



KEMENTERIAN EKONOMI
JABATAN PERANGKAAN MALAYSIA

SISTEM PERAKAUNAN EKONOMI - ALAM SEKITAR

SYSTEM OF ENVIRONMENTAL -
ECONOMIC ACCOUNTING

MySEEA PSUT TENAGA 2016 - 2021 ENERGY

Jadual Fizikal Penawaran & Penggunaan: **Akaun Tenaga**
*Physical Supply & Use Table: **Energy Account***



JABATAN PERANGKAAN MALAYSIA
DEPARTMENT OF STATISTICS MALAYSIA



KEMENTERIAN EKONOMI
JABATAN PERANGKAAN MALAYSIA

SISTEM PERAKAUNAN EKONOMI-ALAM SEKITAR
JADUAL FIZIKAL PENAWARAN & PENGGUNAAN: AKAUN TENAGA
(MySEEA PSUT Tenaga)

**SYSTEM OF ENVIRONMENTAL-ECONOMIC ACCOUNTING
PHYSICAL SUPPLY & USE TABLE: ENERGY ACCOUNT
(MySEEA PSUT Energy)
2016 - 2021**

Pemakluman

Jabatan Perangkaan Malaysia (DOSM) sedang melaksanakan **Banci Ekonomi 2026 (BE2026)** dengan tema “**Data Nadi Ekonomi Rakyat**”. Pelaksanaan Banci Ekonomi kali keenam ini berlangsung **dari 5 Januari hingga 31 Oktober 2026**. BE2026 bertujuan untuk mengumpul data yang menyeluruh dan berstruktur daripada semua pertubuhan perniagaan berdaftar dan tidak berdaftar di Malaysia, bagi menilai prestasi, struktur serta ciri-ciri ekonomi negara secara komprehensif dan berasaskan bukti.

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Announcement

*The Department of Statistics Malaysia (DOSM) is conducting the **Economic Census 2026 (BE2026)**, with themed “**Data Nadi Ekonomi Rakyat**”. The sixth Economic Census, will be carried out from **5th January to 31st October 2026**. BE2026 aims to collect comprehensive and structured data from all registered and unregistered business establishments in Malaysia to assess the nation’s economic performance, structure and characteristics in an evidence-based manner.*

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Tel. : 03-8885 7000
Faks : 03-8888 9248
Portal : <https://www.dosm.gov.my>

Facebook / X / Instagram / YouTube : StatsMalaysia
E-mel / *E-mail* : info@dosm.gov.my (pertanyaan umum / *general enquiries*)
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KATA PENGANTAR

Sistem Perakaunan Ekonomi - Alam Sekitar, Jadual Fizikal Penawaran & Penggunaan: Akaun Tenaga, Malaysia (MySEEA PSUT Tenaga) 2016 - 2021 memaparkan statistik penawaran dan penggunaan tenaga di Malaysia. Statistik ini disusun berdasarkan konsep dan garis panduan yang disarankan dalam *System of Environmental - Economic Accounting Central Framework* (SEEA CF) oleh *United Nations*.

Laporan ini diterbitkan bertujuan untuk merekodkan sumbangan alam semula jadi kepada ekonomi dan menunjukkan aliran sumber semula jadi daripada alam sekitar kepada penawaran dan penggunaan tenaga dalam ekonomi. Maklumat ini akan menjadi input yang digunakan dalam pembentukan, pelaksanaan dan pemantauan dasar di peringkat nasional dan antarabangsa.

Bahagian pertama penerbitan ini memaparkan penemuan utama dan ringkasan penemuan. Jadual statistik dipaparkan di bahagian kedua. Manakala bahagian ketiga pula menerangkan aspek teknikal seperti skop & liputan dan konsep & definisi yang digunakan bagi memudahkan pengguna memahami statistik yang diterbitkan.

Jabatan merakamkan setinggi-tinggi penghargaan atas kerjasama yang diberikan oleh semua pihak yang telah terlibat dalam penyediaan penerbitan ini. Setiap maklum balas dan cadangan penambahbaikan penerbitan pada masa akan datang amat dihargai.

SITI ASIAH AHMAD

Ketua Perangkawan Malaysia

September 2026

PREFACE

The System of Environmental - Economic Accounting, Physical Supply and Use Table: Energy Accounts, Malaysia (MySEEA PSUT Energy) 2016 - 2021 presents statistics on energy supply and use in Malaysia. These statistics are compiled based on the concepts and guidelines recommended in the System of Environmental - Economic Accounting Central Framework (SEEA CF) by the United Nations.

This report is published to record the contribution of natural resources to the economy and to demonstrate the flow of natural resources from the environment to the supply and use of energy within the economy. The information serves as an input for the formulation, implementation and monitoring of policies at the national and international levels.

The first section of this publication presents the key findings and a summary of the findings. The statistical tables are presented in the second section. While the third section describes the technical aspect, including the scope & coverage and the concepts & definitions used to facilitate users' understanding of the published statistics.

The Department would like to express its highest appreciation for the cooperation and support provided by all parties involved in the preparation of this publication. Any feedback and suggestions for improving future editions of this publication are highly appreciated.

SITI ASIAH AHMAD

Chief Statistician, Malaysia

September 2026

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PENEMUAN UTAMA

MAIN FINDINGS

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KEMENTERIAN EKONOMI
JABATAN PERANGKAAN MALAYSIA

MYSEEA PSUT AKAUN TENAGA, MALAYSIA, 2020 & 2021

Kilo Tonne of Oil Equivalent (KTOE)



ALAM SEKITAR

SUMBER DARIPADA ALAM
SEMULA JADI

**JUMLAH TENAGA
INPUT SEMULA JADI** 2021 : 107,282
2020 : 105,054

**TENAGA TIDAK
BOLEH BAHARU** 2021 : 103,170
2020 : 101,239

Gas asli 2021 : 75,820
2020 : 72,578

Minyak mentah 2021 : 25,389
2020 : 26,783

Arang batu & kok 2021 : 1,961
2020 : 1,878

**TENAGA BOLEH
BAHARU** 2021 : 4,112
2020 : 3,815

Kuasa hidro 2021 : 2,676
2020 : 2,348

Solar 2021 : 186
2020 : 181

Bioisim 2021 : 150
2020 : 232

Biogas 2021 : 99
2020 : 142

Biodiesel 2021 : 1,001
2020 : 912

PENGUNAAN PRODUK TENAGA

Pertanian 2021 : 738
2020 : 724

Perlombongan & pengkuarian 2021 : 936
2020 : 903

Pembuatan 2021 : 88,103
2020 : 89,617

Pembinaan 2021 : 1,529
2020 : 1,509

Perkhidmatan 2021 : 49,777
2020 : 51,403

Isi rumah 2021 : 12,700
2020 : 13,598

Eksport 2021 : 57,555
2020 : 49,514

PENAWARAN DAN PENGGUNAAN PRODUK TENAGA 2021 : 206,844 | 2020 : 205,178



PENAWARAN PRODUK TENAGA

**PERLOMBONGAN
& PENGKUARIAN** 2021 : 88,793
2020 : 89,410

Gas asli 2021 : 61,459
2020 : 60,876

Minyak mentah 2021 : 25,373
2020 : 26,656

Arang batu & kok 2021 : 1,961
2020 : 1,878

PERKHIDMATAN 2021 : 15,531
2020 : 15,043

Elektrik 2021 : 12,855
2020 : 12,695

Kuasa hidro 2021 : 2,676
2020 : 2,348



PEMBUATAN 2021 : 49,138
2020 : 50,400

LNG 2021 : 24,802
2020 : 26,155

Produk petroleum 2021 : 22,798
2020 : 22,259

Elektrik 2021 : 537
2020 : 1,074

Lain-lain 2021 : 1,001
2020 : 912

IMPORT 2021 : 53,382
2020 : 50,325

Gas asli 2021 : 6,048
2020 : 5,516

LNG 2021 : 1,996
2020 : 2,939

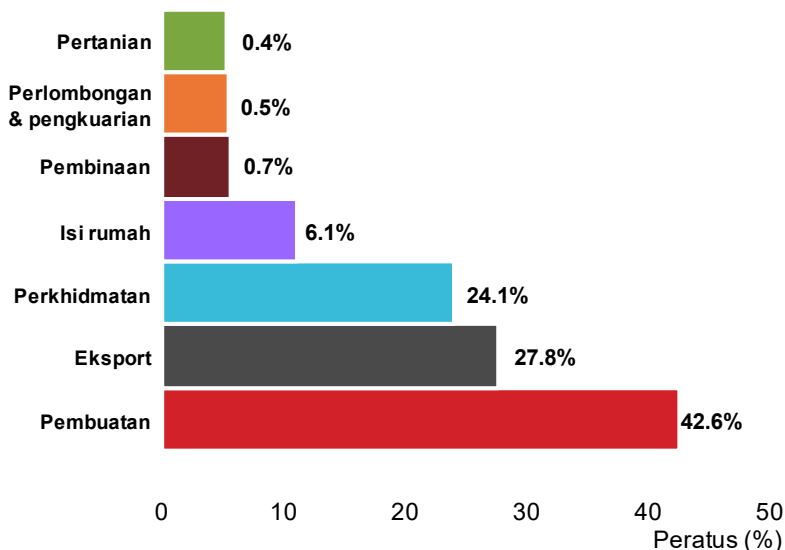
Minyak mentah 2021 : 6,557
2020 : 6,969

Produk petroleum 2021 : 18,331
2020 : 12,588

Arang batu & kok 2021 : 20,355
2020 : 22,236

Lain-lain 2021 : 95
2020 : 77

PENGUNAAN PRODUK TENAGA, 2021 (%)



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MINISTRY OF ECONOMY
DEPARTMENT OF STATISTICS MALAYSIA

MYSEEA PSUT ENERGY ACCOUNT, MALAYSIA, 2020 & 2021

Kilo Tonne of Oil Equivalent (KTOE)



ENVIRONMENT

INPUTS FROM NATURAL
RESOURCES

**TOTAL ENERGY
NATURAL INPUTS** 2021 : 107,282
2020 : 105,054

**NON-RENEWABLE
ENERGY** 2021 : 103,170
2020 : 101,239

Natural gas 2021 : 75,820
2020 : 72,578

Crude oil 2021 : 25,389
2020 : 26,783

Coal & coke 2021 : 1,961
2020 : 1,878

**RENEWABLE
ENERGY** 2021 : 4,112
2020 : 3,815

Hydropower 2021 : 2,676
2020 : 2,348

Solar 2021 : 186
2020 : 181

Biomass 2021 : 150
2020 : 232

Biogas 2021 : 99
2020 : 142

Biodiesel 2021 : 1,001
2020 : 912

SUPPLY AND USE OF ENERGY PRODUCTS

2021 : 206,844 | 2020 : 205,178



SUPPLY OF ENERGY PRODUCTS

**MINING &
QUARRYING** 2021 : 88,793
2020 : 89,410

Natural gas 2021 : 61,459
2020 : 60,876

Crude oil 2021 : 25,373
2020 : 26,656

Coal & coke 2021 : 1,961
2020 : 1,878

MANUFACTURING 2021 : 49,138
2020 : 50,400

LNG 2021 : 24,802
2020 : 26,155

Petroleum products 2021 : 22,798
2020 : 22,259

Electricity 2021 : 537
2020 : 1,074

Others 2021 : 1,001
2020 : 912

SERVICES 2021 : 15,531
2020 : 15,043

Electricity 2021 : 12,855
2020 : 12,695

Hydro power 2021 : 2,676
2020 : 2,348



IMPORT 2021 : 53,382
2020 : 50,325

Natural gas 2021 : 6,048
2020 : 5,516

LNG 2021 : 1,996
2020 : 2,939

Crude oil 2021 : 6,557
2020 : 6,969

Petroleum products 2021 : 18,331
2020 : 12,588

Coal & coke 2021 : 20,355
2020 : 22,236

Others 2021 : 95
2020 : 77

USE OF ENERGY PRODUCTS

Agriculture 2021 : 738
2020 : 724

Mining & quarrying 2021 : 936
2020 : 903

Manufacturing 2021 : 88,103
2020 : 89,617

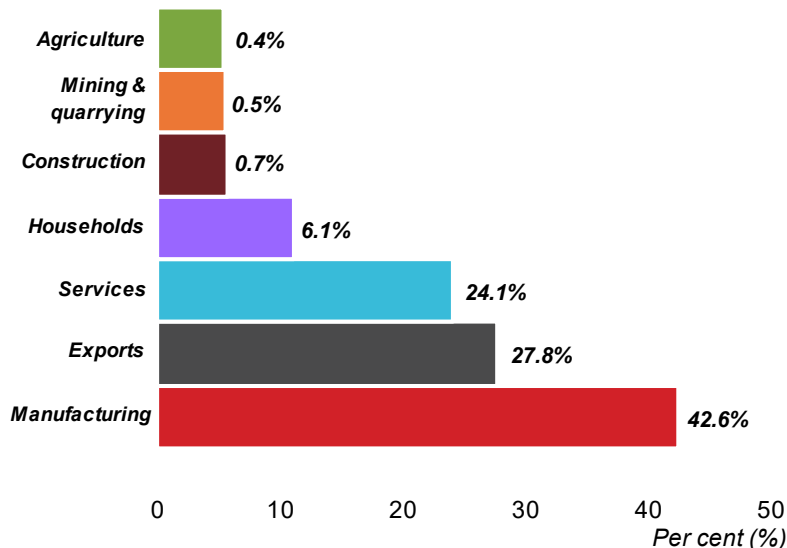
Construction 2021 : 1,529
2020 : 1,509

Services 2021 : 49,777
2020 : 51,403

Households 2021 : 12,700
2020 : 13,598

Exports 2021 : 57,555
2020 : 49,514

USE OF ENERGY PRODUCTS, 2021 (%)





RINGKASAN PENEMUAN

*SUMMARY OF
FINDINGS*

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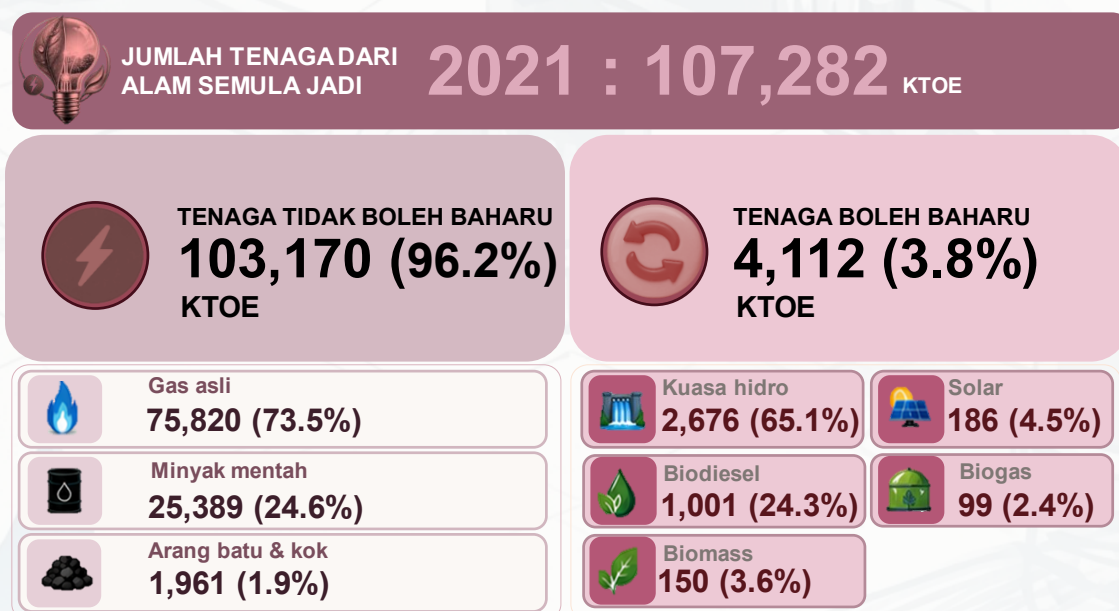
1.0 PENGENALAN

Penerbitan ini membentangkan maklumat penawaran dan penggunaan tenaga di Malaysia bagi tahun 2016 - 2021. Jadual Fizikal Penawaran dan Penggunaan (PSUT) merujuk kepada aliran tenaga dalam unit fizikal di antara alam sekitar dan ekonomi. Akaun ini merekodkan aliran tenaga bermula dengan pengekstrakan daripada sumber alam semula jadi ke dalam aktiviti ekonomi, diikuti dengan aliran tenaga di dalam aktiviti ekonomi dan tenaga yang dilepaskan kembali ke alam sekitar.

2.0 TENAGA DARIPADA ALAM SEMULA JADI

Jumlah tenaga daripada alam semula jadi pada 2021 merekodkan 107,282 ktoe dengan 103,170 ktoe (96.2%) adalah daripada tenaga tidak boleh baharu dan 4,112 ktoe (3.8%) daripada tenaga boleh baharu. Penyumbang utama sumber tenaga ialah gas asli iaitu 75,820 ktoe (70.7%), diikuti minyak mentah 25,389 ktoe (23.7%) dan kuasa hidro 2,676 ktoe (2.5%) (**Paparan 1**).

Paparan 1 : Tenaga daripada Alam Semula Jadi, Malaysia, 2021



3.0 PENAWARAN DAN PENGGUNAAN PRODUK TENAGA

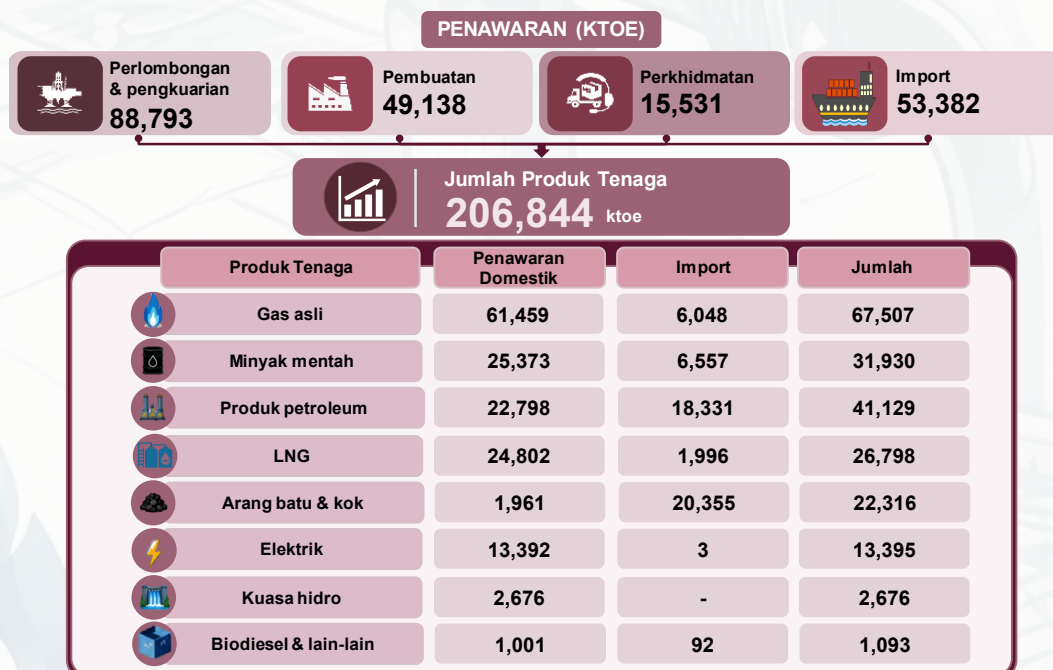
Jumlah penawaran dan penggunaan produk tenaga dalam ekonomi Malaysia pada 2021 merekodkan 206,844 ktoe.

3.1 Penawaran Produk Tenaga

Pengeluaran domestik merangkumi sektor Perlombongan & pengkuarian, Pembuatan dan Perkhidmatan telah mendominasi penawaran produk tenaga dalam ekonomi iaitu 153,462 ktoe (74.2%) berbanding import 53,382 ktoe (25.8%).

Sektor Perlombongan & pengkuarian merupakan pengeluar produk tenaga tertinggi iaitu 88,793 ktoe (42.9%), diikuti sektor Pembuatan 49,138 ktoe (23.8%) dan sektor Perkhidmatan 15,531 ktoe (7.5%). Penawaran produk tenaga utama pada 2021 merangkumi gas asli 67,507 ktoe (32.6%), produk petroleum 41,129 ktoe (19.9%) dan minyak mentah 31,930 ktoe (15.4%) (**Paparan 2**).

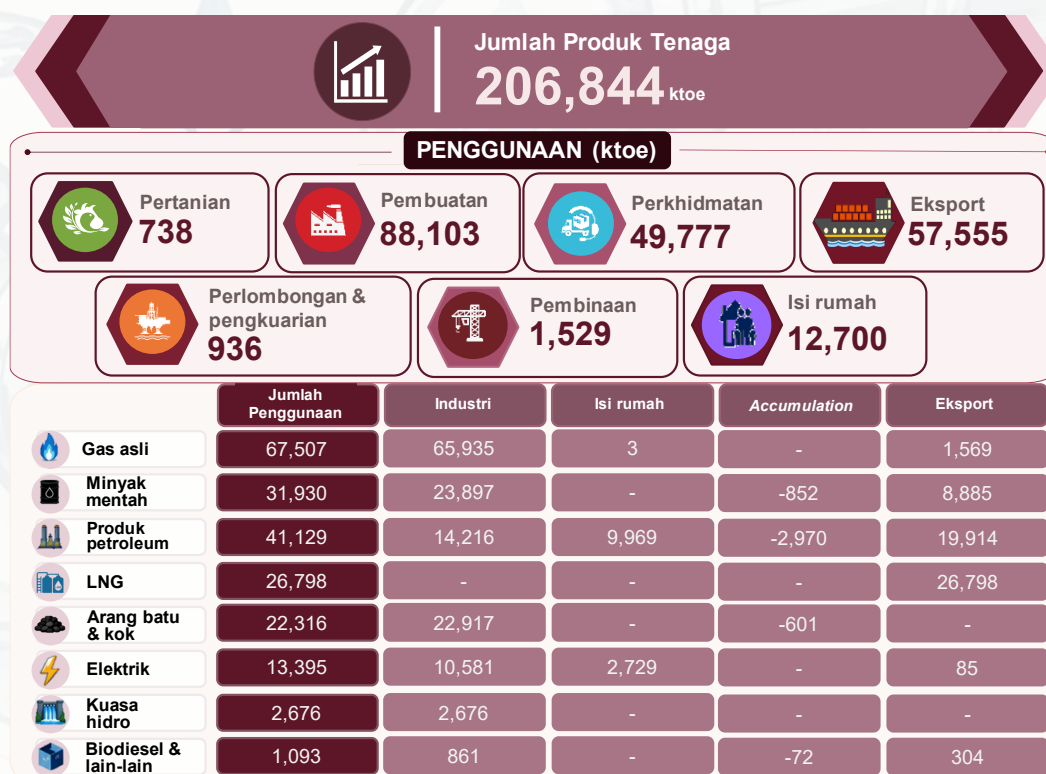
Paparan 2: Penawaran Produk Tenaga mengikut Sektor, Malaysia, 2021



3.2 Penggunaan Produk Tenaga

Penggunaan produk tenaga terdiri daripada transformasi tenaga dan penggunaan akhir, yang masing-masing merekodkan 96,536 ktoe (46.7%) dan 110,308 ktoe (53.3%). Produk tenaga yang digunakan untuk kegunaan domestik menyumbang 153,784 ktoe (74.3%) berbanding eksport yang berjumlah 57,555 ktoe (25.7%) (**Paparan 3**).

Paparan 3: Penggunaan Produk Tenaga mengikut Sektor, Malaysia, 2021

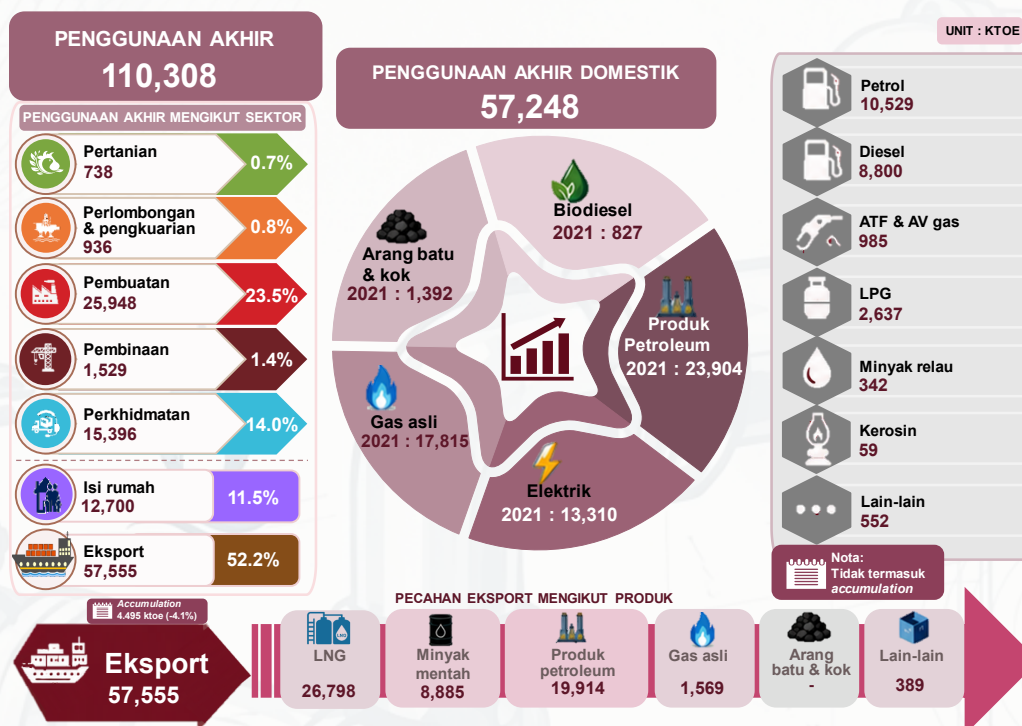


3.3 Penggunaan Akhir Produk Tenaga

Penggunaan akhir produk tenaga direkodkan oleh sektor ekonomi berjumlah 44,548 ktoe, diikuti oleh isi rumah 12,700 ktoe dan eksport 57,555 ktoe. Daripada jumlah penggunaan akhir oleh sektor ekonomi, sektor Pembuatan merupakan pengguna utama produk tenaga dengan sumbangan tertinggi 58.2 peratus dengan nilai 25,948 ktoe.

Penggunaan akhir produk tenaga merangkumi pengguna domestik dan eksport. Produk tenaga utama yang digunakan oleh pengguna domestik ialah petroleum 23,904 ktoe, gas asli 17,815 ktoe dan elektrik 13,310 ktoe. Manakala, produk tenaga utama yang dieksport ialah LNG berjumlah 26,798 ktoe, diikuti oleh produk petroleum dan minyak mentah masing-masing berjumlah 19,914 ktoe dan 8,885 ktoe (**Paparan 4**).

Paparan 4: Penggunaan Akhir mengikut Sektor dan Produk, Malaysia, 2021



3.4 Transformasi Produk Tenaga

Transformasi produk tenaga disumbangkan oleh sektor Pembuatan dengan 64.4 peratus (62,155 ktoe), diikuti oleh sektor Perkhidmatan 35.6 peratus (34,381 ktoe). Penggunaan produk tenaga tertinggi oleh sektor Pembuatan ialah gas asli 38,187 ktoe dan minyak mentah 23,897 ktoe. Manakala, penggunaan arang batu & kok merupakan produk tenaga tertinggi yang digunakan dalam sektor Perkhidmatan dengan 21,525 ktoe, diikuti gas asli 9,936 ktoe (**Paparan 5**).

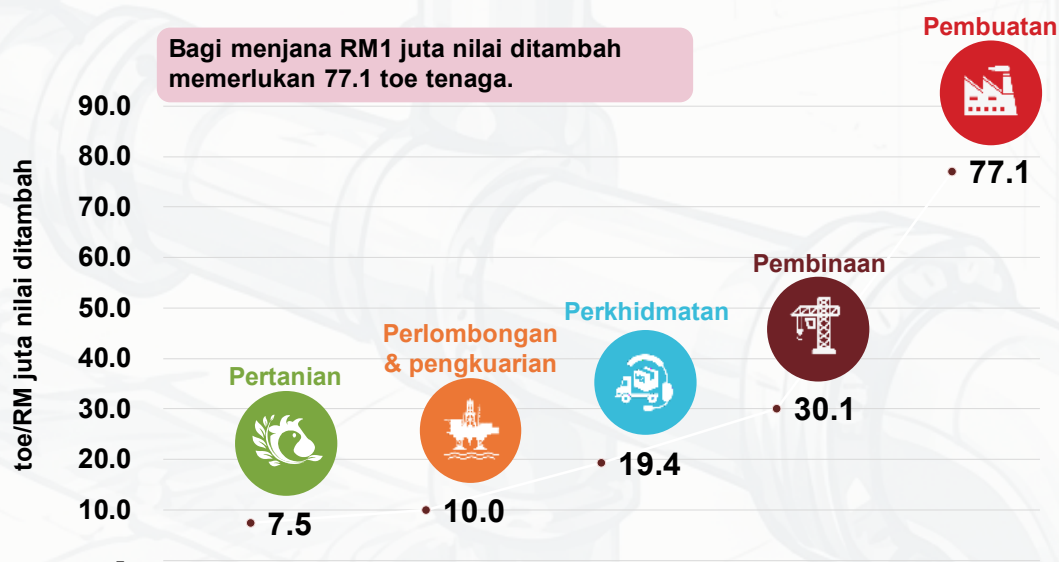
Paparan 5: Transformasi Produk Tenaga mengikut Sektor, Malaysia, 2021

TRANFORMASI PRODUK TENAGA	SEKTOR	
	 Pembuatan 62,155	 Perkhidmatan 34,381
 Gas asli	38,187	9,936
 Minyak mentah	23,897	-
 Arang batu & kok	-	21,525
 Produk petroleum	37	244
 Kuasa hidro	-	2,676
 Lain-lain	34	-

4.0 INTENSITI PRODUK TENAGA BAGI PENGGUNAAN AKHIR MENGIKUT SEKTOR

Intensiti Tenaga merujuk kepada jumlah tenaga yang digunakan bagi setiap pengeluaran RM juta nilai ditambah. Sektor Pembuatan merekodkan intensiti tenaga tertinggi, iaitu 77.1 toe bagi menjana RM1 juta nilai ditambah, menunjukkan penggunaan tenaga yang lebih tinggi berbanding sektor lain. Manakala, intensiti tenaga bagi sektor Pertanian adalah rendah iaitu 7.5 toe bagi pengeluaran RM1 juta nilai ditambah (**Paparan 6**).

Paparan 6: Intensiti Penggunaan Akhir Produk Tenaga mengikut Sektor, Malaysia, 2021



5.0 ANALISIS PENGGANDA

Analisis pengganda merupakan kaedah untuk mengukur impak terhadap pertumbuhan ekonomi apabila berlaku perubahan dalam komponen permintaan akhir. Ia mengukur kebergantungan secara langsung dan tidak langsung antara satu sektor dengan keseluruhan ekonomi. Lebih tinggi nilai pengganda bagi sesuatu sektor menunjukkan keperluan tenaga yang tinggi untuk menyokong pertumbuhan sektornya sendiri.

5.1 Kesan Pengganda Permintaan Akhir Produk Tenaga

Dengan andaian peningkatan 10.0 peratus ke atas permintaan akhir dalam sektor Pembuatan, kesan langsung kepada penggunaan tenaga akan meningkat 7.8 peratus kepada 94,953 ktoe daripada 88,104 ktoe pada 2021. Pada masa yang sama, ia juga memberi kesan tidak langsung kepada sektor lain iaitu sektor Perlombongan & pengkuarian mencatatkan peningkatan 3.8 peratus, Pertanian 3.7 peratus, Perkhidmatan 1.6 peratus dan Pembinaan 0.3 peratus (**Paparan 7**).

Paparan 7: Kesan Pengganda dengan Peningkatan 10.0 Peratus pada Sektor Pembuatan, Malaysia, 2021

Sektor	Penggunaan Tenaga (toe)	Penggunaan Tenaga Baharu (toe) (Peningkatan 10% permintaan akhir)	Kadar Kenaikan (%)	
 Pertanian	737,822	765,323	3.7	
 Perlombongan & pengkuarian	936,181	971,480	3.8	
 Pembuatan	88,103,471	94,952,705	7.8	Kesan Langsung
 Pembinaan	1,529,192	1,533,985	0.3	
 Perkhidmatan	49,777,045	50,574,805	1.6	

5.2 Kesan Pengganda Penggunaan Isi Rumah bagi Produk Tenaga

Peningkatan 10.0 peratus ke atas produk tenaga oleh penggunaan isi rumah dalam sektor Perkhidmatan memberi kesan langsung kepada penggunaan tenaga dengan kadar kenaikan 4.1 peratus daripada 49,777 ktoe kepada 51,823 ktoe pada 2021. Manakala, kesan pengganda penggunaan isi rumah juga memberi kesan tidak langsung kepada sektor lain iaitu sektor Pembuatan mencatatkan peningkatan 0.7 peratus, Pertanian 0.7 peratus, Pembinaan 0.6 peratus dan Perlombongan & pengkuarian 0.4 peratus (**Paparan 8**).

Paparan 8: Kesan Pengganda dengan Peningkatan 10.0 Peratus Penggunaan Isi Rumah pada Sektor Perkhidmatan, Malaysia, 2021

Sektor	Penggunaan Tenaga (toe)	Penggunaan Tenaga Baharu (toe) (Peningkatan 10% permintaan akhir)	Kadar Kenaikan (%)
 Pertanian	737,822	742,992	0.7
 Perlombongan & pengkuarian	936,181	940,636	0.4
 Pembuatan	88,103,471	88,741,486	0.7
 Pembinaan	1,529,192	1,538,956	0.6
 Perkhidmatan	49,777,045	51,822,774	4.1

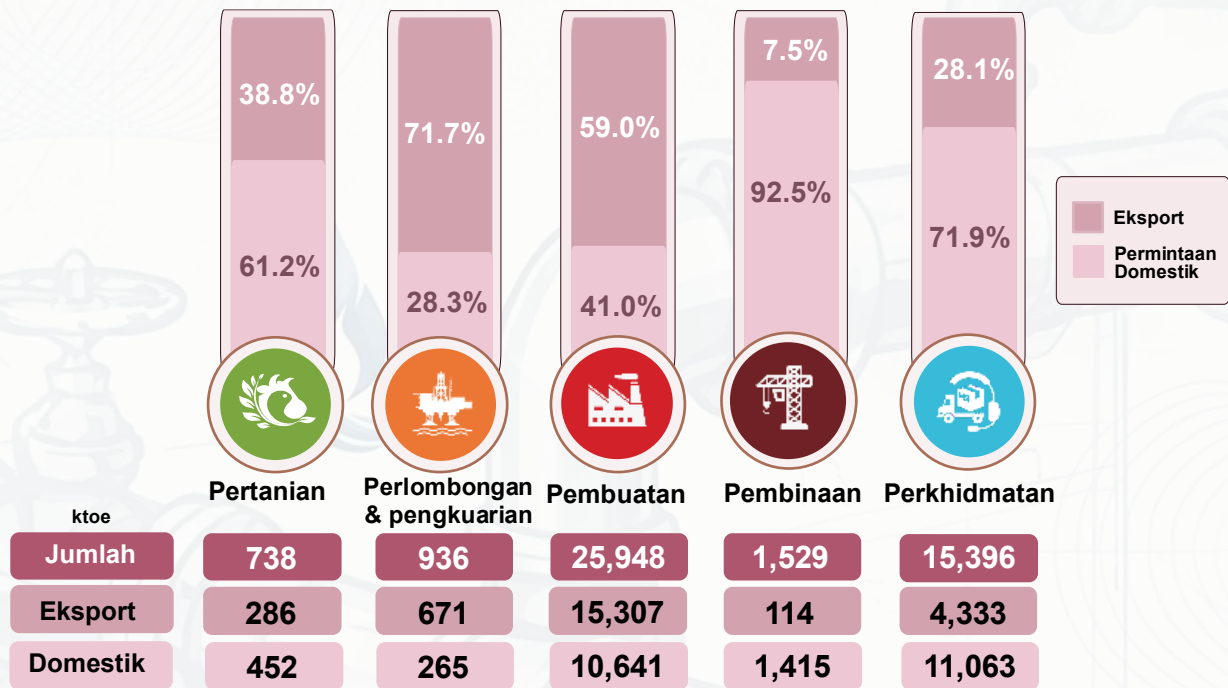
Kesan Langsung

6.0 DECOMPOSITION TENAGA MENGIKUT SEKTOR - PERMINTAAN DOMESTIK DAN EKSPORT

Decomposition tenaga merujuk kepada analisis agihan penggunaan tenaga dalam ekonomi berdasarkan penggunaannya untuk menghasilkan produk bagi kegunaan domestik atau eksport.

Agihan penggunaan tenaga bagi memenuhi permintaan eksport pada 2021 didominasi oleh sektor Perlombongan & pengkuarian dengan sumbangan 71.7 peratus, diikuti oleh sektor Pembuatan 59.0 peratus. Sementara itu, agihan penggunaan tenaga bagi memenuhi permintaan domestik dicatatkan oleh sektor Pembinaan 92.5 peratus, Perkhidmatan 71.9 peratus dan Pertanian 61.2 peratus (**Paparan 9**).

Paparan 9: *Decomposition* Penggunaan Akhir Produk Tenaga mengikut Sektor, Malaysia, 2021



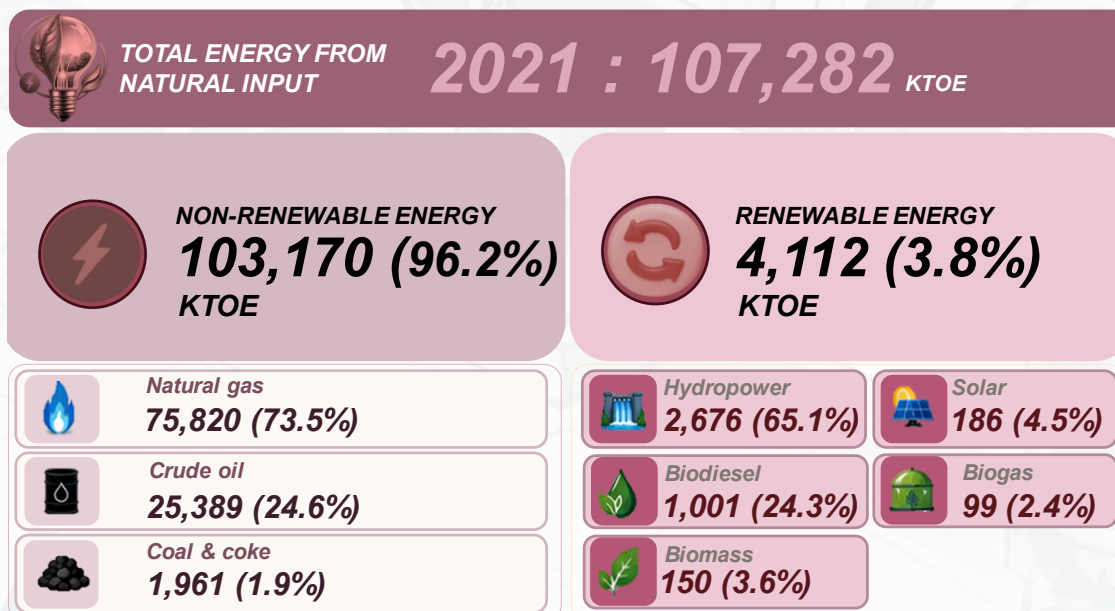
1.0 INTRODUCTION

This publication presents information on the supply and use of energy in Malaysia for the years 2016 - 2021. Physical Supply and Use Table (PSUT) refers to the energy flows in physical units between the environment and the economy. This account records energy flows starting from extraction from natural resources into economic activities, followed by the energy flows within economic activities and energy released back into the environment.

2.0 ENERGY FROM NATURAL INPUT

Total energy from natural inputs in 2021 recorded 107,282 ktoe with 103,170 ktoe (96.2%) from non-renewable energy and 4,112 ktoe (3.8%) from renewable energy. The main contributors to energy sources were natural gas at 75,820 ktoe (70.7%), followed by crude oil 25,389 ktoe (23.7%) and hydropower 2,676 ktoe (2.5%) (**Exhibit 1**).

Exhibit 1: Energy from Natural Input, Malaysia, 2021



3.0 SUPPLY AND USE OF ENERGY PRODUCTS

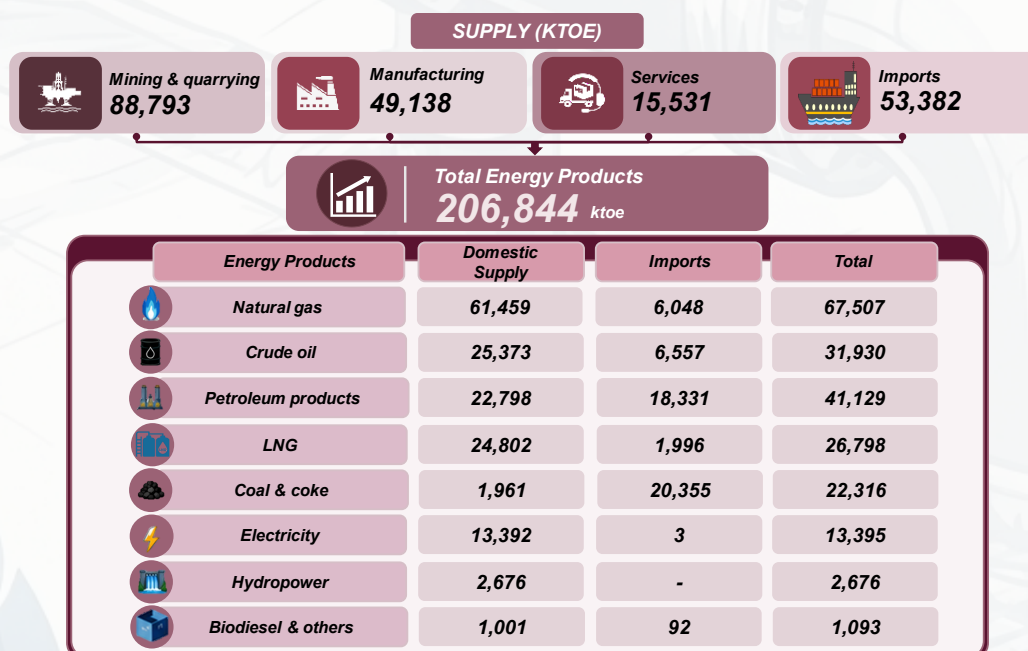
The total supply and use of energy products in the Malaysia's economy in 2021 recorded 206,844 ktoe.

3.1 Supply of Energy Products

Domestic production comprising the Mining & quarrying, Manufacturing, and Services sectors dominated the supply of energy products in the economy at 153,462 ktoe (74.2%) compared to imports of 53,382 ktoe (25.8%).

Mining & quarrying sector was the highest producer of energy products at 88,793 ktoe (42.9%), followed by Manufacturing sector at 49,138 ktoe (23.8%) and Services sector at 15,531 ktoe (7.5%). The main energy products supplied in 2021 included natural gas 67,507 ktoe (32.6%), petroleum products 41,129 ktoe (19.9%) and crude oil 31,930 ktoe (15.4%) (**Exhibit 2**).

Exhibit 2: Energy Products by Sector, Malaysia, 2021



3.2 Use of Energy Products

The use of energy products consist of energy transformation and final use, which recorded 96,536 ktoe (46.7%) and 110,308 ktoe (53.3%) respectively. Energy products used domestically contributed 153,784 ktoe (74.3%) as compared to exports amounted 57,555 ktoe (25.7%) (**Exhibit 3**).

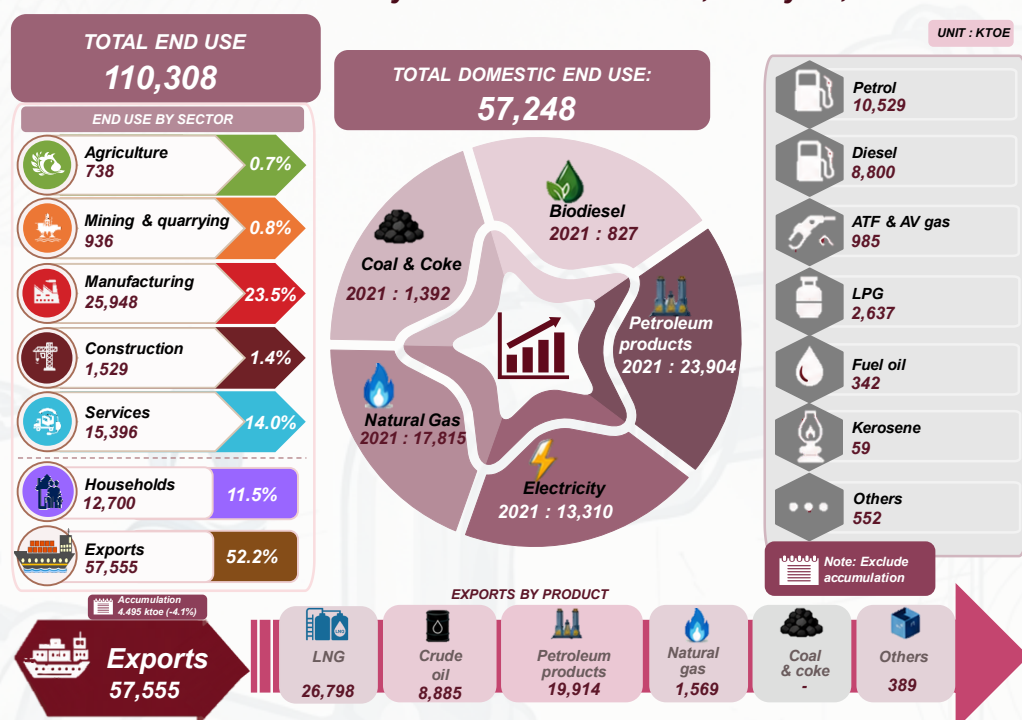
Exhibit 3: Supply & Use of Energy Products, Malaysia, 2021



3.3 End Use of Energy Products

Final energy use was contributed by the economic sectors amounting to 44,548 ktoe, followed by households 12,700 ktoe and exports 57,555 ktoe. Among the final use in economic sectors, the Manufacturing sector was the main user of energy products with the highest contribution of 58.2 per cent accounting to 25,948 ktoe.

The final use of energy products includes domestic users and exports. The main energy products used by domestic users were petroleum 23,904 ktoe, natural gas 17,815 ktoe and electricity 13,310 ktoe. Meanwhile, the main energy product exported was LNG amounting to 26,798 ktoe, followed by petroleum products and crude oil at 19,914 ktoe and 8,885 ktoe respectively (**Exhibit 4**).

Exhibit 4: End Use by Sector and Products, Malaysia, 2021

3.4 Transformation of Energy Products

The transformation of energy products was contributed by the Manufacturing sector accounting for 64.4 per cent (62,155 ktOE), followed by the Services sector 35.6 per cent (34,381 ktOE). The highest energy products used by the Manufacturing sector were natural gas 38,187 ktOE and crude oil 23,897 ktOE. Meanwhile, coal & coke was the highest energy product used by the Services sector 21,525 ktOE, followed by natural gas 9,936 ktOE (**Exhibit 5**).

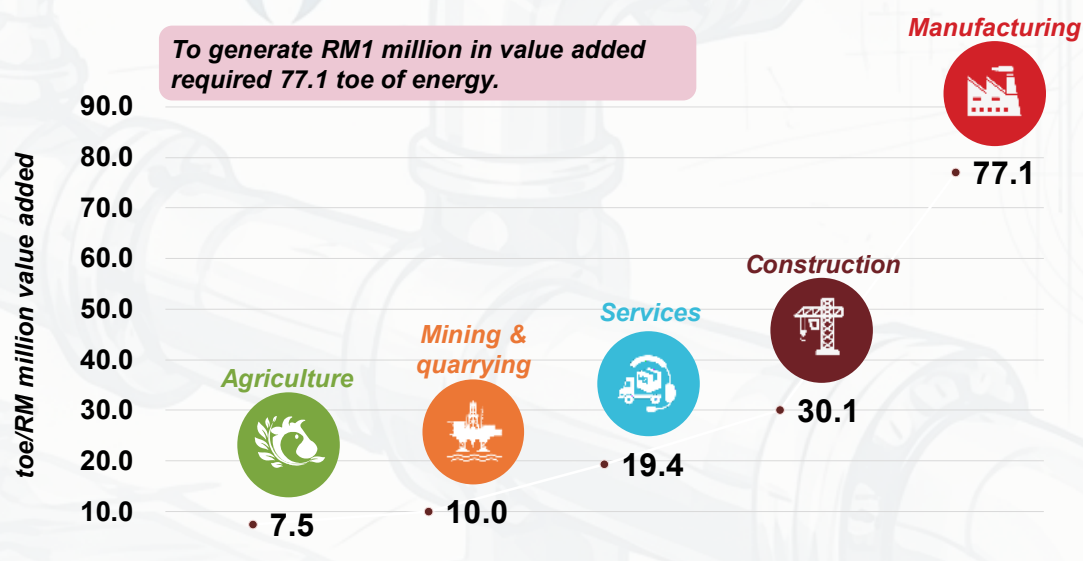
Exhibit 5: Transformation of Energy Products by Sector, Malaysia, 2021

ENERGY PRODUCT TRANSFORMATION	SECTOR	
	Manufacturing 62,155	Services 34,381
Natural gas	38,187	9,936
Crude oil	23,897	-
Coal & coke	-	21,525
Petroleum products	37	244
Hydro power	-	2,676
Others	34	-

4.0 ENERGY PRODUCTS INTENSITY FOR FINAL USE BY SECTOR

Energy intensity refers to the amount of energy used for every RM million of value added generated. The Manufacturing sector recorded the highest energy intensity at 77.1 toe to generate RM1 million of value added, indicating higher energy consumption as compared to other sectors. Meanwhile, the energy intensity of the Agriculture sector was the lowest at 7.5 toe for the production of RM1 million of value added (**Exhibit 6**).

Exhibit 6: End Use of Energy Products Intensity by Sector, Malaysia, 2021



5.0 MULTIPLIER ANALYSIS

Multiplier analysis is a tool used to measure the impact on the growth of the economy when there is a change in the final demand components. It measures the direct and indirect interdependence of one sector with the rest of the economy. A higher multiplier value for a sector indicates a higher energy requirement to support the growth of the sector itself.

5.1 Multiplier Effect on Final Demand of Energy Products

Assuming a 10.0 per cent increase in final demand in the Manufacturing sector, this would have a direct impact on energy use resulting an increase of 7.8 per cent to 94,953 ktoe from 88,104 ktoe in 2021. At the same time, it would also have an indirect impact on other sectors with Mining & quarrying sector recording an increase of 3.8 per cent, Agriculture 3.7 per cent, Services 1.6 per cent and Construction 0.3 per cent (**Exhibit 7**).

Exhibit 7: Multiplier Effect on 10.0 Per cent Growth in the Manufacturing Sector, Malaysia, 2021

Sector	Energy Use (toe)	New Energy Use (toe) (10% increase of final demand)	Growth rate (%)	
 Agriculture	737,822	765,323	3.7	
 Mining & quarrying	936,181	971,480	3.8	
 Manufacturing	88,103,471	94,952,705	7.8	Direct effect
 Construction	1,529,192	1,533,985	0.3	
 Services	49,777,045	50,574,805	1.6	

5.2 Multiplier Effect of Household Consumption for Energy Products

A 10.0 per cent increased of energy product in household consumption in the Services sector would have a direct impact on energy consumption, resulting in an increase of 4.1 per cent from 49,777.1 ktoe to 51,822.8 ktoe in 2021. Meanwhile, the multiplier effect of household consumption would also have an indirect impact on other sectors, with Manufacturing recording an increase of 0.7 per cent, Agriculture (0.7%), Construction (0.6%) and Mining & quarrying (0.4%) (**Exhibit 8**).

Exhibit 8: Multiplier Effect on 10.0 Per Cent Growth of Households Used in the Services Sector, Malaysia, 2021

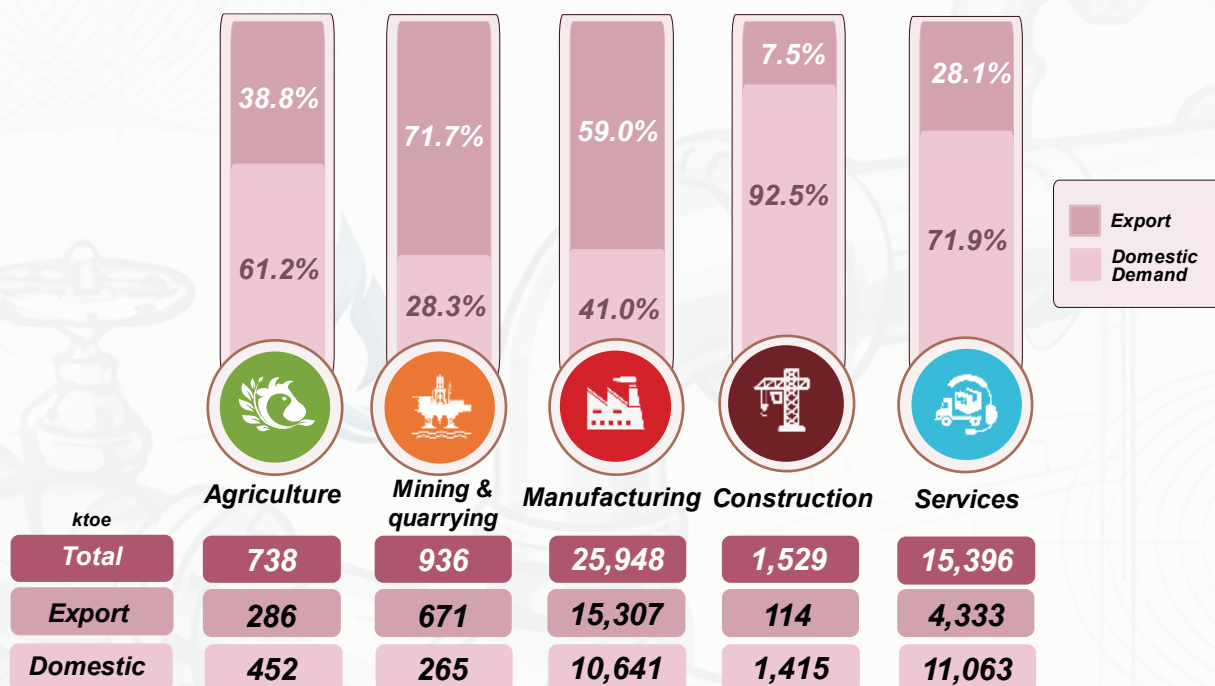
Sector	Energy Use (toe)	New Energy Use (toe) (10% increase of final demand)	Growth rate (%)	
 Agriculture	737,822	742,992	0.7	
 Mining & quarrying	936,181	940,636	0.4	
 Manufacturing	88,103,471	88,741,486	0.7	
 Construction	1,529,192	1,538,956	0.6	
 Services	49,777,045	51,822,774	4.1	Direct effect

6.0 DECOMPOSITION OF ENERGY BY SECTOR – DOMESTIC DEMAND AND EXPORTS

Decomposition of energy refers to the analysis of the distribution of energy consumption in the economy based on its use to produce products for domestic or export consumption.

The distribution of energy consumption to meet export demand in 2021 was dominated by the Mining & quarrying which contributed 71.7 per cent, followed by Manufacturing sectors 59.0 per cent. Meanwhile, the distribution of energy consumption to meet domestic demand was recorded by the Construction sector 92.5 per cent, Services 71.9 per cent and Agriculture 61.2 per cent (**Exhibit 9**).

**Exhibit 9: Decomposition of End Use of Energy Products
by Sector, Malaysia, 2021**





JADUAL *TABLES*

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Jadual 1: Penawaran Produk Tenaga, 2016

Table 1: Supply of Energy Product, 2016

	SEKTOR/ SECTORS					IMPORT	ALIRAN DARI ALAM SEMULA JADI	JUMLAH PENAWARAN
	PERTANIAN	PERLOMBONGAN & PENGKUARIAN	PEMBUATAN	PEMBINAAN	PERKHIDMATAN			
	AGRICULTURE	MINING & QUARRYING	MANUFACTURING	CONSTRUCTION	SERVICES			
ktoe								
(i) JUMLAH TENAGA DARIPADA ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL INPUTS								
Gas asli Natural gas							62,723	62,723
Minyak mentah Crude oil							33,234	33,234
Arang batu & kok Coal & coke							1,522	1,522
Kuasa hidro Hydropower							4,499	4,499
Solar Solar							92	92
Biomass Biomass							202	202
Biogas Biogas							21	21
Biodiesel Biodiesel							509	509
JUMLAH TENAGA DARI ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL INPUTS							102,802	102,802
(ii) PRODUK TENAGA ENERGY PRODUCTS								
Gas asli Natural gas	-	59,608	-	-	-	5,557		65,165
LNG LNG	-	-	27,460	-	-	1,275		28,735
Minyak mentah Crude oil	-	33,001	-	-	-	10,854		43,855
Arang batu & kok Coal & coke	-	1,522	-	-	-	17,171		18,693
Produk petroleum Petroleum products	-	-	27,088	-	-	15,342		42,430
Petrol Petrol	-	-	5,043	-	-	8,552		13,595
Diesel Diesel	-	-	10,274	-	-	3,896		14,170
Minyak relau Fuel oil	-	-	1,479	-	-	51		1,530
LPG LPG	-	-	3,333	-	-	490		3,823
Kerosin Kerosene	-	-	68	-	-	-		68
ATF & AV gas ATF & AV gas	-	-	2,536	-	-	1,450		3,986
Bukan tenaga Non-energy	-	-	4,355	-	-	903		5,258
Gas penapisan Refinery gas	-	-	-	-	-	-		-
Kuasa hidro Hydropower	-	-	-	-	1,722	-		1,722
Solar Solar	-	-	-	-	-	-		-
Biomass Biomass	-	-	-	-	-	-		-
Biogas Biogas	-	-	-	-	-	-	-	
Biodiesel Biodiesel	-	-	509	-	-	-	509	
Elektrik Electricity	-	-	535	-	11,913	3	12,451	
Lain-lain Others	-	-	-	-	-	34	34	
JUMLAH PRODUK TENAGA TOTAL ENERGY PRODUCTS	-	94,131	55,592	-	13,635	50,236	213,594	

Nota/ Notes  Tidak berkenaan/ Not applicable

Jadual 2: Penggunaan Produk Tenaga, 2016

Table 2: Use of Energy Product, 2016

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
(i) JUMLAH TENAGA DARIPADA ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL INPUTS									
Gas asli Natural gas	-	62,723	-	-	-				62,723
Minyak mentah Crude oil	-	33,234	-	-	-				33,234
Arang batu & kok Coal & coke	-	1,522	-	-	-				1,522
Kuasa hidro Hydropower	-	-	-	-	4,499				4,499
Solar Solar	-	-	-	-	92				92
Biomass Biomass	-	-	-	-	202				202
Biogas Biogas	-	-	-	-	21				21
Biodiesel Biodiesel	-	-	-	-	509				509
JUMLAH TENAGA DARI ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL	-	97,479	-	-	5,323	-	-	-	102,802
(ii) PRODUK TENAGA ENERGY PRODUCTS									
Gas asli Natural gas	1	173	49,741	5	14,403	2	-	841	65,165
LNG LNG	-	-	1,278	-	-	-	-	27,457	28,735
Minyak mentah Crude oil	-	-	27,524	-	-	-	-274	16,605	43,855
Arang batu & kok Coal & coke	-	-	1,785	-	17,101	-	-208	15	18,693
Produk petroleum Petroleum products	734	711	3,766	799	12,030	12,667	-788	12,511	42,430
Petrol Petrol	68	25	547	169	2,544	10,057	-274	458	13,595
Diesel Diesel	637	661	2,159	595	5,071	342	-101	4,806	14,170
Minyak relau Fuel oil	-	14	307	16	331	-	-39	901	1,530
LPG LPG	5	10	608	11	995	1,867	-29	355	3,823
Kerosin Kerosene	-	-	5	-	-	-	-13	76	68
ATF & AV gas ATF & AV gas	-	-	-	-	3,019	-	-101	1,068	3,986
Bukan tenaga Non-energy	24	-	139	8	70	401	-231	4,847	5,258
Gas penapisan Refinery gas	-	-	-	-	-	-	-	-	-
Kuasa hidro Hydropower	-	-	-	-	1,722	-	-	-	1,722
Solar Solar	-	-	-	-	-	-	-	-	-
Biomass Biomass	-	-	-	-	-	-	-	-	-
Biogas Biogas	-	-	-	-	-	-	-	-	-
Biodiesel Biodiesel	-	-	-	-	389	-	35	85	509
Elektrik Electricity	49	12	5,006	744	4,040	2,540	-	60	12,451
Lain-lain Others	-	-	-	-	-	-	-	34	34
JUMLAH PRODUK TENAGA TOTAL ENERGY PRODUCTS	784	896	89,100	1,547	49,685	15,209	-1,235	57,608	213,594

Nota/ Notes : ■ Tidak berkenaan/ Not applicable

Jadual 2a: Penggunaan Produk Tenaga - Transformasi, 2016

Table 2a: Use of Energy Product - Transformation, 2016

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
Gas asli Natural gas	-	-	38,760	-	13,260				52,020
LNG LNG	-	-	1,277	-	-				1,277
Minyak mentah Crude oil	-	-	27,524	-	-				27,524
Arang batu & kok Coal & coke	-	-	-	-	17,101				17,101
Produk petroleum Petroleum products	-	-	46	-	320				366
Diesel Diesel	-	-	46	-	165				211
Minyak relau Fuel oil	-	-	-	-	155				155
Kuasa hidro Hydropower	-	-	-	-	1,722				1,722
Jumlah Transformasi Produk Tenaga Total Transformation of Energy Products	-	-	67,607	-	32,403				100,010

Nota/ Notes: ■ Tidak berkenaan/ Not applicable

Jadual 2b: Penggunaan Produk Tenaga - Penggunaan Akhir, 2016

Table 2b: Use of Energy Product - Final Use, 2016

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
Gas asli Natural gas	1	173	10,981	5	1,143	2	-	841	13,145
LNG LNG	-	-	-	-	-	-	-	27,457	27,457
Minyak mentah Crude oil	-	-	-	-	-	-	-274	16,605	16,331
Arang batu & kok Coal & coke	-	-	1,785	-	-	-	-208	15	1,592
Produk petroleum Petroleum products	734	719	3,720	799	11,710	12,667	-796	12,511	42,064
Petrol Petrol	68	25	547	169	2,544	10,057	-274	458	13,595
Diesel Diesel	637	661	2,113	595	4,906	342	-101	4,806	13,959
Minyak relau Fuel oil	-	14	307	16	176	-	-39	901	1,375
LPG LPG	5	10	608	11	995	1,867	-30	355	3,822
Kerosin Kerosene	-	-	5	-	-	-	-13	76	68
ATF & AV gas ATF & AV gas	-	-	-	-	3,019	-	-100	1,068	3,987
Bukan tenaga Non-energy	24	8	139	8	70	401	-239	4,847	5,258
Biodiesel Biodiesel	-	-	-	-	389	-	35	85	509
Elektrik Electricity	50	12	5,006	744	4,040	2,540	-	60	12,452
Lain-lain Others	-	-	-	-	-	-	-	34	34
Jumlah Penggunaan Akhir Produk Total End-Use of Energy Products	785	904	21,492	1,547	17,282	15,209	-1,243	57,608	113,584

Nota/ Notes: ■ Tidak berkenaan/ Not applicable

Jadual 3: Penawaran Produk Tenaga, 2017

Table 3: Supply of Energy Product, 2017

	SEKTOR/ SECTORS					IMPORT	ALIRAN DARI ALAM SEMULA JADI	JUMLAH PENAWARAN
	PERTANIAN	PERLOMBONGAN & PENGKUIARIAN	PEMBUATAN	PEMBINAAN	PERKHIDMATAN			
	AGRICULTURE	MINING & QUARRYING	MANUFACTURING	CONSTRUCTION	SERVICES			
ktoe								
(i) JUMLAH TENAGA DARIPADA ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL INPUTS								
Gas asli Natural gas							71,140	71,140
Minyak mentah Crude oil							32,807	32,807
Arang batu & kok Coal & coke							1,884	1,884
Kuasa hidro Hydropower							6,240	6,240
Solar Solar							93	93
Biomass Biomass							194	194
Biogas Biogas							41	41
Biodiesel Biodiesel							467	467
JUMLAH TENAGA DARI ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL INPUTS							112,866	112,866
(ii) PRODUK TENAGA ENERGY PRODUCTS								
Gas asli Natural gas	-	66,129	-	-	-	5,183		71,312
LNG LNG	-	-	29,428	-	-	1,815		31,243
Minyak mentah Crude oil	-	32,588	-	-	-	10,135		42,723
Arang batu & kok Coal & coke	-	1,884	-	-	-	19,181		21,065
Produk petroleum Petroleum products	-	-	29,393	-	-	13,252		42,645
Petrol Petrol	-	-	8,521	-	-	5,149		13,670
Diesel Diesel	-	-	9,755	-	-	5,167		14,922
Minyak relau Fuel oil	-	-	1,377	-	-	226		1,603
LPG LPG	-	-	3,260	-	-	441		3,701
Kerosin Kerosene	-	-	61	-	-	-		61
ATF & AV gas ATF & AV gas	-	-	3,342	-	-	1,205		4,547
Bukan tenaga Non-energy	-	-	3,077	-	-	1,064		4,141
Gas penapisan Refinery gas	-	-	-	-	-	-		-
Kuasa hidro Hydropower	-	-	-	-	2,309	-		2,309
Solar Solar	-	-	-	-	-	-		-
Biomass Biomass	-	-	-	-	-	-	-	
Biogas Biogas	-	-	-	-	-	-	-	
Biodiesel Biodiesel	-	-	467	-	-	-	467	
Elektrik Electricity	-	-	446	-	12,257	1	12,704	
Lain-lain Others	-	-	-	-	-	76	76	
JUMLAH PRODUK TENAGA TOTAL ENERGY PRODUCTS	-	100,601	59,734	-	14,566	49,643	224,544	

Nota/ Notes  Tidak berkenaan/ Not applicable

Jadual 4: Penggunaan Produk Tenaga, 2017

Table 4: Use of Energy Product, 2017

ktoe

	SEKTOR/ SECTORS					ISI RUMAH ACCUMULATION	EKSSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN	PERLOMBONGAN & PENGKUIARIAN	PEMBUATAN	PEMBINAAN	PERKHIDMATAN			
	AGRICULTURE	MINING & QUARRYING	MANUFACTURING	CONSTRUCTION	SERVICES	HOUSEHOLDS	EXPORTS	TOTAL USE
(i) JUMLAH TENAGA DARIPADA ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL INPUTS								
Gas asli Natural gas	-	71,140	-	-	-			71,140
Minyak mentah Crude oil	-	32,807	-	-	-			32,807
Arang batu & kok Coal & coke	-	1,884	-	-	-			1,884
Kuasa hidro Hydropower	-	-	-	-	6,240			6,240
Solar Solar	-	-	-	-	93			93
Biomass Biomass	-	-	-	-	194			194
Biogas Biogas	-	-	-	-	41			41
Biodiesel Biodiesel	-	-	-	-	467			467
JUMLAH TENAGA DARI ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL	-	105,831	-	-	7,035	-	-	112,866
(ii) PRODUK TENAGA ENERGY PRODUCTS								
Gas asli Natural gas	1	237	56,178	6	13,436	2	-	71,312
LNG LNG	-	-	1,815	-	-	-	-	31,243
Minyak mentah Crude oil	-	-	27,252	-	-	-	513	42,723
Arang batu & kok Coal & coke	-	-	1,804	-	18,967	-	-88	21,065
Produk petroleum Petroleum products	746	731	4,035	811	12,268	12,743	-143	42,645
Petrol Petrol	68	25	548	169	2,549	10,077	-49	13,670
Diesel Diesel	646	671	2,370	603	5,124	347	-65	14,922
Minyak relau Fuel oil	-	16	347	18	298	-	11	1,603
LPG LPG	5	10	611	12	1,000	1,876	-21	3,701
Kerosin Kerosene	-	-	5	-	-	-	-4	61
ATF & AV gas ATF & AV gas	-	-	-	-	3,220	-	-3	4,547
Bukan tenaga Non-energy	27	9	154	9	78	443	-12	4,141
Gas penapisan Refinery gas	-	-	-	-	-	-	-	-
Kuasa hidro Hydropower	-	-	-	-	2,309	-	-	2,309
Solar Solar	-	-	-	-	-	-	-	-
Biomass Biomass	-	-	-	-	-	-	-	-
Biogas Biogas	-	-	-	-	-	-	-	-
Biodiesel Biodiesel	-	-	-	-	379	-	-151	467
Elektrik Electricity	50	13	5,093	756	4,110	2,584	-	12,704
Lain-lain Others	-	-	63	-	-	-	-	76
JUMLAH PRODUK TENAGA TOTAL ENERGY PRODUCTS	798	980	96,240	1,573	51,469	15,330	131	224,544

Nota/ Notes : ■ Tidak berkenaan/ Not applicable

Jadual 4a: Penggunaan Produk Tenaga - Transformasi, 2017

Table 4a: Use of Energy Product - Transformation, 2017

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUIARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
Gas asli Natural gas	-	-	41,150	-	11,872				53,022
LNG LNG	-	-	1,815	-	-				1,815
Minyak mentah Crude oil	-	-	27,252	-	-				27,252
Arang batu & kok Coal & coke	-	-	-	-	18,967				18,967
Produk petroleum Petroleum products	-	-	226	-	246				472
Diesel Diesel	-	-	226	-	147				373
Minyak relau Fuel oil	-	-	-	-	99				99
Kuasa hidro Hydropower	-	-	-	-	2,309				2,309
Jumlah Transformasi Produk Tenaga Total Transformation of Energy Products	-	-	70,506	-	33,394				103,900

Nota/ Notes: ■ Tidak berkenaan/ Not applicable

Jadual 4b: Penggunaan Produk Tenaga - Penggunaan Akhir, 2017

Table 4b: Use of Energy Product - Final Use, 2017

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUIARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
Gas asli Natural gas	1	237	15,028	6	1,564	2	-	1,452	18,290
LNG LNG	-	-	-	-	-	-	-	29,428	29,428
Minyak mentah Crude oil	-	-	-	-	-	-	513	14,958	15,471
Arang batu & kok Coal & coke	-	-	1,804	-	-	-	-88	382	2,098
Produk petroleum Petroleum products	746	731	3,809	811	12,022	12,743	-143	11,454	42,173
Petrol Petrol	68	25	548	169	2,549	10,077	-49	282	13,670
Diesel Diesel	646	671	2,144	603	4,977	347	-65	5,226	14,549
Minyak relau Fuel oil	-	16	347	18	199	-	11	914	1,504
LPG LPG	5	10	611	12	1,000	1,876	-21	208	3,701
Kerosin Kerosene	-	-	5	-	-	-	-4	60	61
ATF & AV gas ATF & AV gas	-	-	-	-	3,220	-	-3	1,330	4,547
Bukan tenaga Non-energy	27	9	154	9	78	443	-12	3,434	4,141
Biodiesel Biodiesel	-	-	-	-	379	-	-151	239	467
Elektrik Electricity	50	13	5,093	756	4,110	2,584	-	97	12,704
Lain-lain Others	-	-	-	-	-	-	-	13	13
Jumlah Penggunaan Akhir Produk Total End-Use of Energy Products	798	980	25,734	1,573	18,075	15,330	131	58,023	120,644

Nota/ Notes: ■ Tidak berkenaan/ Not applicable

Jadual 5: Penawaran Produk Tenaga, 2018

Table 5: Supply of Energy Product, 2018

ktoe								
	SEKTOR/ SECTORS					IMPORT	ALIRAN DARI ALAM SEMULA JADI	JUMLAH PENAWARAN
	PERTANIAN	PERLOMBONGAN & PENGKUARIAN	PEMBUATAN	PEMBINAAN	PERKHIDMATAN			
	AGRICULTURE	MINING & QUARRYING	MANUFACTURING	CONSTRUCTION	SERVICES			
IMPORTS								
FLOWS FROM THE ENVIRONMENT								
TOTAL SUPPLY								
JUMLAH TENAGA DARIPADA ALAM SEMULA JADI								
(i) TOTAL ENERGY FROM NATURAL INPUTS								
Gas asli							68,253	68,253
Natural gas								
Minyak mentah							31,996	31,996
Crude oil								
Arang batu & kok							1,672	1,672
Coal & coke								
Kuasa hidro							6,230	6,230
Hydropower								
Solar	172	172						
Solar								
Biomass	241	241						
Biomass								
Biogas	147	147						
Biogas								
Biodiesel	703	703						
Biodiesel								
JUMLAH TENAGA DARI ALAM SEMULA JADI							109,414	109,414
TOTAL ENERGY FROM NATURAL INPUTS								
(ii) PRODUK TENAGA								
ENERGY PRODUCTS								
Gas asli	-	61,863	-	-	-	5,573		67,436
Natural gas								
LNG	-	-	25,920	-	-	1,383		27,303
LNG								
Minyak mentah	-	31,814	-	-	-	9,239		41,053
Crude oil								
Arang batu & kok	-	1,672	-	-	-	20,743		22,415
Coal & coke								
Produk petroleum	-	-	26,983	-	-	19,763		46,746
Petroleum products								
Petrol	-	-	5,479	-	-	10,643		16,122
Petrol								
Diesel	-	-	9,766	-	-	6,857		16,623
Diesel								
Minyak relau	-	-	2,506	-	-	102		2,608
Fuel oil								
LPG	-	-	3,119	-	-	535		3,654
LPG								
Kerosin	-	-	66	-	-	-	66	
Kerosene								
ATF & AV gas	-	-	3,414	-	-	533	3,947	
ATF & AV gas								
Bukan tenaga	-	-	2,633	-	-	1,093	3,726	
Non-energy								
Gas penapisan	-	-	-	-	-	-	-	
Refinery gas								
Kuasa hidro	-	-	-	-	2,265	-	2,265	
Hydropower								
Solar	-	-	-	-	-	-	-	
Solar								
Biomass	-	-	-	-	-	-	-	
Biomass								
Biogas	-	-	-	-	-	-	-	
Biogas								
Biodiesel	-	-	704	-	-	-	704	
Biodiesel								
Elektrik	-	-	616	-	12,665	2	13,283	
Electricity								
Lain-lain	-	-	-	-	-	37	37	
Others								
JUMLAH PRODUK TENAGA	-	95,349	54,223	-	14,930	56,740	-	221,242
TOTAL ENERGY PRODUCTS								
PRODUCTS								

Nota/ Notes ■ Tidak berkenaan/ Not applicable

Jadual 6: Penggunaan Produk Tenaga, 2018

Table 6: Use of Energy Product, 2018

Table of Use of Energy Products, 2019

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN	PERLOMBONGAN & PENGKUIARIAN	PEMBUATAN	PEMBINAAN	PERKHIDMATAN				
	AGRICULTURE	MINING & QUARRYING	MANUFACTURING	CONSTRUCTION	SERVICES				
(i) JUMLAH TENAGA DARIPADA ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL INPUTS									
Gas asli Natural gas	-	68,253	-	-	-				68,253
Minyak mentah Crude oil	-	31,996	-	-	-				31,996
Arang batu & kok Coal & coke	-	1,672	-	-	-				1,672
Kuasa hidro Hydropower	-	-	-	-	6,230				6,230
Solar Solar	-	-	-	-	172				172
Biomass Biomass	-	-	-	-	241				241
Biogas Biogas	-	-	-	-	147				147
Biodiesel Biodiesel	-	-	-	-	703				703
JUMLAH TENAGA DARI ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL	-	101,921	-	-	7,493	-	-	-	109,414
(ii) PRODUK TENAGA ENERGY PRODUCTS									
Gas asli Natural gas	1	265	52,460	7	13,293	3	-	1,407	67,436
LNG LNG	-	-	1,383	-	-	-	-	25,920	27,303
Minyak mentah Crude oil	-	-	25,553	-	-	-	488	15,012	41,053
Arang batu & kok Coal & coke	-	-	1,808	-	20,472	-	135	-	22,415
Produk petroleum Petroleum products	772	752	3,896	824	12,131	12,393	-469	16,447	46,746
Petrol Petrol	66	25	532	164	2,474	9,780	-9	3,090	16,122
Diesel Diesel	672	697	2,382	627	5,359	361	-814	7,340	16,623
Minyak relau Fuel oil	-	11	232	12	150	-	521	1,683	2,608
LPG LPG	5	10	575	11	942	1,766	-111	456	3,654
Kerosin Kerosene	-	-	7	-	-	-	8	51	66
ATF & AV gas ATF & AV gas	-	-	-	-	3,121	-	-1	827	3,947
Bukan tenaga Non-energy	29	10	168	10	85	486	-63	3,000	3,726
Gas penapisan Refinery gas	-	-	-	-	-	-	-	-	-
Kuasa hidro Hydropower	-	-	-	-	2,265	-	-	-	2,265
Solar Solar	-	-	-	-	-	-	-	-	-
Biomass Biomass	-	-	-	-	-	-	-	-	-
Biogas Biogas	-	-	-	-	-	-	-	-	-
Biodiesel Biodiesel	-	-	-	-	436	-	-140	408	704
Elektrik Electricity	53	13	5,314	789	4,288	2,696	0	130	13,283
Lain-lain Others	-	-	36	-	-	-	-	1	37
JUMLAH PRODUK TENAGA TOTAL ENERGY PRODUCTS	826	1,030	90,450	1,620	52,885	15,092	14	59,325	221,242

Nota/ Notes : ■ Tidak berkenaan/ Not applicable

Jadual 6a: Penggunaan Produk Tenaga - Transformasi, 2018

Table 6a: Use of Energy Product - Transformation, 2018

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
Gas asli Natural gas	-	-	35,636	-	11,542				47,178
LNG LNG	-	-	1,383	-	-				1,383
Minyak mentah Crude oil	-	-	25,553	-	-				25,553
Arang batu & kok Coal & coke	-	-	-	-	20,472				20,472
Produk petroleum Petroleum products	-	-	154	-	204				358
Diesel Diesel	-	-	154	-	187				341
Minyak relau Fuel oil	-	-	-	-	17				17
Kuasa hidro Hydropower	-	-	-	-	2,265				2,265
Jumlah Transformasi Produk Tenaga Total Transformation of Energy Products	-	-	62,762	-	34,483				97,245

Nota/ Notes: ■ Tidak berkenaan/ Not applicable

Jadual 6b: Penggunaan Produk Tenaga - Penggunaan Akhir, 2018

Table 6b: Use of Energy Product - Final Use, 2018

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
Gas asli Natural gas	1	265	16,824	7	1,751	3	-	1,407	20,258
LNG LNG	-	-	-	-	-	-	-	25,920	25,920
Minyak mentah Crude oil	-	-	-	-	-	-	488	15,012	15,500
Arang batu & kok Coal & coke	-	-	1,808	-	-	-	135	-	1,943
Produk petroleum Petroleum products	772	752	3,742	824	11,927	12,393	-469	16,447	46,388
Petrol Petrol	66	25	532	164	2,474	9,780	-9	3,090	16,122
Diesel Diesel	672	697	2,228	627	5,172	361	-814	7,340	16,282
Minyak relau Fuel oil	-	11	232	12	133	0	521	1,683	2,591
LPG LPG	5	10	575	11	942	1,766	-111	456	3,654
Kerosin Kerosene	-	-	6	-	-	-	8	51	66
ATF & AV gas ATF & AV gas	-	-	-	-	3,121	-	-1	827	3,947
Bukan tenaga Non-energy	29	10	168	10	85	486	-63	3,000	3,726
Biodiesel Biodiesel	-	-	-	-	436	-	-140	408	704
Elektrik Electricity	53	13	5,314	789	4,288	2,696	-	130	13,283
Lain-lain Others	-	-	-	-	-	-	-	1	1
Jumlah Penggunaan Akhir Produk Total End-Use of Energy Products	826	1,030	27,688	1,620	18,402	15,092	14	59,325	123,997

Nota/ Notes: ■ Tidak berkenaan/ Not applicable

Jadual 7: Penawaran Produk Tenaga, 2019

Table 7: Supply of Energy Product, 2019

	SEKTOR/ SECTORS					IMPORT	ALIRAN DARI ALAM SEMULA JADI	JUMLAH PENAWARAN
	PERTANIAN	PERLOMBONGAN & PENGKUARIAN	PEMBUATAN	PEMBINAAN	PERKHIDMATAN			
	AGRICULTURE	MINING & QUARRYING	MANUFACTURING	CONSTRUCTION	SERVICES	IMPORTS	FLOW FROM THE ENVIRONMENT	TOTAL SUPPLY
(i) JUMLAH TENAGA DARIPADA ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL INPUTS								
Gas asli <i>Natural gas</i>							73,230	73,230
Minyak mentah <i>Crude oil</i>							29,878	29,878
Arang batu & kok <i>Coal & coke</i>							2,181	2,181
Kuasa hidro <i>Hydropower</i>							2,251	2,251
Solar <i>Solar</i>							128	128
Biomass <i>Biomass</i>							204	204
Biogas <i>Biogas</i>							118	118
Biodiesel <i>Biodiesel</i>							1,351	1,351
JUMLAH TENAGA DARI ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL INPUTS							109,341	109,341
(ii) PRODUK TENAGA ENERGY PRODUCTS								
Gas asli <i>Natural gas</i>	-	65,473	-	-	-	5,325		70,798
LNG <i>LNG</i>	-	-	29,044	-	-	2,663		31,707
Minyak mentah <i>Crude oil</i>	-	29,563	-	-	-	10,306		39,869
Arang batu & kok <i>Coal & coke</i>	-	2,181	-	-	-	19,624		21,805
Produk petroleum <i>Petroleum products</i>	-	-	25,083	-	-	17,661		42,744
Petrol <i>Petrol</i>	-	-	5,174	-	-	8,782		13,956
Diesel <i>Diesel</i>	-	-	8,840	-	-	6,216		15,056
Minyak relau <i>Fuel oil</i>	-	-	1,271	-	-	79		1,350
LPG <i>LPG</i>	-	-	2,620	-	-	443		3,063
Kerosin <i>Kerosene</i>	-	-	54	-	-	-		54
ATF & AV gas <i>ATF & AV gas</i>	-	-	3,488	-	-	577		4,065
Bukan tenaga <i>Non-energy</i>	-	-	3,636	-	-	1,564		5,200
Gas penapisan <i>Refinery gas</i>	-	-	-	-	-	-		-
Kuasa hidro <i>Hydropower</i>	-	-	-	-	2,251	-		2,251
Solar <i>Solar</i>	-	-	-	-	-	-		-
Biomass <i>Biomass</i>	-	-	-	-	-	-		-
Biogas <i>Biogas</i>	-	-	-	-	-	-		-
Biodiesel <i>Biodiesel</i>	-	-	1,350	-	-	-		1,350
Elektrik <i>Electricity</i>	-	-	587	-	13,203	3		13,793
Lain-lain <i>Others</i>	-	-	-	-	-	84		84
JUMLAH PRODUK TENAGA TOTAL ENERGY PRODUCTS	-	97,217	56,064	-	15,454	55,666	-	224,401

Nota/ Notes: ■ Tidak berkenaan/ Not applicable

Jadual 8: Penggunaan Produk Tenaga, 2019

Table 8: Use of Energy Product, 2019

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUIARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
(i) JUMLAH TENAGA DARIPADA ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL INPUTS									
Gas asli Natural gas	-	73,230	-	-	-				73,230
Minyak mentah Crude oil	-	29,878	-	-	-				29,878
Arang batu & kok Coal & coke	-	2,181	-	-	-				2,181
Kuasa hidro Hydropower	-	-	-	-	2,251				2,251
Solar Solar	-	-	-	-	128				128
Biomass Biomass	-	-	-	-	204				204
Biogas Biogas	-	-	-	-	118				118
Biodiesel Biodiesel	-	-	-	-	1,351				1,351
JUMLAH TENAGA DARI ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL	-	105,289	-	-	4,052	-	-	-	109,341
(ii) PRODUK TENAGA ENERGY PRODUCTS									
Gas asli Natural gas	1	262	54,607	7	14,804	3	-	1,114	70,798
LNG LNG	-	-	2,663	-	-	-	-	29,044	31,707
Minyak mentah Crude oil	-	-	25,207	-	-	-	2,179	12,483	39,869
Arang batu & kok Coal & coke	-	-	1,706	-	19,351	-	745	3	21,805
Produk petroleum Petroleum products	829	812	4,006	886	13,115	12,794	-1,881	12,183	42,744
Petrol Petrol	70	26	564	174	2,620	10,357	-203	348	13,956
Diesel Diesel	729	756	2,488	680	6,127	391	-1,417	5,302	15,056
Minyak relau Fuel oil	-	12	267	14	172	-	213	672	1,350
LPG LPG	5	9	525	10	859	1,610	-545	591	3,063
Kerosin Kerosene	-	-	12	-	-	-	-6	48	54
ATF & AV gas ATF & AV gas	-	-	-	-	3,261	-	139	665	4,065
Bukan tenaga Non-energy	26	9	151	9	76	434	-62	4,557	5,200
Gas penapisan Refinery gas	-	-	-	-	-	-	-	-	-
Kuasa hidro Hydropower	-	-	-	-	2,251	-	-	-	2,251
Solar Solar	-	-	-	-	-	-	-	-	-
Biomass Biomass	-	-	-	-	-	-	-	-	-
Biogas Biogas	-	-	-	-	-	-	-	-	-
Biodiesel Biodiesel	-	-	-	-	648	-	78	624	1,350
Elektrik Electricity	55	14	5,513	819	4,449	2,798	-	146	13,793
Lain-lain Others	-	-	73	-	-	-	-	11	84
JUMLAH PRODUK TENAGA TOTAL ENERGY PRODUCTS	885	1,088	93,775	1,712	54,618	15,594	1,121	55,608	224,401

Nota/ Notes : ■ Tidak berkenaan/ Not applicable

Jadual 8a: Penggunaan Produk Tenaga - Transformasi, 2019

Table 8a: Use of Energy Product - Transformation, 2019

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUIARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
Gas asli Natural gas	-	-	37,965	-	13,072				51,037
LNG LNG	-	-	2,663	-	-				2,663
Minyak mentah Crude oil	-	-	25,207	-	-				25,207
Arang batu & kok Coal & coke	-	-	-	-	19,351				19,351
Produk petroleum Petroleum products	-	-	71	-	536				607
Diesel Diesel	-	-	71	-	517				588
Minyak relau Fuel oil	-	-	-	-	19				19
Kuasa hidro Hydropower	-	-	-	-	2,251				2,251
Jumlah Transformasi Produk Tenaga Total Transformation of Energy Products	-	-	65,979	-	35,210				101,189

Nota/ Notes : ■ Tidak berkenaan/ Not applicable

Jadual 8b: Penggunaan Produk Tenaga - Penggunaan Akhir, 2019

Table 8b: Use of Energy Product - Final Use, 2019

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUIARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
Gas asli Natural gas	1	262	16,642	7	1,732	3	-	1,114	19,761
LNG LNG	-	-	-	-	-	-	-	29,044	29,044
Minyak mentah Crude oil	-	-	-	-	-	-	2,179	12,483	14,662
Arang batu & kok Coal & coke	-	-	1,706	-	-	-	745	3	2,454
Produk petroleum Petroleum products	829	812	3,935	886	12,579	12,794	-1,881	12,183	42,137
Petrol Petrol	70	26	564	174	2,620	10,357	-203	348	13,956
Diesel Diesel	729	756	2,417	680	5,610	391	-1,417	5,302	14,468
Minyak relau Fuel oil	-	12	267	14	153	-	213	672	1,331
LPG LPG	5	9	525	10	859	1,610	-545	591	3,063
Kerosin Kerosene	-	-	12	-	-	-	-6	48	54
ATF & AV gas ATF & AV gas	-	-	-	-	3,261	-	139	665	4,065
Bukan tenaga Non-energy	26	9	151	9	76	434	-62	4,557	5,200
Biodiesel Biodiesel	-	-	-	-	648	-	78	624	1,350
Elektrik Electricity	55	14	5,513	819	4,449	2,798	-	146	13,793
Lain-lain Others	-	-	-	-	-	-	-	11	11
Jumlah Penggunaan Akhir Produk Total End-Use of Energy Products	885	1,088	27,796	1,712	19,408	15,594	1,121	55,608	123,212

Nota/ Notes : ■ Tidak berkenaan/ Not applicable

Jadual 9: Penawaran Produk Tenaga, 2020

Table 9: Supply of Energy Product, 2020

	SEKTOR/ SECTORS					IMPORT	ALIRAN DARI ALAM SEMULA JADI	JUMLAH PENAWARAN
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES			
						IMPORTS	FLows FROM THE ENVIRONMENT	TOTAL SUPPLY
(i) JUMLAH TENAGA DARIPADA ALAM SEMULA JADI								
TOTAL ENERGY FROM NATURAL INPUTS								
Gas asli Natural gas							72,578	72,578
Minyak mentah Crude oil							26,783	26,783
Arang batu & kok Coal & coke							1,878	1,878
Kuasa hidro Hydropower							2,348	2,348
Solar Solar							181	181
Biomass Biomass							232	232
Biogas Biogas							142	142
Biodiesel Biodiesel							912	912
JUMLAH TENAGA DARI ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL INPUTS							105,054	105,054
(ii) PRODUK TENAGA								
ENERGY PRODUCTS								
Gas asli Natural gas	-	60,876	-	-	-	5,516		66,392
LNG LNG	-	-	26,155	-	-	2,939		29,094
Minyak mentah Crude oil	-	26,656	-	-	-	6,969		33,625
Arang batu & kok Coal & coke	-	1,878	-	-	-	22,236		24,114
Produk petroleum Petroleum products	-	-	22,259	-	-	12,588		34,847
Petrol Petrol	-	-	4,611	-	-	6,915		11,526
Diesel Diesel	-	-	9,333	-	-	2,812		12,145
Minyak relau Fuel oil	-	-	1,174	-	-	216		1,390
LPG LPG	-	-	2,776	-	-	539		3,315
Kerosin Kerosene	-	-	64	-	-	1		65
ATF & AV gas ATF & AV gas	-	-	2,437	-	-	761		3,198
Bukan tenaga Non-energy	-	-	1,864	-	-	1,344		3,208
Gas penapisan Refinery gas	-	-	-	-	-	-		-
Kuasa hidro Hydropower	-	-	-	-	2,348	-		2,348
Solar Solar	-	-	-	-	-	-		-
Biomass Biomass	-	-	-	-	-	-		-
Biogas Biogas	-	-	-	-	-	-		-
Biodiesel Biodiesel	-	-	912	-	-	-		912
Elektrik Electricity	-	-	1,074	-	12,695	2		13,771
Lain-lain Others	-	-	-	-	-	75		75
JUMLAH PRODUK TENAGA TOTAL ENERGY PRODUCTS	-	89,410	50,400	-	15,043	50,325	-	205,178

Nota/ Notes:  Tidak berkenaan/ Not applicable

Jadual 10: Penggunaan Produk Tenaga, 2020

Table 10: Use of Energy Product, 2020

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
(i) JUMLAH TENAGA DARIPADA ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL INPUTS									
Gas asli Natural gas	-	72,578	-	-	-				72,578
Minyak mentah Crude oil	-	26,783	-	-	-				26,783
Arang batu & kok Coal & coke	-	1,878	-	-	-				1,878
Kuasa hidro Hydropower	-	-	-	-	2,348				2,348
Solar Solar	-	-	-	-	181				181
Biomass Biomass	-	-	-	-	232				232
Biogas Biogas	-	-	-	-	142				142
Biodiesel Biodiesel	-	-	-	-	912				912
JUMLAH TENAGA DARI ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL	-	101,239	-	-	3,815	-	-	-	105,054
(ii) PRODUK TENAGA ENERGY PRODUCTS									
Gas asli Natural gas	1	234	53,585	6	11,385	2	0	1,179	66,392
LNG LNG	-	-	2,939	0	0	0	0	26,155	29,094
Minyak mentah Crude oil	-	-	22,974	0	0	0	47	10,604	33,625
Arang batu & kok Coal & coke	-	-	1,338	0	23,451	0	-675	-	24,114
Produk petroleum Petroleum products	671	656	3,419	717	9,158	10,375	-1,286	11,137	34,847
Petrol Petrol	57	21	457	141	2,123	7,856	-900	1,773	11,526
Diesel Diesel	586	608	2,001	547	4,668	315	-578	3,998	12,145
Minyak relau Fuel oil	-	9	202	10	128	-	183	857	1,390
LPG LPG	5	10	595	11	974	1,827	-365	257	3,315
Kerosin Kerosene	-	-	33	-	-	-	-8	40	65
ATF & AV gas ATF & AV gas	-	-	-	-	1,199	-	833	1,166	3,198
Bukan tenaga Non-energy	23	8	131	8	66	378	-451	3,046	3,208
Gas penapisan Refinery gas	-	-	-	-	-	-	-	-	-
Kuasa hidro Hydropower	-	-	-	-	2,348	-	-	-	2,348
Solar Solar	-	-	-	-	-	-	-	-	-
Biomass Biomass	-	-	-	-	-	-	-	-	-
Biogas Biogas	-	-	-	-	-	-	-	-	-
Biodiesel Biodiesel	-	-	-	-	791	0	-177	298	912
Elektrik Electricity	52	13	5,292	786	4,271	3,220	-	136	13,771
Lain-lain Others	-	-	70	-	-	-	-	5	75
JUMLAH PRODUK TENAGA TOTAL ENERGY PRODUCTS	724	903	89,617	1,509	51,403	13,598	-2,091	49,514	205,178

Nota/ Notes :  Tidak berkenaan/ Not applicable

Jadual 10a: Penggunaan Produk Tenaga - Transformasi, 2020

Table 10a: Use of Energy Product - Transformation, 2020

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUIARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
Gas asli Natural gas	-	-	38,742	-	9,840				48,582
LNG LNG	-	-	2,939	-	-				2,939
Minyak mentah Crude oil	-	-	22,974	-	-				22,974
Arang batu & kok Coal & coke	-	-	-	-	23,451				23,451
Produk petroleum Petroleum products	-	-	56	-	166				222
Diesel Diesel	-	-	56	-	154				210
Minyak relau Fuel oil	-	-	-	-	12				12
Kuasa hidro Hydropower	-	-	-	-	2,348				2,348
Jumlah Transformasi Produk Tenaga Total Transformation of Energy Products	-	-	64,781	-	35,805				100,586

Nota/ Notes : ■ Tidak berkenaan/ Not applicable

Jadual 10b: Penggunaan Produk Tenaga - Penggunaan Akhir, 2020

Table 10b: Use of Energy Product - Final Use, 2020

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUIARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
Gas asli Natural gas	1	234	14,843	6	1,545	2	-	1,179	17,810
LNG LNG	-	-	-	-	-	-	-	26,155	26,155
Minyak mentah Crude oil	-	-	-	-	-	-	47	10,604	10,651
Arang batu & kok Coal & coke	-	-	1,338	-	-	-	-675	-	663
Produk petroleum Petroleum products	671	656	3,363	717	8,992	10,910	-1,286	11,137	35,160
Petrol Petrol	57	21	457	141	2,123	8,390	-900	1,773	12,061
Diesel Diesel	586	608	1,945	547	4,514	315	-578	3,998	11,935
Minyak relau Fuel oil	-	9	202	10	116	-	183	857	1,378
LPG LPG	5	10	595	11	974	1,827	-365	257	3,315
Kerosin Kerosene	-	-	33	-	-	-	-8	40	65
ATF & AV gas ATF & AV gas	-	-	-	-	1,199	0	833	1,166	3,198
Bukan tenaga Non-energy	23	8	131	8	66	378	-451	3,046	3,208
Biodiesel Biodiesel	-	-	-	-	791	-	-177	298	912
Elektrik Electricity	52	13	5,292	786	4,271	2,686	-	136	13,236
Lain-lain Others	-	-	-	-	-	-	-	5	5
Jumlah Penggunaan Akhir Produk Total End-Use of Energy Products	724	903	24,836	1,509	15,598	13,598	-2,091	49,514	104,592

Nota/ Notes : ■ Tidak berkenaan/ Not applicable

Jadual 11: Penawaran Produk Tenaga, 2021

Table 11: Supply of Energy Product, 2021

ktoe								
	SEKTOR/ SECTORS					IMPORT	ALIRAN DARI ALAM SEMULA JADI	JUMLAH PENAWARAN
	PERTANIAN	PERLOMBONGAN & PENGKUARIAN	PEMBUATAN	PEMBINAAN	PERKHIDMATAN			
	AGRICULTURE	MINING & QUARRYING	MANUFACTURING	CONSTRUCTION	SERVICES			
IMPORTS								
FLOWS FROM THE ENVIRONMENT								
TOTAL SUPPLY								
JUMLAH TENAGA DARIPADA ALAM SEMULA JADI								
(i) TOTAL ENERGY FROM NATURAL INPUTS								
Gas asli							75,820	75,820
Natural gas								
Minyak mentah							25,389	25,389
Crude oil								
Arang batu & kok							1,961	1,961
Coal & coke								
Kuasa hidro							2,676	2,676
Hydropower								
Solar							186	186
Solar								
Biomass							150	150
Biomass								
Biogas							99	99
Biogas								
Biodiesel							1,001	1,001
Biodiesel								
JUMLAH TENAGA DARI ALAM SEMULA JADI							107,282	107,282
TOTAL ENERGY FROM NATURAL INPUTS								
PRODUK TENAGA								
(ii) ENERGY PRODUCTS								
Gas asli	-	61,459	-	-	-	6,048		67,507
Natural gas								
LNG	-	-	24,802	-	-	1,996		26,798
LNG								
Minyak mentah	-	25,373	-	-	-	6,557		31,930
Crude oil								
Arang batu & kok	-	1,961	-	-	-	20,355		22,316
Coal & coke								
Produk petroleum	0	0	22,798	0	0	18,331		41,129
Petroleum products								
Petrol	-	-	6,733	-	-	11,134		17,867
Petrol								
Diesel	-	-	6,379	-	-	5,704		12,083
Diesel								
Minyak relau	-	-	1,443	-	-	26		1,469
Fuel oil								
LPG	-	-	2,985	-	-	354		3,339
LPG								
Kerosin	-	-	89	-	-	3		92
Kerosene								
ATF & AV gas	-	-	2,310	-	-	434	2,744	
ATF & AV gas								
Bukan tenaga	-	-	2,859	-	-	676	3,535	
Non-energy								
Gas penapisan	-	-	-	-	-	-	-	
Refinery gas								
Kuasa hidro	-	-	-	-	2,676	-	2,676	
Hydropower								
Solar	-	-	-	-	-	-	-	
Solar								
Biomass	-	-	-	-	-	-	-	
Biomass								
Biogas	-	-	-	-	-	-	-	
Biogas								
Biodiesel	-	-	1,001	-	-	-	1,001	
Biodiesel								
Elektrik	-	-	537	-	12,855	3	13,395	
Electricity								
Lain-lain	-	-	-	-	-	92	92	
Others								
JUMLAH PRODUK TENAGA	-	88,793	49,138	-	15,531	53,382	206,844	
TOTAL ENERGY PRODUCTS								
PRODUCTS								

Nota/ Notes ■ Tidak berkenaan/ Not applicable

Jadual 12: Penggunaan Produk Tenaga, 2021

Table 12: Use of Energy Product, 2021

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
(i) JUMLAH TENAGA DARI ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL INPUTS									
Gas asli Natural gas	-	75,820	-	-	-				75,820
Minyak mentah Crude oil	-	25,389	-	-	-				25,389
Arang batu & kok Coal & coke	-	1,961	-	-	-				1,961
Kuasa hidro Hydropower	-	-	-	-	2,676				2,676
Solar Solar	-	-	-	-	186				186
Biomass Biomass	-	-	-	-	150				150
Biogas Biogas	-	-	-	-	99				99
Biodiesel Biodiesel	-	-	-	-	1,001				1,001
JUMLAH TENAGA DARI ALAM SEMULA JADI TOTAL ENERGY FROM NATURAL	-	103,170	-	-	4,112	-	-	-	107,282
(ii) PRODUK TENAGA ENERGY PRODUCTS									
Gas asli Natural gas	1	250	54,087	7	11,591	3	-	1,569	67,507
LNG LNG	-	-	-	-	-	-	-	26,798	26,798
Minyak mentah Crude oil	-	-	23,897	-	-	-	-852	8,885	31,930
Arang batu & kok Coal & coke	-	-	1,392	-	21,525	-	-601	-	22,316
Produk petroleum Petroleum products	684	673	3,317	724	8,819	9,969	-2,970	19,914	41,129
Petrol Petrol	53	20	430	132	1,998	7,896	-464	7,802	17,867
Diesel Diesel	606	629	2,047	566	4,901	325	-2,426	5,436	12,083
Minyak relau Fuel oil	-	9	205	11	125	0	-18	1,137	1,469
LPG LPG	4	8	459	9	750	1,408	-96	798	3,339
Kerosin Kerosene	-	-	59	-	-	-	-9	42	92
ATF & AV gas ATF & AV gas	-	-	-	-	985	-	223	1,536	2,744
Bukan tenaga Non-energy	20	7	118	7	60	340	-180	3,163	3,535
Gas penapisan Refinery gas	-	-	-	-	-	-	-	-	-
Kuasa hidro Hydropower	-	-	-	-	2,676	-	-	-	2,676
Solar Solar	-	-	-	-	-	-	-	-	-
Biomass Biomass	-	-	-	-	-	-	-	-	-
Biogas Biogas	-	-	-	-	-	-	-	-	-
Biodiesel Biodiesel	-	-	-	-	827	-	-72	246	1,001
Elektrik Electricity	53	13	5,377	799	4,339	2,729	-	85	13,395
Lain-lain Others	-	-	34	-	-	-	-	58	92
JUMLAH PRODUK TENAGA TOTAL ENERGY PRODUCTS	738	936	88,103	1,529	49,777	12,700	-4,495	57,555	206,844

Nota/ Notes : ■ Tidak berkenaan/ Not applicable

Jadual 12a: Penggunaan Produk Tenaga - Transformasi, 2021

Table 12a: Use of Energy Product - Transformation, 2021

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
Gas asli Natural gas	-	-	38,187	-	9,936				48,123
LNG LNG	-	-	-	-	-				-
Minyak mentah Crude oil	-	-	23,897	-	0				23,897
Arang batu & kok Coal & coke	-	-	-	-	21,525				21,525
Produk petroleum Petroleum products	-	-	37	-	244				281
Diesel Diesel	-	-	37	-	236				273
Minyak relau Fuel oil	-	-	-	-	8				8
Kuasa hidro Hydropower	-	-	-	-	2,676				2,676
Lain-lain Others	-	-	34	-	-				34
Jumlah Transformasi Produk Tenaga Total Transformation of Energy Products	-	-	62,155	-	34,381				96,536

Nota/ Notes : ■ Tidak berkenaan/ Not applicable

Jadual 12b: Penggunaan Produk Tenaga - Penggunaan Akhir, 2021

Table 12b: Use of Energy Product - Final Use, 2021

ktoe

	SEKTOR/ SECTORS					ISI RUMAH HOUSEHOLDS	ACCUMULATION	EKSPORT EXPORTS	JUMLAH PENGGUNAAN TOTAL USE
	PERTANIAN AGRICULTURE	PERLOMBONGAN & PENGKUARIAN MINING & QUARRYING	PEMBUATAN MANUFACTURING	PEMBINAAN CONSTRUCTION	PERKHIDMATAN SERVICES				
Gas asli Natural gas	1	250	15,900	7	1,655	3	-	1,569	19,384
LNG LNG	-	-	-	-	-	-	-	26,798	26,798
Minyak mentah Crude oil	-	-	-	-	-	-	-852	8,885	8,033
Arang batu & kok Coal & coke	-	-	1,392	-	-	-	-601	-	791
Produk petroleum Petroleum products	684	673	3,280	724	8,575	9,969	-2,970	19,914	40,848
Petrol Petrol	53	20	430	132	1,998	7,896	-464	7,802	17,867
Diesel Diesel	606	629	2,010	566	4,665	325	-2,426	5,436	11,810
Minyak relau Fuel oil	-	9	205	11	117	-	-18	1,137	1,461
LPG LPG	4	8	459	9	750	1,408	-96	798	3,339
Kerosin Kerosene	-	-	59	-	-	-	-9	42	92
ATF & AV gas ATF & AV gas	-	-	-	-	985	-	223	1,536	2,744
Bukan tenaga Non-energy	20	7	118	7	60	340	-180	3,163	3,535
Biodiesel Biodiesel	-	-	-	-	827	-	-72	246	1,001
Elektrik Electricity	53	13	5,377	799	4,339	2,729	0	85	13,395
Lain-lain Others	-	-	-	-	-	-	-	58	58
Jumlah Penggunaan Akhir Produk Total End-Use of Energy Products	738	936	25,948	1,529	15,396	12,700	-4,495	57,555	110,308

Nota/ Notes : ■ Tidak berkenaan/ Not applicable



NOTA **TEKNIKAL** *TECHNICAL* *NOTES*

1.0 Skop & Liputan

Penyusunan MySEEA PSUT Tenaga 2016 hingga 2021 adalah selaras dengan metodologi yang ditetapkan dalam Manual SEEA *Central Framework* 2012, SEEA *Energy* dan *International Recommendations for Energy Statistics* (IRES) yang dikeluarkan oleh *United Nations* (UN). Akaun ini juga menggunakan prinsip residen yang digariskan dalam *System of National Accounts* (SNA). Klasifikasi produk tenaga yang digunakan adalah berdasarkan *Standard International Energy Product Classification* (SIEC) yang turut diguna pakai oleh *United Nations Statistics Division* (UNSD) dan *International Energy Agency* (IEA). Unit fizikal yang digunakan dalam akaun ini adalah *kilo tonne of oil equivalent* (ktoe).

2.0 Konsep & Definisi

2.1 Tenaga daripada Alam Semula Jadi

Tenaga daripada alam semula jadi merangkumi aliran tenaga daripada pergerakan dan perolehan tenaga dari alam sekitar oleh residen unit ekonomi. Aliran ini termasuk tenaga daripada mineral (cth: minyak, gas asli, arang batu, dll.), dan input daripada sumber tenaga boleh diperbaharui (cth: solar, hidro, biomass, dll.).

2.2 Produk Tenaga

Produk tenaga merujuk kepada produk yang digunakan (atau mungkin digunakan) sebagai sumber tenaga. Ia merangkumi:

1.0 Scope & Coverage

The compilation of MySEEA PSUT Energy 2016 to 2021 are in accordance with methodology set forth in the SEEA Central Framework Manual 2012, SEEA Energy and International Recommendations for Energy Statistics (IRES) published by United Nations (UN). This account also uses resident principle which is outlined in the System of National Accounts (SNA). The classification of energy products used are based on the Standard International Energy Product Classification (SIEC) which is also adopted by the United Nations Statistics Division (UNSD) and the International Energy Agency (IEA). Physical units used in this account is kilo tonne of oil equivalent (ktoe).

2.0 Concept & Definition

2.1 Energy from Natural Inputs

Energy from natural inputs comprise flows of energy from the removal and capture of energy from the environment by resident economic units. These flows include energy from mineral (e.g. oil, natural gas, coal, etc), and inputs from renewable energy sources (e.g. solar, hydro, biomass, etc).

2.2 Energy Products

Energy products refer to products that are used (or might be used) as a source of energy. It comprises:

- i. Bahan api yang dihasilkan/dijana oleh unit ekonomi (termasuk isi rumah) dan digunakan (atau mungkin digunakan) sebagai sumber tenaga;
- ii. Elektrik yang dijana oleh unit ekonomi (termasuk isi rumah); dan
- iii. Haba yang dijana dan dijual kepada pihak ketiga oleh unit ekonomi. Produk tenaga termasuk tenaga daripada biomas dan sisa pepejal yang dibakar untuk pengeluaran elektrik dan/atau haba. Sesetengah produk tenaga boleh digunakan untuk tujuan bukan tenaga.

2.3 Transformasi Produk Tenaga

Transformasi merupakan satu proses menghasilkan produk tenaga lain menggunakan produk tenaga daripada sumber semula jadi. Sebagai contoh, produk arang batu (diekstrak oleh sektor Perlombongan & pengkuarian) digunakan dalam sektor utiliti untuk menghasilkan tenaga elektrik.

- i. *Fuels that are produced/generated by an economic unit (including households) and are used (or might be used) as sources of energy;*
- ii. *Electricity that is generated by an economic unit (including households); and*
- iii. *Heat that is generated and sold to third parties by an economic unit. Energy products include energy from biomass and solid waste that are combusted for the production of electricity and/or heat. Some energy products may be used for non-energy purposes.*

2.3 Transformations of Energy Products

Transformation is a process of producing other energy products using energy products from natural sources. For example, coal products (extracted by Mining & quarrying sector) are used in the utility sector to produce electricity.

2.4 Natural Gas

Natural gas is a mixture of gaseous hydrocarbons, primarily methane, but generally also including ethane, propane and higher hydrocarbons in much smaller amounts and some noncombustible gases such as nitrogen and carbon dioxide.

The majority of natural gas is separated from both "non-associated" gas originating from fields producing hydrocarbons only in gaseous form, and "associated" gas produced in association with crude oil.

The separation process produces natural gas by removing or reducing the hydrocarbons other than methane to levels which are acceptable in the marketable gas. The natural gas liquids (NGL) removed in the process are distributed separately.

Natural gas also includes methane recovered from coal mines (colliery gas) or from coal seams (coal seam gas) and shale gas. When distributed it may also contain methane from anaerobic fermentation or the methanation of biomass.

Natural gas may be liquefied (LNG) by reducing its temperature in order to simplify storage and transportation when production sites are remote from centres of consumption and pipeline transportation is not economically practicable.

2.5 Liquefied Natural Gas (LNG)

Liquid or liquefied hydrocarbons converted from natural gas in separation facilities or gas processing plants. Natural gas liquids include ethane, propane, butane (normal and iso-), (iso) pentane and pentanes plus (sometimes referred to as natural gasoline or plant condensate).

2.6 Crude Oil

Crude oil refers to a mineral oil of fossil origin extracted by conventional means from underground reservoirs, and comprises liquid or near-liquid hydrocarbons and associated impurities such as sulphur and metals. Crude oil exists in the liquid phase under normal surface temperature and pressure, and usually flows to the surface under the pressure of the reservoir. This is termed "conventional" extraction. Crude oil includes condensate from condensate fields, and "field" or "lease" condensate extracted with the crude oil. The various crude oils may be classified according to their sulphur content ("sweet" or "sour") and API gravity ("heavy" or "light"). There are no rigorous specifications for the classifications but a heavy crude oil may be assumed to have an API gravity of less than 20° and a sweet crude oil may be assumed to have less than 0.5% sulphur content.

2.7 Coal & Coke

Coal & coke includes the solid, cellular, infusible material remaining after the carbonisation of certain coals. Various cokes are defined according to the type of coal carbonised and their conditions of carbonisation or use: coke oven coke, gas coke, coke breeze and semi cokes.

2.8 Petrol

Petroleum distillate used as fuel in spark-ignition internal combustion engines. Distillation range is within 30°C and 250°C.

2.9 Diesel

Diesel distillation falls within 200°C to 340°C. Diesel fuels for high-speed diesel engines (automotive) are more critical of fuel quality than diesel for stationary and marine diesel engines. Marine oil usually consists of a blend of diesel oil and some residual (asphaltic) material.

2.10 Fuel Oil

Fuel oil comprises residual fuel oil and heavy fuel oil. Residual fuel oils have a distillation range of 350°C to 650°C and a kinematic viscosity in the range 6 to 55 cSt at 100°C. Their flash point is always above 60°C and their specific gravity is above 0.95. Heavy fuel oil is a general term describing a blended product based on the residues from various refinery processes.

Other names commonly used to describe fuel oil include: bunker fuel, bunker C, fuel oil No.6, industrial fuel oil, marine fuel oil and black oil. Residual and heavy fuel oil are used in medium to large industrial plants, marine applications and power stations in combustion equipment such as boilers, furnaces and diesel engines. Residual fuel oil is also used as fuel within the refinery.

2.11 Liquefied Petroleum Gases (LPG)

LPG refers to liquefied propane (C₃H₈) and butane (C₄H₁₀) or mixtures of both. Commercial grades are usually mixtures of the gases with small amounts of propylene, butylene, isobutene and isobutylene stored under pressure in containers.

The mixture of propane and butane used varies according to purpose and season of the year. The gases may be extracted from natural gas at gas separation plants or at plants re-gasifying imported liquefied natural gas. They are also obtained during the refining of crude oil. LPG may be used for heating and as a vehicle fuel.

2.12 Kerosene

Kerosene refers to mixtures of hydrocarbons in the range C₉ to C₁₆ and distilling over the temperature interval 145°C to 300°C, but not usually above 250°C and with a flash point above 38°C. The chemical compositions of kerosene depend on the nature of the crude oils from which they are derived and the refinery processes that they have undergone. Kerosene obtained from crude oil by atmospheric distillation are known as straight-run kerosene. Such streams may be treated by a variety of processes to produce kerosene that are acceptable for blending as jet fuels.

Kerosene are primarily used as jet fuels. They are also used as domestic heating and cooking fuels, and as solvents. Kerosene may include components or additives derived from biomass when blended.

2.13 Aviation Turbine Fuel (ATF)

ATF refers to light hydrocarbons for use in aviation turbine power units, distilling between 100°C and 250°C. They are obtained by blending kerosene and gasoline or naphtha in such a way that the aromatic content does not exceed 25 per cent in volume, and the vapour pressure is between 13.7 kPa and 20.6 kPa. Gasoline-type jet fuel is also known as “aviation turbine fuel”.

2.14 Aviation Gasoline (AV Gas)

AV gas prepared especially for aviation piston engines with additives which assure performance under flight conditions. Aviation gasolines are predominantly alkylates (obtained by combining C4 and C5 isoparaffins with C3, C4 and C5 olefins) with the possible addition of more aromatic components including toluene. The distillation range is 25°C to 170°C.

2.15 Non Energy Products

Non energy products mainly refers to naphtha bitumen and lubricants, which are obtained by the refinery process from petroleum but used for non-energy purposes. Naphtha is a refined or partly refined light distillate, which is further, blended into motor gasoline or used as feed-stock in the chemical industry. Bitumen is a viscous liquid or solid, non-volatile and possesses waterproofing and adhesive properties. Lubricating oil is used for lubricating purposes and has distillation range within 380°C to 500°C.

2.16 Refinery Gas

Refinery gas refers to the gas released during the distillation of crude oil and comprises methane, ethane, propane and butane. Most refinery gas is retained in the refinery and used as fuel in plant operations.

2.17 Hydropower

Hydropower is electricity generation using the power of falling water.

2.18 Solar

Solar refers to electricity that can be generated through different processes such as: the conversion of energy contained in falling or streaming water, wind or waves; the direct conversion of solar radiation through photovoltaic processes in semiconductor devices (solar cells); or by the combustion of fuels.

2.19 Biomass

Biomass refers to waste material from plants or animals that is not used for food or feed. It can be waste from farming (rice husks, rice stems, palm fronds, coconut shells) or horticulture (yard waste), food processing (corn cobs), animal farming (manure rich in nitrogen and phosphorus), or human waste from sewage plants.

2.20 Biogases

Biogases refers to gases arising from the anaerobic fermentation of biomass and the gasification of solid biomass (including biomass in wastes). The biogases from anaerobic fermentation are composed principally of methane and carbon dioxide and comprise landfill gas, sewage sludge gas and other biogases from anaerobic fermentation. Biogases can also be produced from thermal processes (by gasification or pyrolysis) of biomass and are mixtures containing hydrogen and carbon monoxide (usually known as syngas) along with other components. These gases may be further processed to modify their composition and can be further processed to produce substitute natural gas.

The gases are divided into two groups according to their production: biogases from anaerobic fermentation and biogases from thermal processes. They are used mainly as a fuel but can be used as a chemical feedstock.

2.21 Electricity

Electricity refers to the transfer of energy through the physical phenomena involving electric charges and their effects when at rest and in motion.

Electricity can be generated through different processes such as: the conversion of energy contained in falling or streaming water; the direct conversion of solar radiation through photovoltaic processes in semiconductor devices (solar cells); or by the combustion of fuels.

2.22 Eksport dan Import

Eksport merujuk kepada jumlah tenaga yang dijual oleh residen kepada bukan residen manakala Import pula meliputi jumlah tenaga yang dibeli daripada bukan residen oleh residen.

2.22 Imports and Exports

Exports refer to the amount of energy sold by a resident to a nonresident while the Imports cover the amount of energy purchased from non-resident by the resident.

2.23 Isi Rumah

Isi rumah meliputi seorang atau sekumpulan orang yang bersaudara dan/atau orang yang tidak bersaudara yang biasanya tinggal bersama dan membuat peruntukan yang sama untuk makanan dan keperluan hidup yang lain.

2.23 Households

Households comprises a person or a group of related and/or unrelated persons who usually live together and make common provisions for food and other essentials of living.

2.24 Analisis Intensiti

Analisis intensiti mengukur kecekapan tenaga yang digunakan bagi menghasilkan satu unit output mengikut sektor ekonomi.

Intensiti tenaga =
$$\frac{\text{Penggunaan tenaga (toe)}}{\text{Nilai ditambah (RM) pada harga malar}}$$

2.25 Analisis Pengganda

Analisis pengganda mengukur kesalingbergantungan secara langsung dan tidak langsung antara satu sektor dengan keseluruhan ekonomi yang melibatkan pembelian dan penjualan antara sektor.

3.0 Klasifikasi Sektor

Pengkelasan sektor ekonomi adalah berdasarkan Piawaian Klasifikasi Industri Malaysia (MSIC) 2008 Ver. 1.0. Bagi tujuan laporan ini, ia dikategorikan kepada lima sektor utama seperti berikut:

- i. Pertanian;
- ii. Perlombongan & pengkuarian;
- iv. Pembuatan;
- v. Pembinaan; dan
- vi. Perkhidmatan.

2.24 Intensity Analysis

Intensity analysis measure the energy efficiency used to produce one unit output by economic sector.

*Energy intensity =
$$\frac{\text{Energy Use (toe)}}{\text{Value Added (RM) at constant prices}}$$*

2.25 Multiplier Analysis

Multiplier analysis measures directly and indirectly the interdependence between one sector and the rest of the economy that involves in purchasing and selling between the sectors.

3.0 Sectors Classification

The classification of the economic sector is according to the Malaysia Standards Industrial Classification (MSIC) 2008 Ver. 1.0. For the purpose of this report, the classification is categorised into five main sectors as follows:

- i. Agriculture;*
- ii. Mining & quarrying;*
- iii. Manufacturing;*
- iv. Construction; and*
- v. Services.*

4.0 Sumber Data

Penyediaan MySEEA PSUT-Tenaga adalah merupakan sumber data sekunder iaitu Statistik Imbangan Tenaga Nasional (NEB) yang disusun oleh Suruhanjaya Tenaga.

4.0 Data Source

The preparation of MySEEA PSUT-Energy is as based on secondary data sources namely National Energy Balance (NEB) statistics compiled by the Energy Commission.

5.0 Pembundaran

Perbezaan mungkin berlaku pada jumlah subkomponen dan jumlah besar disebabkan pembundaran angka.

5.0 Rounding

Differences may occur between the sum of sub-components and the totals due to rounding figure.

6.0 Singkatan/ Abbreviations

ATF	<i>Aviation Turbine Fuel</i>
cth	<i>contoh</i>
dll.	<i>dan lain lain</i>
e.g.	<i>example</i>
etc	<i>etcetera</i>
i.e.	<i>that is</i>
IEA	<i>International Energy Agency</i>
IPP	<i>Independent Power Producers</i>
IRES	<i>International Recommendations for Energy Statistics</i>
ISIC	<i>International Standard Industrial Classification</i>
ktoe	<i>kilo tonne of oil equivalent</i>



LNG	Gas Asli Cecair/ <i>Liquefied Natural Gas</i>
LPG	Gas Petroleum Cecair/ <i>Liquefied Petroleum Gas</i>
MSIC	Piawaian Klasifikasi Industri Malaysia/ <i>Malaysia Standard Industrial Classification</i>
NEB	Imbangan Tenaga Nasional/ <i>National Energy Balance</i>
PSUT	Jadual Fizikal Penawaran & Penggunaan/ <i>Physical Supply & Use Table</i>
RM	Ringgit Malaysia
SEB	<i>Sarawak Energy Bhd.</i>
SEEA	<i>System of Environmental-Economic Accounting</i>
SESB	<i>Sabah Electricity Sdn. Bhd.</i>
SIEC	<i>Standard International Energy Product Classification</i>
SNA	<i>System of National Accounts</i>
SUT	<i>Supply & Use Table</i>
TNB	<i>Tenaga Nasional Berhad</i>
Toe	<i>tonne of oil equivalent</i>
UN	<i>United Nations</i>
UNSD	<i>United Nations Statistics Division</i>

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LAMPIRAN *APPENDIX*

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The differences between National Energy Balance and MySEEA PSUT Energy

Item	National Energy Balance	MySEEA PSUT Energy
Format presentation	International Recommendations for Energy Statistics (IRES) Commodity by economic activity (industries classification is modified from ISIC and not consistent with SNA). e.g. the consumption of fuel for all transport is recorded in "Transport" sector.	Supply & Use Table (SUT) Commodity by economic activity and using ISIC for industries classification that is consistent with SNA. e.g. the consumption of fuel for transport will be distributed according to industries' activities/ sectors.
Component	Primary Supply - energy entering the national territory & energy exiting from the national territory (exports/international bunkering) and stock changes. Secondary Supply - energy transformation, energy industries own use & losses. Final consumption - use of fuel, electricity and heat delivered to final consumers of energy.	Supply - consist of 3 components i.e. Energy form natural input (primary production), Energy product (Output + import) & Energy residual. Use - Energy form natural input, Energy product (intermediate consumption, exports, international bunkers, accumulation, and final consumptions) & energy residual.
Residuals/ losses	Losses - generated from commodity (flaring, distribution, storage & transformation).	Residual - generated from commodity & sector (flaring, distribution, storage, transformation & end use).
Boundary	Territory principle/ location - National territory. - Outside the territory are considered rest of the world.	Resident principle - Based on institution units that are resident of a particular national economy. - Non-residence unit are considered
Analysis	Aggregated energy indicators Energy intensity = Final energy demand (toe)/GDP at 2000 prices (RM million)	Energy indicators by sectors - Energy intensity = Energy use by sectors (toe)/Value added at constant 2010 prices by sectors (RM million). - Energy multiplier by detail sectors. - Energy decomposition.

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