELANTAN	KUALA LUMPUR	MELAKA	NEGERI SEMBILAN	PULAU PINANG	PAHANG	PERAK	PERLIS	PUTRAJAYA	SELANGOR	TERENGGANU	TOTAL / AVG %	
GSL 3 (Notes: Jan 2021- Dec 2021)	Availability of Supply	Time taken to implement service connection (Underground line) requiring low voltage cable installation work	Total service connection	14 working days		324	52	193	307	84	45	134	90	113	20	63	352	130	1,907	
<b>TOTAL SERVICE CONNECTION COMPLETED WITHIN 14 WORKING DAYS</b>						324	51	191	307	84	45	134	72	109	20	63	352	121	1,873	
<b>TOTAL PENALTY (RM)</b>						0	50	100	0	0	0	0	900	200	0	0	0	0	450	1,700
COMPLIANCE						100.00%	98.08%	98.96%	100.00%	100.00%	100.00%	100.00%	80.00%	96.46%	100.00%	100.00%	100.00%	100.00%	93.08%	98.22%
GSL 4 (Jan 2021- Dec 2021)	Providing Supply	Time taken to connect new electricity supply for individual domestic low voltage consumer	Total disconnection	3 working days		9,404	7,456	8,731	5,360	1,876	3,864	5,454	5,142	8,963	1,377	1,124	1,2481	6,638	77,870	
<b>TOTAL SUPPLY CONNECTION COMPLETED IN 3 WORKING DAYS</b>						9,403	7,447	8,716	5,359	1,874	3,863	5,429	5,140	8,939	1,377	1,119	12,422	6,638	77,726	
<b>TOTAL PENALTY (RM)</b>						50	450	750	50	100	50	1,250	100	1,200	0	250	2,950	0	7,200	7,200
COMPLIANCE						99.99%	99.88%	99.83%	99.98%	99.89%	99.97%	99.54%	99.96%	99.73%	100.00%	99.56%	100.00%	99.53%	100.00%	99.82%
GSL 5 (Jan 2021- Dec 2021)	Customer Contract	Disconnection of supply according to the applicable legislation or disconnection procedures	Total disconnection	No complaint		863	1,082	568	1,577	1	3,583	885	686	1,575	161	21	3,729	294	15,025	
<b>TOTAL DISCONNECTION NOT DONE WITH PROCEDURES</b>						0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
<b>TOTAL PENALTY (RM)</b>						-	-	-	200	-	-	-	-	-	-	-	-	-	-	200
COMPLIANCE						100.00%	100.00%	100.00%	99.87%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	99.99%
STATE PERCENTAGE						98.67%	99.45%	98.54%	99.49%	99.56%	99.55%	99.30%	93.01%	98.11%	100.00%	100.00%	#DIV/0!	98.76%	97.16%	98.91%
<b>TOTAL POTENTIAL PENALTY IN RM FOR GSL 1, 2, 3, 4, 5 ACCORDING TO STATES</b>						1,088,270	80,880	105,110	733,580	165,650	393,830	78,160	949,250	824,360	-	250	2,036,830	66,500	6,522,670	

### Nota

- Data yang dikemukakan berkemungkinan berubah mengikut tempoh masa ia diekstrak kerana dinamik (contoh eskrak pada hari Isnin, akan berbeza dengan hari Selasa kerana mengikut pengesahan kerja di tapak walaupun data adalah daripada bulan sama)
- GSL 5 sedang dalam penambahbaikan untuk integrasi data dari sumber CSL ke dalam GSL. Ia mengikut total disconnection success vs bilangan aduan dikemukakan oleh pengguna
- Data GSL dan MSL sedang dalam penambahbaikan bagi tujuan pengesahan yang bakal merangkumi syarat baharu pihak ST (contoh GSL 1 perlu disejajarkan dengan LV dan sebagainya)
- OVIS 2.0 masih lagi dalam pembangunan
- GSL 3 dan GSL 4 telah melalui penambahbaikan tetapi jika diambil daripada sistem, masih terdapat pemasangan meter atau pemasangan meter melibatkan projek (padahal GSL melibatkan individu domestik sahaja)

## Apendiks 2: Laporan Prestasi TNB - Minimum Service Level (MSL) Januari-Disember Appendix 2: Performance Report of TNB - Minimum Service Level (MSL) January-December

ITEM	ITEM DETAILS	SERVICE IND.	SERVICE DEFINITION	SERVICE STANDARD	SERVICE DETAILS	JOHOR	KEDAH	KELANTAN	KUALA LUMPUR	MELAKA	NEGERI SEMBILAN	PAHANG	PERAK	PERIS	PUTRAJAYA	SELANGOR	TERENGGANU	TOTAL/AVG %
1	Availability of Supply	1a	Minimum duration of notice for planned/schedule interruption of electricity supply	> 2 days	Total notices served	4,612	1,432	774	1,784	1,152	1,961	2,367	1,737	138	491	5,194	1,397	23,732
					Total notices served more than 2 days before planned/schedule interruption	4,559	1,421	758	1,729	1,147	1,940	2,324	1,635	128	491	5,092	1,380	23,291
					<b>% COMPLIANCE</b>	<b>98.71%</b>	<b>98.62%</b>	<b>98.32%</b>	<b>95.88%</b>	<b>99.22%</b>	<b>98.85%</b>	<b>97.93%</b>	<b>96.92%</b>	<b>99.57%</b>	<b>98.93%</b>	<b>99.13%</b>	<b>98.18%</b>	<b>94.13%</b>
		1b	Upon request, time taken to provide initial information to consumer who report an electricity interruption	< 1 hour	Total requests from consumers	39	5	10	87	5	16	9	28	0	1	126	9	361
					Total requests replied less than 1 hour	39	5	10	87	5	16	9	28	0	1	126	9	361
					<b>% COMPLIANCE</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>99.22%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>
2	Quality of Supply	2a	Time taken to rectify voltage complaint or limit violation and to correct voltage complaint which requires network reinforcement	< 180 days	Total complaints received	87	40	39	60	20	19	35	60	6	1	148	15	570
					Total complaints solved less than 180 days	87	40	39	60	20	19	35	60	6	1	148	15	570
					<b>% COMPLIANCE</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>
		2b	Time taken to complete investigation of over-voltage incident from complaint receipt date (data availability for Q3 dan Q4)	< 30 working days	Total complaints received	310	234	168	299	71	139	177	223	69	6	798	82	2,756
					Total complaints solved less than 30 working days	276	208	134	282	52	97	176	190	69	6	651	79	2,394
					<b>% COMPLIANCE</b>	<b>47.81%</b>	<b>71.69%</b>	<b>93.14%</b>	<b>87.99%</b>	<b>50.54%</b>	<b>89.03%</b>	<b>79.76%</b>	<b>94.31%</b>	<b>73.24%</b>	<b>69.78%</b>	<b>96.67%</b>	<b>99.44%</b>	<b>85.20%</b>



**Apendiks 2: Laporan Prestasi TNB - Minimum Service Level (MSL) Januari-Disember**  
**Appendix 2: Performance Report of TNB - Minimum Service Level (MSL) January-December**

ITEM DETAILS	SERVICE IND.	SERVICE DEFINITION	SERVICE STANDARD	SERVICE DETAILS	JOHOR	KEDAH	KELANTAN	KUALA LUMPUR	MELAKA	NEGERI SEMBILAN	PUJAU PINANG	PAHANG	PERAK	PERUS	PUTRAJAYA	SELANGOR	TERENGGANU	TOTAL/AVG %	
	2c	Time taken to provide a complete report of voltage sag incident from complainants received date	< 14 days	Total complainants received	76	15	0	39	41	25	370	83	76	2	57	105	20	909	
		Total complainants solved/less than 14 days			61	13	0	32	39	21	367	74	75	2	53	65	17	819	
<b>% COMPLIANCE</b>					<b>64.04%</b>	<b>58.73%</b>	<b>100.00%</b>	<b>65.38%</b>	<b>85.37%</b>	<b>80.26%</b>	<b>86.67%</b>	<b>100.00%</b>	<b>82.05%</b>	<b>95.12%</b>	<b>84.00%</b>	<b>99.19%</b>	<b>89.16%</b>	<b>98.68%</b>	
3	3a	Time taken to inform the developer of the connection charges to be paid upon receipt of complete application	For supply up to 22 kV: not more than 30 days   For supply of 33 kV: not more than 60 days	Total	309	215	41	196	101	116	166	85	153	13	34	331	53	1,813	
		Total no. of connection charges in time			309	215	41	196	101	116	166	85	153	13	34	331	53	1,813	
<b>% COMPLIANCE</b>					<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	
	3b	Time taken to implement electrification scheme requiring new substation after connection charges paid, wayleave obtained and successful taking over of substation building by TNB	For supply up to 22 kV: not more than 60 days   For supply of 33 kV with cable installation of 5km   For KL, Putrajaya area: not more than 180 days   other areas: not more than 120 days	Total no. of projects given supply	150	21	15	98	37	31	41	33	42	2	10	262	11	753	
		Total no. of projects given supply less than 120 days			150	20	15	98	37	31	41	33	42	2	10	262	11	752	
<b>% COMPLIANCE</b>					<b>100.00%</b>	<b>77.78%</b>	<b>85.00%</b>	<b>98.99%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>

## Apendiks 2: Laporan Prestasi TNB - Minimum Service Level (MSL) Januari-Disember Appendix 2: Performance Report of TNB - Minimum Service Level (MSL) January-December

ITEM	ITEM DETAILS	SERVICE IND.	SERVICE DEFINITION	SERVICE STANDARD	SERVICE DETAILS	JOHOR	KEDAH	KELANTAN	KUALA LUMPUR	MELAKA	NEGERI SEMBILAN	PULAU PINANG	PAHANG	PERAK	PERLIS	PUTRAJAYA	SELANGOR	TERENGGANU	TOTAL / AVG %	
			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)	< 1 hour	Total appointments made	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		3c			Total appointments met in not less than 1 hour of appointment date	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
					<b>% COMPLIANCE</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	Customer Contact	4a	Time taken to reply to written complaint	< 7 working days	Total written enquiries/complaints received	48,637	16,576	10,038	76,475	12,671	16,074	22,836	12,038	23,922	1,852	3,884	119,439	9,092	37,3534	
					Total written enquiries/complaints replied less than 7 working days	44,019	13,805	9,535	71,045	12,195	15,471	20,954	11,179	21,427	1,751	3,799	110,151	8,002	343,333	
					<b>% COMPLIANCE</b>	90.51%	83.28%	94.99%	92.90%	96.24%	96.25%	91.76%	92.86%	89.57%	94.55%	97.81%	92.22%	88.01%	91.91%	
		4b	Actual performance queuing time at customer service counter	< 15 minutes	Total customers served	138,704	63,626	40,061	11,3658	38,294	66,703	83,911	47,828	102,379	12,070	7,587	188,858	35,868	939,547	
					Total customers served less than 20 minutes	122,764	61,365	39,197	108,420	35,821	64,597	81,508	45,557	99,582	11,389	6,056	180,330	34,361	890,947	
					<b>% COMPLIANCE</b>	88.51%	96.45%	97.84%	95.39%	93.54%	96.84%	97.14%	95.25%	97.27%	94.36%	79.82%	95.48%	95.80%	94.83%	
		4c	Time taken by customer service officer at CMC 15454 to pick up ringing telephone	90% calls answered within 30 seconds	Total incoming calls received	2,351,033	2,351,033	2,351,033	2,351,033	2,351,033	2,351,033	2,351,033	2,351,033	2,351,033	2,351,033	2,351,033	2,351,033	2,351,033	30,563,429	
					Total incoming calls answered less than 30 seconds	2,001,747	2,001,747	2,001,747	2,001,747	2,001,747	2,001,747	2,001,747	2,001,747	2,001,747	2,001,747	2,001,747	2,001,747	2,001,747	2,001,747	26,022,711
					<b>% COMPLIANCE</b>	85.14%	85.14%	85.14%	85.14%	85.14%	85.14%	85.14%	85.14%	85.14%	85.14%	85.14%	85.14%	85.14%	85.14%	85.14%

**Apendiks 2: Laporan Prestasi TNB - Minimum Service Level (MSL) Januari-Disember**  
**Appendix 2: Performance Report of TNB - Minimum Service Level (MSL) January-December**

ITEM	ITEM DETAILS	SERVICE IND.	SERVICE DEFINITION	SERVICE STANDARD	SERVICE DETAILS	JOHOR	KEDAH	KELANTAN	KUALA LUMPUR	MELAKA	NEGERI SEMBILAN	PAJANG PINANG	PAHANG	PERAK	PERIS	PUTRAJAYA	SELANGOR	TERENGGANU	TOTAL/AVG %
5	Metering Services	5a	Time taken to attend to meter problem upon official notification/ request by the customer (appointment, visit, testing, etc)	< 5 working days	Time taken to attend to metering problem/ dispute / upon request by customer for testing, replace or relocation*) *Note: to exclude service write and meter relocation works (ie: pending customer payment or permit on R/O charge)	995	334	238	472	62	180	254	245	556	71	4	1,353	90	4,854
					Total no of action taken in time	994	329	238	471	62	179	252	245	543	71	4	1,331	90	4,809
					<b>% COMPLIANCE</b>	<b>92.75%</b>	<b>100.00%</b>	<b>96.49%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>99.90%</b>	<b>98.50%</b>	<b>100.00%</b>	<b>99.79%</b>	<b>100.00%</b>	<b>99.44%</b>	<b>99.21%</b>	<b>100.00%</b>	<b>97.66%</b>
		5c	Time interval between successive rendering of bill(s)	1 month	Total no. of customers (OPC)	17,248,287	8,501,366	6,009,846	15,209,248	4,339,463	5,640,859	8,504,564	6,512,993	11,423,474	1,040,381	888,011	24,340,703	4,618,991	114,308,3866
					Total no. of billed customers	17,239,777	8,495,134	6,008,776	15,201,216	4,336,138	5,656,121	8,496,402	6,510,382	11,414,987	1,059,614	857,145	24,335,295	4,617,706	114,228,893
					<b>% COMPLIANCE</b>	<b>99.57%</b>	<b>99.32%</b>	<b>98.95%</b>	<b>99.12%</b>	<b>99.55%</b>	<b>99.95%</b>	<b>99.93%</b>	<b>99.98%</b>	<b>99.95%</b>	<b>99.92%</b>	<b>99.90%</b>	<b>99.96%</b>	<b>99.97%</b>	<b>99.93%</b>
					<b>AVERAGE % COMPLIANCE</b>	<b>98.09%</b>	<b>96.70%</b>	<b>95.82%</b>	<b>97.93%</b>	<b>94.73%</b>	<b>95.59%</b>	<b>96.70%</b>	<b>96.02%</b>	<b>97.39%</b>	<b>89.75%</b>	<b>89.08%</b>	<b>98.55%</b>	<b>94.97%</b>	<b>96.79%</b>
					<b>TOTAL % NATIONWIDE</b>														<b>96.79%</b>

**Apendiks 3: Kriteria Prestasi Perkhidmatan Pelanggan (CSPC) NUR**  
**Appendix 3: Customer Service Performance Criteria (CSPC) NUR**

ITEM	CRITERIA	DETAILS	AGREED TARGETS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL IN 2021	TOTAL RESOLVED IN 2020	% MEETING TARGET IN 2020
1	Connection of Supply	Applied for 1a & 1b	Not less than 1 day (Only after all condition meet such as contribution paid, form complete, G & H, etc)															
1a		Change of tenant	Not more than 1 working day	18	10	12	5	5	1	2	0	4	4	5	8	74	74	100.00
1b		New Connection - Low Voltage Individual Application	Not more than 1 working day	0	4	1	1	1	0	0	0	2	3	43	14	69	69	100.00
1c (i)		New connection - Low Voltage Bulk application and housing schemes. Refers to a large number of houses or building in a single development. EC do not agree to reduce the target.	Not more than 1 week (Meter only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
1c (ii)		LV commercial industrial supply (Meter only - CT type)	Connection within 2 weeks	1	0	0	0	0	0	0	0	0	0	0	0	1	1	100.00
1c (iii)		LV supply - LV cable and meter	Contribution charge and Security deposit: Within 2 months from receipt and payment of	0	0	0	2	0	0	0	2	2	0	0	0	6	6	100.00
1c (iv)		LV supply requiring new substation	Contribution Charge: Within 120 days from receipt and payment of Security deposit: Within 45 days of substation building handover	0	0	0	2	0	0	0	2	2	0	0	0	6	6	NA
1c (v)		11 kV or 33 kV supply	Within 10 months of submission and contribution payment / or sooner as agreed Also Within 45 days of substation building handover	0	1	1	0	0	0	0	2	0	0	0	0	4	4	100.00
1c (vi)		132 kV supply	Within 18 months of submission and customer contribution	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
2	Restoration of supply after interruption	Calls to be answered within 30 seconds. Follow up with return call is required only when NUR unable to inform customers that action is taken.																

### Apendiks 3: Kriteria Prestasi Perkhidmatan Pelanggan (CSPC) NUR Appendix 3: Customer Service Performance Criteria (CSPC) NUR

ITEM	CRITERIA	DETAILS	AGREED TARGETS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL IN 2021	TOTAL RESOLVED IN 2020	% MEETING TARGET IN 2020
2a		Complaint through telephone: At normal hours will be attended within 30 seconds Recontact consumer within 10 minutes if cannot provide into immediately	30 seconds to answer the telephone. A technician will be sent immediately. When this is not possible, the customer will be called back with information Note: In NUR's case, the response is always by stating a technician will be sent immediately	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
2b		Supply interruption complain: Consumer who launch a complain, will be given a report number	Consumer will be given a number. No. of customers is small, and Nb. of interruption is very small and easily managed. To assume as complying Note: TCS - Trouble Call System is required to implement this accordingly	3	8	10	6	9	3	8	12	12	8	14	18	111	111	100.00
2c		Time to restore *Minor fault which results in interruption of electricity supply that can be quickly restored *Minor - such as due to the operation of fuse or the tripping of a circuit breaker resulting from overload	Within 90 minutes	2	0	2	1	3	0	0	0	1	2	2	1	14	12	85.71
2d		Time to restore *Major fault which results in interruption of electricity supply that requires substantial time to restore *Major such as due to switch/gear failure or cable fault	Within 12 hours	4	2	4	3	2	4	7	3	5	5	7	3	49	48	97.96
3	Supply re-connection after disconnection for non-payment	Consumer who paid the bill, supply to be re-connected on the same day	Payment before 14:00 hour the re-connection will be done on the same day	0	0	0	44	0	0	0	0	0	42	134	72	292	292	100.00
4	Supply interruptions, which are planned / schedule.	Applied for 4a & 4b																
4a		Interruption scheduled for Domestic/ Commercial	Notice of 7 days will be given before schedule of interruptions	4	3	5	8	4	2	2	4	4	4	7	2	49	48	97.96
4b		Interruption scheduled for Industrial consumers	Discussion with individual consumer on their manufacturing plans and the shutdown is scheduled to meet their requirements Note: In exceptional cases, where essential work is planned, minimum one month notice will be given	5	0	1	3	3	0	3	4	1	1	2	5	28	28	100.00

**Apendiks 3: Kriteria Prestasi Perkhidmatan Pelanggan (CSPC) NUR**  
**Appendix 3: Customer Service Performance Criteria (CSPC) NUR**

ITEM	CRITERIA	DETAILS	AGREED TARGETS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL IN 2021	TOTAL RESOLVED IN 2020	% MEETING TARGET IN 2020
5	Meter reading	Estimated Reading	Estimated reading for domestic consumers: 1. Must not exceed 3 consecutive months 2. The estimated reading must also be based on the prorated average consumable of the 3 previous months Note: Notice will be given to the domestic consumers to inform if the estimated reading is exceeding 3 consecutive months	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
6	Enquiries from consumers	Respond time for queries	i) Written - 5 days from receipt of written complaint ii) Telephone - 30 seconds and 24 hours. (for follow up) iii) Cash counter - 30 seconds and 24 hours	3	8	10	6	9	3	8	12	12	8	14	18	111	111	100.00
7	Service Counter	Waiting Time	Waiting time should not exceed 10 minutes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
8	Appointment for meter accuracy determination	Upon request, days taken to do meter testing	2 working days	0	0	0	0	0	0	3	0	0	0	1	0	4	4	100.00
9	Meter replacement	Applied for 9a & 9b	Upon request and if found necessary (days taken to replace the meter)															
9a		Domestic consumers	Within 2 working days	3	2	2	3	1	1	2	1	4	2	1	2	24	24	100.00
9b		LV commercial / LV Industrial / 11 kV / 33 kV / 132 kV	5 working days - To confirm the defect Note: subject to agreement on shut down of supply	0	0	0	0	2	0	0	0	0	0	0	0	2	2	100.00
10	Appointment with consumers	Meeting with Customers	Meeting the appointment time Note: If meeting is cancelled, a follow up appointment will be scheduled immediately within 1 working day from the earlier date in order to notify consumer as soon as possible	1	3	2	1	4	2	5	7	3	5	8	11	52	52	100.00
11	Security Deposits	NUR explanation that minimum deposit is required for small supplies accepted by EC. EC proposal is acceptable for cash deposit. BG's will be reduced upon renewal.	Deposit will be returned to consumers after 6 months Note: Only return when the prorated average consumption is exceeded 2 months and not less than the minimum amount	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA

### Apendiks 3: Kriteria Prestasi Perkhidmatan Pelanggan (CSPC) NUR Appendix 3: Customer Service Performance Criteria (CSPC) NUR

ITEM	CRITERIA	DETAILS	AGREED TARGETS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL IN 2021	TOTAL RESOLVED IN 2020	% MEETING TARGET IN 2020
11a		Interest on Deposits	2.5% to be rebated at the end of the year	5,306	0	0	0	0	0	0	0	0	0	0	0	5,306	5,306	100.00
12	Refund of consumer deposits	Refund the deposit to consumers upon receiving complete documentations. Upon Proof of payment received Note: NUR would request longer date line to allow any cheque payment to be cleared by the bank to comply with bank procedure	Within 1 month	13	9	14	14	21	2	13	8	7	9	17	7	137	137	100.00
13	Collection		5 working days	2,621	2,829	3,827	3,075	3,903	2,263	4,344	3,842	3,415	3,582	3,677	3,851	41,229	41,229	100.00
14	Collection	Applied to 14a, 14b & 14c																
14a		Disconnection due to installation which are considered very dangerous and disconnection could not be delayed	No notice will be given (immediate disconnection)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
14b		In any unsafe particular situation and likely source of danger to consumers, disconnection will be an immediate. Any other situation besides this, NUR will advise consumers that disconnection would be carried out in the specific time	Immediate disconnection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
14c		1. Disconnections due to other reasons than 14a & 14b above, which are allowed 2. Duration and timing, which are NOT allowed to proceed with disconnection work: i) Before weekend or Public Holidays ii) On Weekend or Public Holidays iii) After 12 noon on working days	7 working days notice	0	0	0	44	0	0	0	0	0	44	165	86	339	339	100.00
15	Special consumers who face problems in paying bills	This criterion applies to disabled or elderly consumers Note: A register of disable or immobile consumers will be needed.	NUR will make special arrangement or collect from consumers premises.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
16	Voltage outside standard	Applied for 16a, 16b & 16c																
16a		Where no capital work on network is required	1 day	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
16b		Where supply interruption is required but no network enhancement work needed	8 days (Notify interruption 7 days)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA

**Apendiks 3: Kriteria Prestasi Perkhidmatan Pelanggan (CSPC) NUR**  
**Appendix 3: Customer Service Performance Criteria (CSPC) NUR**

ITEM	CRITERIA	DETAILS	AGREED TARGETS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL IN 2021	TOTAL RESOLVED IN 2020	% MEETING TARGET IN 2020	
16c		Where network enhancement work is required	3 months	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
17	New / Increase of supply application reply	Applied for 17a, 17b, 17c & 17d.	Written reply of application including date of supply will be available and connection charges will be forwarded to consumers																
17a		No substation required	1 week	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
17b		New upgrade substation required Note: This is to allow time for design work and obtaining of prices from contractors	1 month	0	0	0	0	0	0 <sup>a</sup>	0	0	0	0	0	0	0	0	0	NA
17c		LV commercial / LV Industrial / 11 kV / 33 kV Note: This is to allow time for design work and obtaining of prices from contractors	1 month	0	0	0	1	0	0	0	0	1	1	0	0	3	3	100.00	
17d		132 kV	Within 3 months	0	0	0	1	0	0	0	0	2	0	0	0	2	2	100.00	
18	Transferring of meter location upon consumer request / Meter transfer	Depends on new location and work required	3 working days	2	2	5	0	3	0	0	2	3	3	8	7	35	35	100.00	
19	Education of Energy Efficiency	Any form of media and medium	1. Will be available at NUR Customer Service Centre at Kulim Hi-Tech Park 2. Seminars will also be conducted through Consumer Committees in line with the license	0	0	1	0	0	1	0	0	1	0	0	1	4	4	100.00	
20	Power Quality Improvement	Applicable for 20a and 20b																	
20a		Domestic consumers	NUR shall advise and guide consumers in the quality of supply and all power quality related issues	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
20b		LV commercial / LV Industrial / 11 kV / 33 kV / 132 kV	Power Quality meeting with all major customers on Quarterly basis	1	3	2	1	4	2	5	7	3	5	8	11	52	52	100.00	



**Apendiks 4: Laporan Prestasi Sabah Electricity Sdn. Bhd. (SESB) –  
Guaranteed Service Level (GSL) dan Minimum Service Level (MSL)**  
**Appendix 4: Performance Report of Sabah Electricity Sdn. Bhd. (SESB) –  
Guaranteed Service Level (GSL) and Minimum Service Level (MSL)**

SERVICE ID	SERVICE INDICATOR	PERFORMANCE STANDARD	INDICATOR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AS TO DATE		
<b>GSL 1: Availability of Supply (Frequency of Interruption)</b>	Number of total load loss PPU incidents within the administration of all areas	15 incidents per year/all areas	No. PPU	0	0	0	0	0	0	0	0	0	0	0	0	0		
			No. of incidents	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			% of 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%
			No. of LV outage	519	458	580	617	867	720	905	740	625	776	647	610	8064	8,064	
<b>GSL 2: Availability of Supply -Restoration time</b>	Time taken to restore electricity supply following outage caused by: Low Voltage (400 V and below) - 8 hours Medium Voltage (11-33 kV) – 8 hours	8 hours	No. of LV outage restored within 8 hours	498	450	571	607	855	712	878	722	603	760	632	588	7,876		
			% of compliance	95.95%	98.25%	98.45%	98.38%	98.62%	98.89%	97.02%	97.57%	96.48%	97.94%	97.68%	96.39%	97.67%		
			No. of LV outage	748	713	791	852	842	960	961	814	760	951	779	837	10,008		
			No. of LV outage restored within 8 hours	729	706	777	843	834	939	946	802	743	945	769	826	9,859		
<b>GSL 3: Providing Supply</b>	Time taken to restore electricity supply following major incident on grid or transmission system except due to natural disaster, and causing: Partial Blackout - 8 hours	8 hours	% of compliance	97.46%	99.02%	98.23%	98.94%	99.05%	97.81%	98.44%	98.53%	97.76%	99.37%	98.72%	98.69%	98.51%		
			No. of Partial Blackout	0	1	0	1	1	0	2	1	0	1	0	3	0	10	
			No. of Partial Blackout restored within 8 hours	0	1	0	1	1	0	2	1	0	1	0	3	0	10	
			% of 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%	
<b>GSL 4: Providing Supply</b>	Time taken to restore electricity supply following major incident on grid or transmission system except due to natural disaster, and causing: Total Blackout - 18 hours	18 hours	No. of Total Blackout	0	0	0	0	0	0	0	0	0	0	0	0	0		
			No. of Total Blackout restored within 18 hours	0	0	0	0	0	0	0	0	0	0	0	0	0		
			% of 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%	
			No. of NSC	712	1,022	1,298	915	612	394	708	697	707	822	879	687	9,453		
<b>GSL 4: Providing Supply</b>	New individual domestic service connection (NSC) single phase & three phase until connection of electricity supply and after premise to be supply is ready to receive cable, and also subject to clearance of way leave from relevant party	32 days	No. of NSC supplied within 37 days	673	991	1,244	862	572	365	599	656	635	719	756	619	8,691		
			% of compliance	94.52%	96.97%	95.84%	94.21%	93.46%	92.64%	84.60%	94.12%	89.82%	87.47%	86.01%	90.10%	91.94%		
			No. of meter application	1,155	1,435	2,335	1,683	954	539	1,470	1,203	1,395	1,557	1,753	1,586	17,065		
			No. meter installed within 37 working days	1,083	1,275	2,304	1,642	895	526	1,346	1,173	1,260	1,489	1,694	1,529	16,216		
<b>SL #5: Customer Contact</b>	Meter installation for individual domestic low voltage consumer after deposit is paid (date of connection is to be mutually agreed upon between consumer and SESB and there is access). Counting of the number of days will start a day after receiving the deposit	For meter installation only; Not more than 3 working days	% of compliance	93.77%	88.85%	98.67%	97.56%	93.82%	97.59%	91.56%	97.51%	90.32%	95.63%	96.63%	96.41%	95.02%		
			No. of disconnection	12,814	17,724	22,569	14,447	10,090	0	0	0	0	6,697	11,464	16,114	111,919		
			No. of wrongful disconnection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			% of compliance	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

**Apendiks 4: Laporan Prestasi Sabah Electricity Sdn. Bhd. (SESB) –  
Guaranteed Service Level (GSL) dan Minimum Service Level (MSL)**  
**Appendix 4: Performance Report of Sabah Electricity Sdn. Bhd. (SESB) –  
Guaranteed Service Level (GSL) and Minimum Service Level (MSL)**

SERVICE ID	SERVICE INDICATOR	PERFORMANCE STANDARD	INDICATOR	MSL												YEARLY									
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC										
1a	Minimum duration of notice for planned / scheduled interruption of electricity supply	2 days	No. of notices	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
			No. of notices issued within 2 days	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			% of compliance	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1b	Upon request time taken to provide initial information to consumer who report on electricity interruption	1 hour	No. of consumer who report on electricity interruption	24,429	20,537	19,912	23,539	25,375	20,614	21,797	16,441	17,110	21,753	20,315	20,841	252,663									
			No. of consumer who report on electricity interruption and request initial information on electricity interruption	2,112	1,512	1,991	23,539	25,375	20,614	21,797	16,441	17,110	21,753	20,315	20,841	211,321									
			Upon request time, no. of consumer who report on electricity interruption provided with initial information within 1 hour	2,112	1,512	5,471	5,904	5,641	5,327	6,122	4,761	4,058	4,691	4,162	4,014	53,775									
2a	Upon request time, percentage of consumer who report on electricity interruption provided with initial information within 1 hour	100.00%	100.00%	100.00%	27.48%	25.08%	22.23%	25.84%	28.09%	28.96%	23.72%	21.56%	20.49%	19.26%	25.45%										
			No. of complaint rectified up to 180 working days	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
			% of compliance	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%								
2b	Time taken to provide a complete report of voltage sag incident from complaints received date	Up to 14 working days	No. of incidents	0	0	0	0	0	0	0	0	0	0	0	0	0									
			No. of report completed within 14 working days	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
			% of compliance	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%								
2c	Time taken to complete investigation of overvoltage incident from complaint receipt date	Up to 30 working days	No. of incidents	0	0	0	0	0	0	0	0	0	0	0	0	0									
			No. of investigation completed within 30 working days	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
			% of compliance	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%								
3a (i)	Time taken to inform the developer of the connection charges to be paid upon receipt of complete application	i) For supply of 11 kV: Up to 60 days	No. of 11kV CCC issued	6	6	3	10	19	16	7	11	4	4	10	5	101									
			No. of developer informed within 60 days	4	3	1	2	5	6	4	3	1	1	4	2	36									
			% of compliance	66.67%	50.00%	33.33%	20.00%	26.32%	37.50%	57.14%	27.27%	25.00%	25.00%	40.00%	40.00%	35.64%									

**Apendiks 4: Laporan Prestasi Sabah Electricity Sdn. Bhd. (SESB) –  
Guaranteed Service Level (GSL) dan Minimum Service Level (MSL)**  
**Appendix 4: Performance Report of Sabah Electricity Sdn. Bhd. (SESB) –  
Guaranteed Service Level (GSL) and Minimum Service Level (MSL)**

SERVICE ID	SERVICE INDICATOR	PERFORMANCE STANDARD	INDICATOR	MSL															
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEARLY			
3a (ii)	Time taken to inform the developer of the connection charges to be paid upon receipt of complete application	ii) For supply of 33 kV: Up to 120 days	No. of 33kV CCC issued	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			No. of electrification scheme implemented up to 540 days	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			% of 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%
3b (i)	Time taken to implement electrification scheme requiring new substation after connection charges paid, wayleave obtained and successful taking over of substation building by SESB	i) For supply of 11kV: Up to 4 months	No. of electrification scheme	4	0	15	10	6	6	6	9	3	2	6	1	1	63		
			No. of electrification scheme implemented up to 120 days	2	0	7	5	3	2	5	1	1	3	0	1	30			
			% of compliance	50.00%	100.00%	46.67%	50.00%	50.00%	33.33%	55.56%	33.33%	50.00%	50.00%	50.00%	50.00%	100.00%	0.00%	100.00%	47.62%
3b (ii)	Time taken to implement electrification scheme requiring new substation after connection charges paid, wayleave obtained and successful taking over of substation building by SESB	ii) For supply of 33 kV Up to 18 months (as per ESAH requirement)	No. of electrification scheme	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
			No. of electrification scheme implemented up to 540 days	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			% of 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%
4a	Time taken to reply to written enquiry or complaint	7 working days	No. of written enquiry or complaint	32	30	33	36	36	36	18	20	343	82	34	28	45	737		
			No. of complaint replied within 7 working days	32	30	33	36	36	18	20	343	82	34	28	45	737			
			% of 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%
4b	Average queuing time of customer service counter	20 minutes	No. of Customer	17,472	18,273	23,376	25,059	19,279	565	11,110	10,443	14,574	13,942	15,241	15,551	184,885			
			No. of customer with 20 minutes queuing time	15,170	16,649	21,495	21,225	15,913	375	7,684	8,105	12,005	11,812	12,084	12,963	155,480			
			% of compliance	86.82%	91.11%	91.95%	84.70%	82.54%	66.37%	69.16%	77.61%	82.37%	84.72%	79.29%	83.36%	84.10%			
4c	Time taken by customer service officer at CMC 1.5454 to pick up ringing telephone	90% calls answered within 30 seconds	No. of call at CMC 1.5454	18,794	17,159	19,912	23,539	25,375	20,614	21,797	16,441	17,110	21,753	20,315	20,841	243,650			
			No. of call answered within 30 seconds by customer service officer at CMC 1.5454	18,794	17,159	19,912	23,539	25,375	20,614	21,797	16,441	17,110	21,753	20,315	20,841	243,650			
			Percentage of call answered within 30 seconds by customer service officer at CMC 1.5454	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%

**Apendiks 4: Laporan Prestasi Sabah Electricity Sdn. Bhd. (SESB) –  
Guaranteed Service Level (GSL) dan Minimum Service Level (MSL)**  
**Appendix 4: Performance Report of Sabah Electricity Sdn. Bhd. (SESB) –  
Guaranteed Service Level (GSL) and Minimum Service Level (MSL)**

SERVICE ID	SERVICE INDICATOR	PERFORMANCE STANDARD	INDICATOR	MSL												YEARLY	
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
5a	Time taken to attend to meter problem (OPC) upon official notification / request by the consumer (appointment, visit, testing, etc)	2 working days (90%)	No. of request	207	220	234	416	167	228	768	174	319	172	695	654	4,254	
			No. of request attended within 2 working days	202	220	234	416	163	228	768	174	319	172	695	657	4,248	
			% of compliance	97.58%	100.00%	100.00%	100.00%	97.60%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.46%	99.86%
5b	Time taken to respond to metering problem (OPC) or dispute upon official notification/request by consumer (replace, relocate, etc).	3 working days (90%)	No. of problems	3	0	0	1	0	2	1	3	2	1	1	4	18	
			No. of problems attended within 3 days	3	0	0	1	0	1	0	1	2	2	1	-	3	13
			% of compliance	100.00%	0.00%	0.00%	100.00%	0.00%	50.00%	0.00%	66.67%	100.00%	100.00%	100.00%	0.00%	75.00%	72.22%
5c	Time interval between successive rendering of bill (s)	1 month	No. of bills	638,732	640,476	643,003	644,929	645,834	646,287	647,510	648,961	652,114	654,061	655,737	7,768,142		
			No. of bills rendered between 1 month	638,513	640,443	642,980	644,803	640,967	645,442	646,734	649,219	651,868	651,097	653,070	7,754,036		
			% of compliance	99.97%	99.99%	100.00%	99.98%	99.25%	99.87%	99.88%	99.99%	99.80%	99.96%	99.55%	99.59%	99.82%	

**Apendiks 5: Tarif-tarif Elektrik TNB Berkuat Kuasa 1 Januari 2014**  
**Appendix 5: TNB Electricity Tariffs Effective from 1 January 2014**

BIL. NO.	KATEGORI TARIF TARIFF CATEGORY	UNIT	KADAR RATE
1	<b>TARIF A – TARIF KEDIAMAN TARIFF A – DOMESTIC TARIFF</b>		
	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 kWh and above) per month	sen/kWj sen/kWh	57.10
Caj minimum bulanan Minimum monthly charge	RM	3.00	
2	<b>TARIF B – TARIF PERDAGANGAN VOLTAN RENDAH TARIFF B – LOW VOLTAGE COMMERCIAL TARIFF</b>		
	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 kWh and above) per month	sen/kWj sen/kWh	50.90
Caj minimum bulanan Minimum monthly charge	RM	7.20	
3	<b>TARIF C1 – TARIF PERDAGANGAN AM VOLTAN SEDERHANA TARIFF C1 – MEDIUM VOLTAGE GENERAL COMMERCIAL TARIFF</b>		
	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	21.80
Caj minimum bulanan Minimum monthly charge	RM	600.00	
4	<b>TARIF C2 – TARIF PERDAGANGAN PUNCAK/LUAR PUNCAK VOLTAN SEDERHANA TARIFF C2 – MEDIUM VOLTAGE PEAK/OFF-PEAK COMMERCIAL TARIFF</b>		
	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	<b>TARIF D – TARIF PERINDUSTRIAN VOLTAN RENDAH TARIFF D – LOW VOLTAGE INDUSTRIAL TARIFF</b>		
	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 kWh and above) per month	sen/kWj sen/kWh	44.10
	Caj minimum bulanan Minimum monthly charge	RM	7.20
	<b>TARIF DS – TARIF PERINDUSTRIAN KHAS (UNTUK PENGGUNA YANG LAYAK SAHAJA) TARIFF DS – SPECIAL INDUSTRIAL TARIFF (ONLY FOR QUALIFIED CONSUMERS)</b>		
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	42.70
Caj minimum bulanan Minimum monthly charge	RM	7.20	

**Apendiks 5: Tarif-tarif Elektrik TNB Berkuat Kuasa 1 Januari 2014**  
**Appendix 5: TNB Electricity Tariffs Effective from 1 January 2014**

BIL. NO.	KATEGORI TARIF TARIFF CATEGORY	UNIT	KADAR RATE	
6	<b>TARIF E1 – TARIF PERINDUSTRIAN AM VOLTAN SEDERHANA</b> <b>TARIFF E1 – MEDIUM VOLTAGE GENERAL INDUSTRIAL TARIFF</b>			
	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	
	<b>TARIF E1s – TARIF PERINDUSTRIAN KHAS (UNTUK PENGGUNA YANG LAYAK SAHAJA)</b> <b>TARIFF E1s – SPECIAL INDUSTRIAL TARIFF (ONLY FOR QUALIFIED CONSUMERS)</b>			
	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	<b>TARIF E2 – TARIF PERINDUSTRIAN PUNCAK/LUAR PUNCAK VOLTAN SEDERHANA</b> <b>TARIFF E2 – MEDIUM VOLTAGE PEAK/OFF-PEAK INDUSTRIAL TARIFF</b>		
		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	
<b>TARIF E2s – TARIF PERINDUSTRIAN KHAS (UNTUK PENGGUNA YANG LAYAK SAHAJA)</b> <b>TARIFF E2s – SPECIAL INDUSTRIAL TARIFF (ONLY FOR QUALIFIED CONSUMERS)</b>				
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	
8	<b>TARIF E3 – TARIF PERINDUSTRIAN PUNCAK/LUAR PUNCAK VOLTAN TINGGI</b> <b>TARIFF E3 – HIGH VOLTAGE PEAK/OFF-PEAK INDUSTRIAL TARIFF</b>			
	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	
	<b>TARIF E3s – TARIF PERINDUSTRIAN KHAS (UNTUK PENGGUNA YANG LAYAK SAHAJA)</b> <b>TARIFF E3s – SPECIAL INDUSTRIAL TARIFF (ONLY FOR QUALIFIED CONSUMERS)</b>			
	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	

**Apendiks 5: Tarif-tarif Elektrik TNB Berkuat Kuasa 1 Januari 2014**  
**Appendix 5: TNB Electricity Tariffs Effective from 1 January 2014**

BIL. NO.	KATEGORI TARIF TARIFF CATEGORY	UNIT	KADAR RATE
	Caj minimum bulanan Minimum monthly charge	RM	600.00
<b>9</b>	<b>TARIF F – TARIF PERLOMBONGAN VOLTAN RENDAH</b> <b>TARIFF F – LOW VOLTAGE MINING TARIFF</b>		
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	38.10
	Caj minimum bulanan Minimum monthly charge	RM	120.00
<b>10</b>	<b>TARIF F1 – TARIF PERLOMBONGAN AM VOLTAN SEDERHANA</b> <b>TARIFF F1 – MEDIUM VOLTAGE GENERAL MINING TARIFF</b>		
	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
<b>11</b>	<b>TARIF F2 – TARIF PERLOMBONGAN PUNCAK/LUAR PUNCAK VOLTAN SEDERHANA</b> <b>TARIFF F2– MEDIUM VOLTAGE PEAK/OFF-PEAK MINING TARIFF</b>		
	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
<b>12</b>	<b>TARIF G – TARIF LAMPU JALAN RAYA</b> <b>TARIFF G – STREET LIGHTING TARIFF</b>		
	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
<b>13</b>	<b>TARIF G1 – TARIF LAMPU NEON &amp; LAMPU LIMPAH</b> <b>TARIFF G1 – NEON &amp; FLOODLIGHT TARIFF</b>		
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	20.80
	Caj minimum bulanan Minimum monthly charge	RM	7.20
<b>14</b>	<b>TARIF H - TARIF PERTANIAN SPESIFIK VOLTAN RENDAH</b> <b>TARIFF H – LOW VOLTAGE SPECIFIC AGRICULTURE TARIFF</b>		
	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
<b>15</b>	<b>TARIF H1 – TARIF PERTANIAN SPESIFIK AM VOLTAN SEDERHANA</b> <b>TARIFF H1 – MEDIUM VOLTAGE GENERAL SPECIFIC AGRICULTURE TARIFF</b>		
	Bagi setiap kilowatt kehendak maksimum sebulan For each kilowatt of maximum demand per month	RM/kW	30.30
	Bagi semua kWj For all kW	sen/kWj sen/kWh	35.10

**Apendiks 5: Tarif-tarif Elektrik TNB Berkuat Kuasa 1 Januari 2014**  
**Appendix 5: TNB Electricity Tariffs Effective from 1 January 2014**

BIL. NO.	KATEGORI TARIF TARIFF CATEGORY	UNIT	KADAR RATE
	Caj minimum bulanan Minimum monthly charge	RM	600.00
<b>16</b>	<b>TARIF H2 – TARIF PERTANIAN SPESIFIK PUNCAK/LUAR PUNCAK VOLTAN SEDERHANA</b> <b>TARIFF H2 - MEDIUM VOLTAGE PEAK/OFF-PEAK SPECIFIC AGRICULTURE TARIFF</b>		
	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-tarif Elektrik TNB untuk *Top-Up* dan *Standby* (Cogenerator Sahaja) Appendix 6: TNB Electricity Tariffs for Top-Up and Standby (Cogenerators Only)

BIL. NO.	KATEGORI TARIF TARIFF CATEGORY	UNIT	TOP-UP	STANDBY
1	<b>TARIF C1 – PERDAGANGAN AM VOLTAN SEDERHANA TARIFF C1 – MEDIUM VOLTAGE GENERAL COMMERCIAL TARIFF</b>			
	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	<b>TARIF C2 – PERDAGANGAN PUNCAK/LUAR PUNCAK VOLTAN SEDERHANA TARIFF C2 – MEDIUM VOLTAGE PEAK/OFF PEAK COMMERCIAL TARIFF</b>			
	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	<b>TARIF E1 – PERINDUSTRIAN AM VOLTAN SEDERHANA TARIFF E1 – MEDIUM VOLTAGE GENERAL INDUSTRIAL TARIFF</b>			
	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	<b>TARIF E2 – PERINDUSTRIAN PUNCAK/LUAR PUNCAK VOLTAN SEDERHANA TARIFF E2 – MEDIUM VOLTAGE PEAK/OFF-PEAK INDUSTRIAL TARIFF</b>			
	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	<b>TARIF E3 – PERINDUSTRIAN PUNCAK/LUAR PUNCAK VOLTAN TINGGI TARIFF E3 – HIGH VOLTAGE PEAK/OFF-PEAK INDUSTRIAL TARIFF</b>			
	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	<b>TARIF F1 – PERLOMBONGAN AM VOLTAN SEDERHANA TARIFF F1 – MEDIUM VOLTAGE GENERAL MINING TARIFF</b>			
	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	<b>TARIF F2 – PERLOMBONGAN PUNCAK/LUAR PUNCAK VOLTAN SEDERHANA TARIFF F2 – MEDIUM VOLTAGE PEAK/OFF-PEAK MINING TARIFF</b>			
	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	

**Apendiks 6: Tarif-tarif Elektrik TNB untuk Top-Up dan Standby (Cogenerator Sahaja)**  
**Appendix 6: TNB Electricity Tariffs for Top-Up and Standby (Cogenerators Only)**

BIL. NO.	KATEGORI TARIF TARIFF CATEGORY	UNIT	TOP-UP	STANDBY
8	<b>TARIF H1 – TARIF PERTANIAN SPESIFIK AM VOLTAN SEDERHANA</b> <b>TARIFF H1 – MEDIUM VOLTAGE SPECIFIC GENERAL AGRICULTURE TARIFF</b>			
	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	<b>TARIF H2 – TARIF PERTANIAN SPESIFIK AM PUNCAK/LUAR PUNCAK</b> <b>TARIFF H2 – MEDIUM VOLTAGE SPECIFIC GENERAL AGRICULTURE TARIFF</b>			
	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	
<p>a) Semua pengguna cogen baharu dan pengguna cogen sedia ada yang berhasrat untuk menukar kepada kadar Standby yang baru ini. All new cogen customers and existing cogen customers who wish to migrate to this new Standby rate.</p> <p>b) Bagi pengguna cogen 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 cogen 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 1 January 2014).</p> <p>c) Kutipan 1.6% FiT akan dikenakan ke atas bil elektrik bulanan pengguna (kecuali pengguna Domestik yang menggunakan sehingga 300 kWj sebulan) berkuat kuasa 1 Januari 2014. Effective from 1 January 2014, 1.6% 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).</p>				

**Apendiks 7: Tarif-tarif Elektrik Sabah Electricity Sdn. Bhd. (SESB)  
& WP Labuan (Berkuat Kuasa 1 Januari 2014)  
Appendix 7: Sabah Electricity Sdn. Bhd. (SESB)  
& Federal Territory of Labuan Electricity Tariffs (Effective 1 January 2014)**

BIL. NO.	KATEGORI TARIF TARIFF CATEGORY	UNIT	KADAR SEMASA CURRENT RATE
1	<b>TARIF DM – TARIF KEDIAMAN TARIFF DM – DOMESTIC TARIFF</b>		
	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	<b>TARIF CM1 – TARIF PERDAGANGAN VOLTAN RENDAH TARIFF CM1 – LOW VOLTAGE COMMERCIAL TARIFF</b>		
	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	<b>TARIF CM2 – PERDAGANGAN AM VOLTAN SEDERHANA TARIFF CM2 – MEDIUM VOLTAGE GENERAL COMMERCIAL TARIFF</b>		
	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	<b>TARIF CM3 – TARIF PERDAGANGAN TARIFF CM3 – COMMERCIAL TARIFF</b>		
	Puncak/Luar Puncak Voltan Sederhana 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	<b>TARIF ID1 – TARIF PERINDUSTRIAN VOLTAN RENDAH TARIFF ID1 – LOW VOLTAGE INDUSTRIAL TARIFF</b>		
	Bagi semua kWj For all kWh	sen/kWj sen/kWh	37.6
	Caj minimum bulanan Minimum monthly charge	RM	15.00

**Apendiks 7: Tarif-tarif Elektrik Sabah Electricity Sdn. Bhd. (SESB)  
& WP Labuan (Berkuat Kuasa 1 Januari 2014)  
Appendix 7: Sabah Electricity Sdn. Bhd. (SESB)  
& Federal Territory of Labuan Electricity Tariffs (Effective 1 January 2014)**

BIL. NO.	KATEGORI TARIF TARIFF CATEGORY	UNIT	KADAR SEMASA CURRENT RATE
6	<b>TARIF ID2 – TARIF PERINDUSTRIAN AM VOLTAN SEDERHANA TARIFF ID2 - MEDIUM VOLTAGE INDUSTRIAL TARIFF</b>		
	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	1,000.00
7	<b>TARIF ID3 – TARIF PERINDUSTRIAN PUNCAK/LUAR PUNCAK VOLTAN SEDERHANA TARIFF ID3 – MEDIUM VOLTAGE PEAK/OFF PEAK INDUSTRIAL</b>		
	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	<b>TARIF PL – TARIF LAMPU JALAN RAYA TARIFF PL – PUBLIC LIGHTING</b>		
	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-Tarif Elektrik Sarawak Energy Berhad (SEB) Appendix 8: Sarawak Energy Berhad (SEB) Electricity Tariffs

KATEGORI TARIF TARIFF CATEGORY	KADAR PER UNIT RATE PER UNIT
<b>TARIF C1 - KOMERSIAL TARIFF C1 - COMMERCIAL</b>	
1 - 100 unit	20.0 sen
1 - 200 unit	24.0 sen
1 - 300 unit	26.0 sen
1 - 400 unit	28.0 sen
1 - 500 unit	30.0 sen
1 - 3,000 unit	31.5 sen
1 - 10,000 unit	32.0 sen
1 - 20,000 unit	31.0 sen
1 - melebihi 20,000 unit 1 - above 20,000 units	30.0 sen
Caj minimum bulanan Minimum monthly charge	RM10.00
<b>TARIF C2 - KEHENDAK PERDAGANGAN TARIFF C2 - COMMERCIAL DEMAND</b>	
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	RM16.00 per kilowatt x Kehendak Bil RM16.00 per kilowatt x Billing Demand
<b>TARIF C3 - KEHENDAK WAKTU PUNCAK / BUKAN WAKTU PUNCAK PERDAGANGAN TARIFF C3 - COMMERCIAL PEAK/OFF-PEAK DEMAND</b>	
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	RM20.00 per kilowatt x Kehendak Bil RM20.00 per kilowatt x Billing Demand
<b>TARIF D - DOMESTIK TARIFF D - DOMESTIK</b>	
Bagi 1 hingga 100 unit sebulan For 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

## Apendiks 8: Tarif-Tarif Elektrik Sarawak Energy Berhad (SEB) Appendix 8: Sarawak Energy Berhad (SEB) Electricity Tariffs

KATEGORI TARIF TARIFF CATEGORY	KADAR PER UNIT RATE PER UNIT
<b>TARIF D - DOMESTIK TARIFF D – DOMESTIK</b>	
Bagi 1 hingga 100 unit sebulan For 1 to 100 units per month	31.5 sen
Caj minimum bulanan Minimum monthly charge	RM5.00
<b>TARIF I1 – PERINDUSTRIAN TARIFF I1 - INDUSTRIAL</b>	
1 - 100 unit	24.0 sen
1 - 3,000 unit	25.0 sen
1 - melebihi 3,000 unit 1 - above 3,000 units	26.0 sen
Caj minimum bulanan Minimum monthly charge	RM10.00
<b>TARIF I2- KEHENDAK PERINDUSTRIAN TARIFF I2 - INDUSTRIAL DEMAND</b>	
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	RM16.00 per kilowatt x Kehendak Bil RM16.00 per kilowatt x Billing Demand
<b>TARIF I3 - KEHENDAK WAKTU PUNCAK/BUKAN WAKTU PUNCAK PERINDUSTRIAN TARIFF I3 - INDUSTRIAL PEAK/OFF-PEAK DEMAND</b>	
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	RM20.00 per kilowatt x Kehendak Bil RM20.00 per kilowatt x Billing Demand
<b>TARIF PL - LAMPU AWAM TARIFF PL - PUBLIC LIGHTING</b>	
Bagi setiap unit For each unit	47 sen
Caj minimum bulanan Minimum monthly charge	RM10.00

## Apendiks 9: Harga Jualan Purata Syarikat Utiliti Kuasa Utama Mengikut Sektor Appendix 9: Average Selling Prices of Major Power Utility Companies by Sectors

HARGA JUALAN PURATA (SEN/kWj) AVERAGE SELLING PRICES (SEN/kWh)							
TNB							
	2015	2016	2017	2018	2019	2020	2021
Domestik Domestic	32.67	33.21	32.87	33.09	33.74	34.91	35.29
Komersial Commercial	47.68	46.76	47.16	47.28	47.20	47.48	47.42
Industri Industrial	36.56	37.13	36.97	37.30	37.62	38.01	37.91
Perlombongan Mining	25.00	25.34	25.07	24.61	24.07	25.55	26.26
Lampu awam Public lighting	25.49	25.57	25.53	25.57	25.13	25.37	25.37
Pertanian Agriculture	45.86	45.78	45.54	45.69	45.98	45.77	45.90
Tarif Hijau Green Tariff	n/a	n/a	n/a	n/a	8.00	8.00	0.00
<b>Purata Average</b>	<b>39.45</b>	<b>39.55</b>	<b>39.53</b>	<b>39.68</b>	<b>39.89</b>	<b>40.07</b>	<b>39.94</b>
SESB							
	2015	2016	2017	2018	2019	2020	2021
Domestik Domestic	29.14	28.86	28.39	29.11	29.60	30.20	30.26
Komersial Commercial	37.63	38.21	38.26	39.19	39.38	39.61	38.41
Industri Industrial	30.80	31.36	31.09	31.36	31.58	31.87	31.63
Lampu awam Public lighting	22.54	23.09	23.27	24.61	25.14	25.47	25.30
<b>Purata Average</b>	<b>33.13</b>	<b>33.41</b>	<b>33.30</b>	<b>34.00</b>	<b>34.31</b>	<b>34.29</b>	<b>34.43</b>
SEB (Pelanggan regulated tariff sahaja   regulated tariff customers only)							
	2015	2016	2017	2018	2019	2020	2021
Domestik Domestic	28.25	28.30	28.21	28.27	28.47	30.20	28.96
Komersial Commercial	31.72	30.53	30.54	30.50	30.65	39.61	30.59
Industri Industrial	24.48	24.15	23.86	23.69	24.16	31.87	23.96
Lampu awam Public lighting	n/a	47.12	47.18	47.17	47.20	25.47	47.28
<b>Purata Average</b>	<b>28.50</b>	<b>28.20</b>	<b>28.04</b>	<b>27.96</b>	<b>28.22</b>	<b>34.29</b>	<b>28.30</b>

## Apendiks 10: Kos Penajaan TNB Appendix 10: Generation Costs of TNB

KOS PENAJANAAN (SEN/KWJ) GENERATION COSTS (SEN/KWH)	SEP-DEC 2017	2018	2019	2020	2021
(a) Penajaan sendiri Own generation	22.31	26.91	29.39	28.04	28.67
(b) Elektrik dibeli Purchased electricity	24.87	25.72	25.61	20.83	22.72
(c) Kos keseluruhan (a) & (b) Overall cost (a) & (b)3	<b>24.43</b>	<b>25.89</b>	<b>26.09</b>	<b>21.66</b>	<b>23.16</b>

### Nota I Notes

- Data Tahun Kewangan.  
Financial Year data.
- Kos (kapasiti, tenaga) / Jumlah Penajaan 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).
- Disebabkan perubahan dalam tahun laporan fiskal TNB kepada berakhir 31 Disember 2017 berbanding 31 Ogos 2017 sebelum ini, terdapat tahun kewangan yang singkat bermula dari 1 September 2017 hingga 31 Disember 2017, yang meliputi tempoh empat bulan. Selepas itu, tahun kewangan kumpulan itu telah kembali kepada dua belas bulan yang berakhir 31 Disember 2018.  
Due to the change in TNB's fiscal reporting year end to 31 December 2017 compared to 31 August 2017 before this, a short financial year commenced from 1 September 2017 to 31 December 2017, covering a period of four months. Thereafter, the financial year of the group has reverted to twelve months ending 31 December 2018.

## Apendiks 11: Kos Penajaan Sabah Electricity Sdn. Bhd. (SESB) Appendix 11: Generation Cost of Sabah Electricity Sdn. Bhd. (SESB)

KOS PENAJANAAN (SEN/KWJ) GENERATION COSTS (SEN/KWH)	SEP-DEC 2017	2018	2019	2020	2021
(a) Penajaan sendiri Own generation	37.03	39.17	41.66	17.83	10.03
(b) Elektrik dibeli Purchased electricity	20.73	19.36	19.90	17.90	16.92
(c) Kos keseluruhan (a) & (b) Overall cost (a) & (b)3	<b>23.23</b>	<b>22.76</b>	<b>23.51</b>	<b>17.88</b>	<b>15.59</b>

### Nota I Notes

Kos penajaan di atas adalah berdasarkan harga pasaran bagi bahan api diesel & MFO, harga pembelian tenaga bagi LSS manakala TBB di bawah skim FiT adalah dengan subsidi daripada KWTBB (SEDA). Harga gas bagi Sabah & WP Labuan adalah pada RM6.40/MMBtu. The above generation costs are based on market prices for diesel & MFO, energy purchase price for LSS, while RE under the FiT scheme is subsidized by KWTBB (SEDA). Gas prices for Sabah & Federal Territory of Labuan is at RM6.40/MMBtu.

## Apendiks 12: Kos Penajaan Sarawak Energy Berhad (SEB) Appendix 12: Generation Cost of Sarawak Energy Berhad (SEB)

KOS PENAJANAAN (SEN/KWJ) GENERATION COSTS (SEN/KWH)	SEP-DEC 2017	2018	2019	2020	2021
(a) Penajaan sendiri Own generation	3.58	2.70	2.74	4.07	4.49
(b) Elektrik dibeli Purchased electricity	7.83	0.00	0.00	0.00	0.00
(c) Kos keseluruhan (a) & (b) Overall cost (a) & (b)3	<b>4.83</b>	<b>2.70</b>	<b>2.74</b>	<b>4.07</b>	<b>4.49</b>

### Nota I Notes

- Kos penajaan (sen/kWh) terdiri daripada kos bahan bakar daripada gas, arang batu dan diesel serta pembayaran royalti air untuk penajaan hidro.  
Generation costs (sen/kWh) consists of fuel costs from gas, coal and diesel as well as the water royalty payment for hydro generation.
- Berkuat kuasa 1 Ogos 2017, tiada lagi elektrik yang dibeli, oleh itu kos purata pembelian kuasa berkurangan kepada 7.8 sen/kWh pada tahun 2017.  
Effective 1 Aug 2017, there is no more purchased electricity, hence the average cost of power purchase reduced to 7.8 sen/kWh in year 2017.
- Penajaan yang tidak bersambung dengan grid dikesualikan daripada kos penajaan untuk tahun 2017 dan berikutnya.  
Non-grid generation is excluded from the generation cost for year 2017 and onwards.





**PEMEGANG LESEN  
LICENSEES**

## Apendiks 13: Penjana-penjana Bebas (IPP) Appendix 13: Independent Power Producers (IPP)

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
1	EDRA ENERGY SDN. BHD.	(1)Lot 20263, (2)Lot 9323, (3)Lot 7001, (4)Lot 14803, (5)Lot 4695, (6)Lot 14770, (7)Lot 4640, (8)Lot 4702, (9) Lot 4703, (10)Lot 4605, And (11)PT1638 (1 To 3) Mukim Sungei Baru Ilir, and (4 To 11) Mukim Kuala Sungei Baru Alor Gajah 78200 Melaka	2,296
2	JIMAH EAST POWER SDN. BHD.	PT8387, PT8388, PT8389, PT 8390 dan PT 8392, Mukim Jimah, Daerah Port Dickson, 71960 Negeri Sembilan	2,159
3	JIMAH ENERGY VENTURES SDN. BHD.	PT 7308 dan PT 7309, Mukim Jimah. Port Dickson, Negeri Sembilan	1,400
4	KAPAR ENERGY VENTURES SDN. BHD.	H.S.(D)27997, P.T 13310, H.S.(D)71648 P.T 39670 dan H.S.(D)83937 P.T 42930, Mukim Kapar, Daerah Klang, Selangor	2,200
5	KIMANIS POWER SDN. BHD.	No. Lot NT 023140150, NT 02340169, NT 023140178, NT 023140203, CL 025341422, CL 025341413, NT 023176150 Dan Sebahagian dari Lot 02200228, KM 48, Kg. Batu Pungit, Mukim Kimanis, Daerah Papar, 89607 Sabah	285
6	KUALA LANGAT POWER PLANT SDN. BHD.	Lot 7090, Mukim Tanjung 12, Kuala Langat, 42700 Banting, Selangor	675
7	MUSTEQ HYDRO SDN. BHD.	Stesyen Janakuasa Hidro Elektrik Sungai Kenerong, Kelantan	20
8	NUR GENERATION SDN. BHD.	Kulim Hi Tech Industrial Park, Mukim of Padang China, Kedah	220
9	PANGLIMA POWER SDN. BHD.	Mukim Sungei Baru Ilir, Daerah Alor Gajah, Melaka	720
10	PENGERANG POWER SDN. BHD.	Plot 46 dan di dalam Persempadanan Pengerang Integrated Complex (Pic), Mukim Pengerang, Daerah Kota Tinggi, 81600 Johor	1,749
11	PRAI POWER SDN. BHD.	IMS No: 00186 Daerah Seberang Perai Tengah, 13700 Pulau Pinang	350
12	RANHILL POWERTRON II SDN. BHD.	Lot 35 (IZ4), Kota Kinabalu Industrial Park, Kota Kinabalu, Sabah	190
13	RANHILL POWERTRON SDN. BHD.	Lot 3, KKIP Selatan, IZ3 Kota Kinabalu Industrial Park, Kota Kinabalu, Sabah	190
14	SEGARI ENERGY VENTURES SDN. BHD.	Lot PT0006325, PT 0006356, PT0006327, PT0006328, PT0006329, Mukim Pengkalan Baru, Daerah Manjung, 34900 Perak	1,303
15	SEPANGAR BAY POWER CORPORATION SDN. BHD	Lot 18(IZ3), Kota Kinabalu Industrial Park, 88450 Kota Kinabalu, Sabah	100
16	SERUDONG POWER SDN. BHD.	Lot CL 10531128, Mukim Tawau, Daerah Tawau, 91000 Sabah	38
17	SOUTHERN POWER GENERATION SDN. BHD.	Sebahagian Lot 1363, Lot 1372-1390, Lot 1959, Lot 195179, MLO 6232 dan MLO 6022, Mukim Plentong, Daerah Johor, 80000 Johor	1,476
18	SPR ENERGY (M) SDN. BHD	No. Lot NT 11066, NT 11067, NT 11068, NT 11069 & 023159864 Kimanis, Daerah Papar, Sabah	100
19	STRATAVEST SDN. BHD.	Lot CL 075323447, Lot 1, Daerah Sandakan, Mukim Sandakan, 90737 Sabah	50
20	TANJUNG BIN ENERGY SDN. BHD.	Lot 1770, 1771, 1773, 1851, 1858, 1859, Mukim Serkat, Daerah Pontian, Johor	1,000

**Apendiks 13: Penjana-penjana Bebas (IPP)**  
**Appendix 13: Independent Power Producers (IPP)**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
21	TANJUNG BIN POWER SDN. BHD.	Ptd 1769, 1770, 1771, 1772 Dan 1773, Mukim Serkat, Daerah Pontian, Johor	2,100
22	TEKNOLOGI TENAGA PERLIS CONSORTIUM SDN. BHD	Kuala Sungai Baru, Perlis	650
23	TENAGA NASIONAL BERHAD (TNB)	Sebahagian Mukim Hulu Terengganu, Daerah Hulu Terengganu, Terengganu	265
24	TENAGA NASIONAL BERHAD (TNB)	Ulu Jelai, Sebahagian Mukim Hulu Telom, Daerah Cameron Highlands, Pahang	372
25	TENAGA NASIONAL BERHAD (TNB-GENERATION DIVISION)	Stesen Janaelektrik Tuanku Jaafar, Lot Pt 391, Mukim Port Dickson, Daerah Port Dickson	1,411
26	TNB CONNAUGHT BRIDGE SDN. BHD.	Sebahagian Lot Pt 20176, Mukim Klang, Daerah Klang 41990 Selangor	375
27	TNB JANAMANJUNG SDN. BHD.	Telok Penchalang, Lekir, Daerah Manjung, Perak	2,100
28	TNB JANAMANJUNG SDN. BHD. (4)	No. Lot 43195, Sebahagian 43196 Dan Sebahagian 43197, Mukim Sitiawan, Daerah Manjung, Perak	1,010
29	TNB MANJUNG FIVE SDN. BHD.	Lot 43195, 43196 Dan 43197 Sitiawan Manjung 32040 Perak	1,000
30	TNB POWER GENERATION SDN. BHD.	Stesen Janaelektrik Berasaskan Gas Putrajaya Di Lot Pt 4839, Mukim Dengkil, Daerah Sepang, 43650 Selangor	270
31	TNB POWER GENERATION SDN. BHD.	Lot 790, Lot 791, Pt29, Pt30 Seksyen 4 Bandar Jelutong Timor Laut 11700 Pulau Pinang	310
32	TNB POWER GENERATION SDN. BHD	Stesen Janaelektrik Hidro Sultan Ismail Petra (Pergau) Di Lot Pt3551, Mukim Belimbing, Daerah Jeli, 17600 Kelantan	600
33	TNB POWER GENERATION SDN. BHD.	Stesen Janaelektrik Sultan Yusuff, Jor Di Sebahagian Lot 4321,4322, 4323, 4333, Mukim Tapah, Daerah Batang Padang, Perak Dan Stesen Janaelektrik Sultan Idris li, Who Di Sebahagian Lot 1511, Mukim Tapah, Daerah Batang Padang, 35009 Perak	250
34	TNB POWER GENERATION SDN. BHD.	Stesen Janaelektrik Hidro Sultan Mahmud Di Mukim Jenagor, Daerah Hulu Terengganu, 21700 Terengganu	400
35	TNB POWER GENERATION SDN. BHD.	Stesen Janaelektrik Mini Hidro Di Stesen Janaelektrik Odak Di Sebahagian Lot 5188, Mukim Tapah, Daerah Batang Padang, 35009 Perak, Stesen Janaelektrik Kampung Raja Di Sebahagian Lot Pt 91, Mukim Ulu Telom, Daerah Cameron Highlands, 39010 Pahang, Stesen Janaelektrik Kuala Terla Di Sebahagian Lot Pt 287, Mukim Ulu Telom, Daerah Cameron Highlands, 39000 Pahang, Stesen Janaelektrik Robinson Falls Di Sebahagian Lot Pt 558, Mukim Ringlet, Daerah Cameron Highlands, 39200 Pahang And Stesen Janaelektrik Habu Di Mukim Ringlet, Cameron Highlands, 39200 Pahang	12

**Apendiks 13: Penjana-penjana Bebas (IPP)**  
**Appendix 13: Independent Power Producers (IPP)**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
36	TNB POWER GENERATION SDN. BHD.	Stesen Janaelektrik Temenggor Di Sebahagian Lot Pt 11, 12, 13, 14, 15, 16, 17, 18, 19, Mukim Temenggor, Daerah Hulu Perak, 33300 Perak, Stesen Janaelektrik Bersia Di Sebahagian Lot 13215, Mukim Bersia, Daerah Hulu Perak, 33300 Perak, Stesen Janaelektrik Kenering Di Sebahagian Lot Pt 1143, 1144, 1145, Mukim Kenering, Daerah Hulu Perak, 33300 Perak, Stesen Janaelektrik Sungai Piah Upper Scheme Di Mukim Lenggong, Daerah Hulu Perak, 33300 Perak, Stesen Janaelektrik Sungai Piah Lower Scheme Di Mukim Lenggong, Daerah Hulu Perak, 33300 Perak, Stesen Janaelektrik Chenderoh Di Sebahagian Lot 2981, 2982, 3301, 3302, Mukim Chegar Galah, Daerah Kuala Kangsar, 33300 Perak	649
37	TNB PRAI SDN. BHD.	Pt 10, Pt 11 Dan Pt 13 Bandar Prai Seberang Perai Tengah 13600, Pulau Pinang	1,071
38	TSH BIO-ENERGY SDN. BHD.	Sebahagian Lot CI 105392989, Mukim Tawau, Daerah Tawau, 91000 Sabah	14

**Apendiks 14: Lesen Tenaga Boleh Baharu (TBB) yang dikeluarkan pada 2021**  
**Appendix 14: Renewable Energy Licences (RE) Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
1	BAC BIOGAS (KG. GAJAH) SDN. BHD.	Sebahagian Lot 4025, 4026, 4028, 4029, PT 2723, PT 2720, Mukim Pulau Tiga, Daerah Perak Tengah, 36800 Perak	1.55
2	CENERGI SUA BETONG SDN. BHD.	Lot 3721, Mukim Linggi, Daerah Port Dickson, 71050 Negeri Sembilan	1.56
3	CENERGI WEST SDN. BHD.	Lot 2601, Mukim Klang, Daerah Klang, 42960 Selangor	1.65
4	CLEANTECH SOLAR (MALAYSIA) SDN. BHD.	Sebahagian Lot 12366, Mukim 12, Daerah Barat Daya, 11900 Pulau Pinang	0.5587
5	DESA KIM LOONG PALM OIL SDN. BHD.	Part of Lot CL 135367912, Mukim Sook, Daerah Keningau, 89007 Sabah	2.125
6	EVERGREEN FINTECH SDN. BHD.	Sebahagian No. Lot PT 33310, Mukim Asam Kumbang, Daerah Larut & Matang, 34600 Taiping, Perak	0.149
7	GLT AGRO POWER SDN. BHD.	Sebahagian Lot 642, 643 & 646, Mukim Sungai Tinggi, Daerah Larut Matang, 34800 Perak	0.6681
8	GLT CLIMATE SDN. BHD.	Sebahagian Lot 184 & Lot 1190, Mukim Sungai Siput, Daerah Kuala Kangsar, 31100 Perak	1.27
9	GLT MORIB POWER SDN. BHD.	Sebahagian Lot 1222 Dan 1223, Mukim Batu, Daerah Kuala Langat, Negeri Selangor	1.501
10	GLT SUSTAINABLE SDN. BHD.	Sebahagian Lot 1001 & 1002, Mukim 08, Daerah Seberang Prai Selatan, 14300 Pulau Pinang	1.5
11	GSPARX SDN. BHD.	Sebahagian Lot 2438, Mukim Bandar Seremban, Daerah Seremban, 70300 Negeri Sembilan	0.1901
12	GSPARX SDN. BHD.	Sebahagian Lot 61768, Mukim Bandar Glenmarie, Daerah Petaling, 40150 Selangor	0.1503
13	MALAKOFF RADIANCE SDN. BHD.	Di Sebahagian No. PT 714, Mukim Damansara, Daerah Petaling, 40000 Selangor	2
14	MALAKOFF RADIANCE SDN. BHD.	Di Sebahagian No. PT 7680, Mukim Pekan, Daerah Pekan, 26600 Pahang	2.0007
15	MALAKOFF RADIANCE SDN. BHD.	Di Sebahagian No. Lot 26778 Dan PT 16750, Mukim Batu Berendam, Daerah Melaka Tengah, 75350 Melaka	5.15268
16	MALAKOFF RADIANCE SDN. BHD.	Di Sebahagian No. PT 1 Seksyen 21, Mukim Bandar Shah Alam, Daerah Petaling, 40200 Selangor	2.20848
17	PETRONAS POWER SDN. BHD.	Sebahagian PTD 22805, Mukim Plentong, Daerah Johor Bahru, Negeri Johor Darul Takzim	8.3304
18	SEMBCORP SOLAR SOLUTIONS SDN. BHD.	Sebahagian No. Lot PTD 87636, Mukim Senai, Daerah Kulaijaya, 81400 Senai, Johor	0.99992
19	SOLARCITY REIT SDN. BHD	Sebahagian No. Lot 6147, Mukim Tanggul, Daerah Hulu Terengganu, 21800 Terengganu	0.52046
20	SOLARCITY REIT SDN. BHD	Sebahagian No. Lot 6147, Mukim Tanggul, Daerah Hulu Terengganu, 21800 Terengganu	0.48124

**Apendiks 15: Lesen Cogen Awam yang dikeluarkan pada 2021**  
**Appendix 15: Public Cogen Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
1	KIEV CRG SDN. BHD.	17479 Mukim Ampangan Seremban 70450 Negeri Sembilan	1.56

**Apendiks 16: Lesen Cogen Persendirian yang dikeluarkan pada 2021**  
**Appendix 16: Private Cogen Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
1	ALLIANCE STEEL (M) SDN. BHD.	Pt 19584 HS(D) 45228, Kawasan Perindustrian Malaysia-China Kuantan (MCKIP), Kukim Sungai Karang, Daerah Kuantan, 26150 Pahang	213
2	FGV PALM INDUSTRIES SDN. BHD.	Gugusan Felda Sahabat Di No. Lot Cl 115411848, Mukim Tungku, Daerah Lahad Datu, 91150 Negeri Sabah	7.5
3	MSM PRAI BERHAD	287 1 Seberang Prai Tengah 13600 Pulau Pinang	8.95
4	PALM-OLEO SDN BHD	PT25074 Bandar Kundang Gombak 48020 Selangor	7.27
5	RP CHEMICALS (MALAYSIA) SDN. BHD.	Lot PT 15606, Mukim Sg. Karang, Daerah Kuantan, 26100 Pahang	10.63

**Apendiks 17: Lesen Solar Berskala Besar (LSS) yang dikeluarkan pada 2021**  
**Appendix 17: Large-Scale Solar (LSS) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
1	BGMC BRAS POWER SDN. BHD.	Di Sebahagian No. Lot 3222, Mukim Sungai Petani, Daerah Kuala Muda, 08000 Negeri Kedah	45.045
2	VIVA SOLAR SDN. BHD.	Sebahagian No. Lot PT 9724, Mukim Sik, Daerah Sik, 08200 Negeri Kedah	43.18

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
1	99 SPEED MART SDN. BHD.	Sebahagian Lot 213095, Mukim Sungai Raya, 31600 Daerah Kinta, Perak	0.1423
2	A FREE SPIRIT CO SDN. BHD.	Lot 437, Mukim 06, Daerah Seberang Perai Utara, 13200 Pulau Pinang	0.19285
3	A FREE SPIRIT CO SDN. BHD.	Lot 1203, Mukim 06, Daerah Seberang Perai Utara, 13200 Pulau Pinang	0.30624
4	A PLUS MANUFACTURING SDN. BHD.	Sebahagian Lot 43832, Bandar Seri Sendayan, 71950 Daerah Sendayan, Negeri Sembilan	0.32994
5	A.W. FABER - CASTELL (M) SDN. BHD.	Di Lot 46959, Mukim Damansara, Daerah Petaling, 47810 Selangor	1

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
6	AA TECHNOLOGIES SDN. BHD	Sebahagian Lot 305816, Mukim Sungai Terap, 31550 Daerah Kinta, Perak	0.2
7	ACKU METAL INDUSTRIES (M) SDN. BHD.	Lot 2937, Mukim 16, Daerah Seberang Perai Utara, 13400 Negeri Pulau Pinang	0.4976
8	ADVANCECON SOLAR SDN. BHD.	Sebahagian Lot 19019 Seksyen 20, Bandar Rawang, 48000 Daerah Gombak, Selangor	0.34232
9	ADVANCECON SOLAR SDN. BHD.	Sebahagian Lot 25945, Mukim Batu, 51200 Kuala Lumpur, Wilayah Persekutuan KL	0.24508
10	AFI METAL (M) SDN. BHD.	Lot 51580, Mukim Kuala Nerus, Daerah Kuala Nerus, 21300 Negeri Terengganu	0.15255
11	AGRICORE CS SDN. BHD.	Sebahagian Lot 20172, Mukim 13, 14000 Seberang Perai Tengah, Pulau Pinang	0.26886
12	AIC INGREDIENTS SDN. BHD.	No. PT 12, Mukim Damansara, Daerah Petaling, Negeri Selangor	0.11466
13	AJIYA SAFETY GLASS SDN. BHD.	Di Sebahagian No. PT 1052, Mukim 13, Daerah Seberang Perai Tengah, Pulau Pinang	0.46
14	AJIYA SAFETY GLASS SDN. BHD.	Di Sebahagian No. Lot 7025, Tempat Kg. Seelong, Mukim Tebrau, Daerah Johor Bahru, Johor Darul Takzim	0.656
15	AKASHI KIKAI INDUSTRY (M) SDN. BHD.	Sebahagian No. Lot PT 11634, Mukim Bandar Sri Sendayan, Daerah Seremban, 71950 Negeri Sembilan	0.44764
16	ALFAGOMMA MALAYSIA SDN. BHD.	Sebahagian No. PTD 101139, Mukim Plentong, Daerah Johor Bahru, Negeri Johor	1.3706
17	ALLIANCE PRECAST INDUSTRIES SDN. BHD	Sebahagian No. Lot PT 17504 Seksyen 20, Mukim Bandar Serendah, Daerah Ulu Selangor, 48000 Negeri Selangor	0.56
18	ANFI INDUSTRIES SDN. BHD.	Sebahagian No. Lot 13548, Tempat PT. Maimon, Mukim Simpang Kiri, Daerah Batu Pahat, Negeri Johor	0.117
19	ANFI INDUSTRIES SDN. BHD.	Lot 13548, PT. Maimon, Mukim Simpang Kiri, Daerah Batu Pahat, Negeri Johor	0.09523
20	ANG TRADING & MOTOR CREDIT SDN. BHD.	Sebahagian Lot 2705, Bandar Maharani, 84000 Daerah Muar, Johor	0.09801
21	ASRAMA RAYA SDN. BHD.	Sebahagian Lot 2198, Titian Pachat, Mukim Penghulu Diman, 21800 Daerah Hulu Terengganu, Terengganu	0.22932
22	ASSEMBLY SERVICES SDN. BHD.	Di Sebahagian No. PT 74946, Mukim Kapar, Daerah Klang, Negeri Selangor	2.0007
23	ATNESIS SDN. BHD.	Sebahagian Lot No. 1100, Jln Perindustrian Bkt Minyak 7, Kawasan Perindustrian Bukit Minyak, Daerah Bukit Mertajam, 14000 Pulau Pinang	0.29986
24	ATOM CORPORATION SDN. BHD.	Sebahagian No. Lot 468, Tempat Sungai Purun, Mukim Semenyih, Daerah Hulu Langat, Negeri Selangor	0.31464
25	AYAM BINTANG ISTIMEWA SDN. BHD.	Sebahagian PT 6546, Mukim Sungai Karang, 26100 Daerah Kuantan, Negeri Pahang	0.3825

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
26	BAN SENG HIN CO. SDN. BHD.	Sebahagian No. Lot 50003 Seksyen 4, Mukim Pekan Kota Sarang Semut, Daerah Kota Setar, 05400 Negeri Kedah	0.6732
27	BAND WOOD SDN. BHD.	Sebahagian No. Lot PTD 17192, Mukim Jorak, Daerah Muar, 84500 Negeri Johor	0.22
28	BAND WOOD SDN. BHD.	Sebahagian No. Lot PTD 17192, Mukim Jorak, Daerah Muar, 84500 Negeri Johor	0.108
29	BAND WOOD SDN. BHD.	Sebahagian No. Lot PTD 17192, Mukim Jorak, Daerah Muar, 84500 Negeri Johor	0.104
30	BANDAR ECO-SETIA SDN. BHD.	Sebahagian No. Lot PT 19821, Mukim Bukit Raja, Daerah Petaling, Negeri Selangor	0.22619
31	BLOXWICH (MALAYSIA) SDN. BHD.	No.PT 2620, Mukim Bandar Seri Iskandar, Daerah Perak Tengah, 32600 Negeri Perak	0.2207
32	BOH PLANTATIONS SDN. BHD.	Sebahagian Lot 65501, Mukim Tanjong Duabelas, 42700 Daerah Kuala Langat, Negeri Selangor Darul Ehsan	0.44865
33	BRILLIANT ACHIEVEMENT SDN. BHD.	Sebahagian Plot 22, Kawasan Perusahaan Kulim, Bandar Kulim, 09000 Daerah Kulim, Kedah	0.4124
34	C L PILE SDN. BHD.	Lot 5632, Mukim Senai, Daerah Kulai, 81400 Johor	0.35022
35	CAB CAKARAN SDN. BHD.	No. PT 3824, Mukim 01, Daerah Seberang Perai Tengah, Negeri Pulau Pinang	0.39909
36	CARETEX APPARELS SDN. BHD.	Sebahagian No. Lot 9515, Tempat Batu 77, 1/2 Jalan Yong Peng P, Mukim Sri Medan, Daerah Batu Pahat, Negeri Johor	0.29565
37	CENTRAL EIGHT (M) SDN. BHD.	Sebahagian Lot 8920, Telok Gong, Mukim Klang, 42000 Daerah Klang, Selangor Darul Ehsan	0.339
38	CENTRAL EIGHT (M) SDN. BHD.	Sebahagian Lot 8921, Telok Gong, Mukim Klang, 42000 Daerah Klang, Selangor Darul Ehsan	0.5562
39	CENTRAL ICE INDUSTRIES SDN. BHD.	Sebahagian No. Lot 14114, Mukim Cukai, Daerah Kemaman, 24000 Terengganu	0.2232
40	CG SOLUTIONS ENTERPRISE SDN. BHD.	No. PT 5821, Mukim 13, Daerah Seberang Perai Selatan, Negeri Pulau Pinang	0.312
41	CHANTIKA KELANG BERAS SDN. BHD.	Lot PT 2816, Mukim Tajar, Daerah Kota Setar, Negeri Kedah	0.67188
42	CHANTIKA KELANG BERAS SDN. BHD.	Lot 1000 & PT 2816, Mukim Tajar, Daerah Kota Setar, Negeri Kedah	0.67188
43	CHIN HUAT TRADING SDN. BHD.	Sebahagian No. PT 8908, Tempat Telok Gong, Mukim Klang, Daerah Klang, Negeri Selangor	0.13568
44	CHIN HUAT TRADING SDN. BHD.	No. PT 8908, Telok Gong, Mukim Klang, Daerah Klang, 42000 Negeri Selangor	0.1104
45	CHOP TONG GUAN SDN. BHD.	Lot 329, Mukim 13, Daerah Seberang Perai Tengah, 14000 Pulau Pinang	0.46068



**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
46	CHUAN SIN SDN. BHD.	Lot 144371, Mukim Klang, Daerah Klang, 40400 Negeri Selangor	1.071
47	CLEANTECH SOLAR (MALAYSIA) SDN. BHD.	No. PTD 163207, Mukim Plentong, Daerah Johor Bahru, 81700 Johor	2.005
48	CLEANTECH SOLAR (MALAYSIA) SDN. BHD.	Lot 4833 Mukim Cheng Melaka Tengah 75260 Melaka	0.60075
49	CLEANTECH SOLAR (MALAYSIA) SDN. BHD.	Lot 1210, Mukim Damansara, Daerah Petaling, 40150 Selangor	0.60876
50	CLEANTECH SOLAR (MALAYSIA) SDN. BHD.	Lot 15927 Mukim 12 Barat Daya 11900 Pulau Pinang	0.42886
51	CLEANTECH SOLAR (MALAYSIA) SDN. BHD.	Lot 15519, 15997 & 15927 Mukim 12 Barat Daya 11950 Pulau Pinang	0.5721
52	CORRUGATED OFFSET PACKAGING SDN. BHD.	Sebahagian No. PT 16758, Mukim Setul, Daerah Seremban, Negeri Sembilan	0.55002
53	COVERIGHT SURFACES MALAYSIA SDN. BHD.	Sebahagian No. Lot 750, Tempat 3 1/2 Mile Kapar Road, Mukim Kapar, Daerah Klang, Negeri Selangor	0.61336
54	CROWN FURNITURE MANUFACTURE SDN. BHD.	Sebahagian Lot 10016, Batu 14 3/4, Jalan Kelang, Mukim Jeram, 45800 Daerah Kuala Selangor, Selangor	0.207
55	CS MANUFACTURER SDN. BHD.	PT 158624 Mukim Hulu Kinta 31200 Perak	0.2926
56	CS PROGYMS PHARMACEUTICAL SDN. BHD.	Sebahagian Lot 176, Seksyen 19, Mukim Bandar Rawang, 48000 Daerah Gombak, Negeri Selangor	0.1683
57	CSES ROOFTOP ALPHA SDN. BHD.	Sebahagian PT 3169, Mukim Sungai Laka, Daerah Kubang Pasu, Negeri Kedah	2.436
58	CSES ROOFTOP ALPHA SDN. BHD.	Sebahagian PT 3169, Mukim Sungai Laka, Daerah Kubang Pasu, Negeri Kedah	0.609
59	DAEPAC INDUSTRIES SDN. BHD.	No. PTD221508, Mukim Plentong, Daerah Johor Bahru, 81400 Negeri Johor	0.1598
60	DAIMAN BOWL SDN. BHD.	Sebahagian No. PTD 61816, Mukim Plentong, Daerah Johor Bahru, Negeri Johor	0.428
61	DAIREN CHEMICAL (M) SDN. BHD.	Sebahagian No. PTD 2854, Mukim Sungai Tiram, Daerah Johor Bahru, Negeri Johor	0.36828
62	DELL GLOBAL BUSINESS CENTER SDN. BHD.	Lot PT 3134, Mukim 11, Daerah Seberang Perai Tengah, 14000 Negeri Pulau Pinang	0.6996
63	DELLOYD INDUSTRIES (M) SDN. BHD.	Sebahagian Lot 48938, Mukim Klang, 42450 Daerah Klang, Selangor	1.1094
64	DELLOYD INDUSTRIES (M) SDN. BHD.	Sebahagian No. Lot 17286, Mukim Hulu Bernam Timur, Daerah Batang Padang, 35910 Perak	0.5133
65	DENKI JAYA INDUSTRIES SDN. BHD.	Sebahagian No. PTD 102981, Mukim Senai, Daerah Kulaijaya, 81400 Johor Darul Takzim	0.351

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
66	DHL EXPRESS (M) SDN. BHD.	PTD 195950, Mukim Tebrau, Daerah Johor Bharu, 81400 Johor	0.10032
67	DITROLIC ENERGY SOLUTION SDN. BHD	PTD 163296 Tebrau Johor Bahru 81300 Johor	0.51131
68	DITROLIC ENERGY SOLUTION SDN. BHD.	PT 1439, Mukim Kapar, Daerah Kampar, 39100 Perak	4.045
69	DITROLIC ENERGY SOLUTION SDN. BHD.	PTD 984 Bandar Mersing 86800 Johor	0.121
70	DITROLIC ENERGY SOLUTION SDN. BHD.	PTD 163296 Tebrau Johor Bahru 81300 Johor	0.38537
71	DITROLIC ENERGY SOLUTION SDN. BHD.	PTB 1207 Mukim Bandar Mersing 86800 Johor	0.1122
72	DITROLIC SDN. BHD.	PT 249, PT 250, PT 251 Bandar Padang Mat Sirat Langkawi 07100 Kedah	1.109
73	DITROLIC SDN. BHD.	PT 86418 Kuala Kuantan Kuantan 25150 Pahang	0.4042
74	DITROLIC SDN. BHD.	943, 3236, 4692 ,4693 Baru Berendam Melaka Tengah 75350 Melaka	0.404
75	DITROLIC SDN. BHD.	Di Lot 7590, Lot 7565, PT 228, PT 229, PT 230, PT 231, PT 1610, PT 3096, Mukim 12, Daerah Barat Daya, 11900 Pulau Pinang	2.188
76	DRAGON ALLIANCE SDN. BHD.	Sebahagian No. Lot 2787 Dan Lot 2799, Mukim 07, Daerah Seberang Perai Selatan, 14300 Pulau Pinang	0.32142
77	DUNLOP HIFLEX SDN. BHD.	lot 51757, Mukim Plentong, Daerah Johor Bharu, 81700 Negeri Johor	1.3706
78	DUNLOP HIFLEX SDN. BHD.	Sebahagian No. PTD 190528, Mukim Plentong, Daerah Johor Bahru, Negeri Johor	0.5375
79	DXN PHARMACEUTICAL SDN. BHD.	Sebahagian Lot 1728, Alor Nipan, Mukim Malau, 06000 Daerah Kubang Pasu, Kedah	1.60218
80	DYNACIATE ENGINEERING SDN. BHD.	PTD 208308, Mukim Plentong, Daerah Johor Bharu, 81700 Johor	0.38192
81	ECCO STEEL INDUSTRIES SDN. BHD.	lot 38, Saleng, Mukim Kulai, Daerah Kulai, 80400 Negeri Johor	0.3444
82	ECO REFACTORY PRODUCTS SDN. BHD.	Di Lot 1167, Mukim Serendah, Daerah Hulu Selangor, 48000 Selangor	0.4104
83	ECONSAVE CASH & CARRY (BB) SDN. BHD.	No. PT 7268, Mukim Alor Gajah, Daerah Durian Tunggal, 76100 Negeri Melaka	0.5381
84	ECONSAVE CASH & CARRY (GB) SDN. BHD.	No. PTD 14738, Kawasan Pekan Bukit Gambir, Mukim Grisek, Daerah Ledang, 84800 Negeri Johor	0.30537
85	ECONSAVE CASH & CARRY (GB) SDN. BHD.	No. PTD 14738, Kawasan Pekan Bukit Gambir, Mukim Grisek, Daerah Ledang, 84800 Negeri Johor	0.22055

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
86	ECONSAVE CASH & CARRY (JW) SDN. BHD.	Lot 20279, Mukim 07, Daerah Seberang Perai Selatan, 14200 Negeri Pulau Pinang	0.59247
87	ECONSAVE CASH & CARRY (KH) SDN. BHD.	Lot 5542, Kampong Melang, Mukim Pekan Melang, Daerah Kuala Pilah, Negeri Sembilan	0.122235
88	ECONSAVE CASH & CARRY (KLE) SDN. BHD.	No. PT250711, Mukim Hulu Kinta, Daerah Kinta, 31200 Negeri Perak	0.43152
89	ECONSAVE CASH & CARRY (SB) SDN. BHD.	No. PT 7839, Mukim Sungai Buloh, Daerah Petaling, Negeri Selangor	0.178785
90	ECONSAVE CASH & CARRY (SR) SDN. BHD.	Lot 1209, Simpang Rengam, Mukim Rengam, Daerah Kluang, 86200 Negeri Johor	0.49155
91	EDMARK INDUSTRIES SDN. BHD	Sebahagian No. PT 14415, Mukim Petaling, Daerah Petaling, 47180 Selangor Darul Ehsan	0.854
92	ENGIE SERVICES MALAYSIA SDN. BHD.	Di HSD 166735, Mukim Bandar Shah Alam, Daerah Petaling, 40200 Selangor	0.57024
93	ENGIE SERVICES MALAYSIA SDN. BHD.	Di PT 50690, Mukim Kapar, Daerah Klang, 40706 Selangor	2.43936
94	ENGIE SERVICES MALAYSIA SDN. BHD.	Di Lot 4391, Mukim 13, Daerah Seberang Perai Tengah, 14000 Pualu Pinang	0.528
95	ENGIE SERVICES MALAYSIA SDN. BHD.	No Lot 393, Mukim Kuala Kuantan, Daerah Kuantan, 25200 Pahang	0.97976
96	EPPOR PACK SDN. BHD.	Di Lot 89, Mukim 09, Daerah Seberang Perai Selatan, Permatang Kling, 14300 Pulau Pinang	2.48686
97	EURASIA EXPRESS SDN. BHD.	No. Lot 12174, Mukim Lebuhraya Tun Dr Lim Chong Eu, Daerah Bayan Lepas, 11900 Pulau Pinang	0.2112
98	EVERGREEN FINTECH SDN. BHD.	Sebahagian PT 5152, Mukim Sungei Baru Tengah, Daerah Alor Gajah, 78000 Negeri Melaka	1
99	EVERGREEN RICE MILL (M) SENDIRIAN BERHAD	Sebahagian No. Lot 2890, Mukim Sanglang, Daerah Kubang Pasu, 06150 Negeri Kedah	0.60209
100	EVERSPARK INDUSTRIES SDN. BHD.	Sebahagian PTD 87614, Mukim Senai-Kulai, 81400 Daerah Johor Bahru, Johor	0.38
101	FAMILY MALL SDN. BHD.	Sebahagian No. PT 148185, Bandar Kuantan, Daerah Kuantan, Negeri Pahang	0.98
102	FAR GO INDUSTRIES SDN. BHD.	Sebahagian Lot 40332, Mukim Sungai Buloh, 40150 Daerah Petaling, Selangor	0.26857
103	FARM PRICE SDN. BHD.	Sebahagian No. Lot 55358, Mukim Senai, Daerah Kulaijaya, 81400 Negeri Johor	0.45135
104	FASTRON SDN. BHD.	Lot 8075, Mukim 12, Daerah Barat Daya, 11900 Negeri Pulau Pinang	0.57375
105	FETTA AUTO PART INDUSTRIES (M) SDN. BHD.	Sebahagian Lot 6909, Mukim Tanjong Minyak, 75260 Daerah Melaka Tengah, Melaka	0.4248

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
106	FFM FARMS SDN. BHD.	Sebahagian Lot 850, Lot 1034 & Lot 1192, Sungei Hantu 10th Mile Trong, Mukim Terung, 34850 Daerah Larut & Matang, Perak	0.69916
107	FIBERTEX PERSONAL CARE SDN. BHD.	Lot 52952 Mukim Sentul Seremban 71800 Negeri Sembilan	2.0295
108	FRAGSTAR CORPORATION SDN. BHD.	Sebahagian No. Lot 4846 Seksyen 3, Bandar Butterworth, Daerah Seberang Perai Utara, Negeri Pulau Pinang	0.6733
109	FRAZEL INN SDN. BHD.	Sebahagian PT 3105, Simpang Tiga, Mukim Parit Buntar, 34200 Daerah Kerian, Perak	0.27632
110	GADING KENCANA DEVELOPMENT SDN. BHD.	Sebahagian Lot 12192, Mukim Bidor, Daerah Batang Padang, 79467 Perak	0.1056
111	GENERAL SYSTEM ENGINEERING SDN. BHD.	Sebahagian Lot 69280, Mukim Klang, 40460 Daerah Klang, Selangor	0.16275
112	GL PRINTING SDN. BHD.	PTD 24967 Mukim Plentong Johor Bahru 81750 Johor	0.2244
113	GL PRINTING SDN. BHD.	Sebahagian PTD 24971, Mukim Plentong, 81750 Johor Bahru, Johor	0.2412
114	GO ENERGY SDN. BHD.	Sebahagian Lot 3430, Mukim O6, Daerah Seberang Perai Tengah, 13500 Pulau Pinang	3.65139
115	GO ENERGY SDN. BHD.	Sebahagian Lot 7566, Mukim Jementah, 85000 Johor Darul Takzim	0.49068
116	GO ENERGY SDN. BHD.	Sebahagian Lot 41943, Mukim Chenor, Daerah Maran, 26400 Pahang Darul Makmur	2.24504
117	GO ENERGY SDN. BHD.	Sebahagian PT 1754, Mukim Sura, Daerah Dungun, 23000 Terengganu Darul Iman	1.62516
118	GO ENERGY SDN. BHD.	Sebahagian PT 1120, Mukim Kelemak, Daerah Alor Gajah, 78000 Melaka Bandaraya Bersejarah	1.81569
119	GO ENERGY SDN. BHD.	Sebahagian Lot 1368, Mukim Parit Tinggi, Daerah Kuala Pilah, 72000 Negeri Sembilan Darul Khusus	0.55202
120	GOLDEN PET INDUSTRIES SDN. BHD.	Sebahagian Lot 181631, Mukim Hulu Kinta, 31400 Daerah Kinta, Negeri Perak	1.05463
121	GS PAPERBOARD & PACKAGING (SELANGOR) SDN. BHD.	Lot 36967, Mukim Kapar, Daerah Klang, 41050 Negeri Selangor	0.5757
122	GSPARX SDN. BHD.	Lot PT 599, Mukim Pekan Hicom, Daerah Petaling 40400 Selangor	0.3936
123	GSPARX SDN. BHD.	Sebahagian Lot 188779 & 188782, Mukim Sungai Terap, Daerah Kinta, 31500 Perak	0.5346
124	GSPARX SDN. BHD.	Di Sebahagian Lot 69297, Mukim Klang, Daerah Klang, 40460 Selangor	0.3592
125	GSPARX SDN. BHD.	Pusat Transformasi Bandar Utc Perak Ulu Kinta Ipoh 30300 Perak	0.53

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
126	GSPARX SDN. BHD.	Di Sebahagian Lot 1862, Mukim 10, Daerah Seberang Perai Tengah, 14000 Pulau Pinang	0.1005
127	GSPARX SDN. BHD.	Sebahagian No Lot 2149, Mukim Dengkil, Daerah Sepang, 43000 Selangor	0.182
128	GSPARX SDN. BHD.	Sebahagian Lot PT 2459, Mukim Panchor, Daerah Kota Bharu, 16100 Kelantan	0.46
129	GSPARX SDN. BHD.	Lot PT1312, PT2461, PT2463 Mukim Panchor, Daerah Kota Bharu 16100 Kelantan	1.658
130	GSPARX SDN. BHD.	Lot PT 4256, Mukim Panchor, Daerah Kota Bharu 16100 Kelantan	0.4658
131	GSPARX SDN. BHD.	Di Sebahagian Lot PT 2217 & 2218, Mukim Taboh Naning, Daerah Alor Gajah, 78000 Melaka	0.301
132	GSPARX SDN. BHD.	Lot PT 856, Mukim Bandar Baru Enstek, Daerah Seremban, 71760 Negeri Sembilan	0.5177
133	GSPARX SDN. BHD.	Sebahagian Lot 24392, Mukim Bandar Seremban, Daerah Seremban, 70100 Negeri Sembilan	0.72
134	GSPARX SDN. BHD.	Sebahagian Lot 66062, Mukim Ampangan, Daerah Seremban, 70200 Negeri Sembilan	0.4395
135	GSPARX SDN. BHD.	Sebahagian Lot PTD 52071, Mukim Tebrau, Daerah Johor Bahru, 81100 Johor	0.301
136	GSPARX SDN. BHD.	Lot 9107 & Lot 9108 Mukim Bukit Baru Melaka Tengah 75450 Melaka	0.1503
137	GSPARX SDN. BHD.	Sebahagian Lot No 10923, 10924 dan 10925, Mukim 15, Daerah Seberang Perai Tengah, 14000 Bukit Mertajam, Pulau Pinang	0.218
138	GSPARX SDN. BHD.	Sebahagian Lot PT 2241k, Mukim Cendering, Daerah Kuala Terengganu, 21080 Terengganu	0.20412
139	GSPARX SDN. BHD.	Sebahagian Lot 2218, Mukim Kuala Perlis, Daerah Perlis, 02000 Perlis	0.1404
140	GSPARX SDN. BHD.	Universiti Tun Hussein Onn Malaysia, Lot Ptd 27810, Mukim Sri Gading, Daerah Batu Pahat, 86400 Johor	6.9
141	GSPARX SDN. BHD.	Sebahagian Lot 300733, Mukim Teja, Daerah Kampar, 31600 Perak	0.152
142	GSPARX SDN. BHD.	Sebahagian Lot 397026, Mukim Bandar Ipoh, Daerah Kinta, 31400 Perak	0.20758
143	GSPARX SDN. BHD.	Di Sebahagian Lot 6161, Mukim 6, Daerah Seberang Perai Utara, 13200 Pulau Pinang	0.0884
144	HAI HUP COLD STORAGE SDN. BHD	Sebahagian Lot PT 2400, Mukim Kuala Perlis, Daerah Perlis, 02000 Negeri Perlis	0.201
145	HAI SENG COLD STORAGE SDN. BHD.	Sebahagian No. Lot 1054, Tempat Kuala Perlis, Mukim Kuala Perlis, Daerah Perlis, Negeri Perlis	0.30844

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
146	HAYAN PRINTS (M) SDN. BHD.	Sebahagian No. Lot 4771, Mukim Cheng, Daerah Melaka Tengah, Negeri Melaka	0.3403
147	HAYAN PRINTS (M) SDN. BHD.	Sebahagian No. Lot 4771, Mukim Cheng, Daerah Melaka Tengah, Negeri Melaka	0.1602
148	HAYAN PRINTS (M) SDN. BHD.	Sebahagian Lot 4754, Mukim Cheng, 75260 Daerah Melaka Tengah, Melaka	0.2475
149	HEITECH PADU BERHAD	Lot Lot 64221, Mukim Damansara, Daerah Petaling, 40150 Negeri Selangor	0.1598
150	HIGHPACK MACHINERY SDN. BHD.	Sebahagian Lot 3414, Mukim 16, 13800 Daerah Seberang Perai Utara, Pulau Pinang	0.2244
151	HIYORI INDUSTRIES SDN. BHD.	Sebahagian No. Lot PT 19861, Mukim Bandar Sungai Petani, Daerah Kuala Muda, 08000 Negeri Kedah	0.25333
152	HL RUBBER INDUSTRIES SDN. BHD.	PT 816, Kawasan Perindustrian Kampong Diah, Mukim Ulu Muar, Daerah Kuala Pilah, 72000 Negeri Sembilan	0.424845
153	HOLZERN FURNITURE SDN. BHD.	Sebahagian No. PTD 5409, Mukim Kesang, Daerah Tangkak, Negeri Johor	0.5029
154	HTP INDUSTRIES SDN. BHD.	Sebahagian No. Lot 6648, Jalan Bakri, Mukim Jalan Bakri, Daerah Muar, Negeri Johor	0.58185
155	IMPACT COLOUR SDN. BHD.	Sebahagian No. PT 9377, Tempat Bukit Lanchong, Mukim Damansara, Daerah Petaling, Negeri Selangor	0.4752
156	IMPRESSIVE EDGE SDN. BHD.	Sebahagian PT 7725, Mukim Cheng, 75350 Daerah Melaka Tengah, Negeri Melaka	0.3533
157	INDUSTRIAL CONCRETE PRODUCTS BERHAD	Sebahagian Lot 7019, Pekan Nilai, 71800 Daerah Seremban, Negeri Sembilan	0.297
158	INDUSTRIAL CONCRETE PRODUCTS SDN. BHD.	Sebahagian Lot 10475, Mukim Lumut, 32000 Daerah Manjung, Perak	0.5526
159	IPMA INDUSTRY SDN. BHD.	Lot 395 Bandar Darulaman Kubang Pasu 06000 Kedah	0.11308
160	ISHTIHAR REALTY SDN. BHD.	Lot 4343, Mukim Kuala Lumpur, Daerah Kuala Lumpur, Negeri Wilayah Persekutuan KL	0.09052
161	IXORA HOTEL SDN. BHD.	Sebahagian Lot 109-110, Jalan Baru, Mukim 1, Daerah Perai, 13700 Negeri Pulau Pinang	0.31515
162	JARING METAL INDUSTRIES SDN. BHD.	PT 57329 Mukim Klang 40460 Selangor	0.3996
163	JAYA NETS SDN. BHD.	Sebahagian No Pt 4201, Selat Kelang Utara, Mukim Kapar, 42000 Daerah Klang, Selangor	1.1858
164	JERNIH AIS SDN. BHD.	Lot 31294, Mukim Kuala Nerus, Daerah Kuala Nerus, 21300 Terengganu	0.2511
165	JIN PROFIT MANUFACTURER SDN. BHD.	Sebahagian Lot 72313, Paja Jaras Dalam, Mukim Sungai Buloh, 47000 Daerah Petaling, Selangor	0.25852

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
166	JIT SIN INDEPENDENT HIGH SCHOOL	Sebahagian Lot 1164, Seksyen 4, Mukim Bandar Bukit Mertajam, 14000 Daerah Seberang Perai Tengah, Negeri Pulau Pinang	0.13703
167	JIT SIN INDEPENDENT HIGH SCHOOL	Sebahagian Lot 1164, Seksyen 4, Mukim Bandar Bukit Mertajam, 14000 Daerah Seberang Perai Tengah, Negeri Pulau Pinang	0.18879
168	JM MOTOR VENTURE SDN. BHD.	Sebahagian No. Lot 2632 Dan Lot 2633, Mukim 10, Daerah Seberang Perai Tengah, 14000 Negeri Pulau Pinang	0.18773
169	JS ALUMINIUM EXTRUDER SDN. BHD.	Sebahagian No. Lot 2261, Mukim Teluk Panglima Garang, Daerah Kuala Langat, 42500 Negeri Selangor	0.636
170	JTEKT AUTOMOTIVE (M) SDN. BHD.	Lot 38527, Pekan Country Heights, Daerah Petaling, Negeri Selangor	0.85773
171	JULIE'S MANUFACTURING SDN. BHD.	Sebahagian No. Lot 1754, Mukim Kelemak, Daerah Alor Gajah, Negeri Melaka	0.4914
172	JULIE'S MANUFACTURING SDN. BHD.	Sebahagian No. Lot 2952 dan No. Lot 7864, Tempat Kawasan Perindustrian Kelemak, Mukim Kelemak, Daerah Alor Gajah, Negeri Melaka	0.5616
173	K&T TRADING (KUANTAN) SDN. BHD.	Sebahagian No. PT 124945, Mukim Kuala Kuantan, Daerah Kuantan, Negeri Pahang	0.2552
174	K.M. LIM MOTOR SDN. BHD.	Sebahagian No. Lot 3323, Mukim Simpang Kanan, Daerah Batu Pahat, 83000 Negeri Johor	0.17986
175	KAWAN FOOD MANUFACTURING SDN. BHD.	PT 129351, Mukim Klang, Daerah Klang, 42920 Selangor	2.55684
176	KAYEL RUBBER PRODUCTS SDN. BHD.	PT1572 1 Seberang Perai Tengah 13600 Pulau Pinang	0.1392
177	KEJURUTERAAN POWERWELL SDN. BHD	Sebahagian Lot 121038, Mukim Klang, 40460 Daerah Klang, Selangor	0.18634
178	KEN PRIMA COSMECEUTICAL SDN. BHD.	Lot 3145, Mukim 06, Daerah Seberang Perai Tengah, 13600 Negeri Pulau Pinang	0.50076
179	KHAI WAH LITHO PRINTING SDN. BHD.	PT 35149, Mukim Kelang, Daerah Kelang, 41200 Negeri Selangor	0.35904
180	KIEN FATT RICE MILL SDN. BHD.	Sebahagian Lot 4080, Kubang Menora, Mukim Tualang, 06400 Daerah Pokok Sena, Kedah	0.6732
181	KIJ EXCELLENCE TITANIUM SDN. BHD.	PT 402, Mukim Pekula, Daerah Kuala Muda, 08600 Kedah	0.21
182	KILANG BERAS HON LI (M) SDN. BHD	Sebahagian Lot 5500, Batu 27, Mukim Tanjong Minyak, 75260 Daerah Melaka Tengah, Negeri Melaka	0.32396
183	KILANG BERAS KEDAH GHEE SENG (1981) SDN. BHD.	Di Lot 3605, Mukim Sala Besar, Daerah Yan, 06800 Kedah	0.5448
184	KILANG BERAS LEONG GUAN SDN. BHD.	Sebahagian Lot 3584, Mukim 03, 13200 Daerah Seberang Perai Utara, Negeri Pulau Pinang	0.4896
185	KILANG BERAS LEONG GUAN SDN. BHD.	Sebahagian Lot 2984 & 1238, Mukim 03, 13200 Daerah Seberang Perai Utara, Negeri Pulau Pinang	0.45

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
186	KILANG BERAS SENG WOR SDN. BHD.	Lot 3419, Bukit Besar, Mukim Sala Besar, Daerah Yan, 06800 Kedah	0.528
187	KILANG BERAS SG. LIMAU DALAM SDN. BHD.	Sebahagian Lot 4128, Mukim Pekan Sg. Limau Dalam, 06900 Daerah Yan, Negeri Kedah Darul Aman	0.42284
188	KILANG BERAS TEIK GUAN SDN. BHD.	PT 86, Kubang Bongor, Mukim Kubang Rotan, Daerah Kota Setar, 06250 Negeri Kedah	0.48
189	KILANG BERAS TEIK GUAN SDN. BHD.	Sebahagian PT 84, 86, Mukim Kubang Rotan, 06250 Daerah Kota Setar, Negeri Kedah	0.32
190	KILANG PADI BERKAT JAYA SDN. BHD.	Sebahagian No Lot 4255, Hutan Hidup, Mukim Kerandang, 22000 Daerah Besut, Terengganu	0.57365
191	KIM TECK LEE TIMBER FLOORING SDN. BHD.	Sebahagian PT 4063, Olak Lempit, Mukim Tanjung Dua Belas, 42700 Daerah Kuala Langat, Selangor	0.572
192	KVC PROPERTIES SDN. BHD.	Sebahagian No. Lot Pt 40854, Mukim Bandar Baru Bangi, Daerah Ulu Langat, 43650 Negeri Selangor	0.30039
193	LAI MENG GIRLS' SCHOOL ASSOCIATION	Sebahagian Lot 38474, Mukim Petaling, 57000 Daerah Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur	0.23
194	LAIWELL INDUSTRIES SDN. BHD.	Sebahagian PTD 196241, Mukim Plentong, 81700 Johor Bahru, Johor	0.51788
195	LEADERART INDUSTRIES (M) SDN. BHD.	Lot 6015 Bandar Johor Bahru Bandar Johor Bahru 80350 Johor	0.2913
196	LEADERART INDUSTRIES (M) SDN. BHD.	Sebahagian Lot 6015, Bandar Johor Bahru, Daerah Johor Bahru, Negeri Johor	0.2244
197	LIH MEI INDUSTRIAL SDN. BHD.	Sebahagian Lot 31606, Mukim Asam Kubang, 34600 Daerah Larut & Matang, Perak	0.6632
198	LIH MEI INDUSTRIAL SDN. BHD.	Sebahagian No. Lot 5835, Mukim Asam Kumbang, Daerah Larut & Matang, Negeri Perak	0.6628
199	LI HEN FURNITURE SDN. BHD.	No PTD 1465, Mukim Sg Raya, Daerah Muar, Negeri Johor.	0.43092
200	LINACO RESOURCES SDN. BHD.	Sebahagian No. Lot PT 17411, Mukim Kapar, Daerah Klang, 40000 Negeri Selangor	0.3
201	LIPTA PLASTIC INDUSTRIES SDN. BHD.	Lot 7788, Lot 7793 Dan Lot 7790, Mukim Kelemak, Daerah Alor Gajah, 41529 Melaka	0.28683
202	LOW FATT WOOD INDUSTRIES SDN. BHD.	Batu 20 Jalan K. Brang/ K. Terengganu, Ajil Mukim Tanggul Hulu Terengganu 21800 Terengganu	0.17466
203	LOW FATT WOOD INDUSTRIES SDN. BHD.	Sebahagian No. Lot 61, Mukim Tanggul, Daerah Hulu Terengganu, 21800 Negeri Terengganu	0.33661
204	LST COLD STORAGE (M) SDN. BHD.	Sebahagian Lot 52303, Mukim Bandar Selayang, 68100 Daerah Gombak, Negeri Selangor Darul Ehsan	0.47175
205	LY FURNITURE SDN. BHD.	Sebahagian PTD 47267, Mukim Simpang Kanan, 83000 Daerah Batu Pahat, Negeri Johor Darul Takzim	0.48004



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**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
206	LY FURNITURE SDN. BHD.	Sebahagian PTD 47267, Mukim Simpang Kanan, 83000 Daerah Batu Pahat, Negeri Johor Darul Takzim	0.561
207	MALAKOFF RADIANCE SDN. BHD.	Sebahagian No. Lot PT 5690, Mukim Gurun, Daerah Kuala Muda, 08300 Negeri Kedah	1.249
208	MALAKOFF RADIANCE SDN. BHD.	Lot 594, Seksyen 3. Lot 595 Seksyen 3 Dan No PT 336, Mukim Bandar Telok Panglima Garang, Daerah Kuala Langat, 42500 Selangor	1.248
209	MARAN TIMBER SDN. BHD.	No. PT 13027, Mukim Perak, Daerah Temerloh, Negeri Pahang	0.23
210	MARSAI JAYA ELEKTRIK SDN. BHD.	Sebahagian Di Sebahagian No. PTD 163160, Mukim Plentong, Daerah Johor Bahru, 81700 Johor Darul Takzim	0.198
211	MAYFRESH FROZEN SEA PRODUCTS SDN. BHD.	Sebahagian PT 1, Bandar Endau, Daerah Rompin, Negeri Pahang	0.21546
212	MAYFRESH FROZEN SEA PRODUCTS SDN. BHD.	Sebahagian PT 3091, Tempat Telok Seri Gading, Mukim Endau, Negeri Pahang	0.24948
213	MDC PRECAST INDUSTRIES SDN. BHD.	PT 567, Bandar Rasa, Daerah Ulu Selangor, 44200 Selangor	0.53125
214	MENARA KERJAYA FASTENERS SDN. BHD.	Sebahagian No. Lot 3590, 3591 Dan 3592, Mukim 15, Daerah Seberang Perai Selatan, 14100 Negeri Pulau Pinang	0.67232
215	MESTRON ENGINEERING SDN. BHD.	No. PT 60600, Rancangan Tanah Sungai Rasau, Mukim Dengkil, Daerah Sepang, Negeri Selangor.	0.30039
216	METROD (MALAYSIA) SDN. BHD.	Sebahagian No. PT 17304, Mukim Kapar, Daerah Klang, Negeri Selangor	0.4004
217	MFP SOLAR SDN. BHD.	Di No. Lot 11916, Mukim Hulu Bernam, Daerah Muallim, 35910 Perak	12.05544
218	MFP SOLAR SDN. BHD.	Di PT 5004, Mukim 13, Daerah Seberang Perai Selatan, 14100 Pulau Pinang	1.4784
219	MIROAD RUBBER INDUSTRIES SDN. BHD.	Sebahagian PTD 108999, Mukim Kulai, 81400 Daerah Kulai, Negeri Johor Darul Takzim	0.50597
220	MIROAD RUBBER INDUSTRIES SDN. BHD.	Lot 870, Sengkang, Mukim Senai, Daerah Kulai, 81000 Negeri Johor	0.40495
221	MIROAD RUBBER INDUSTRIES SDN. BHD.	PT 402, Mukim Pekula, Daerah Kuala Muda, 08600 Kedah	0.60698
222	MOHD REJAB SDN. BHD.	Sebahagian Lot 5500, Batu 27, Mukim Tanjong Minyak, 75260 Daerah Melaka Tengah, Negeri Melaka	0.55
223	MSBB ENGINEERING SDN. BHD.	Di Lot 3605, Mukim Sala Besar, Daerah Yan, 06800 Kedah	0.4002
224	MSHK ENGINEERING SDN. BHD.	Sebahagian Lot 3584, Mukim 03, 13200 Daerah Seberang Perai Utara, Negeri Pulau Pinang	0.3441
225	MTI TECHNIC INDUSTRIES SDN. BHD.	PT 1653 Mukim Kapar Klang 42000 Selangor	0.5733

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
226	MUDA PAPER MILLS SDN. BHD.	Sebahagian No Lot 1111, Lot 1110, Lot 775 & Lot 10217, Tasek, Mukim 01, 14120 Daerah Seberang Perai Selatan, Pulau Pinang	3.00024
227	MUDA PASIFIK SDN. BHD.	Sebahagian No. PTD 74901, Mukim Senai-Kulai, Daerah Johor Bahru, Negeri Johor	0.52
228	NATIONGATE SOLUTION (M) SDN. BHD.	Sebahagian Plot 44, 45, 46 & 47, Mukim 01, 13600 Daerah Seberang Perai Tengah, Negeri Pulau Pinang	0.34914
229	NE SURIA SATU SDN. BHD.	Di PT 1089, Bandar Shah Alam, Daerah Petaling, 40100 Selangor	0.88209
230	NE SURIA SATU SDN. BHD.	Lot 69676, Mukim Sungai Buloh, Daerah Petaling, 47810 Selangor	1.34271
231	NGEAM ENGINEERING WORKS SDN. BHD.	PT 129217 Mukim Klang Klang 41200 Selangor	0.37609
232	NICOM STEEL CENTRE (M) SDN. BHD.	11450, 11451, 11442 Kajang Hulu Langat 43650 Selangor	0.38445
233	NILAI MAYANG ENGINEERING SDN. BHD.	Sebahagian No PT 41567, Batu 12, Jalan Ayer Hitam-Puchong, Mukim Dengkil, 47120 Sepang, Selangor	0.10062
234	NINETY THREE SOON LEE COLD STORAGE SDN. BHD.	Sebahagian PT 63852, Mukim Klang, 42000 Daerah Klang, Selangor	0.138
235	NIPPON PAINT (M) SDN. BHD.	Sebahagian Lot 38246, Mukim Pekan Baru Hicom, Daerah Petaling, 40300 Selangor Darul Ehsan	0.657
236	NIPPON PAINT (M) SDN. BHD.	Sebahagian Lot 38245, Mukim Pekan Baru Hicom, Daerah Petaling, 40300 Selangor Darul Ehsan	1.11252
237	NOVA FRP SDN. BHD	Lot 11310, Mukim Beranang, Daerah Ulu Langat, Negeri Selangor	0.126
238	OCEAN FRESH SEAFOOD PRODUCTS SDN. BHD.	Lot 19869, Peramu, Mukim Kuala Kuantan, Daerah Kuantan, 26060 Pahang	0.47617
239	OEL DISTRIBUTION (PERAK) SDN. BHD.	Sebahagian PT 728, Mukim Hulu Kinta, 31200 Daerah Kinta, Negeri Perak Darul Ridzuan	0.51467
240	OEL DISTRIBUTION (JOHOR) SDN. BHD.	No PTD 100413, Mukim Senai, Daerah Kulaijaya, 81400 Negeri Johor.	0.5605
241	OEL DISTRIBUTION (KEDAH) SDN. BHD.	Sebahagian PT 955, Mergong, Bandar Alor Setar, 05150 Daerah Kota Setar, Kedah	0.6734
242	OEL DISTRIBUTION (PENANG) SDN. BHD.	Lot 20852, Mukim 13, Daerah Seberang Perai Tengah, 14100 Pulau Pinang	0.6734
243	OLYMPIC CABLE COMPANY SDN. BHD.	Sebahagian Lot 2921 & 2922, Mukim Krubong, 75250 Daerah Melaka Tengah, Melaka	0.5698
244	OLYMPIC RETREADS (M) SDN. BHD.	Sebahagian Plot 162, 163 Seksyen 3, Bandar Butterworth, Daerah Seberang Perai Utara, Negeri Pulau Pinang	0.5608
245	ONOSTATIC SDN. BHD.	Sebahagian PT 90869 Seksyen 1 & Lot 104397, Mukim Klang, 42900 Daerah Klang, Selangor	0.138

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
246	ONOSTATIC SDN. BHD.	PT 90869, Seksyen 9, Mukim Klang, Daerah Klang, 42900 Negeri Selangor	0.1104
247	ORIENTAL METAL INDUSTRIES (M) SDN. BHD.	Sebahagian No. Lot PT (HSD 72680), Mukim Bandar Shah Alam, Daerah Petaling, 40000 Negeri Selangor	0.3606
248	PACIFIC FOOD PRODUCTS SDN. BHD.	Sebahagian No. Lot 4337 Dan No. Lot 4338, Mukim Bukit Katil, Daerah Melaka Tengah, 75450 Negeri Melaka	1.82094
249	PACIFIC OLEOCHEMICALS SDN. BHD.	PTD 202517, Mukim Plentong, Daerah Johor Bharu, 81700 Johor	0.126
250	PACIFIC TRUSTEES BERHAD	61344 Mukim Pekan Senawang Seremban 70450 Negeri Sembilan	0.4251
251	PACIFIC TRUSTEES BERHAD	Sebahagian No. Lot PT 29330, Mukim Kajang, Daerah Ulu Langat, 43650 Negeri Selangor	0.32565
252	PANGKOR OIL MILL SDN. BHD.	Lot V-1, Mukim Setiawan, Daerah Manjung, 32000 Negeri Perak	1.0998
253	PANTAI SELAMAT PERAMU SDN. BHD.	Sebahagian PT 414 Ptp2/5605, Bandar Langgar, 26600 Daerah Pekan, Pahang	0.1549
254	PEMBINAAN TITIS JAYA SDN. BHD.	Lot 5035, Mukim Kulai, Daerah Kulaijaya, 81400 Johor	0.26255
255	PEMBINAAN TITIS JAYA SDN. BHD.	Lot 5035, Mukim Kulai, Daerah Kulaijaya, 81400 Johor	0.52243
256	PEMBINAAN TITIS JAYA SDN. BHD.	Lot 5035 Kulai Kulaijaya, Daerah Kulaijaya, 81400 Johor	0.09345
257	PERKUBURAN HOKKIEN BERSATU (THE UNITED HOKKIEN CEMETERIES)	Di Sebahagian Lot 20007, Mukim 14, 11060 Daerah Timor Laut, Pulau Pinang	0.12091
258	PERMATA UPAYA (M) SDN. BHD.	Sebahagian Lot 1228, 61 M.S Benta Kuantan Road, Mukim Pedah, 27150 Daerah Jerantut, Pahang	0.3
259	PERSATUAN PENGANUT AGAMA BUDDHA SHAH ALAM, SELANGOR (SHAH ALAM BUDDHIST SOCIETY)	Sebahagian No. PT 99640, Mukim Klang, Daerah Klang, 40460 Selangor	0.14
260	PETRONAS POWER SDN. BHD.	Di Sebahagian Lot 50664 Dan Pt 2700, Mukim Bota, Daerah Perak Tengah, Negeri Perak	7.3
261	PGF INSULATION SDN. BHD.	Lot 4710, Mukim 01, Daerah Seberang Perai Tengah, 13600 Pulau Pinang	0.57365
262	PLASTIK STC SDN. BHD.	Sebahagian PT 19770, Bt 16 Jln Subang Sungai Buluh, Mukim Sungai Buluh, 47000 Daerah Petaling, Selangor	0.12402
263	PLUS POINT PACKAGES SDN. BHD.	Sebahagian No. Lot 21744, Mukim Semenyih, Daerah Ulu Langat, 43500 Negeri Selangor	0.16632
264	PMT INDUSTRIES SDN. BHD.	Lot 1929, Mukim Klang, Daerah Klang, 42450 Selangor	0.49848
265	POLYPARTS SDN. BHD.	Sebahagian Lot 216742, 216743, 216744, 216745, Mukim Hulu Kinta, 30100 Daerah Kinta, Negeri Perak Darul Ridzuan	0.24564

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
266	POO TRADING IMPORT AND EXPORT SDN. BHD.	Sebahagian Lot 4529, Mukim 13, 14000 Daerah Seberang Perai Tengah, Negeri Pulau Pinang	0.2856
267	POWER PLUG BUSDUCT SDN. BHD.	Sebahagian PTD 5743, Mukim Jelutong, 79200 Daerah Johor Bahru, Johor	0.25515
268	POWER STEEL AND ELECTRO - PLATING WORKS SDN. BHD.	Sebahagian HSD 114582, Mukim Bandar Shah Alam, 40200 Daerah Petaling, Negeri Selangor	0.324
269	PREMIER WOODPROFILE SDN. BHD.	Sebahagian No. PT MLO 5502, Mukim Senai-Kulai, 81000 Daerah Johor Bahru, Negeri Johor Darul Takzim	0.38671
270	PRESTAR STORAGE SYSTEM SDN. BHD.	Sebahagian Lot 162 Seksyen 19, Mukim Bandar Rawang, 48000 Daerah Gombak, Negeri Selangor Darul Ehsan	0.44887
271	PRESTICO SDN. BHD.	Sebahagian PTD 68948, Mukim Tebrau, Daerah Johor Bahru, 81100 Johor Darul Takzim	0.57332
272	PRESTICO SDN. BHD.	Sebahagian PTD 154409, Mukim Tebrau, Daerah Johor Bahru, 81100 Johor Darul Takzim	0.57332
273	PROTIGAM FOOD INDUSTRIES SDN. BHD.	Sebahagian No. PT 677 Seksyen 4, Bandar Butterworth, Daerah Seberang Perai Utara, Negeri Pulau Pinang	0.26197
274	QL ENDAU FISHMEAL SDN. BHD.	PTD 4158, Mukim Padang Endau, Daerah Mersing, 86900 Negeri Johor	0.5166
275	QL FIGO (JOHOR) SDN. BHD.	Lot 3627, Mukim Kulai, Daerah Kulai, 81000 Johor.	2
276	QL KITCHEN SDN. BHD.	Lot 139, No 3a Bandar Shah Alam Petaling 40200 Selangor	0.33017
277	QL POULTRY FARMS SDN. BHD.	Sebahagian Lot 1338/22, Mukim Setul, 71700 Daerah Seremban, Negeri Sembilan	0.5733
278	RENEWABLES TECHNOLOGY SOLUTIONS SDN. BHD.	Sebahagian Lot 1003, Bandar Damansara, Daerah Petaling, Negeri Selangor	0.99664
279	RENOSUN SDN. BHD.	Sebahagian No PT 827, Mukim 13, Daerah Seberang Perai Tengah, 14000 Pulau Pinang	0.248
280	RICHFIELD FOOD INDUSTRY SDN. BHD.	PT 24 Pekan Subang Petaling 40150 Selangor	0.2184
281	RICHFIELD WORLDWIDE SDN. BHD.	PT 24 Pekan Subang Petaling 40150 Selangor	0.2244
282	RK SOUTH ASIA SDN. BHD.	Sebahagian PT 1074, Mukim 01, 13600 Daerah Seberang Perai Tengah, Pulau Pinang	0.6934
283	RONG HUA SHOE INDUSTRIES SDN. BHD.	Sebahagian Lot 52535, Mukim Hulu Kinta, 31450 Daerah Kinta, Negeri Perak	0.3731
284	RUHO CORPORATION SDN. BHD.	Lot 895 Mukim 09 Seberang Perai Utara 13020 Pulau Pinang	0.567
285	SANCTUARY HEALTH SDN. BHD.	Lot 198884, Mukim Hulu Kinta, Daerah Kinta, 31200 Negeri Perak	0.4599

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
286	SATRIA MEGAJUTA SDN. BHD.	Sebahagian No. Lot 6247, Mukim Pekan Sungai Gadut, Daerah Seremban, 71450 Negeri Sembilan	0.5236
287	SATRIA MEGAJUTA SDN. BHD.	Sebahagian No. Lot 6249, Mukim Pekan Sungai Gadut, Daerah Seremban, 71450 Negeri Sembilan	0.5236
288	SATRIA MEGAJUTA SDN. BHD.	Sebahagian No. Lot 6248, Mukim Pekan Sungai Gadut, Daerah Seremban, 71450 Negeri Sembilan	0.4312
289	SCHENKER LOGISTICS (MALAYSIA) SDN. BHD.	Lot 317-318 Sungai Petai Alor Gajah 78000 Melaka	0.44167
290	SEKOLAH MENENGAH SIN MIN (PERSENDIRIAN)	Sebahagian PT 3918, Mukim Derga, 05400 Daerah Kota Setar, Negeri Kedah	0.1602
291	SELAYANG UNGGUL SDN. BHD.	PTD 22781 Mukim Sungai Segamat Segamat 85000 Johor	0.31515
292	SENG FU TRADING SDN. BHD.	Sebahagian No 99, Jalan Feri Lama Tanjung Gemok, 26820 Rompin, Pahang	0.3766
293	SERAMBI IDAMAN SDN. BHD.	Lebuhraya K Lumpur- K Selangor KM - 19 Rawang 48000, Selangor	0.17248
294	SERAMBI IDAMAN SDN. BHD.	Lebuhraya K Lumpur - K Selangor KM 13 - Rawang 48000 Selangor	0.19888
295	SERAMBI IDAMAN SDN. BHD.	Lebuhraya K Lumpur - K Selangor KM 27 - Rawang 48000 Selangor	0.4136
296	SERAMBI IDAMAN SDN. BHD.	Lebuhraya K Lumpur - K Selangor KM 27 - Rawang 48000 Selangor	0.19932
297	SERAMBI IDAMAN SDN. BHD.	Plaza Tol Jln Ijok Spg Parit Mahang, Bukit Rotan, 45700 Kuala Selangor, Selangor	0.19932
298	SERBA WANGI JH SDN. BHD.	Sebahagian PTD 41662, Mukim Senai-Kulai, 81400 Daerah Johor Bahru, Negeri Johor	0.57352
299	SHANG WEI INDUSTRIES SDN. BHD.	Sebahagian PTD 148102, Mukim Plentong, 81700 Daerah Johor Bahru, Negeri Johor Darul Takzim	0.57376
300	SHENG WANG INDUSTRIES SDN. BHD.	Sebahagian Lot 5797, Batu 28, Mukim Jeram Batu, 81500 Daerah Pontian, Johor	0.3822
301	SHOON TEET PAPER BOXES MANUFACTURER SDN. BHD.	Sebahagian No. PT 2051, Tempat Batang Kali, Mukim Batang Kali, Daerah Hulu Selangor, Negeri Selangor	0.1564
302	SIME KANSAI PAINTS SDN. BHD.	Sebahagian No. PT 3502, Mukim Kapar, Daerah Klang, Negeri Selangor	0.4255
303	SIN LIENG ENTERPRISE SDN. BHD.	Lot 3301 Mukim Senai Kulaijaya 81000 Johor	0.44792
304	SMT TECHNOLOGIES SDN. BHD.	Sebahagian Lot PT 8543, Mukim Bandar Sungai Petani, Daerah Kuala Muda, 08000 Kedah	1.2
305	SOFLEX RUBBER & URETHANE SDN. BHD.	Sebahagian No. Lot 726, Tempat Batu 3/4, Jalan Kapar, Mukim Kapar, Daerah Klang, Negeri Selangor	0.40495

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
306	SOLARCITY REIT SDN. BHD.	Sebahagian Lot 1064, Bandar Kluang, Daerah Kluang, Negeri Johor	0.22088
307	SOLARCITY REIT SDN. BHD.	Sebahagian Lot 1064, Bandar Kluang, Daerah Kluang, Negeri Johor	0.22088
308	SOLARCITY REIT SDN. BHD.	Sebahagian Lot 2773, 2774 Dan 3031, Tempat Kluang, Mukim Kluang, Daerah Kluang, Negeri Johor	0.531
309	SOLARCITY REIT SDN. BHD.	Sebahagian Lot 7067 Dan 7068, Tempat Batu 9 Jalan Ayer Hitam, Mukim Kluang, Daerah Kluang, Negeri Johor	0.531
310	SOLARCITY REIT SDN. BHD.	Lot 3023, Tempat Kluang, Mukim Kluang, Daerah Kluang, Negeri Johor	0.214
311	SOLARCITY REIT SDN. BHD.	Di Sebahagian No. Lot 107153, Mukim Bandar Ipoh (U), Daerah Kinta, 30450 Negeri Perak	0.55
312	SOLARCITY REIT SDN. BHD.	Di Sebahagian No. Lot 107153, Mukim Bandar Ipoh (U), Daerah Kinta, 30450 Negeri Perak	0.431
313	SONYU PLASTIC INDUSTRIES SDN. BHD.	Sebahagian No. PT 11591, Mukim Klang, Daerah Klang, Negeri Selangor	0.30318
314	SOON BEE CHAN RICE MILL SDN. BHD.	Sebahagian No. Lot 2209, Mukim 5, Daerah Seberang Perai Utara, 13200 Negeri Pulau Pinang	0.55314
315	SOUTH ISLAND GARMENT SDN. BHD.	Sebahagian HS D 2853 Sementara, PT 1577, Mukim Seberang Perai, 13600 Seberang Perai, Pulau Pinang	0.66066
316	SOUTH ISLAND PLASTICS SDN. BHD.	Sebahagian Lot 187 & Pt 3406, Mukim 01, 13600 Daerah Seberang Perai Tengah, Pulau Pinang	0.52668
317	SPPB GROUP SDN. BHD.	Sebahagian No. Lot 3999, Mukim Bandar Bukit Kayu Hitam, Daerah Kubang Pasu, 06150 Negeri Kedah	0.23318
318	STRATA PARK (M) SDN. BHD.	Sebahagian PT 8901, Mukim Klang, 42000 Daerah Klang, Negeri Selangor	0.42485
319	SUNWAY PFM SDN. BHD.	Sebahagian Lot 62225, Bandar Sunway, 47500 Daerah Petaling, Selangor	0.20416
320	SUPERB ALUMINIUM INDUSTRIES SDN. BHD.	Sebahagian No. Lot 3211, Mukim Beranang, Daerah Ulu Langat, Negeri Selangor	0.6048
321	SUPREME EVA INDUSTRIES SDN. BHD.	Sebahagian No. Lot 7829, 7830, 7831, 7832, 7833, 7834, 7835, 7836, 7837, 7838 Dan 7839 Mukim Kelemak, Daerah Alor Gajah, 78000 Negeri Melaka	0.6231
322	SWEET HOME CANDIED PRODUCTS SDN. BHD.	Sebahagian PT 2102, Bandar Kundang, 48000 Daerah Gombak, Selangor	0.4131
323	SYARIKAT KILANG BERAS CEGAR JAYA SDN. BHD.	Sebahagian No. Lot 4255, Tempat Hutan Hidup, Mukim Kerandang, Daerah Besut, Negeri Terengganu	0.57365
324	SYARIKAT NAM AH SDN. BHD.	Lot 65584 dan Lot 1101, Mukim Hulu Kinta, Daerah Kinta, 31400 Perak	0.5736
325	SYARIKAT PENDIDIKAN STAFFIELD BERHAD	Sebahagian Lot 6320, Mukim Setul, Daerah Seremban, 71700 Negeri Sembilan	0.2574

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
326	SYARIKAT PENDIDIKAN STAFFIELD BERHAD	Sebahagian Lot 6320, Mukim Setul, Daerah Seremban, 71700 Negeri Sembilan	0.2244
327	SYARIKAT PENDIDIKAN STAFFIELD BERHAD	Sebahagian Lot 6320, Mukim Setul, Daerah Seremban, 71700 Negeri Sembilan	0.24123
328	SYARIKAT PENDIDIKAN STAFFIELD BERHAD	Sebahagian Lot 6320, Mukim Setul, Daerah Seremban, 71700 Negeri Sembilan	0.2376
329	SYNCHONG HOE ENGINEERING SDN. BHD.	Sebahagian Lot 1314, Mukim 19, 14000 Daerah Seberang Perai Tengah, Pulau Pinang	0.26004
330	T. H. MINERAL WATER INDUSTRIES (M) SDN. BHD.	Sebahagian No. Lot 627, Tempat Wang Mu, Mukim Titi Tinggi, Negeri Perlis	0.41
331	T.H.L. SOFA SDN. BHD.	Sebahagian Lot 305011, Mukim Hulu Kinta, 31200 Daerah Kinta, Perak	0.2984
332	TAIKO DRUM INDUSTRIES SDN. BHD.	Lot 2319, Mukim Sungei Udang, Daerah Melaka Tengah, 76400 Melaka	1.00012
333	TAKO ASTATIC TECHNOLOGY SDN. BHD.	Lot 11278 Mukim Beranang Ulu Langat 43700 Selangor	0.283
334	TAMPOI ENTERPRISE SDN. BHD.	Sebahagian PTD 127743, Mukim Tebrau, 81300 Daerah Johor Bahru, Johor	0.152
335	TAN CHEE SENG SAWMILL SDN. BHD.	Lot 70068, Mukim Ulu Kinta, Daerah Kinta, 31400 Perak	0.15
336	TANAH SUTERA DEVELOPMENT SDN. BHD.	Sebahagian No. Lot 114247, Mukim Pulai, Daerah Johor Bahru, 81200 Negeri Johor	0.57138
337	TASTIWAY SDN. BHD.	Sebahagian No. Lot PT 1973, Mukim Malau, Daerah Kubang Pasu, 06000 Negeri Kedah	0.5736
338	TD FURNITURE SQUARE SDN. BHD.	Lot 383695 Mukim Hulu Kinta Kinta 31500 Perak	0.2244
339	TD FURNITURE SQUARE SDN. BHD.	Lot 383695 Mukim Hulu Kinta Kinta 31500 Perak	0.28028
340	TELEFLEX MEDICAL SDN. BHD.	Di Sebahagian No. Lot 30703, Mukim Asam Kumbang, Daerah Larut & Matang, Negeri Perak	0.99351
341	TELEFLEX MEDICAL SDN. BHD.	Sebahagian Lot 14420, Mukim Asam Kumbang, Daerah Larut & Matang, 34600 Negeri Perak Darul Ridzuan	1.23255
342	TELEFLEX MEDICAL SDN. BHD.	Lot 30703, Mukim Asam Kumbang, Daerah Larut Dan Matang, 34600 Perak	0.31084
343	TENAGA TIUB SDN. BHD.	Sebahagian No. Lot 8315, Mukim Setul, Daerah Seremban, 71800 Negeri Sembilan	0.20003
344	TEO SENG FARMING SDN. BHD.	Sebahagian Lot 5512 & 7850, Mukim Tj Semberong, 83700 Daerah Batu Pahat, Johor	0.1672
345	TEO SENG FARMING SDN. BHD.	Sebahagian Lot 1309, Mukim Chaah Bahru, 83700 Daerah Batu Pahat, Johor	0.3366

**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
346	TEO SENG FARMING SDN. BHD.	Sebahagian Lot 7417, Mukim Tanjong Sembrong, 83700 Daerah Batu Pahat, Negeri Johor Darul Takzim	0.1672
347	TEO SENG FARMING SDN. BHD.	Sebahagian No. Lot 160, Tempat Kangkar Serom, Mukim Tanjong Sembrong, Daerah Batu Pahat, Negeri Johor	0.1672
348	TEO SENG FARMING SDN. BHD.	Lot 3532, Mukim Caah Bahru, Daerah Batu Pahat, Negeri Johor.	0.2242
349	TEO SENG FARMING SDN. BHD.	Sebahagian No. Lot 2659, Tempat Batu 5 1/2, Jalan Labis, Mukim Chaah Bahru, Daerah Batu Pahat, Negeri Johor	0.1672
350	TEO SENG PAPER PRODUCT SDN. BHD.	Sebahagian No. PTD 30301, Tempat Bt 65 1/2, Jalan Ayer Hitam, Mukim Tanjong Sembrong, Daerah Batu Pahat, Negeri Johor Darul Takzim	0.4484
351	TEONG FATT COMMODITIES (M) SDN. BHD.	Lot 4181, Mukim 06, Daerah Seberang Perai Tengah, 14000 Pulau Pinang	0.22
352	THREE CAST (MALAYSIA) SDN. BHD.	Lot 15133, Lot 15134, Lot 15139 & Lot 15140, Mukim Jeram Batu, Daerah Pontian, 81500 Negeri Johor	0.6075
353	THUMBPRINTS UTD. SDN. BHD.	Lot 175 Seksyen 19, Bandar Rawang, Daerah Gombak, 48000 Selangor	0.176
354	TONN CABLE SDN. BHD.	Sebahagian No. Lot PT 54, Mukim Bandar Batu 26, Beranang, Daerah Ulu Langat, 43700 Negeri Selangor	0.7
355	TRI SYSTEMS ENGINEERING SDN. BHD.	Lot 78642, Mukim Damansara, Daerah Petaling, 40150 Selangor	0.1224
356	TSM FORGING & MACHINING SDN. BHD.	Sebahagian Lot 60917, Mukim Kapar, 41200 Daerah Klang, Negeri Selangor	0.321
357	UB ACRYLIC (M) SDN. BHD.	Sebahagian No. PT 8450, Mukim Lenggeng, Daerah Seremban, Negeri Sembilan	0.3
358	ULTIMATE CHOICE (M) SDN. BHD.	Sebahagian PTD 58316, Mukim Pulai, 81100 Johor Bahru, Johor	0.12804
359	UNIQUE FROZEN FOOD (M) SDN. BHD.	Lot 205164, Mukim 13, Daerah Seberang Perai Tengah, 14100 Negeri Pulau Pinang	0.3168
360	UNITED DETERGENT INDUSTRIES SDN. BHD.	Sebahagian No. Lot 14620, Mukim Sungai Petai, Daerah Alor Gajah, Negeri Melaka	0.44011
361	UNITED SOLAR ENERGY (MALAYSIA) SDN. BHD.	Lot 312489, Mukim Hulu Kinta, Daerah Kinta, Negeri Perak	0.3029
362	UNITED SOLAR ENERGY (MALAYSIA) SDN. BHD.	Lot 145, Mukim Parit Buntar, Daerah Kerian, 32610 Negeri Perak	0.1092
363	VARIOUS RESOURCES (M) SDN. BHD.	Lot 39637, Mukim Senai, Daerah Kulim jaya, 81400 Negeri Johor	0.1836
364	VERMI INDUSTRIES SDN. BHD.	No. PT PTD 114147, Mukim Senai, Daerah Kulai, Negeri Johor	0.56144
365	WANG LOO MOTOR (JB) SDN. BHD.	Sebahagian No. Lot PTD 181613, Mukim Pulai, Daerah Johor Bharu, 81300 Negeri Johor	0.18172



**Apendiks 18: Lesen Net Energy Metering (NEM) yang dikeluarkan pada 2021**  
**Appendix 18: Net Energy Metering (NEM) Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
366	WANG LOO MOTOR SDN. BHD.	Sebahagian No. Lot PTD 101314, Mukim Pulai, Daerah Kulaijaya, 81400 Negeri Johor	0.1122
367	WANSERN FOAM INDUSTRY SDN. BHD.	Sebahagian PTD 12954, Mukim Sri Medan, 83400 Daerah Batu Pahat, Negeri Johor	0.3098
368	WATERWORLD NETWORK SDN. BHD.	Sebahagian PT 50283, Jaya Gading, Mukim Kuala Kuantan, 25150 Kuantan, Pahang	0.41228
369	WIDETECH MANUFACTURING SDN. BHD.	No. PT 6620 Dan PT 6621, Mukim 12, Daerah Barat Daya, 11900 Pulau Pinang	1.1
370	WIRE MASTER SPRING SDN. BHD.	No.PT 208, Mukim 13, Daerah Seberang Perai Tengah, 14100 Negeri Pulau Pinang	0.18765
371	WT PLASTIC PRODUCTS SDN. BHD.	Sebahagian No. Lot PT 50840, PT 50848 Dan PT 50849, Mukim Kapar, Daerah Klang, 42200 Negeri Selangor	0.657
372	YEO AIK HEVEA (M) SDN. BHD.	Part of No. Lot 15024 Dan No. Lot 15025, Mukim Grisek, Daerah Ledang, 84700 Johor	0.50224
373	YEO AIK HEVEA (M) SDN. BHD.	Part of No. Lot 15016 dan No. Lot 15017, Mukim Grisek, Daerah Ledang, 84700 Johor	0.2555
374	YEO AIK HEVEA (M) SDN. BHD.	Sebahagian No. Lot 2611, Mukim Sungei Rambai, Daerah Jasin, 77400 Negeri Melaka	0.45771
375	YONG KAH PACKAGING INDUSTRIES SDN. BHD.	Sebahagian No. PTD 8552, Tempat Renggam, Mukim Renggam, Daerah Kluang, Negeri Johor	0.2492
376	YONG LEE CHAN SDN. BHD	Sebahagian Lot 4744, Mukim Simpang Kanan, Daerah Batu Pahat, Negeri Johor	0.304
377	YONGTA STEEL INDUSTRIES SDN. BHD	PT 30510 Bandar Sungai Petani Kuala Muda 08000 Kedah	0.55968
378	YS FOAM INDUSTRIES SDN. BHD.	Lot 7276, Mukim Parit Buntar, Daerah Kerian, Negeri Perak	0.36
379	YUEN CHUN INDUSTRIES SDN. BHD.	Sebahagian Lot 34654, Bandar Baru Enstek, 71760 Daerah Seremban, Negeri Sembilan	0.4
380	ZW PACKAGING SDN. BHD.	Sebahagian PT 3194, Mukim 01, 13600 Daerah Seberang Perai Tengah, Pulau Pinang	0.10553

## Apendiks 19: Lesen Pengagihan Elektrik yang dikeluarkan pada 2021 Appendix 19: Electricity Distribution Licences Issued in 2021

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
1	ASTON VILLA SDN. BHD	480188 Mukim Kuala Lumpur Kuala Lumpur 58200 Wilayah Persekutuan	21.25
2	BADAN PENGURUSAN BERSAMA RIVIERA BAY CONDOMINIUM	No. Lot 332, Mukim Pekan Tanjong Kling Seksyen III, Daerah Melaka Tengah, 76400, Melaka	5.1
3	BATARAS SDN. BHD.	Bataras Hypermarket Tawau, Di No. Lot CL 105466055, Mukim Jalan Datuk Chong Thien Yun, Off Jalan Apas, Daerah Tawau, 91000 Sabah	2.72
4	BATARAS SDN. BHD.	Bataras Hypermarket Kolompong, Di No. Lot CL 015484974, CL 015484983, CL 015473211, Mukim Mile 5 1/2 Jalan Tuaran, Kolompong, Daerah Kota Kinabalu, 88450 Sabah	2.125
5	BATARAS SDN. BHD.	Bataras Hypermarket Sandakan, Di No. Lot CL 075552840, Mukim IJM Commercial Complex Utama Place 3, Bandar Utama, Jalan Batu 6, Daerah Sandakan, 90000 Sabah	1.7
6	BATARAS SDN. BHD.	Bataras Hypermarket Keningau, No. Lot PL 136207353, Kampung Tuarid Taud, 89000, Keningau, Sabah	1.7
7	BRIDGE DATA CENTRES MALAYSIA SDN. BHD.	Lot PT 12144 Dan PT 12145, Mukim Dengkil, Daerah Sepang, 63000, Selangor	21.25
8	CSF ADVISERS SDN. BHD.	PT 12125 Dengkil Sepang 63000 Selangor	7.055
9	EXOPURI DEVELOPMENT SDN. BHD.	Juru Sentral, Di Sebahagian No. Lot PT 50522, Mukim 11, Daerah Seberang Perai Tengah, 14000 Negeri Pulau Pinang	5.95
10	FOREST CITY ELECTRICITY SDN. BHD.	PTD 5087, PTD 5088, PTD 5089, PTD 5090 Tanjung Kupang Johor Bahru 81550 Johor	42.5
11	GREAT EASTERN LIFE ASSURANCE (MALAYSIA) BERHAD	Menara Great Eastern 2, Di No. Lot PT 4 Seksyen 68, Mukim Bandar Kuala Lumpur, Daerah Kuala Lumpur, 50450 Wilayah Persekutuan	4.08
12	GREENHILL RESOURCES SDN. BHD.	Kompleks Membeli-Belah Setia City Mall, Di No. Lot 89908 & Lot 89909, Mukim Bukit Raja, Daerah Petaling, 40170 Petaling Jaya, Selangor	17
13	GSL DEVELOPMENT SDN. BHD.	51888 Mukim Kuala Lumpur, 60000 Wilayah Persekutuan Kuala Lumpur	6.8
14	HUNZA PROPERTIES (PENANG) SDN. BHD.	No. Lot 2960 Seksyen 1, Mukim Bandar George Town, Daerah Timur Laut, 10250, Pulau Pinang	15.725
15	ICSD VENTURES SDN. BHD.	Kompleks Membeli-Belah Harbour Mall Sandakan, Di No. Lot T.L. 077579394, Mukim Sandakan, Daerah Sandakan, 90000 Sabah	5.44
16	JASA IMANI SDN. BHD.	Lot 1442 Seksyen 20 Kuala Kuantan Kuantan 25200 Pahang	5.1
17	LQ RETAIL SDN. BHD.	The Exchange TRX Retail Mall, Di Sebahagian No. Lot 20053 Seksyen 67, Mukim Bandar Kuala Lumpur, Daerah Kuala Lumpur, 55188 Wilayah Persekutuan Kuala Lumpur	34
18	MALAYSIA AIRPORTS SDN. BHD.	Lot TK1, TK2,TK3,PT230,945,824,831,828,001061 Anak Bukit Kota Setar 06550 Kedah	3.4
19	MALAYSIA AIRPORTS SDN. BHD.	TK1 Lapangan Terbang Sandakan 90719 Sabah	2.5
20	MALAYSIA AIRPORTS SDN. BHD.	Lot PT 92010207, TK1,TK2 & TK3 ,PT 92210081 Kota Kinabalu Kota Kinabalu 88740 Sabah	5.5

**Apendiks 19: Lesen Pengagihan Elektrik yang dikeluarkan pada 2021**  
**Appendix 19: Electricity Distribution Licences Issued in 2021**

BIL. NO.	NAMA PEMEGANG LESEN LICENSEE'S NAME	ALAMAT PEPASANGAN ADDRESS OF INSTALLATION	KAPASITI DILESEN (MW) LICENSED CAPACITY (MW)
21	MALAYSIA AIRPORTS SDN. BHD.	Lapangan Terbang Tawau Apas Tawau 91011 Sabah	2.5
22	MEGA CONTINENTAL SDN. BHD.	Kompleks Membeli-Belah Star Mall Alor Setar, Di No. Lot PT 4310, Mukim Bandar Alor Setar, Daerah Kota Setar, 05150 Negeri Kedah	4.42
23	MTRUSTEE BERHAD	No. Lot 5626 Seksyen 1, Mukim Bandar George Town, Daerah Timor Laut, 10250 Pulau Pinang	20.4
24	MTRUSTEE BERHAD	Kompleks Membeli-Belah The Mines Di No. Lot PT 16722, Mukim Petaling, Daerah Petaling, 43300, Selangor	11.9
25	NAZA UTILITIES SDN. BHD.	Met 1 @ KI Metropolis, Di Sebahagian No. Lot PT 50129, Mukim Batu, Daerah Kuala Lumpur, 50480 Wilayah Persekutuan Kuala Lumpur	20.4
26	PBB VIVA JMB	Viva Mall Pusat Beli Belah, PT 4, Jalan Loke Yew Sec 91A Cheras Kuala Lumpur 55200 Wilayah Persekutuan	21.335
27	PENANG PORT SDN. BHD. (BWCT)	Plot A Seksyen 4 Bandar Butterworth Seberang Perai Utara 12200 Pulau Pinang	8.29
28	PENANG PORT SDN. BHD. (NBCT)	PT 765 Seksyen 4 Bandar Butterworth Seberang Perai Utara 12200 Pulau Pinang	51
29	PENANG PORT SDN. BHD. (PBCT)	PT 4 Bandar Prai Seberang Perai Tengah 13600 Pulau Pinang	5
30	PENANG PORT SDN. BHD. (PW)	Lot 10057 Bandar Prai Seberang Perai Tengah 12200 Pulau Pinang	0.85
31	PENDIDIKAN INDUSTRI YS SDN. BHD.	Lot Pt 6231, Mukim Batang Berjantai, Daerah Kuala Selangor, Negeri Selangor	11.05
32	PERBADANAN PENGURUSAN KOMPLEKS KENANGA WHOLESALE CITY (PPKKWC)	477 Bandar Kuala Lumpur Kuala Lumpur 55200 Wilayah Persekutuan	14.45
33	PETRONAS CHEMICALS MTBE SDN. BHD.	Lot 111, 112 Gebeng Kuantan 26080 Pahang	20
34	PROJEK LEBUHRAYA USAHASAMA BERHAD	57 Lokasi Di Semenanjung Malaysia	6.993
35	RHB TRUSTEES BERHAD	Kompleks Membeli-Belah Sunway Pyramid Shopping Centre, Lot 32, Part of Lot PT 161 And Lot 51175, Mukim Bandar Sunway, Daerah Petaling, 46150, Selangor	22.95
36	TESCO STORES (M) SDN. BHD.	Lot No. PTD 196924, Mukim Tebrau, Daerah Johor Bahru, 81200 Johor	1.7
37	TIARAWOODS SDN. BHD.	Lot 1035, Lot 3571, Lot 3572, Lot 340, Lot 1032 Mukim Batu Kuala Lumpur 51200 Wilayah Persekutuan	2.2
38	UMLAND MEDINI LAKESIDE DEVELOPMENT SDN. BHD.	No. PTD 200493, Mukim Pulai, Daerah Johor Bahru, Poskod 79250, Negeri Johor Darul Takzim	23.97
39	UOA GOLDEN PINES SDN. BHD.	Lot Baru 480782, Jalan Tasik Permaisuri 2 Bandar Tun Razak Kuala Lumpur 56000 Wilayah Persekutuan	4.46

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