Suruhanjaya Tenaga
Energy Commission

# MALAYSIA ENERGY STATISTICS HANDBOOK 2022

Be Energy smart

# MALAYSIA
# ENERGY STATISTICS
# HANDBOOK
# 2022

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# PREFACE

The Energy Commission was established on the 1st of May 2001, under the Energy Commission Act 2001 and it became fully operational in January 2002. Our core function is to regulate electricity and piped gas supply in Peninsular Malaysia and the Federal Territory of Labuan, delicately balancing the priorities of energy providers and the needs of consumers. We are committed to ensuring reliable, safe and cost effective supply of electricity and piped gas to all of our consumers. On top of that, we are also responsible as being the hub for energy data and the focal point for matters related to energy data in Malaysia.

The Malaysia Energy Statistics Handbook is a pocket sized guide that displays the national key energy data. Our database is updated annually, and this handbook is published and distributed annually. The information in this handbook is also available in the MEIH (Malaysia Energy Information Hub) website (https://meih.st.gov.my) as well as in the 'MyEnergyStats' mobile application.

This handbook comprises of 10 main sections, whereby each section contains graphs and charts for users to visualize the energy trend and provides an overview of national energy supply and demand. This handbook displays data on Energy Supply, Energy Transformation, Energy Consumption, Energy Prices, Energy Indicators and Electricity and Piped Gas Performance.

The information presented in this handbook is a supplement to the following publications:

i. National Energy Balance 2020, and
ii. Performance and Statistical Information on the Malaysia Electricity Supply Industry 2021

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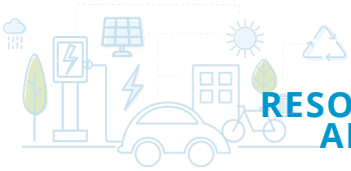
# ENERGY
# **RESOURCES**



# RESOURCES OF CRUDE OIL AND CONDENSATES

**Unit: Billion Barrels**

| YEAR | RESOURCES OF CRUDE OIL AND CONDENSATES BY REGION | | | |
|---|---|---|---|---|
| | PENINSULAR MALAYSIA | SARAWAK | SABAH | TOTAL |
| **1990** | 2.943 | 0.000 | 0.000 | **2.943** |
| **1991** | 3.045 | 0.000 | 0.000 | **3.045** |
| **1992** | 3.743 | 0.604 | 1.267 | **5.614** |
| **1993** | 4.279 | 0.631 | 1.205 | **6.115** |
| **1994** | 2.500 | 0.600 | 1.200 | **4.300** |
| **1995** | 2.455 | 0.590 | 1.067 | **4.112** |
| **1996** | 2.500 | 0.600 | 0.900 | **4.000** |
| **1997** | 2.700 | 0.470 | 0.680 | **3.850** |
| **1998** | 2.440 | 0.580 | 0.860 | **3.880** |
| **1999** | 2.080 | 0.510 | 0.830 | **3.420** |
| **2000** | 1.920 | 0.620 | 0.850 | **3.390** |
| **2001** | 1.920 | 0.620 | 0.850 | **3.390** |
| **2002** | 2.110 | 0.780 | 1.340 | **4.230** |
| **2003** | 2.040 | 1.210 | 1.300 | **4.550** |
| **2004** | 1.980 | 1.430 | 1.420 | **4.830** |
| **2005** | 1.770 | 1.970 | 1.560 | **5.300** |
| **2006** | 1.791 | 2.129 | 1.334 | **5.254** |
| **2007** | 1.452 | 1.975 | 0.889 | **4.316** |
| **2008** | 1.719 | 2.424 | 1.315 | **5.458** |
| **2009** | 1.781 | 2.348 | 1.388 | **5.517** |
| **2010** | 2.061 | 2.376 | 1.362 | **5.799** |
| **2011** | 2.374 | 1.992 | 1.492 | **5.858** |
| **2012** | 2.413 | 1.941 | 1.600 | **5.954** |
| **2013** | 2.335 | 1.923 | 1.592 | **5.850** |
| **2014** | 2.341 | 1.855 | 1.566 | **5.762** |
| **2015** | 2.205 | 2.009 | 1.693 | **5.907** |
| **2016** | 1.735 | 1.925 | 1.370 | **5.030** |
| **2017** | 1.669 | 1.767 | 1.290 | **4.726** |
| **2018** | 1.612 | 1.637 | 1.304 | **4.553** |
| **2019** | 1.476 | 1.497 | 1.702 | **4.675** |
| **2020** | 1.306 | 1.451 | 1.770 | **4.527** |

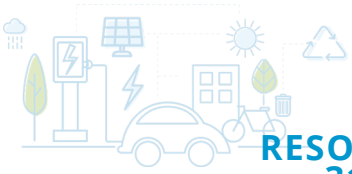
Source: PETRONAS

# RESOURCES OF NATURAL GAS

Unit: Trillion Standard Cubic Feet (TSCF)

| YEAR | RESOURCES OF NATURAL GAS BY REGION | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | PENINSULAR | | | SABAH | | | SARAWAK | | | GRAND TOTAL |
| | NON ASSOCIATED | ASSOCIATED | TOTAL | NON ASSOCIATED | ASSOCIATED | TOTAL | NON ASSOCIATED | ASSOCIATED | TOTAL | |
| **1990** | 21.350 | 6.080 | **27.430** | 1.320 | 1.030 | **2.350** | 23.840 | 3.310 | **27.150** | **56.930** |
| **1991** | 21.320 | 6.200 | **27.520** | 1.380 | 0.980 | **2.360** | 25.770 | 3.400 | **29.170** | **59.050** |
| **1992** | 22.500 | 6.700 | **29.200** | 1.800 | 1.100 | **2.900** | 31.900 | 3.800 | **35.700** | **67.800** |
| **1993** | 23.900 | 7.800 | **31.700** | 3.000 | 1.700 | **4.700** | 36.600 | 3.800 | **40.400** | **76.800** |
| **1994** | 26.600 | 7.900 | **34.500** | 2.900 | 1.200 | **4.100** | 37.900 | 4.200 | **42.100** | **80.700** |
| **1995** | 28.000 | 8.200 | **36.200** | 6.000 | 1.300 | **7.300** | 37.000 | 4.200 | **41.200** | **84.700** |
| **1996** | 28.300 | 8.300 | **36.600** | 4.900 | 1.200 | **6.100** | 33.200 | 4.300 | **37.500** | **80.200** |
| **1997** | 29.400 | 8.900 | **38.300** | 4.800 | 1.200 | **6.000** | 32.500 | 3.000 | **35.500** | **79.800** |
| **1998** | 27.700 | 8.900 | **36.600** | 4.900 | 1.200 | **6.100** | 40.600 | 3.700 | **44.300** | **87.000** |
| **1999** | 25.900 | 8.500 | **34.400** | 6.600 | 1.100 | **7.700** | 39.900 | 3.800 | **43.700** | **85.800** |
| **2000** | 25.300 | 8.400 | **33.700** | 6.700 | 1.300 | **8.000** | 37.400 | 3.400 | **40.800** | **82.500** |
| **2001** | 25.300 | 8.400 | **33.700** | 6.700 | 1.300 | **8.000** | 37.400 | 3.400 | **40.800** | **82.500** |
| **2002** | 24.900 | 8.400 | **33.300** | 6.800 | 1.200 | **8.000** | 42.600 | 3.400 | **46.000** | **87.300** |
| **2003** | 23.900 | 8.500 | **32.400** | 8.100 | 1.800 | **9.900** | 42.700 | 4.000 | **46.700** | **89.000** |
| **2004** | 21.740 | 9.520 | **31.260** | 7.750 | 1.880 | **9.630** | 42.750 | 3.380 | **46.130** | **87.020** |
| **2005** | 21.590 | 9.200 | **30.790** | 8.230 | 2.500 | **10.730** | 40.540 | 3.130 | **43.670** | **85.190** |
| **2006** | 23.170 | 9.650 | **32.820** | 8.210 | 2.750 | **10.960** | 41.240 | 2.930 | **44.170** | **87.950** |
| **2007** | 24.030 | 9.440 | **33.470** | 8.461 | 3.137 | **11.598** | 40.850 | 3.008 | **43.858** | **88.926** |
| **2008** | 24.190 | 9.269 | **33.459** | 9.132 | 3.584 | **12.716** | 38.974 | 2.861 | **41.835** | **88.010** |
| **2009** | 24.079 | 9.153 | **33.232** | 8.578 | 3.523 | **12.101** | 39.727 | 2.908 | **42.635** | **87.968** |
| **2010** | 25.139 | 9.280 | **34.419** | 8.681 | 3.787 | **12.468** | 39.187 | 2.513 | **41.700** | **88.587** |
| **2011** | 25.337 | 9.797 | **35.134** | 8.638 | 3.327 | **11.965** | 39.856 | 3.033 | **42.889** | **89.988** |
| **2012** | 26.144 | 9.594 | **35.738** | 9.801 | 3.502 | **13.303** | 39.901 | 3.180 | **43.081** | **92.122** |
| **2013** | 25.649 | 9.325 | **34.974** | 9.454 | 3.764 | **13.218** | 46.798 | 3.330 | **50.128** | **98.320** |
| **2014** | 25.242 | 9.688 | **34.930** | 10.029 | 3.724 | **13.753** | 48.955 | 3.024 | **51.979** | **100.662** |
| **2015** | 24.022 | 8.471 | **32.493** | 11.884 | 3.149 | **15.033** | 50.034 | 2.853 | **52.887** | **100.413** |
| **2016** | 20.428 | 6.793 | **27.221** | 10.915 | 2.521 | **13.436** | 45.336 | 1.770 | **47.106** | **87.763** |
| **2017** | 19.327 | 6.333 | **25.660** | 11.060 | 1.487 | **12.547** | 43.184 | 1.508 | **44.692** | **82.899** |
| **2018** | 17.266 | 6.422 | **23.688** | 10.504 | 2.078 | **12.582** | 41.754 | 1.507 | **43.261** | **79.531** |
| **2019** | 15.219 | 6.428 | **21.647** | 9.611 | 2.054 | **11.665** | 44.436 | 1.419 | **45.855** | **79.167** |
| **2020** | 14.612 | 5.701 | **20.313** | 8.945 | 1.605 | **10.550** | 43.248 | 1.151 | **44.399** | **75.262** |

Source: PETRONAS

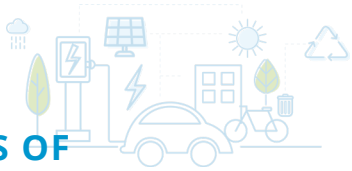


# RESOURCES OF COAL AS OF 31ST DECEMBER 2020

**Unit: Million Tonnes**

| LOCATION | RESOURCES | COAL TYPE |
|---|---|---|
| | MEASURED | |
| **SARAWAK** | | |
| 1. Abok & Silantek, Sri Aman | 7.25 | Coking Coal, Semi-Anthracite and Anthracite |
| 2. Merit-Pila, Kapit | 168.89 | Sub-Bituminous |
| 3. Bintulu | 6.00 | Bituminous (partly coking coal) |
| 4. Mukah - Balingian | 84.15 | Lignite, Hydrous Lignite and Sub-Bituminous |
| 5. Tutoh Area | 5.58 | Sub-Bituminous |
| **Total** | **271.87** | |

Source: Department of Mineral and Geosciences Malaysia



# INSTALLED CAPACITY AS OF 31ST DECEMBER 2020

Unit: MW

| | | HYDRO | NATURAL GAS | COAL | DIESEL / MFO | BIOMASS | SOLAR | BIOGAS | OTHERS | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| PENINSULAR MALAYSIA | TNB | 2,555.1 | 1,973.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **4,528.1** |
| | IPPs | 20.0 | 8,064.4 | 12,180.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **20,264.4** |
| | Co-Generation | 0.0 | 836.5 | 0.0 | 0.0 | 5.6 | 0.0 | 0.0 | 20.9 | **863.0** |
| | Self-Generation | 2.1 | 9.1 | 0.0 | 55.1 | 133.5 | 11.9 | 0.0 | 0.0 | **211.7** |
| | FiT | 63.8 | 0.0 | 0.0 | 0.0 | 44.9 | 288.3 | 101.0 | 0.0 | **498.0** |
| | LSS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 776.9 | 0.0 | 0.0 | **776.9** |
| | NEM | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 227.5 | 0.0 | 0.0 | **227.5** |
| | **Subtotal** | **2,641.0** | **10,883.0** | **12,180.0** | **55.1** | **184.0** | **1,304.6** | **101.0** | **20.9** | **27,369.5** |
| | | | | | | | | | | |
| SABAH | SESB | 81.1 | 112.0 | 0.0 | 236.4 | 0.0 | 29.9 | 0.0 | 0.0 | **459.3** |
| | IPPs | 0.0 | 1,012.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **1,012.6** |
| | Co-Generation | 0.0 | 65.0 | 0.0 | 0.0 | 36.7 | 0.0 | 0.0 | 0.0 | **101.7** |
| | Self-Generation | 0.0 | 4.4 | 0.0 | 124.6 | 113.9 | 0.0 | 4.6 | 0.0 | **247.5** |
| | FiT | 6.5 | 0.0 | 0.0 | 0.0 | 25.8 | 34.4 | 9.6 | 0.0 | **76.3** |
| | LSS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | **50.0** |
| | NEM | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **0.0** |
| | **Subtotal** | **87.6** | **1,194.1** | **0.0** | **361.0** | **176.4** | **114.3** | **14.2** | **0.0** | **1,947.5** |
| | | | | | | | | | | |
| SARAWAK | SEB | 3,459.8 | 584.0 | 1,104.0 | 102.5 | 0.0 | 0.1 | 0.0 | 0.0 | **5,250.4** |
| | Co-Generation | 0.0 | 397.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **397.0** |
| | Self-Generation | 0.0 | 0.0 | 0.0 | 14.7 | 52.2 | 0.0 | 0.5 | 5.1 | **72.5** |
| | **Subtotal** | **3,459.8** | **981.0** | **1,104.0** | **117.2** | **52.2** | **0.1** | **0.5** | **5.1** | **5,719.9** |
| | | | | | | | | | | |
| **Total** | | **6,188.4** | **13,058.1** | **13,284.0** | **533.3** | **412.6** | **1,418.9** | **115.7** | **26.0** | **35,036.9** |
| **Share (%)** | | 17.66% | 37.27% | 37.91% | 1.52% | 1.18% | 4.05% | 0.33% | 0.07% | **100%** |

Notes: 1. Data exclude plants that are not in operation

Source: Energy Commission, Power Utilities and IPPs, SEDA Malaysia and Ministry Of Utility and Telecommunication Sarawak

# AVAILABLE CAPACITY AS OF 31ST DECEMBER 2020

Unit: MW

| | | HYDRO | NATURAL GAS | COAL | DIESEL / MFO | BIOMASS /BIOGAS | SOLAR | TOTAL |
|---|---|---|---|---|---|---|---|---|
| PENINSULAR MALAYSIA | TNB | 2,532.0 | 1,970.0 | 0.0 | 0.0 | 0.0 | 0.0 | **4,502.0** |
| | IPPs | 0.0 | 7,922.0 | 12,054.0 | 0.0 | 0.0 | 0.0 | **19,976.0** |
| | LSS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 579.0 | **579.0** |
| | **Subtotal** | **2,532.0** | **9,892.0** | **12,054.0** | **0.0** | **0.0** | **579.0** | **25,058.0** |
| SABAH | SESB | 72.3 | 101.2 | 0.0 | 187.3 | 0.0 | 0.0 | **360.7** |
| | IPPs | 0.0 | 865.0 | 0.0 | 0.0 | 0.0 | 0.0 | **865.0** |
| | FiT | 6.5 | 0.0 | 0.0 | 0.0 | 35.4 | 34.4 | **76.3** |
| | LSS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 49.2 | **49.2** |
| | **Subtotal** | **78.8** | **966.2** | **0.0** | **187.3** | **35.4** | **83.6** | **1,351.2** |
| SARAWAK | SEB | 3,445.8 | 566.0 | 1,001.0 | 98.5 | 0.0 | 0.1 | **5,111.4** |
| | **Subtotal** | **3,445.8** | **566.0** | **1,001.0** | **98.5** | **0.0** | **0.1** | **5,111.4** |
| **Total** | | **6,056.6** | **11,424.2** | **13,055.0** | **285.8** | **35.4** | **662.7** | **31,519.6** |
| **Share (%)** | | **19.22%** | **36.24%** | **41.42%** | **0.91%** | **0.11%** | **2.10%** | **100%** |

Notes: 1. Available Capacity for Peninsular Malaysia is based on Tested Annual Available Capacity (TAAC),
2. Available Capacity for Sabah is based on Dependable Capacity
3. Bakun hydro acquisition by SEB in Q3 2017

Source: Power Utilities and IPPs

# KEY ECONOMIC AND ENERGY DATA

# KEY ECONOMIC AND ENERGY DATA

| | 2020 | | | | |
|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Total |
| GDP at Current Prices (RM million)* | 367,722 | 302,348 | 368,633 | 379,297 | 1,418,000 |
| GDP at 2015 Prices (RM million)* | 344,788 | 290,090 | 351,926 | 358,340 | 1,345,144 |
| GNI at current prices (RM million)* | 360,611 | 298,554 | 358,358 | 371,957 | 1,389,480 |
| Population ('000 people)** | 32,569 | 32,584 | 32,602 | 32,620 | 32,584 |
| Primary Energy Supply (ktoe) | 24,724 | 20,580 | 24,321 | 24,569 | 94,194 |
| Final Energy Consumption (ktoe) | 15,921 | 11,884 | 14,617 | 14,746 | 57,169 |
| Electricity Consumption (ktoe) | 3,395 | 3,021 | 3,328 | 3,356 | 13,100 |
| Electricity Consumption (GWh) | 39,452 | 35,108 | 38,682 | 39,008 | 152,250 |
| **Per Capita** | | | | | |
| GDP at Current Prices (RM) per Capita* | 45,163 | 37,116 | 45,228 | 46,511 | 43,518 |
| Primary Energy Supply (toe) per Capita | 0.759 | 0.632 | 0.746 | 0.753 | 2.891 |
| Final Energy Consumption (toe) per Capita | 0.489 | 0.365 | 0.448 | 0.452 | 1.755 |
| Electricity Consumption (kWh) per Capita | 1,211 | 1,077 | 1,186 | 1,196 | 4,673 |
| **Energy Intensity** | | | | | |
| Primary Energy Intensity (toe/GDP at 2015 prices (RM million)) | 71.71 | 70.94 | 69.11 | 68.56 | 70.03 |
| Final Energy Intensity (toe/GDP at 2015 prices (RM million)) | 46.2 | 41 | 41.5 | 41.2 | 42.5 |
| Electricity Intensity (toe/GDP at 2015 prices (RM million)) | 9.8 | 10.4 | 9.5 | 9.4 | 9.7 |
| Electricity Intensity (GWh/GDP at 2015 prices (RM million)) | 0.114 | 0.121 | 0.11 | 0.109 | 0.113 |

Notes (*): Quarterly data from Department of Statistics Malaysia
(**): Mid-year population from Department of Statistics Malaysia

# KEY ECONOMIC AND ENERGY DATA BY REGION

| PENINSULAR MALAYSIA | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|
| GDP at Current Prices (RM million)* | 975,581 | 1,038,585 | 1,131,602 | 1,193,460 | 1,255,700 | 1,188,837 |
| GDP at 2015 Prices (RM million)* | 975,581 | 1,020,869 | 1,080,017 | 1,138,500 | 1,193,928 | 1,132,257 |
| Population ('000 people)** | 24,669 | 24,995 | 25,303 | 25,593 | 25,713 | 26,480 |
| Final Energy Consumption (ktoe) | 43,011 | 45,872 | 46,520 | 47,446 | 48,085 | 41,313 |
| Electricity Consumption (ktoe) | 9,531 | 10,026 | 10,004 | 10,378 | 10,776 | 10,172 |
| Electricity Consumption (GWh) | 110,770 | 116,529 | 116,272 | 120,617 | 125,241 | 118,221 |
| **Per Capita** | | | | | | |
| GDP at Current Prices (RM) per Capita* | 39,547 | 41,551 | 44,722 | 46,632 | 48,835 | 44,896 |
| Final Energy Consumption (toe) per Capita | 1.744 | 1.835 | 1.839 | 1.854 | 1.870 | 1.560 |
| Electricity Consumption (kWh) per Capita | 4,490 | 4,662 | 4,595 | 4,713 | 4,871 | 4,465 |
| **Energy Intensity** | | | | | | |
| Final Energy Intensity (toe/GDP at 2015 prices (RM million)) | 44.1 | 44.9 | 43.1 | 41.7 | 40.3 | 36.5 |
| Electricity Intensity (toe/GDP at 2015 prices (RM million)) | 9.8 | 9.8 | 9.3 | 9.1 | 9.0 | 9.0 |
| Electricity Intensity (GWh/GDP at 2015 prices (RM million)) | 0.114 | 0.114 | 0.108 | 0.106 | 0.105 | 0.104 |

Notes (*): 1. GDP data by State is from the Department of Statistics Malaysia
2. GDP for Peninsular Malaysia includes Supra State (Supra State covers production activities that beyond the centre of predominant economic interest for any state)
(**): Mid-year population is from the Department of Statistics Malaysia

| SABAH | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|
| GDP at Current Prices (RM million)* | 79,775 | 86,924 | 101,904 | 108,053 | 106,773 | 91,928 |
| GDP at 2015 prices (RM million)* | 79,775 | 83,930 | 90,583 | 92,257 | 93,265 | 85,378 |
| Population ('000 people)** | 3,816 | 3,900 | 3,954 | 3,997 | 4,004 | 3,514 |
| Final Energy Consumption (ktoe) | 3,845 | 5,015 | 9,512 | 6,598 | 6,561 | 5,655 |
| Electricity Consumption (ktoe) | 499 | 487 | 477 | 484 | 514 | 505 |
| Electricity Consumption (GWh) | 5,805 | 5,665 | 5,545 | 5,630 | 5,974 | 5,869 |
| **Per Capita** | | | | | | |
| GDP at Current Prices (RM) per Capita* | 20,908 | 22,291 | 25,776 | 27,031 | 26,669 | 26,161 |
| Final Energy Consumption (toe) per Capita | 1.008 | 1.286 | 2.406 | 1.651 | 1.639 | 1.609 |
| Electricity Consumption (kWh) per Capita | 1,521 | 1,453 | 1,402 | 1,408 | 1,492 | 1,670 |
| **Energy Intensity** | | | | | | |
| Final Energy Intensity (toe/GDP at 2015 prices (RM million)) | 48.19 | 59.75 | 105.01 | 71.52 | 70.35 | 66.24 |
| Electricity Intensity (toe/GDP at 2015 prices (RM million)) | 6.26 | 5.81 | 5.27 | 5.25 | 5.51 | 5.91 |
| Electricity Intensity (GWh/GDP at 2015 prices (RM million)) | 0.073 | 0.067 | 0.061 | 0.061 | 0.064 | 0.069 |

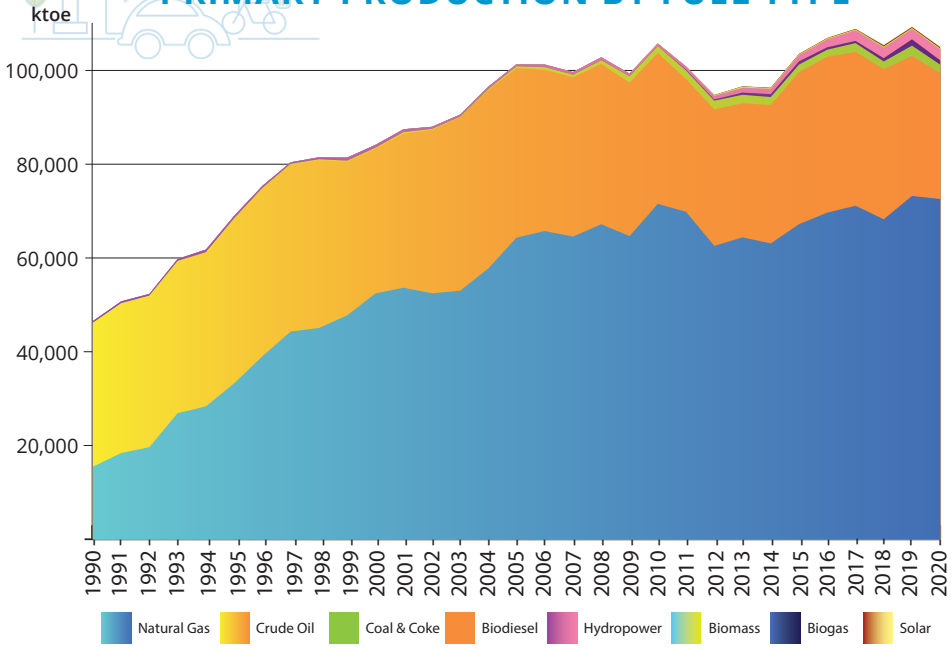
Notes (*): 1. GDP data by State is from the Department of Statistics Malaysia
2. GDP and population for Sabah includes WP Labuan
(**): Mid-year population is from the Department of Statistics Malaysia

| SARAWAK | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|
| GDP at Current Prices (RM million)* | 121,585 | 124,189 | 138,804 | 146,246 | 150,265 | 137,235 |
| GDP at 2015 prices (RM million)* | 121,585 | 124,513 | 130,169 | 133,010 | 136,759 | 127,509 |
| Population ('000 people)** | 2,702 | 2,739 | 2,766 | 2,792 | 2,806 | 2,454 |
| Final Energy Consumption (ktoe) | 4,951 | 6,331 | 6,458 | 10,614 | 11,838 | 10,201 |
| Electricity Consumption (ktoe) | 1,344 | 1,878 | 2,126 | 2,290 | 2,356 | 2,423 |
| Electricity Consumption (GWh) | 15,624 | 21,831 | 24,703 | 26,618 | 27,382 | 28,161 |
| **Per Capita** | | | | | | |
| GDP at Current Prices (RM) per Capita* | 45,007 | 45,464 | 47,055 | 47,645 | 48,738 | 51,966 |
| Final Energy Consumption (toe) per Capita | 1.833 | 2.312 | 2.335 | 3.802 | 4.219 | 4.157 |
| Electricity Consumption (kWh) per Capita | 5,784 | 7,971 | 8,930 | 9,535 | 9,758 | 11,477 |
| **Energy Intensity** | | | | | | |
| Final Energy Intensity (toe/GDP at 2015 prices (RM million)) | 40.72 | 50.85 | 49.61 | 79.80 | 86.56 | 80.00 |
| Electricity Intensity (toe/GDP at 2015 prices (RM million)) | 11.06 | 15.09 | 16.33 | 17.22 | 17.23 | 19.00 |
| Electricity Intensity (GWh/GDP at 2015 prices (RM million)) | 0.129 | 0.175 | 0.190 | 0.200 | 0.200 | 0.221 |

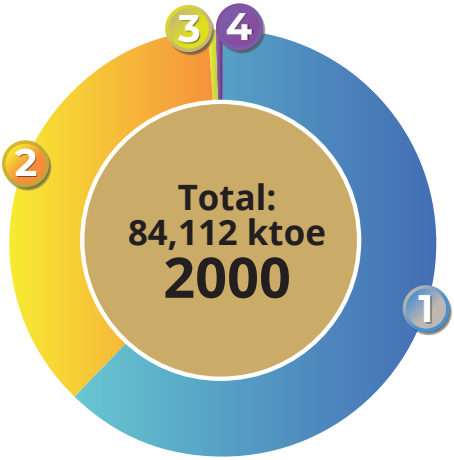
Note (*): GDP data by State is from the Department of Statistics Malaysia
(**): Mid-year population is from the Department of Statistics Malaysia

# ENERGY **SUPPLY**

# PRIMARY PRODUCTION BY FUEL TYPE



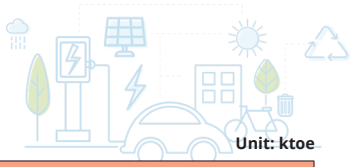

Source: National Energy Balance 2020





| | | | |
|---|---|---|---|
| 62.3% | Natural Gas | 36.7% | Crude Oil |
| 0.7% | Hydropower | 0.3% | Coal & Coke |
| 0.0% | Biodiesel | 0.0% | Biomass |

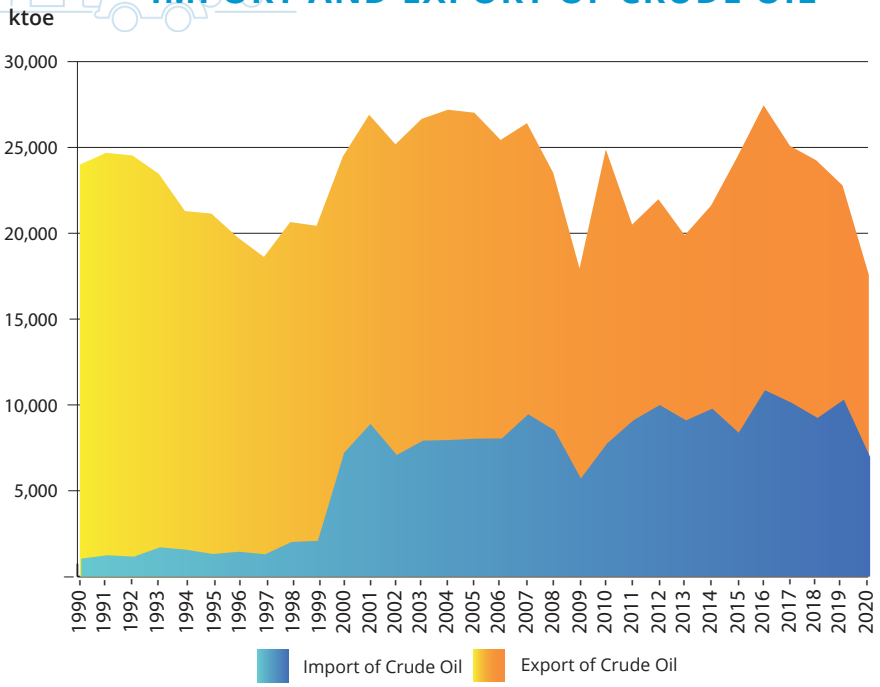
| | | | |
|---|---|---|---|
| 69.1% | Natural Gas | 25.5% | Crude Oil |
| 2.2% | Hydropower | 1.8% | Coal & Coke |
| 0.9% | Biodiesel | 0.2% | Biomass |



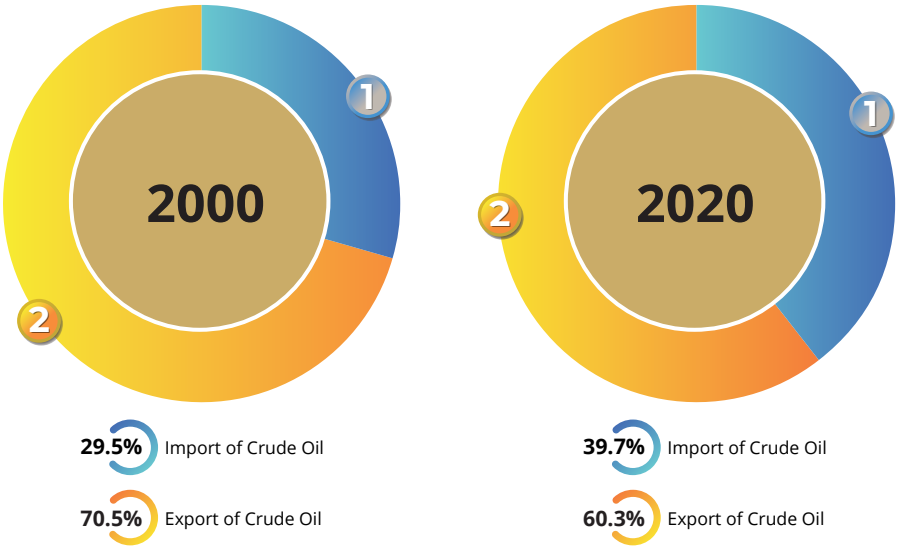
Unit: ktoe

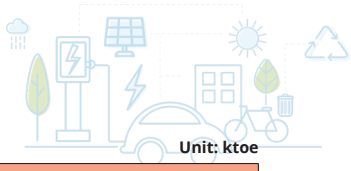
| YEAR | PRIMARY PRODUCTION BY FUEL TYPE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Natural Gas | Crude Oil | Coal & Coke | Biodiesel | Hydropower | Biomass | Biogas | Solar | Total |
| 1990 | 15,487 | 30,629 | 70 | - | 343 | - | - | - | **46,529** |
| 1991 | 18,390 | 31,843 | 126 | - | 379 | - | - | - | **50,738** |
| 1992 | 19,644 | 32,264 | 53 | - | 375 | - | - | - | **52,336** |
| 1993 | 26,898 | 32,218 | 264 | - | 419 | - | - | - | **59,799** |
| 1994 | 28,335 | 32,798 | 89 | - | 561 | - | - | - | **61,783** |
| 1995 | 33,268 | 35,090 | 85 | - | 535 | - | - | - | **68,978** |
| 1996 | 39,031 | 35,744 | 153 | - | 446 | - | - | - | **75,374** |
| 1997 | 44,318 | 35,600 | 153 | - | 333 | - | - | - | **80,404** |
| 1998 | 45,054 | 35,784 | 221 | - | 417 | - | - | - | **81,476** |
| 1999 | 47,746 | 32,835 | 174 | - | 647 | - | - | - | **81,402** |
| 2000 | 52,432 | 30,839 | 242 | - | 599 | - | - | - | **84,112** |
| 2001 | 53,659 | 32,851 | 344 | - | 607 | - | - | - | **87,461** |
| 2002 | 52,465 | 34,838 | 223 | - | 456 | - | - | - | **87,982** |
| 2003 | 53,010 | 37,026 | 107 | - | 435 | - | - | - | **90,578** |
| 2004 | 57,768 | 38,041 | 241 | - | 501 | - | - | - | **96,551** |
| 2005 | 64,337 | 36,127 | 430 | - | 446 | - | - | - | **101,340** |
| 2006 | 65,752 | 34,386 | 569 | - | 554 | - | - | - | **101,261** |
| 2007 | 64,559 | 33,967 | 576 | - | 558 | - | - | - | **99,660** |
| 2008 | 67,191 | 34,195 | 791 | - | 642 | - | - | - | **102,819** |
| 2009 | 64,661 | 32,747 | 1,348 | - | 574 | - | - | - | **99,330** |
| 2010 | 71,543 | 32,163 | 1,511 | - | 540 | - | - | - | **105,757** |
| 2011 | 69,849 | 28,325 | 1,838 | 176 | 656 | - | - | - | **100,844** |
| 2012 | 62,580 | 29,115 | 1,860 | 253 | 779 | 183 | 4 | 11 | **94,785** |
| 2013 | 64,406 | 28,576 | 1,824 | 480 | 1,003 | 297 | 6 | 38 | **96,630** |
| 2014 | 63,091 | 29,545 | 1,694 | 612 | 1,152 | 181 | 12 | 63 | **96,350** |
| 2015 | 67,209 | 32,440 | 1,614 | 684 | 1,346 | 189 | 18 | 75 | **103,575** |
| 2016 | 69,673 | 33,234 | 1,522 | 509 | 1,723 | 198 | 21 | 90 | **106,970** |
| 2017 | 71,140 | 32,807 | 1,884 | 467 | 2,287 | 194 | 41 | 93 | **108,913** |
| 2018 | 68,253 | 31,996 | 1,672 | 703 | 2,265 | 241 | 147 | 172 | **105,449** |
| 2019 | 73,230 | 29,878 | 2,181 | 1,351 | 2,251 | 204 | 118 | 128 | **109,341** |
| 2020 | 72,579 | 26,783 | 1,878 | 912 | 2,348 | 232 | 142 | 181 | **105,054** |

# IMPORT AND EXPORT OF CRUDE OIL




Source: National Energy Balance 2020

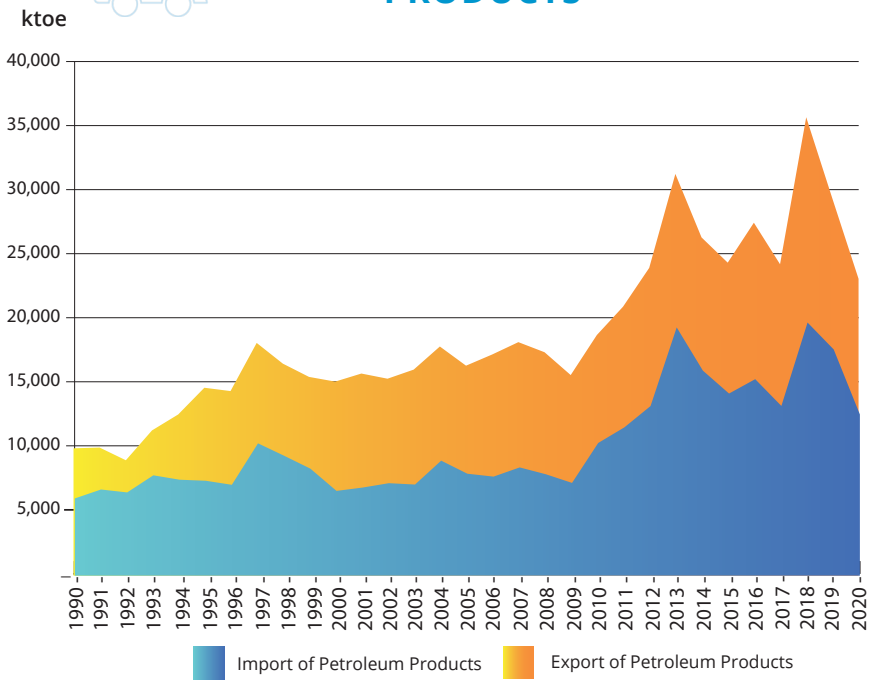




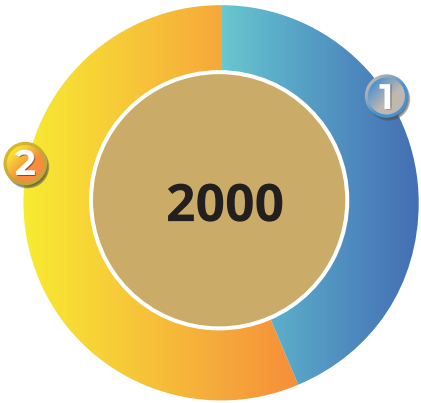
Unit: ktoe

| YEAR | IMPORT AND EXPORT OF CRUDE OIL | |
|---|---|---|
| | Import of Crude Oil | Export of Crude Oil |
| 1990 | 1,047 | 22,949 |
| 1991 | 1,244 | 23,444 |
| 1992 | 1,159 | 23,374 |
| 1993 | 1,703 | 21,766 |
| 1994 | 1,566 | 19,726 |
| 1995 | 1,315 | 19,833 |
| 1996 | 1,446 | 18,315 |
| 1997 | 1,300 | 17,322 |
| 1998 | 2,014 | 18,640 |
| 1999 | 2,081 | 18,355 |
| 2000 | 7,218 | 17,254 |
| 2001 | 8,890 | 18,018 |
| 2002 | 7,083 | 18,100 |
| 2003 | 7,921 | 18,747 |
| 2004 | 7,953 | 19,245 |
| 2005 | 8,031 | 18,994 |
| 2006 | 8,048 | 17,389 |
| 2007 | 9,453 | 16,962 |
| 2008 | 8,519 | 15,001 |
| 2009 | 5,718 | 12,235 |
| 2010 | 7,760 | 17,125 |
| 2011 | 9,104 | 11,404 |
| 2012 | 9,995 | 11,988 |
| 2013 | 9,101 | 10,785 |
| 2014 | 9,780 | 11,831 |
| 2015 | 8,379 | 16,075 |
| 2016 | 10,854 | 16,605 |
| 2017 | 10,135 | 14,958 |
| 2018 | 9,239 | 15,012 |
| 2019 | 10,306 | 12,483 |
| 2020 | 6,969 | 10,604 |

# IMPORT AND EXPORT OF PETROLEUM PRODUCTS




Source: National Energy Balance 2020

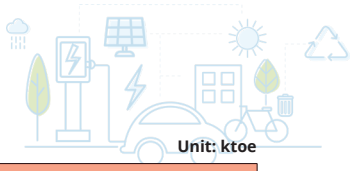



**43.7%** Import of Petroleum Products

**56.3%** Export of Petroleum Products


**54.3%** Import of Petroleum Products

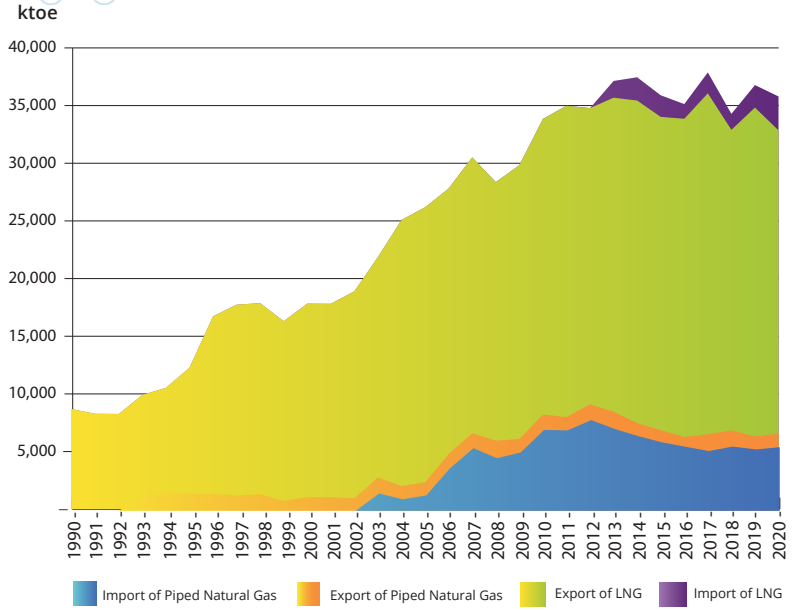
**45.7%** Export of Petroleum Products



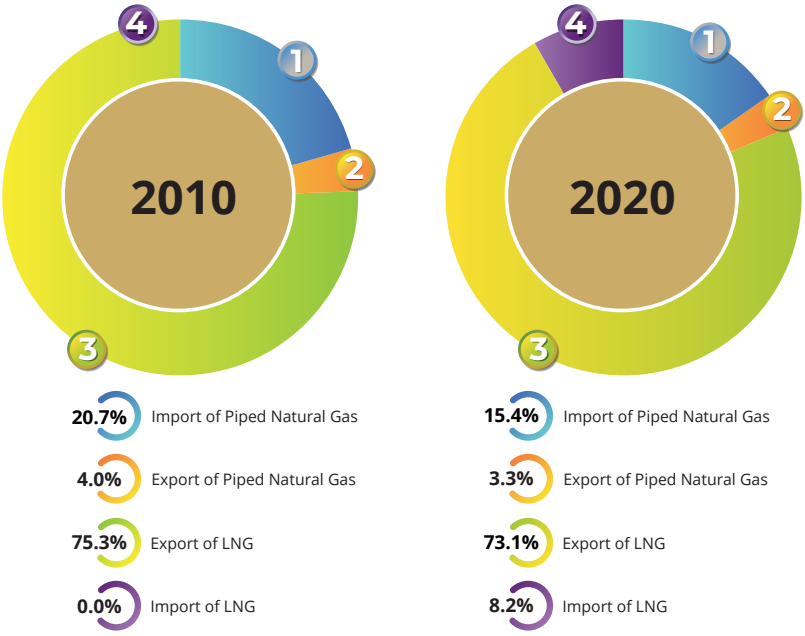
Unit: ktoe

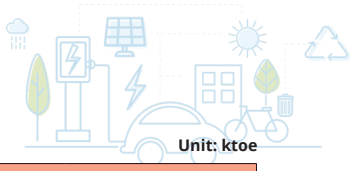
| YEAR | IMPORT AND EXPORT OF PETROLEUM PRODUCTS | |
|---|---|---|
| | Import of Petroleum Products | Export of Petroleum Products |
| 1990 | 6,031 | 3,913 |
| 1991 | 6,728 | 3,272 |
| 1992 | 6,499 | 2,513 |
| 1993 | 7,835 | 3,507 |
| 1994 | 7,492 | 5,094 |
| 1995 | 7,411 | 7,261 |
| 1996 | 7,095 | 7,317 |
| 1997 | 10,331 | 7,840 |
| 1998 | 9,360 | 7,194 |
| 1999 | 8,357 | 7,161 |
| 2000 | 6,619 | 8,533 |
| 2001 | 6,881 | 8,900 |
| 2002 | 7,220 | 8,158 |
| 2003 | 7,116 | 8,972 |
| 2004 | 8,980 | 8,912 |
| 2005 | 7,961 | 8,435 |
| 2006 | 7,734 | 9,535 |
| 2007 | 8,452 | 9,780 |
| 2008 | 7,376 | 9,527 |
| 2009 | 7,243 | 8,419 |
| 2010 | 10,359 | 8,431 |
| 2011 | 11,579 | 9,421 |
| 2012 | 13,243 | 10,785 |
| 2013 | 19,383 | 10,679 |
| 2014 | 16,009 | 10,399 |
| 2015 | 14,219 | 10,219 |
| 2016 | 15,342 | 12,214 |
| 2017 | 13,252 | 11,063 |
| 2018 | 19,763 | 16,028 |
| 2019 | 17,662 | 11,779 |
| 2020 | 12,586 | 10,590 |

# IMPORT AND EXPORT OF PIPED NATURAL GAS AND LIQUEFIED NATURAL GAS (LNG)




Source: National Energy Balance 2020

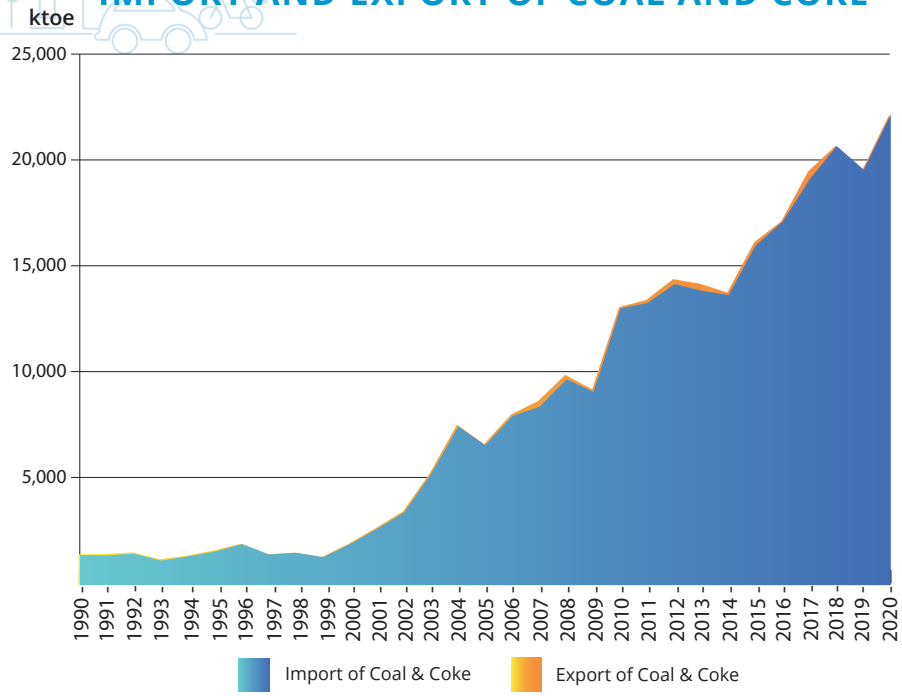




Unit: ktoe

| YEAR | IMPORT AND EXPORT OF PIPED NATURAL GAS AND LIQUEFIED NATURAL GAS (LNG) | | | |
|---|---|---|---|---|
| | Import of Piped Natural Gas | Export of Piped Natural Gas | Export of LNG | Import of LNG |
| 1990 | - | - | 8,686 | - |
| 1991 | - | - | 8,278 | - |
| 1992 | - | 1 | 8,262 | - |
| 1993 | - | 1,258 | 8,654 | - |
| 1994 | - | 1,589 | 8,938 | - |
| 1995 | - | 1,474 | 10,790 | - |
| 1996 | - | 1,474 | 15,251 | - |
| 1997 | - | 1,340 | 16,396 | - |
| 1998 | - | 1,444 | 16,429 | - |
| 1999 | - | 860 | 15,445 | - |
| 2000 | - | 1,198 | 16,633 | - |
| 2001 | - | 1,178 | 16,636 | - |
| 2002 | - | 1,098 | 17,803 | - |
| 2003 | 1,501 | 1,402 | 18,965 | - |
| 2004 | 999 | 1,143 | 22,944 | - |
| 2005 | 1,340 | 1,134 | 23,707 | - |
| 2006 | 3,313 | 1,257 | 22,874 | - |
| 2007 | 5,435 | 1,295 | 23,777 | - |
| 2008 | 4,565 | 1,524 | 22,277 | - |
| 2009 | 5,055 | 1,166 | 23,606 | - |
| 2010 | 7,013 | 1,340 | 25,487 | - |
| 2011 | 6,979 | 1,147 | 26,856 | - |
| 2012 | 7,866 | 1,368 | 25,547 | - |
| 2013 | 7,098 | 1,497 | 27,089 | 1,450 |
| 2014 | 6,472 | 1,129 | 27,835 | 2,019 |
| 2015 | 5,941 | 1,062 | 27,057 | 1,873 |
| 2016 | 5,557 | 841 | 27,457 | 1,275 |
| 2017 | 5,183 | 1,452 | 29,428 | 1,815 |
| 2018 | 5,573 | 1,407 | 25,920 | 1,383 |
| 2019 | 5,325 | 1,114 | 29,044 | 2,663 |
| 2020 | 5,519 | 1,179 | 26,155 | 2,939 |

# IMPORT AND EXPORT OF COAL AND COKE



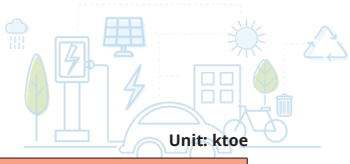

Source: National Energy Balance 2020


**99.0%** Import of Coal & Coke

**1.0%** Export of Coal & Coke


**100.0%** Import of Coal & Coke

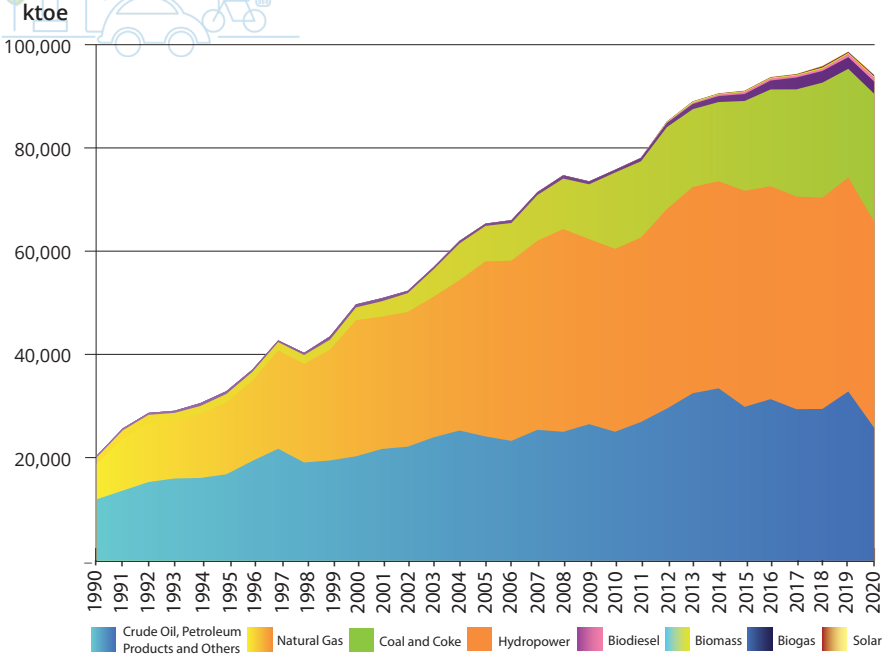
**0.0%** Export of Coal & Coke



Unit: ktoe

| YEAR | IMPORT AND EXPORT OF COAL AND COKE | |
|---|---|---|
| | Import of Coal & Coke | Export of Coal & Coke |
| 1990 | 1,424 | 28 |
| 1991 | 1,407 | 66 |
| 1992 | 1,485 | 60 |
| 1993 | 1,158 | 70 |
| 1994 | 1,351 | 40 |
| 1995 | 1,588 | 50 |
| 1996 | 1,938 | 15 |
| 1997 | 1,446 | 9 |
| 1998 | 1,529 | 7 |
| 1999 | 1,321 | 8 |
| 2000 | 1,943 | 19 |
| 2001 | 2,665 | 34 |
| 2002 | 3,442 | 37 |
| 2003 | 5,268 | 36 |
| 2004 | 7,498 | 85 |
| 2005 | 6,612 | 44 |
| 2006 | 7,988 | 71 |
| 2007 | 8,425 | 273 |
| 2008 | 9,725 | 206 |
| 2009 | 9,126 | 119 |
| 2010 | 13,073 | 62 |
| 2011 | 13,330 | 141 |
| 2012 | 14,221 | 233 |
| 2013 | 13,909 | 326 |
| 2014 | 13,704 | 114 |
| 2015 | 16,051 | 156 |
| 2016 | 17,171 | 15 |
| 2017 | 19,181 | 382 |
| 2018 | 20,743 | - |
| 2019 | 19,624 | 3 |
| 2020 | 22,235 | - |

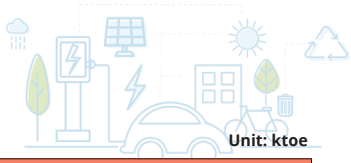
# TOTAL PRIMARY ENERGY SUPPLY BY FUEL TYPE




Source: National Energy Balance 2020


| | |
|---|---|
| 40.7% Crude Oil, Petroleum Products and Others | 53.1% Natural Gas |
| 5.0% Coal and Coke | 1.2% Hydropower |
| 0.0% Biodiesel | 0.0% Biomass |
| 0.0% Biogas | 0.0% Solar |


| | |
|---|---|
| 27.4% Crude Oil, Petroleum Products and Others | 42.4% Natural Gas |
| 26.3% Coal and Coke | 2.5% Hydropower |
| 0.8% Biodiesel | 0.2% Biomass |
| 0.2% Biogas | 0.2% Solar |

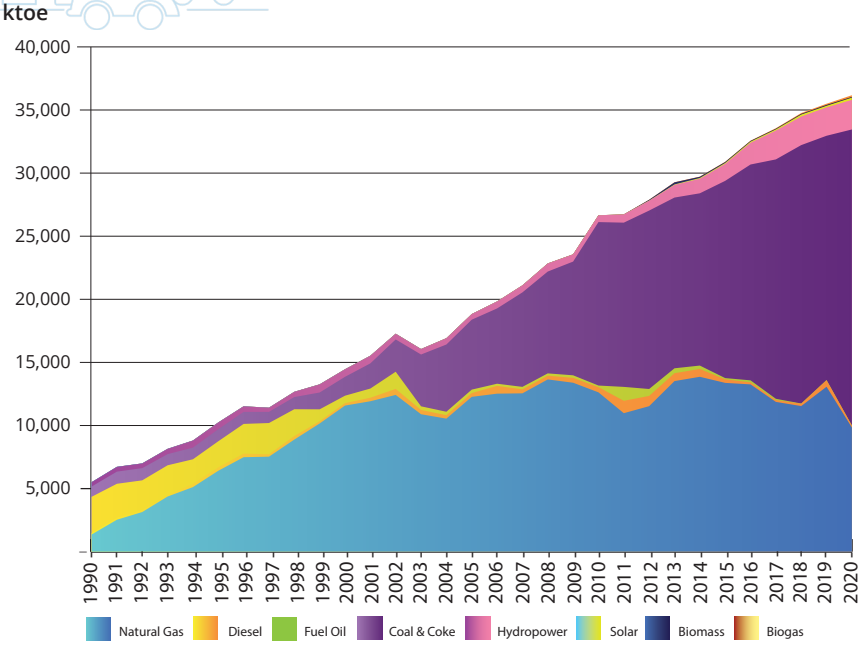


Unit: ktoe

| YEAR | TOTAL PRIMARY ENERGY SUPPLY BY FUEL TYPE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Crude Oil, Petroleum Products and Others | Natural Gas | Coal and Coke | Hydropower | Biodiesel | Biomass | Biogas | Solar | Total |
| 1990 | 11,928 | 6,801 | 1,326 | 343 | - | - | - | - | **20,398** |
| 1991 | 13,606 | 10,112 | 1,564 | 379 | - | - | - | - | **25,661** |
| 1992 | 15,273 | 11,381 | 1,640 | 375 | - | - | - | - | **28,669** |
| 1993 | 15,951 | 11,360 | 1,352 | 419 | - | - | - | - | **29,082** |
| 1994 | 16,055 | 12,392 | 1,563 | 561 | - | - | - | - | **30,571** |
| 1995 | 16,767 | 13,960 | 1,612 | 535 | - | - | - | - | **32,874** |
| 1996 | 19,353 | 15,567 | 1,677 | 446 | - | - | - | - | **37,043** |
| 1997 | 21,720 | 19,041 | 1,622 | 333 | - | - | - | - | **42,716** |
| 1998 | 19,051 | 19,101 | 1,731 | 417 | - | - | - | - | **40,300** |
| 1999 | 19,450 | 21,476 | 1,940 | 647 | - | - | - | - | **43,513** |
| 2000 | 20,242 | 26,370 | 2,486 | 599 | - | - | - | - | **49,697** |
| 2001 | 21,673 | 25,649 | 2,970 | 607 | - | - | - | - | **50,899** |
| 2002 | 22,124 | 26,101 | 3,642 | 456 | - | - | - | - | **52,323** |
| 2003 | 23,936 | 27,257 | 5,316 | 435 | - | - | - | - | **56,944** |
| 2004 | 25,253 | 29,145 | 7,109 | 501 | - | - | - | - | **62,008** |
| 2005 | 24,096 | 33,913 | 6,889 | 446 | - | - | - | - | **65,344** |
| 2006 | 23,239 | 34,917 | 7,299 | 554 | - | - | - | - | **66,009** |
| 2007 | 25,381 | 36,639 | 8,848 | 558 | - | - | - | - | **71,426** |
| 2008 | 24,996 | 39,289 | 9,782 | 642 | - | - | - | - | **74,709** |
| 2009 | 26,482 | 35,851 | 10,623 | 574 | - | - | - | - | **73,530** |
| 2010 | 25,008 | 35,447 | 14,777 | 540 | - | - | - | - | **75,772** |
| 2011 | 26,903 | 35,740 | 14,772 | 656 | 24 | - | - | - | **78,095** |
| 2012 | 29,502 | 38,647 | 15,882 | 779 | 115 | 183 | 4 | 11 | **85,123** |
| 2013 | 32,474 | 39,973 | 15,067 | 1,003 | 188 | 297 | 6 | 38 | **89,046** |
| 2014 | 33,423 | 40,113 | 15,357 | 1,152 | 300 | 181 | 12 | 63 | **90,601** |
| 2015 | 29,836 | 41,853 | 17,406 | 1,346 | 389 | 189 | 18 | 75 | **91,112** |
| 2016 | 31,327 | 41,257 | 18,744 | 1,723 | 389 | 198 | 21 | 90 | **93,748** |
| 2017 | 29,380 | 41,200 | 20,771 | 2,287 | 379 | 194 | 41 | 93 | **94,345** |
| 2018 | 29,429 | 40,939 | 22,280 | 2,265 | 436 | 241 | 147 | 172 | **95,909** |
| 2019 | 32,813 | 41,461 | 21,057 | 2,251 | 648 | 204 | 118 | 128 | **98,681** |
| 2020 | 25,773 | 39,939 | 24,788 | 2,348 | 791 | 232 | 142 | 181 | **94,194** |

# ENERGY
# **TRANSFORMATION**

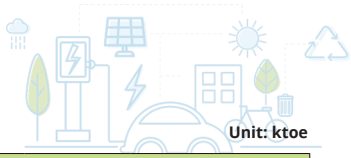
# FUEL INPUT TO POWER STATIONS




Source: National Energy Balance 2020


| | | | |
|---|---|---|---|
| 80.1% | Natural Gas | 1.3% | Diesel |
| 4.1% | Fuel Oil | 10.3% | Coal & Coke |
| 4.1% | Hydropower | 0.0% | Solar |
| 0.0% | Biomass | 0.0% | Biogas |

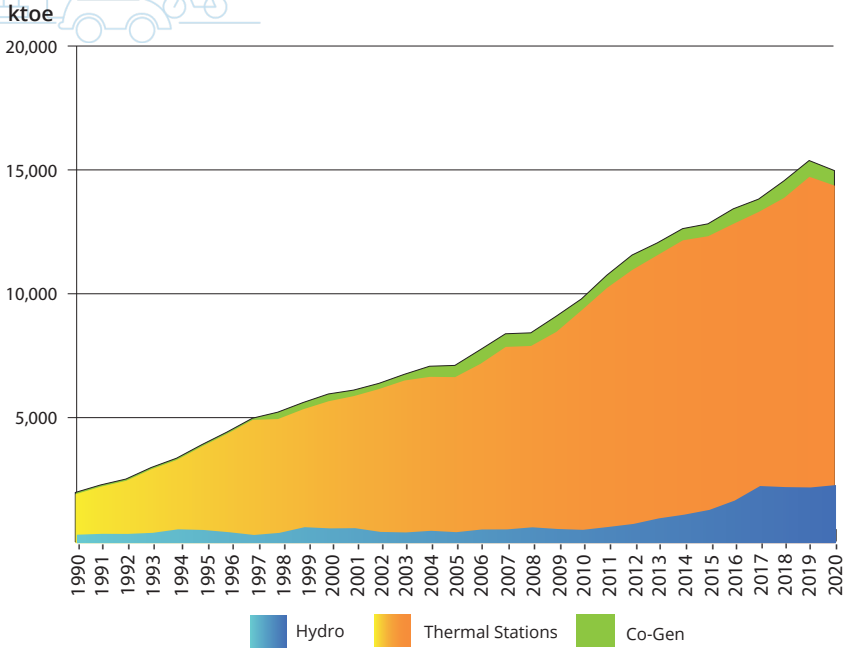

| | | | |
|---|---|---|---|
| 27.2% | Natural Gas | 0.4% | Diesel |
| 0.0% | Fuel Oil | 64.8% | Coal & Coke |
| 6.5% | Hydropower | 0.5% | Solar |
| 0.1% | Biomass | 0.4% | Biogas |



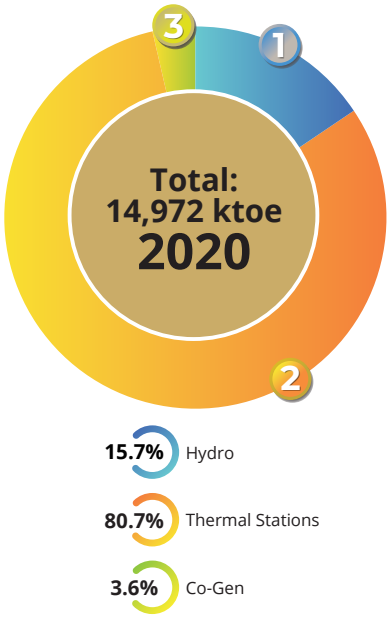
Unit: ktoe

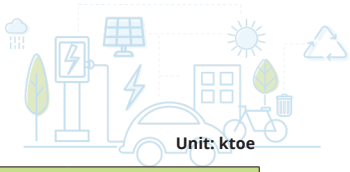
| YEAR | FUEL INPUT TO POWER STATIONS BY FUEL TYPE (ktoe) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Natural Gas | Diesel | Fuel Oil | Coal & Coke | Hydropower | Solar | Biomass | Biogas | Total |
| **1990** | 1,361 | 116 | 2,873 | 813 | 343 | 0 | 0 | 0 | **5,506** |
| **1991** | 2,533 | 164 | 2,687 | 963 | 379 | 0 | 0 | 0 | **6,726** |
| **1992** | 3,144 | 160 | 2,352 | 968 | 375 | 0 | 0 | 0 | **6,999** |
| **1993** | 4,374 | 87 | 2,388 | 884 | 419 | 0 | 0 | 0 | **8,152** |
| **1994** | 5,119 | 249 | 1,957 | 925 | 561 | 0 | 0 | 0 | **8,811** |
| **1995** | 6,414 | 265 | 2,073 | 957 | 535 | 0 | 0 | 0 | **10,244** |
| **1996** | 7,489 | 284 | 2,354 | 950 | 446 | 0 | 0 | 0 | **11,523** |
| **1997** | 7,531 | 185 | 2,482 | 882 | 333 | 0 | 0 | 0 | **11,413** |
| **1998** | 8,886 | 275 | 2,130 | 964 | 417 | 0 | 0 | 0 | **12,672** |
| **1999** | 10,162 | 172 | 950 | 1,332 | 647 | 0 | 0 | 0 | **13,263** |
| **2000** | 11,580 | 191 | 592 | 1,495 | 599 | 0 | 0 | 0 | **14,457** |
| **2001** | 11,922 | 278 | 730 | 1,994 | 607 | 0 | 0 | 0 | **15,531** |
| **2002** | 12,424 | 476 | 1,363 | 2,556 | 456 | 0 | 0 | 0 | **17,275** |
| **2003** | 10,893 | 340 | 289 | 4,104 | 435 | 0 | 0 | 0 | **16,061** |
| **2004** | 10,545 | 272 | 274 | 5,327 | 501 | 0 | 0 | 0 | **16,919** |
| **2005** | 12,271 | 298 | 275 | 5,541 | 446 | 0 | 0 | 0 | **18,831** |
| **2006** | 12,524 | 617 | 171 | 5,964 | 554 | 0 | 0 | 0 | **19,830** |
| **2007** | 12,549 | 314 | 199 | 7,486 | 558 | 0 | 0 | 0 | **21,106** |
| **2008** | 13,651 | 299 | 181 | 8,069 | 642 | 0 | 0 | 0 | **22,842** |
| **2009** | 13,390 | 384 | 205 | 9,010 | 574 | 0 | 0 | 0 | **23,563** |
| **2010** | 12,628 | 415 | 125 | 12,951 | 540 | 0 | 0 | 0 | **26,659** |
| **2011** | 10,977 | 981 | 1,103 | 13,013 | 656 | 0 | 0 | 0 | **26,730** |
| **2012** | 11,533 | 811 | 550 | 14,138 | 779 | 11 | 65 | 4 | **27,891** |
| **2013** | 13,520 | 623 | 392 | 13,527 | 1,003 | 38 | 164 | 6 | **29,273** |
| **2014** | 13,860 | 622 | 269 | 13,648 | 1,152 | 63 | 96 | 12 | **29,722** |
| **2015** | 13,378 | 279 | 101 | 15,627 | 1,346 | 75 | 74 | 17 | **30,898** |
| **2016** | 13,260 | 165 | 155 | 17,101 | 1,723 | 90 | 57 | 18 | **32,569** |
| **2017** | 11,872 | 147 | 99 | 18,967 | 2,287 | 93 | 52 | 40 | **33,557** |
| **2018** | 11,542 | 187 | 17 | 20,472 | 2,265 | 155 | 57 | 64 | **34,759** |
| **2019** | 13,072 | 517 | 19 | 19,351 | 2,251 | 125 | 68 | 95 | **35,497** |
| **2020** | 9,841 | 154 | 12 | 23,451 | 2,348 | 176 | 54 | 137 | **36,172** |

# ELECTRICITY GENERATION BY PLANT TYPE




Source: National Energy Balance 2020

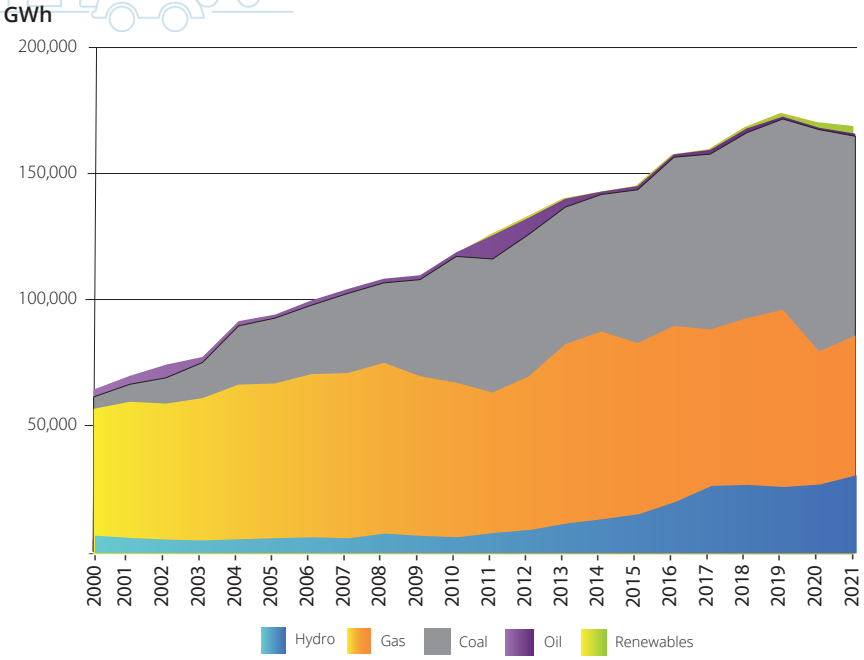





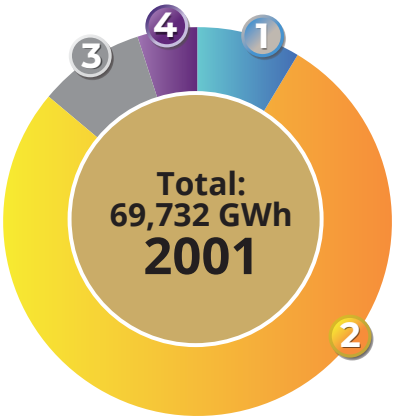
Unit: ktoe

| YEAR | ELECTRICITY GENERATION BY PLANT TYPE | | | |
|---|---|---|---|---|
| | Hydro | Thermal Stations | Co-Gen | Total |
| **1990** | 343 | 1,636 | - | **1,979** |
| **1991** | 379 | 1,904 | - | **2,283** |
| **1992** | 375 | 2,146 | - | **2,521** |
| **1993** | 419 | 2,568 | - | **2,987** |
| **1994** | 561 | 2,801 | - | **3,362** |
| **1995** | 535 | 3,374 | - | **3,909** |
| **1996** | 446 | 3,975 | - | **4,421** |
| **1997** | 333 | 4,644 | - | **4,977** |
| **1998** | 417 | 4,596 | 207 | **5,220** |
| **1999** | 647 | 4,762 | 200 | **5,609** |
| **2000** | 599 | 5,132 | 224 | **5,955** |
| **2001** | 607 | 5,333 | 172 | **6,112** |
| **2002** | 456 | 5,771 | 157 | **6,384** |
| **2003** | 435 | 6,134 | 179 | **6,748** |
| **2004** | 501 | 6,215 | 359 | **7,075** |
| **2005** | 446 | 6,259 | 403 | **7,108** |
| **2006** | 554 | 6,687 | 499 | **7,740** |
| **2007** | 558 | 7,366 | 461 | **8,385** |
| **2008** | 642 | 7,321 | 460 | **8,423** |
| **2009** | 574 | 7,957 | 560 | **9,091** |
| **2010** | 540 | 8,864 | 387 | **9,791** |
| **2011** | 656 | 9,648 | 442 | **10,746** |
| **2012** | 779 | 10,253 | 530 | **11,562** |
| **2013** | 1,003 | 10,627 | 424 | **12,054** |
| **2014** | 1,152 | 11,075 | 402 | **12,629** |
| **2015** | 1,346 | 11,047 | 430 | **12,823** |
| **2016** | 1,723 | 11,170 | 535 | **13,428** |
| **2017** | 2,309 | 11,066 | 445 | **13,820** |
| **2018** | 2,265 | 11,674 | 616 | **14,555** |
| **2019** | 2,251 | 12,540 | 587 | **15,377** |
| **2020** | 2,348 | 12,085 | 539 | **14,972** |

# ELECTRICITY GENERATION MIX



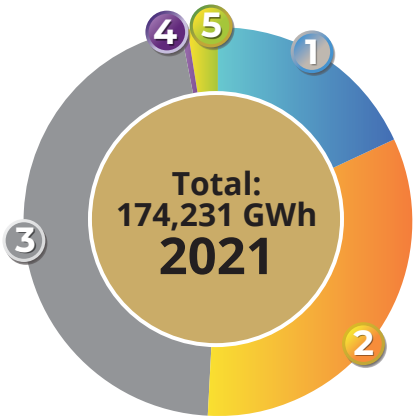

Source: Performance & Statistical Information on the Malaysian Electricity Supply Industry 2021




8.7% Hydro 77.5% Gas

8.9% Coal 4.8% Oil

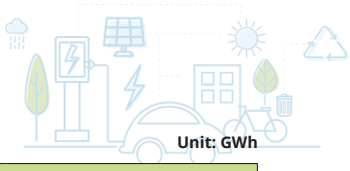
0.0% Renewables




17.8% Hydro 34.2% Gas

45.0% Coal 0.6% Oil

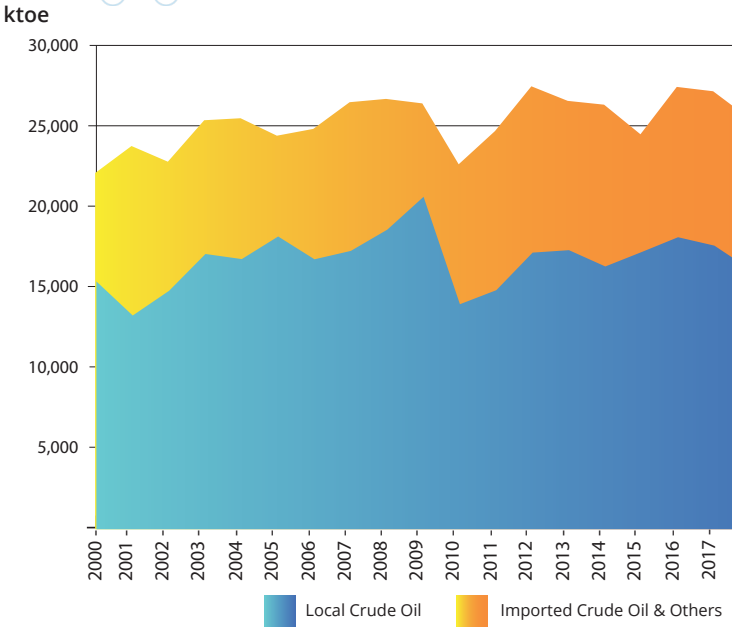
2.4% Renewables



Unit: GWh

| YEAR | ELECTRICITY GENERATION MIX | | | | | |
|---|---|---|---|---|---|---|
| | Hydro | Gas | Coal | Oil | Renewables | Total |
| **2000** | 6,994 | 50,314 | 4,038 | 2,935 | - | **64,281** |
| **2001** | 6,066 | 54,066 | 6,238 | 3,362 | - | **69,732** |
| **2002** | 5,415 | 53,979 | 9,559 | 5,211 | - | **74,164** |
| **2003** | 5,090 | 56,478 | 13,435 | 2,197 | - | **77,200** |
| **2004** | 5,573 | 61,363 | 22,627 | 1,859 | - | **91,422** |
| **2005** | 6,007 | 61,396 | 25,231 | 1,396 | - | **94,030** |
| **2006** | 6,323 | 64,768 | 26,626 | 1,908 | 50 | **99,675** |
| **2007** | 5,957 | 65,568 | 30,856 | 1,768 | 63 | **104,212** |
| **2008** | 7,807 | 67,779 | 31,029 | 1,649 | 66 | **108,330** |
| **2009** | 6,890 | 63,370 | 37,644 | 1,726 | 132 | **109,762** |
| **2010** | 6,361 | 61,342 | 49,401 | 1,659 | 170 | **118,933** |
| **2011** | 8,056 | 55,732 | 52,302 | 9,403 | 1,576 | **127,069** |
| **2012** | 9,251 | 60,992 | 55,615 | 6,623 | 1,596 | **134,077** |
| **2013** | 11,799 | 71,174 | 53,663 | 3,312 | 1,318 | **141,266** |
| **2014** | 13,540 | 74,466 | 53,693 | 1,132 | 995 | **143,826** |
| **2015** | 15,524 | 67,900 | 60,129 | 1,472 | 1,196 | **146,221** |
| **2016** | 20,357 | 69,871 | 66,246 | 1,142 | 1,056 | **158,672** |
| **2017** | 26,716 | 62,131 | 68,866 | 1,695 | 1,316 | **160,724** |
| **2018** | 27,125 | 66,116 | 72,897 | 1,695 | 1,695 | **169,528** |
| **2019** | 26,280 | 70,410 | 74,955 | 949 | 2,569 | **175,163** |
| **2020** | 27,301 | 52,850 | 87,282 | 738 | 3,313 | **171,484** |
| **2021** | 30,986 | 59,568 | 78,384 | 1,066 | 4,227 | **174,231** |

# INPUT OF CRUDE OIL IN REFINERIES



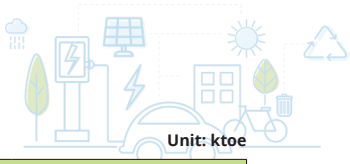

Source: National Energy Balance 2020


**69.6%** Local Crude Oil

**30.4%** Imported Crude Oil & Others


**68.5%** Local Crude Oil

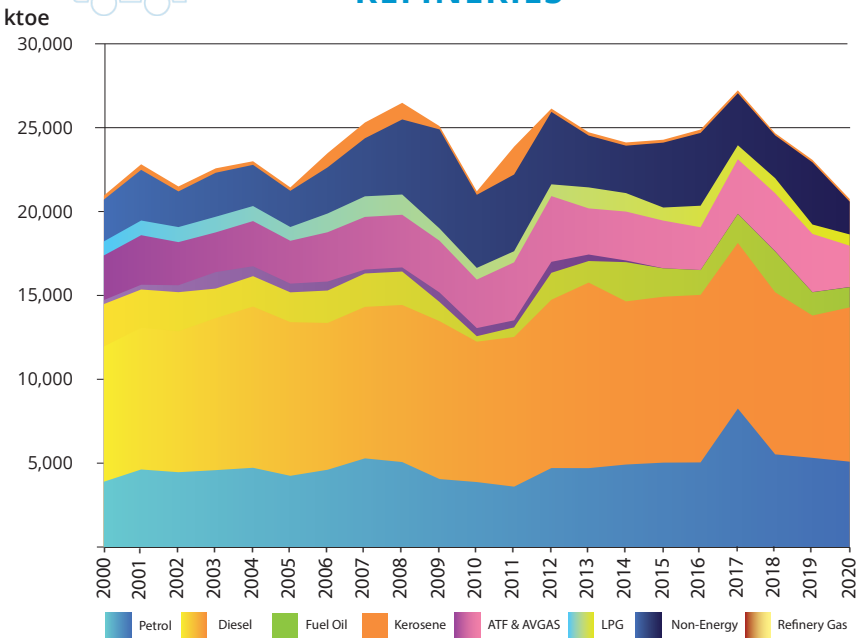
**31.5%** Imported Crude Oil & Others



Unit: ktoe

| YEAR | INPUT OF CRUDE OIL IN REFINERIES | | |
|---|---|---|---|
| | Local Crude Oil | Imported Crude Oil & Others | Total |
| 2000 | 15,421 | 6,743 | 22,164 |
| 2001 | 13,299 | 10,546 | 23,845 |
| 2002 | 14,838 | 8,032 | 22,870 |
| 2003 | 17,127 | 8,322 | 25,449 |
| 2004 | 16,810 | 8,764 | 25,574 |
| 2005 | 18,216 | 6,271 | 24,487 |
| 2006 | 16,797 | 8,113 | 24,910 |
| 2007 | 17,320 | 9,251 | 26,571 |
| 2008 | 18,638 | 8,138 | 26,776 |
| 2009 | 20,685 | 5,812 | 26,497 |
| 2010 | 14,003 | 8,706 | 22,709 |
| 2011 | 14,874 | 9,904 | 24,777 |
| 2012 | 17,213 | 10,347 | 27,560 |
| 2013 | 17,365 | 9,289 | 26,654 |
| 2014 | 16,351 | 10,066 | 26,417 |
| 2015 | 17,249 | 7,327 | 24,575 |
| 2016 | 18,170 | 9,353 | 27,524 |
| 2017 | 17,647 | 9,605 | 27,252 |
| 2018 | 16,144 | 9,409 | 25,553 |
| 2019 | 17,209 | 7,999 | 25,207 |
| 2020 | 15,739 | 7,235 | 22,974 |

# PRODUCTION OF PETROLEUM PRODUCTS FROM REFINERIES




Source: National Energy Balance 2020


| | | | |
|---|---|---|---|
| 18.6% | Petrol | 38.5% | Diesel |
| 12.1% | Fuel Oil | 1.1% | Kerosene |
| 12.7% | ATF & AVGAS | 4.0% | LPG |
| 11.9% | Non-Energy | 1.2% | Refinery Gas |

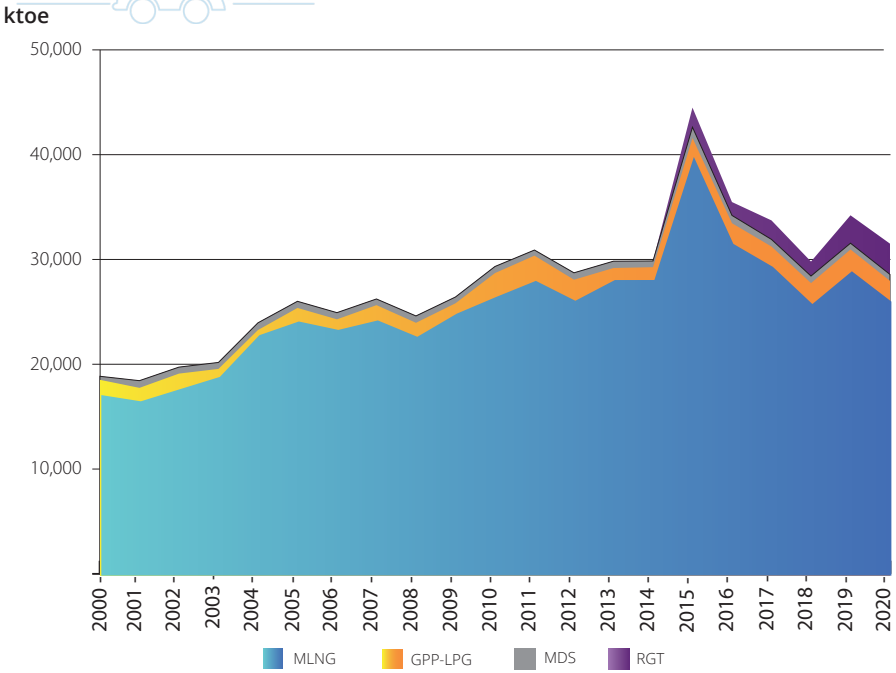

| | | | |
|---|---|---|---|
| 24.5% | Petrol | 44.3% | Diesel |
| 5.8% | Fuel Oil | 0.1% | Kerosene |
| 11.9% | ATF & AVGAS | 3.2% | LPG |
| 9.4% | Non-Energy | 0.8% | Refinery Gas |

Unit: ktoe

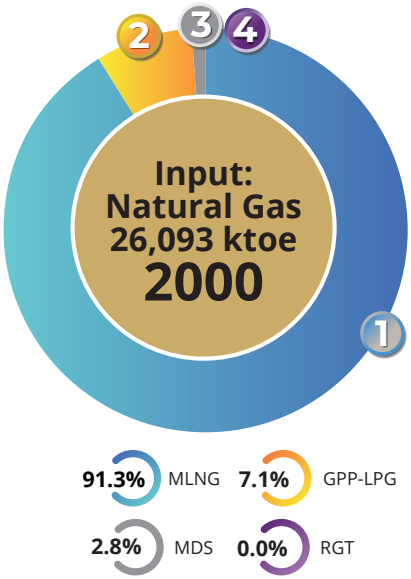
| YEAR | PRODUCTION OF PETROLEUM PRODUCTS FROM REFINERIES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Petrol | Diesel | Fuel Oil | Kerosene | ATF & AVGAS | LPG | Non-Energy | Refinery Gas | Total |
| **2000** | 3,893 | 8,059 | 2,532 | 239 | 2,660 | 838 | 2,492 | 241 | **20,954** |
| **2001** | 4,623 | 8,462 | 2,269 | 283 | 2,954 | 875 | 3,020 | 331 | **22,817** |
| **2002** | 4,460 | 8,401 | 2,332 | 414 | 2,570 | 897 | 2,127 | 294 | **21,495** |
| **2003** | 4,584 | 9,062 | 1,763 | 983 | 2,367 | 932 | 2,623 | 262 | **22,576** |
| **2004** | 4,724 | 9,611 | 1,813 | 591 | 2,693 | 897 | 2,455 | 215 | **22,999** |
| **2005** | 4,245 | 9,161 | 1,777 | 521 | 2,553 | 822 | 2,157 | 202 | **21,438** |
| **2006** | 4,607 | 8,752 | 1,933 | 537 | 2,938 | 1,118 | 2,750 | 849 | **23,484** |
| **2007** | 5,285 | 9,033 | 1,990 | 234 | 3,138 | 1,228 | 3,461 | 938 | **25,307** |
| **2008** | 5,066 | 9,364 | 1,994 | 245 | 3,139 | 1,208 | 4,475 | 991 | **26,482** |
| **2009** | 4,052 | 9,415 | 1,144 | 565 | 3,085 | 732 | 5,905 | 195 | **25,093** |
| **2010** | 3,873 | 8,369 | 327 | 483 | 2,891 | 697 | 4,357 | 209 | **21,206** |
| **2011** | 3,599 | 8,925 | 571 | 419 | 3,457 | 665 | 4,572 | 1,659 | **23,867** |
| **2012** | 4,708 | 10,033 | 1,608 | 654 | 3,918 | 702 | 4,318 | 197 | **26,138** |
| **2013** | 4,702 | 11,063 | 1,286 | 387 | 2,750 | 1,252 | 3,089 | 195 | **24,724** |
| **2014** | 4,918 | 9,725 | 2,340 | 100 | 2,916 | 1,102 | 2,826 | 192 | **24,119** |
| **2015** | 5,031 | 9,890 | 1,692 | 6 | 2,841 | 780 | 3,869 | 172 | **24,281** |
| **2016** | 5,044 | 9,988 | 1,479 | 4 | 2,548 | 1,285 | 4,339 | 201 | **24,888** |
| **2017** | 8,253 | 9,877 | 1,725 | 10 | 3,255 | 832 | 3,100 | 174 | **27,226** |
| **2018** | 5,524 | 9,665 | 2,432 | 18 | 3,451 | 900 | 2,550 | 130 | **24,669** |
| **2019** | 5,317 | 8,484 | 1,388 | 8 | 3,470 | 560 | 3,708 | 147 | **23,082** |
| **2020** | 5,089 | 9,199 | 1,204 | 12 | 2,459 | 672 | 1,954 | 156 | **20,745** |

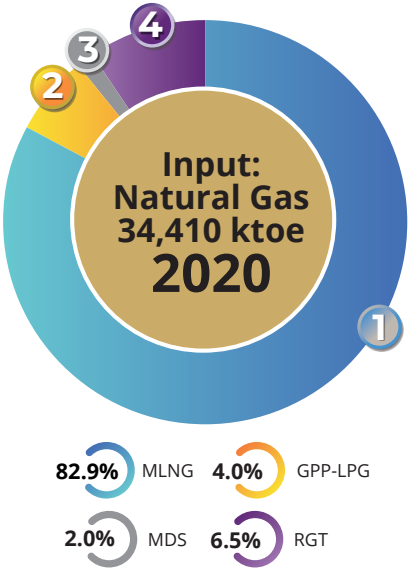
Notes: 1. Middle Distillate Synthesis (MDS) commenced pre-commercialization operation in year 2000
2. MLNG plant produced LPG in 2003

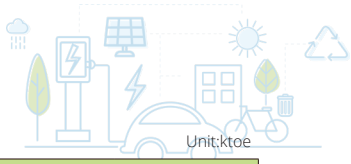
# CONVERSION IN GAS PLANTS




Source: National Energy Balance 2020





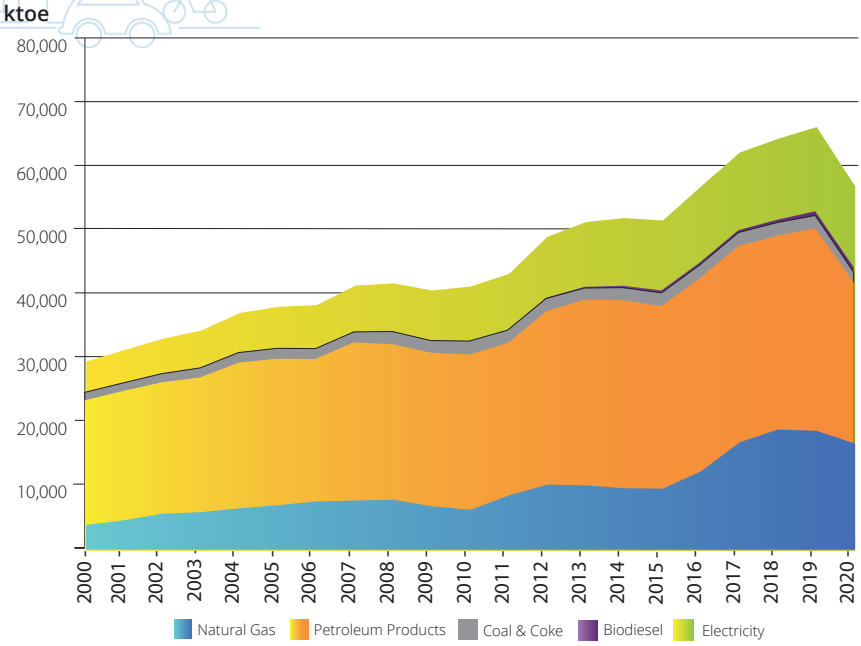
Unit:ktoe

| YEAR | INPUT: | CONVERSION IN GAS PLANTS | | | |
|---|---|---|---|---|---|
| | Natural Gas | MLNG | GPP-LPG | MDS | RGT |
| 2000 | 26,093 | 17,231 | 1,482 | 164 | n/a |
| 2001 | 25,703 | 16,636 | 1,310 | 513 | n/a |
| 2002 | 25,571 | 17,803 | 1,504 | 445 | n/a |
| 2003 | 27,940 | 18,965 | 790 | 443 | n/a |
| 2004 | 33,176 | 22,944 | 520 | 513 | n/a |
| 2005 | 36,447 | 24,254 | 1,319 | 460 | n/a |
| 2006 | 35,378 | 23,450 | 1,036 | 464 | n/a |
| 2007 | 38,141 | 24,355 | 1,483 | 417 | n/a |
| 2008 | 38,193 | 22,793 | 1,362 | 481 | n/a |
| 2009 | 37,098 | 25,004 | 1,012 | 426 | n/a |
| 2010 | 40,246 | 26,601 | 2,299 | 454 | n/a |
| 2011 | 40,737 | 28,130 | 2,434 | 359 | n/a |
| 2012 | 40,042 | 26,231 | 2,035 | 486 | n/a |
| 2013 | 39,678 | 28,209 | 1,174 | 478 | n/a |
| 2014 | 39,193 | 28,213 | 1,250 | 420 | n/a |
| 2015 | 40,773 | 39,957 | 1,826 | 862 | 1,873 |
| 2016 | 39,665 | 31,658 | 1,997 | 573 | 1,277 |
| 2017 | 38,296 | 29,468 | 1,961 | 509 | 1,815 |
| 2018 | 32,980 | 25,973 | 2,022 | 501 | 1,383 |
| 2019 | 33,968 | 29,074 | 2,107 | 425 | 2,663 |
| 2020 | 34,410 | 26,206 | 1,998 | 441 | 2,939 |

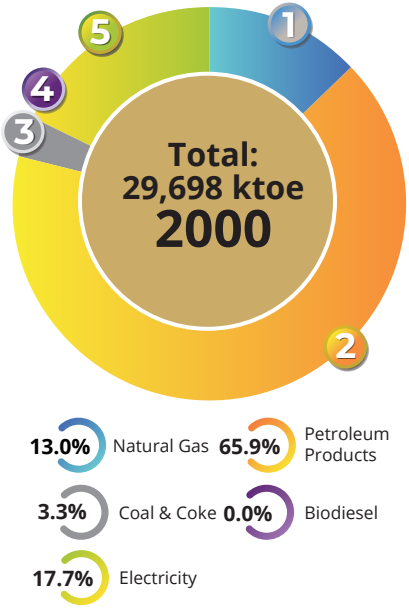
Note : MDS commenced pre-commercialisation operation in year 2000
Source: Oil and gas companies

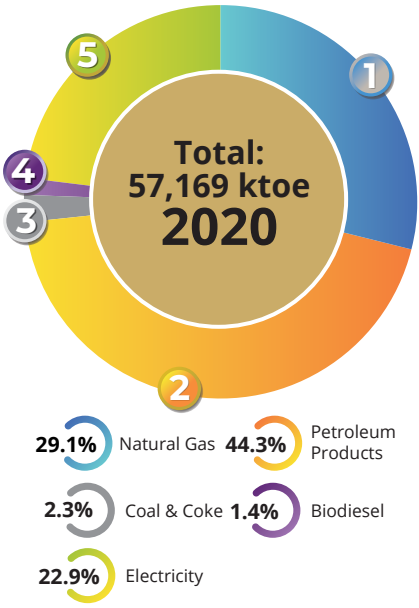
# ENERGY CONSUMPTION

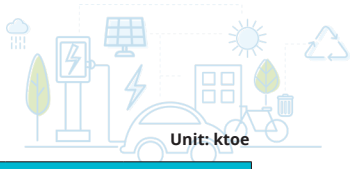
# FINAL ENERGY CONSUMPTION BY FUEL TYPE




Source: National Energy Balance 2020



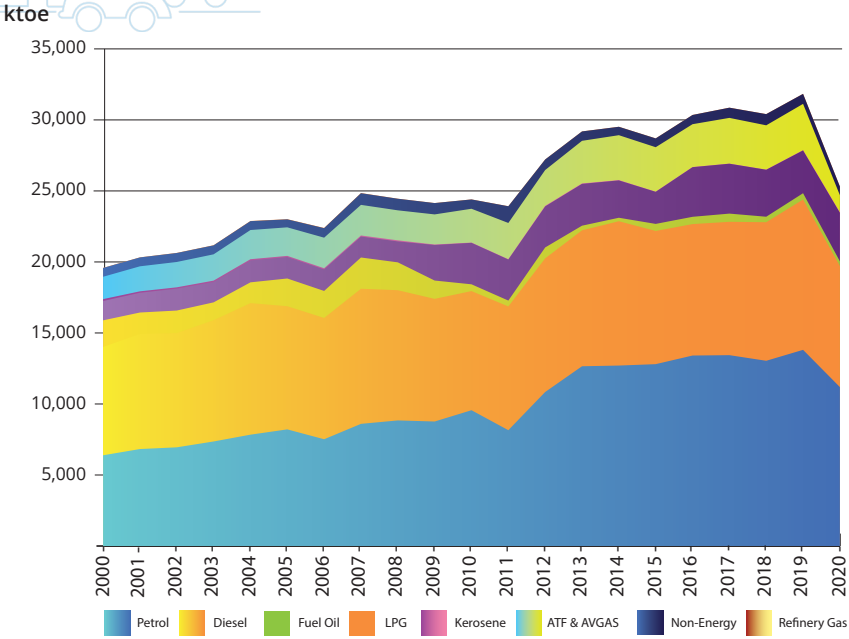





Unit: ktoe

| YEAR | FINAL ENERGY CONSUMPTION BY FUEL TYPE | | | | | |
|---|---|---|---|---|---|---|
| | Natural Gas | Petroleum Products | Coal & Coke | Biodiesel | Electricity | Total |
| **2000** | 3,862 | 19,582 | 991 | - | 5,263 | **29,698** |
| **2001** | 4,620 | 20,323 | 977 | - | 5,594 | **31,514** |
| **2002** | 5,643 | 20,638 | 1,086 | - | 5,922 | **33,289** |
| **2003** | 5,886 | 21,175 | 1,212 | - | 6,313 | **34,586** |
| **2004** | 6,490 | 22,886 | 1,305 | - | 6,642 | **37,323** |
| **2005** | 6,981 | 23,012 | 1,348 | - | 6,944 | **38,285** |
| **2006** | 7,562 | 22,398 | 1,335 | - | 7,272 | **38,567** |
| **2007** | 7,709 | 24,852 | 1,362 | - | 7,683 | **41,606** |
| **2008** | 7,818 | 24,451 | 1,713 | - | 7,986 | **41,968** |
| **2009** | 6,802 | 24,145 | 1,613 | - | 8,286 | **40,846** |
| **2010** | 6,254 | 24,403 | 1,826 | - | 8,993 | **41,476** |
| **2011** | 8,515 | 23,922 | 1,759 | 24 | 9,236 | **43,456** |
| **2012** | 10,206 | 27,215 | 1,744 | 115 | 10,011 | **49,290** |
| **2013** | 10,076 | 29,190 | 1,539 | 188 | 10,590 | **51,584** |
| **2014** | 9,641 | 29,517 | 1,709 | 300 | 11,042 | **52,209** |
| **2015** | 9,566 | 28,699 | 1,778 | 389 | 11,397 | **51,829** |
| **2016** | 12,304 | 30,348 | 1,785 | 389 | 12,394 | **57,219** |
| **2017** | 16,838 | 30,862 | 1,804 | 379 | 12,607 | **62,490** |
| **2018** | 18,851 | 30,409 | 1,808 | 436 | 13,153 | **64,658** |
| **2019** | 18,647 | 31,835 | 1,706 | 648 | 13,647 | **66,483** |
| **2020** | 16,631 | 25,309 | 1,338 | 791 | 13,100 | **57,169** |

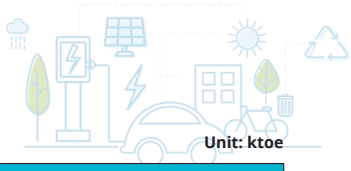
# FINAL ENERGY CONSUMPTION FOR PETROLEUM PRODUCTS




Source: National Energy Balance 2020



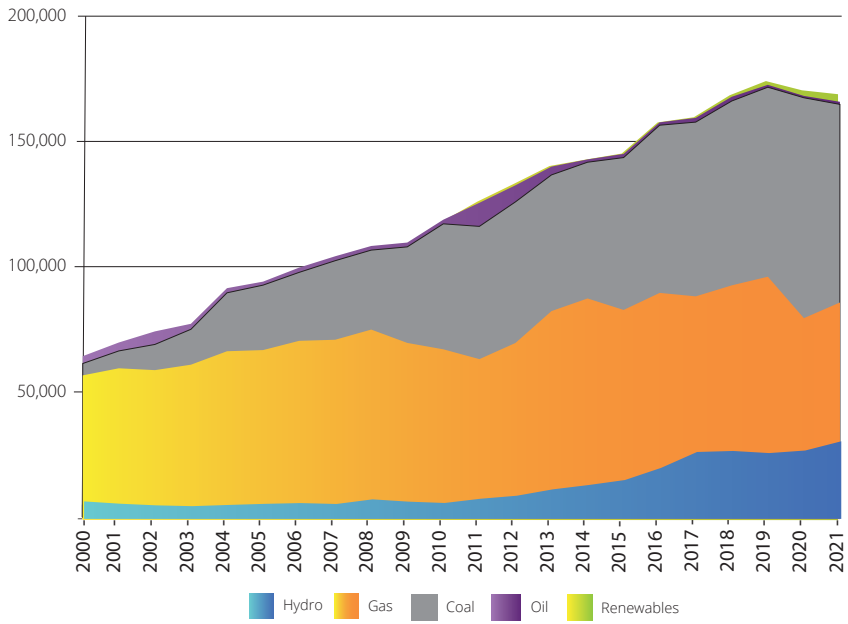
| 2000 | | | | 2020 | | | |
|---|---|---|---|---|---|---|---|
| 32.6% | Petrol | 39.0% | Diesel | 44.2% | Petrol | 33.6% | Diesel |
| 9.6% | Fuel Oil | 7.0% | LPG | 1.3% | Fuel Oil | 13.5% | LPG |
| 0.7% | Kerosene | 8.0% | ATF & AVGAS | 0.1% | Kerosene | 4.7% | ATF & AVGAS |
| 3.2% | Non-Energy | 0.0% | Refinery Gas | 2.4% | Non-Energy | 0.0% | Refinery Gas |



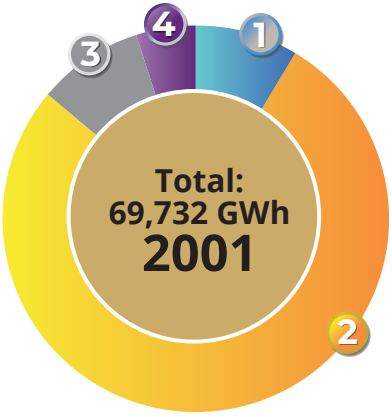
Unit: ktoe

| YEAR | FINAL ENERGY CONSUMPTION FOR PETROLEUM PRODUCTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Petrol | Diesel | Fuel Oil | LPG | Kerosene | ATF & AVGAS | Non-Energy | Refinery Gas | Total |
| **2000** | 6,387 | 7,627 | 1,875 | 1,362 | 131 | 1,574 | 622 | 3 | **19,581** |
| **2001** | 6,827 | 8,116 | 1,497 | 1,392 | 99 | 1,762 | 626 | 4 | **20,323** |
| **2002** | 6,948 | 8,042 | 1,589 | 1,542 | 92 | 1,785 | 633 | 6 | **20,637** |
| **2003** | 7,360 | 8,539 | 1,256 | 1,437 | 93 | 1,852 | 632 | 7 | **21,176** |
| **2004** | 7,839 | 9,262 | 1,463 | 1,542 | 86 | 2,056 | 626 | 11 | **22,885** |
| **2005** | 8,211 | 8,672 | 1,953 | 1,510 | 81 | 2,010 | 564 | 10 | **23,011** |
| **2006** | 7,517 | 8,540 | 1,901 | 1,520 | 79 | 2,152 | 672 | 12 | **22,393** |
| **2007** | 8,600 | 9,512 | 2,202 | 1,474 | 76 | 2,155 | 823 | 9 | **24,851** |
| **2008** | 8,842 | 9,167 | 1,963 | 1,475 | 75 | 2,112 | 818 | 0 | **24,452** |
| **2009** | 8,766 | 8,634 | 1,291 | 2,506 | 30 | 2,120 | 799 | 0 | **24,146** |
| **2010** | 9,560 | 8,388 | 478 | 2,920 | 19 | 2,380 | 657 | 0 | **24,402** |
| **2011** | 8,155 | 8,712 | 414 | 2,892 | 19 | 2,553 | 1,178 | 0 | **23,923** |
| **2012** | 10,843 | 9,410 | 768 | 2,892 | 38 | 2,521 | 743 | 0 | **27,215** |
| **2013** | 12,656 | 9,568 | 329 | 2,946 | 31 | 2,998 | 662 | 0 | **29,190** |
| **2014** | 12,705 | 10,161 | 246 | 2,632 | 23 | 3,158 | 592 | 0 | **29,517** |
| **2015** | 12,804 | 9,377 | 498 | 2,261 | 4 | 3,134 | 621 | 0 | **28,699** |
| **2016** | 13,411 | 9,254 | 513 | 3,497 | 5 | 3,019 | 650 | 0 | **30,349** |
| **2017** | 13,437 | 9,388 | 579 | 3,514 | 5 | 3,220 | 719 | 0 | **30,862** |
| **2018** | 13,041 | 9,756 | 387 | 3,309 | 6 | 3,121 | 789 | 0 | **30,409** |
| **2019** | 13,811 | 10,583 | 446 | 3,017 | 12 | 3,261 | 705 | 0 | **31,835** |
| **2020** | 11,188 | 8,516 | 338 | 3,423 | 32 | 1,199 | 613 | 0 | **25,309** |

# FINAL ENERGY CONSUMPTION BY SECTOR



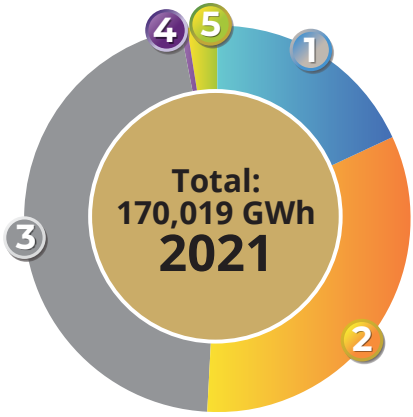

Source: National Energy Balance 2020




8.7% Hydro 77.5% Gas

8.9% Coal 4.8% Oil

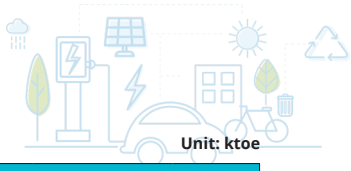
0.0% Renewables




18.2% Hydro 32.7% Gas

46.1% Coal 0.6% Oil

2.4% Renewables



Unit: ktoe

| YEAR | FINAL ENERGY CONSUMPTION BY SECTOR | | | | | |
|---|---|---|---|---|---|---|
| | Industry | Transport | Residential and Commercial | Non-Energy Use | Agriculture and Fishery | Total |
| **2000** | 11,406 | 12,071 | 3,868 | 2,250 | 104 | **29,699** |
| **2001** | 11,852 | 13,137 | 4,048 | 2,378 | 98 | **31,513** |
| **2002** | 12,854 | 13,442 | 4,387 | 2,511 | 96 | **33,290** |
| **2003** | 13,472 | 14,271 | 4,399 | 2,345 | 98 | **34,585** |
| **2004** | 14,914 | 15,385 | 4,754 | 2,183 | 87 | **37,323** |
| **2005** | 15,583 | 15,293 | 5,134 | 2,173 | 101 | **38,284** |
| **2006** | 15,248 | 14,819 | 5,424 | 2,819 | 258 | **38,568** |
| **2007** | 16,454 | 15,717 | 6,197 | 2,957 | 281 | **41,606** |
| **2008** | 16,205 | 16,395 | 6,205 | 2,876 | 287 | **41,968** |
| **2009** | 14,312 | 16,119 | 6,336 | 3,868 | 211 | **40,846** |
| **2010** | 12,928 | 16,828 | 6,951 | 3,696 | 1,074 | **41,477** |
| **2011** | 12,100 | 17,070 | 6,993 | 6,377 | 916 | **43,456** |
| **2012** | 13,919 | 19,757 | 7,065 | 7,497 | 1,053 | **49,291** |
| **2013** | 13,496 | 22,357 | 7,403 | 7,277 | 1,051 | **51,584** |
| **2014** | 13,162 | 24,327 | 7,459 | 6,217 | 1,045 | **52,210** |
| **2015** | 13,971 | 23,435 | 7,600 | 5,928 | 895 | **51,829** |
| **2016** | 16,019 | 24,004 | 8,051 | 8,729 | 415 | **57,219** |
| **2017** | 17,463 | 24,039 | 7,796 | 12,517 | 674 | **62,489** |
| **2018** | 19,046 | 23,555 | 7,773 | 13,262 | 1,021 | **64,658** |
| **2019** | 18,921 | 25,004 | 8,000 | 13,631 | 927 | **66,483** |
| **2020** | 17,714 | 18,660 | 8,123 | 11,805 | 867 | **57,169** |

# ENERGY **BALANCE**

# ENERGY BALANCE TABLE FOR 2020

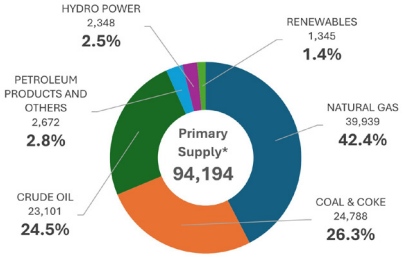
| ENERGY SOURCE | NATURAL GAS | LNG | CRUDE OIL (1/) | OTHERS (2/) | TOTAL PETROLEUM PRODUCTS | PETROL | DIESEL | FUEL OIL | LPG |
|---|---|---|---|---|---|---|---|---|---|
| **PRIMARY SUPPLY** | | | | | | | | | |
| 1. Primary Production | 72,597 | 0 | 26,783 | 0 | **0** | 0 | 0 | 0 | 0 |
| 2. Gas Flaring, Reinjection & Use | (13,763) | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 |
| 3. Imports | 5,519 | 2,939 | 6,969 | 75 | **12,586** | 6,914 | 2,812 | 216 | 539 |
| 4. Exports | (1,179) | (26,155) | (10,604) | (5) | **(10,590)** | (1,773) | (3,866) | (422) | (257) |
| 5. Bunkers | 0 | 0 | 0 | 0 | **(546)** | 0 | (131) | (415) | 0 |
| 6. Stock Change | 0 | 0 | (23) | 0 | **1,286** | 900 | 578 | (183) | 365 |
| 7. Statistical Discrepancy | 0 | 0 | (24) | 0 | **0** | 0 | 0 | 0 | 0 |
| **8. Primary Supply** | **63,156** | **(23,216)** | **23,101** | **70** | **2,736** | **6,042** | **(607)** | **(824)** | **647** |
| **TRANSFORMATION** | | | | | | | | | |
| 9. Gas Plants | | | | | | | | | |
| 9.1 LNG | (32,996) | 26,155 | 0 | 0 | **51** | 0 | 0 | 0 | 51 |
| 9.2 MDS | (1,008) | 0 | 0 | 0 | **441** | 0 | 92 | 0 | 0 |
| 9.3 GPP-LPG (3&4/) | (3,345) | 0 | 0 | 0 | **1,998** | 0 | 0 | 0 | 1,998 |
| 9.4 RGT | 2,939 | (2,939) | 0 | 0 | **0** | 0 | 0 | 0 | 0 |
| **Subtotal** | **(34,410)** | **23,216** | **0** | **0** | **2,491** | **0** | **92** | **0** | **2,049** |
| 10. Refineries | 0 | 0 | (22,974) | (70) | **20,745** | 5,089 | 9,199 | 1,204 | 672 |
| 11. Power Stations & Self-Generation | | | | | | | | | |
| 11.1 Hydro Stations | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 |
| 11.2 Thermal Stations | (9,841) | 0 | 0 | 0 | **(166)** | 0 | (154) | (12) | 0 |
| 11.3 Self-Generation (5/) | (1,395) | 0 | 0 | 0 | **(56)** | 0 | (56) | 0 | 0 |
| **Subtotal** | **(11,236)** | **0** | **0** | **0** | **(222)** | **0** | **(210)** | **(12)** | **0** |
| 12. Losses & Own Use | (879) | 0 | (127) | 0 | **(533)** | 0 | 0 | (18) | 0 |
| 13. Statistical Discrepancy | 0 | 0 | 0 | 0 | **92** | 58 | 42 | (12) | 55 |
| **14. Secondary Supply** | **(46,525)** | **23,216** | **(23,101)** | **(70)** | **22,573** | **5,146** | **9,123** | **1,162** | **2,776** |
| **FINAL USE** | | | | | | | | | |
| 15. Residential | 1 | 0 | 0 | 0 | **960** | 0 | 0 | 0 | 958 |
| 16. Commercial | 14 | 0 | 0 | 0 | **543** | 0 | 214 | 41 | 288 |
| 17. Industry | 7,358 | 0 | 0 | 0 | **2,616** | 101 | 2,009 | 296 | 179 |
| 18. Transport | 65 | 0 | 0 | 0 | **17,771** | 11,029 | 5,542 | 0 | 0 |
| 19. Agriculture | 0 | 0 | 0 | 0 | **261** | 0 | 260 | 1 | 0 |
| 20. Fishery | 0 | 0 | 0 | 0 | **547** | 57 | 490 | 0 | 0 |
| 21. Non-Energy Use | 9,193 | 0 | 0 | 0 | **2,611** | 0 | 0 | 0 | 1,998 |
| **22. Total Final Use** | **16,631** | **0** | **0** | **0** | **25,309** | **11,188** | **8,516** | **338** | **3,423** |
| **ELECTRICITY OUTPUT** | | | | | | | | | |
| **Main Activity Producer** | | | | | | | | | |
| Gross Electricity Generation - GWh | 48,262 | 0 | 0 | 0 | **670** | 0 | 670 | 0 | 0 |
| **Autoproducer** | | | | | | | | | |
| Gross Electricity Generation - GWh | 5,429 | 0 | 0 | 0 | **176** | 0 | 176 | 0 | 0 |

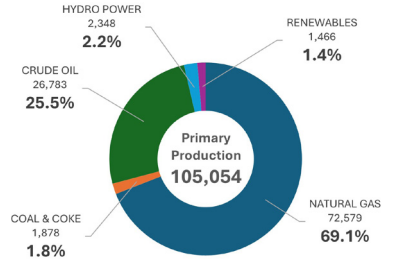
| KEROSENE | ATF & AVGAS | NON-ENERGY | REFINERY GAS | COAL & COKE | HYDRO POWER | SOLAR | BIOMASS | BIOGAS | BIODIESEL | ELECTRICITY | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| 0 | 0 | 0 | 0 | **1,878** | 2,348 | 181 | 232 | 142 | 912 | 0 | **105,054** |
| 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **(13,763)** |
| 1 | 761 | 1,344 | 0 | **22,235** | 0 | 0 | 0 | 0 | 0 | 2 | **50,325** |
| (40) | (1,166) | (3,046) | 0 | **0** | 0 | 0 | 0 | 0 | (298) | (135) | **(48,967)** |
| 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **(546)** |
| 8 | (833) | 451 | 0 | **708** | 0 | 0 | 0 | 0 | 177 | 0 | **2,148** |
| 0 | 0 | 0 | 0 | **(33)** | 0 | 0 | 0 | 0 | 0 | 0 | **(57)** |
| **(31)** | **(1,238)** | **(1,252)** | **0** | **24,788** | **2,348** | **181** | **232** | **142** | **791** | **(134)** | **94,194** |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **(6,790)** |
| 35 | 0 | 314 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **(566)** |
| 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **(1,347)** |
| 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| **35** | **0** | **314** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **(8,703)** |
| 12 | 2,459 | 1,954 | 156 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **(2,299)** |
| | | | | | | | | | | | |
| 0 | 0 | 0 | 0 | **0** | (2,348) | 0 | 0 | 0 | 0 | 2,348 | **0** |
| 0 | 0 | 0 | 0 | **(23,451)** | 0 | (176) | (54) | (137) | 0 | 12,085 | **(21,739)** |
| 0 | 0 | 0 | 0 | **0** | 0 | (5) | (178) | (5) | 0 | 539 | **(1,100)** |
| **0** | **0** | **0** | **0** | **(23,451)** | **(2,348)** | **(181)** | **(232)** | **(142)** | **0** | **14,972** | **(22,839)** |
| 0 | 0 | (359) | (156) | **0** | 0 | 0 | 0 | 0 | 0 | (1,267) | **(2,806)** |
| 17 | (21) | (45) | 0 | **0** | 0 | 0 | 0 | 0 | 0 | (471) | **(379)** |
| **63** | **2,438** | **1,865** | **0** | **(23,451)** | **(2,348)** | **(181)** | **(232)** | **(142)** | **0** | **13,234** | **(37,026)** |
| | | | | | | | | | | | |
| 2 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 3,124 | **4,085** |
| 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 3,480 | **4,038** |
| 31 | 0 | 0 | 0 | **1,338** | 0 | 0 | 0 | 0 | 0 | 6,403 | **17,714** |
| 0 | 1,199 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 791 | 34 | **18,660** |
| 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 59 | **320** |
| 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **547** |
| 0 | 0 | 613 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **11,805** |
| **32** | **1,199** | **613** | **0** | **1,338** | **0** | **0** | **0** | **0** | **791** | **13,100** | **57,169** |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 0 | 0 | 0 | 0 | **88,875** | 27,295 | 2,044 | 169 | 427 | 0 | 0 | **167,742** |
| | | | | | | | | | | | |
| 0 | 0 | 0 | 0 | **0** | 4 | 15 | 623 | 15 | 0 | 0 | **6,262** |

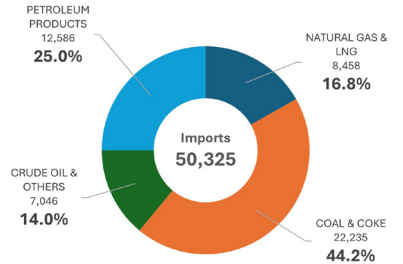
# ENERGY FLOW CHART 2020

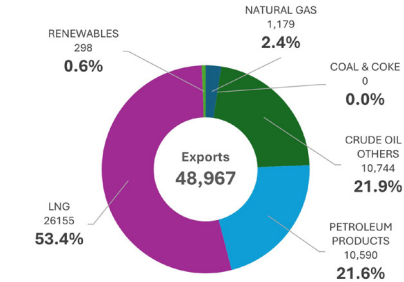
Unit: ktoe

## PRIMARY SUPPLY

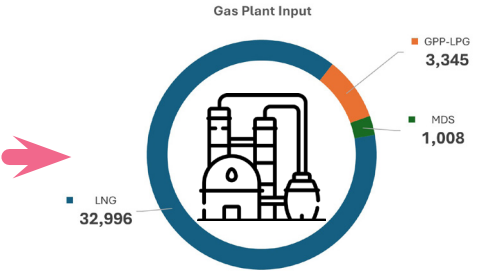


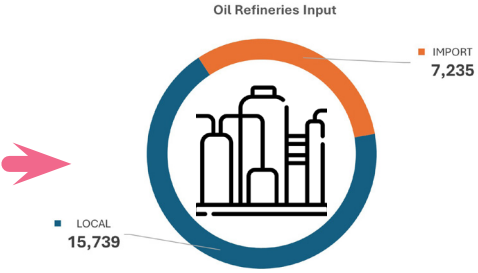



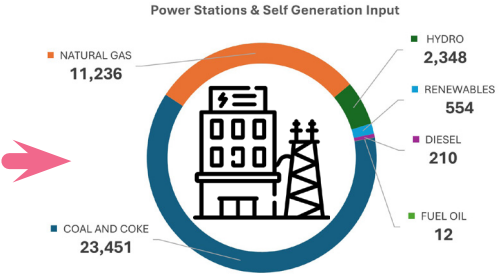




## TRANSFORMATION

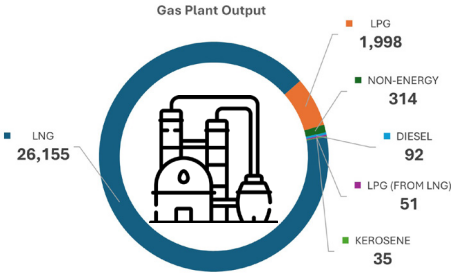


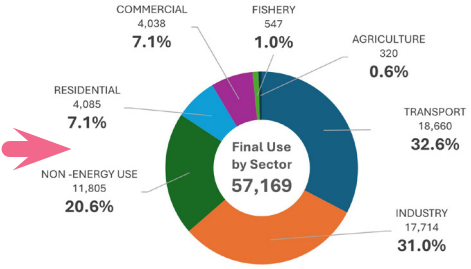



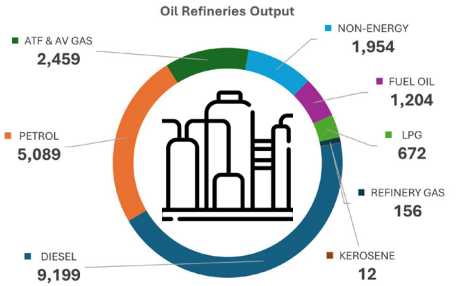



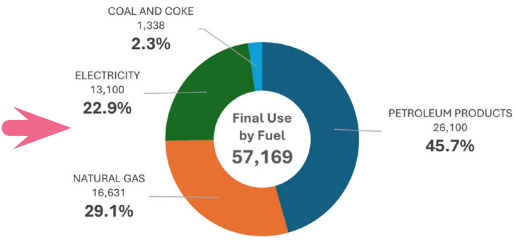

Note (*): Primary Supply = Primary Production - Flaring + Imports - Exports - Bunkers (+-) Statistical Discrepancy

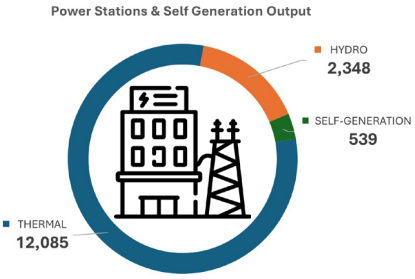
# FINAL USE


Gas Plant Output
LNG
26,155
LPG
1,998
NON-ENERGY
314
DIESEL
92
LPG (FROM LNG)
51
KEROSENE
35


COMMERCIAL
4,038
7.1%
FISHERY
547
1.0%
AGRICULTURE
320
0.6%
RESIDENTIAL
4,085
7.1%
TRANSPORT
18,660
32.6%
Final Use
by Sector
57,169
NON -ENERGY USE
11,805
20.6%
INDUSTRY
17,714
31.0%


Oil Refineries Output
ATF & AV GAS
2,459
NON-ENERGY
1,954
FUEL OIL
1,204
PETROL
5,089
LPG
672
REFINERY GAS
156
DIESEL
9,199
KEROSENE
12

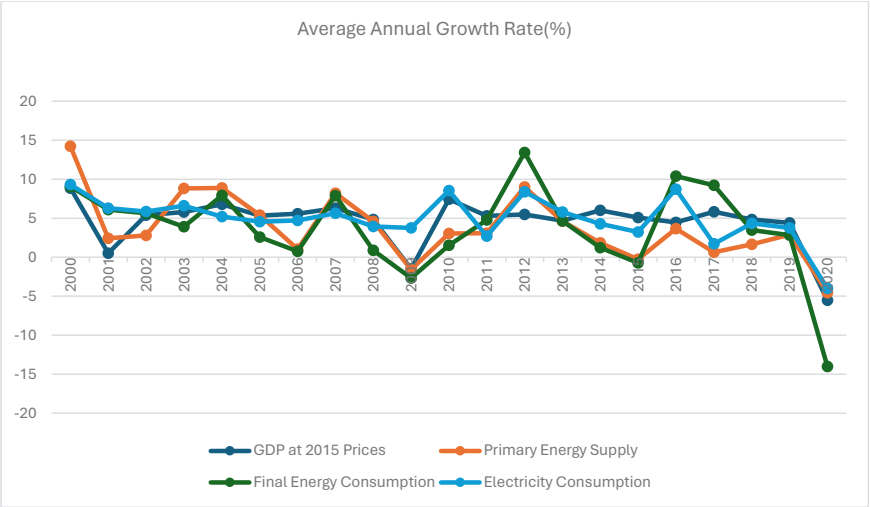

COAL AND COKE
1,338
2.3%
ELECTRICITY
13,100
22.9%
Final Use
by Fuel
57,169
PETROLEUM PRODUCTS
26,100
45.7%
NATURAL GAS
16,631
29.1%


Power Stations & Self Generation Output
HYDRO
2,348
SELF-GENERATION
539
THERMAL
12,085

# ENERGY
# INDICATORS

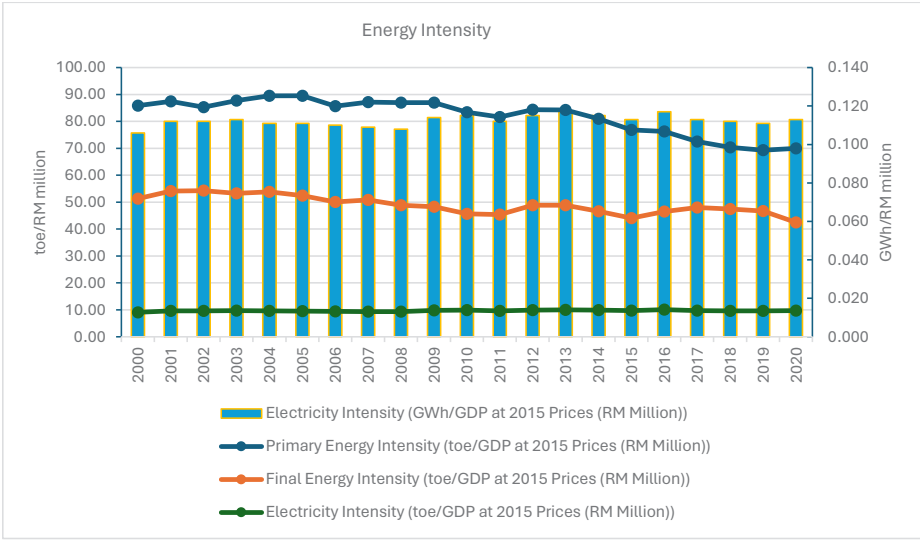
# AVERAGE ANNUAL GROWTH RATE

| YEAR | AVERAGE ANNUAL GROWTH RATE (%) | | | |
|---|---|---|---|---|
| | GDP at 2015 Prices | Primary Energy Supply | Final Energy Consumption | Electricity Consumption |
| 2000 | 8.86 | 14.21 | 9.08 | 9.30 |
| 2001 | 0.52 | 2.42 | 6.11 | 6.29 |
| 2002 | 5.39 | 2.80 | 5.63 | 5.86 |
| 2003 | 5.79 | 8.83 | 3.90 | 6.60 |
| 2004 | 6.78 | 8.89 | 7.91 | 5.21 |
| 2005 | 5.33 | 5.38 | 2.58 | 4.55 |
| 2006 | 5.58 | 1.02 | 0.74 | 4.72 |
| 2007 | 6.30 | 8.21 | 7.88 | 5.65 |
| 2008 | 4.83 | 4.60 | 0.87 | 3.94 |
| 2009 | -1.51 | -1.58 | -2.68 | 3.76 |
| 2010 | 7.42 | 3.05 | 1.54 | 8.53 |
| 2011 | 5.29 | 3.07 | 4.77 | 2.69 |
| 2012 | 5.47 | 9.00 | 13.43 | 8.40 |
| 2013 | 4.69 | 4.61 | 4.65 | 5.78 |
| 2014 | 6.01 | 1.85 | 1.21 | 4.27 |
| 2015 | 5.09 | -0.28 | -0.73 | 3.22 |
| 2016 | 4.45 | 3.66 | 10.40 | 8.74 |
| 2017 | 5.81 | 0.64 | 9.21 | 1.72 |
| 2018 | 4.84 | 1.66 | 3.47 | 4.33 |
| 2019 | 4.41 | 2.89 | 2.82 | 3.76 |
| 2020 | -5.53 | -4.55 | -14.01 | -4.01 |

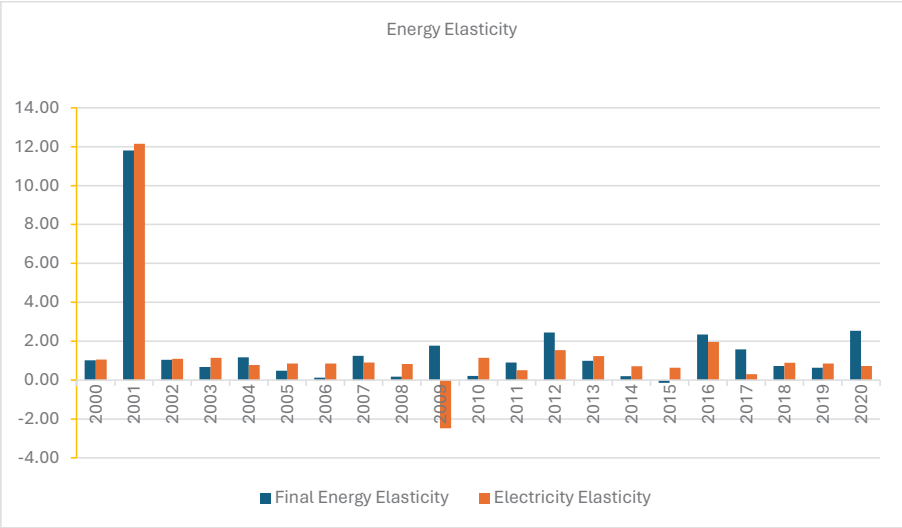


| YEAR | PER CAPITA | | | |
|---|---|---|---|---|
| | GDP at Current Prices (RM) | Primary Energy Supply (toe) | Final Energy Consumption (toe) | Electricity Consumption (kWh) |
| **2000** | 15,783 | 2.12 | 1.26 | 2,603 |
| **2001** | 15,265 | 2.12 | 1.31 | 2,705 |
| **2002** | 16,246 | 2.13 | 1.36 | 2,804 |
| **2003** | 17,402 | 2.27 | 1.38 | 2,930 |
| **2004** | 19,310 | 2.43 | 1.46 | 3,022 |
| **2005** | 20,870 | 2.51 | 1.47 | 3,099 |
| **2006** | 22,478 | 2.49 | 1.45 | 3,183 |
| **2007** | 24,589 | 2.64 | 1.54 | 3,300 |
| **2008** | 27,929 | 2.71 | 1.52 | 3,367 |
| **2009** | 25,385 | 2.62 | 1.45 | 3,429 |
| **2010** | 28,733 | 2.65 | 1.45 | 3,656 |
| **2011** | 31,372 | 2.69 | 1.50 | 3,693 |
| **2012** | 32,913 | 2.88 | 1.67 | 3,943 |
| **2013** | 33,713 | 2.95 | 1.71 | 4,074 |
| **2014** | 36,031 | 2.95 | 1.70 | 4,179 |
| **2015** | 37,739 | 2.90 | 1.66 | 4,248 |
| **2016** | 39,505 | 2.96 | 1.81 | 4,553 |
| **2017** | 42,854 | 2.95 | 1.95 | 4,576 |
| **2018** | 44,708 | 2.96 | 2.00 | 4,721 |
| **2019** | 46,526 | 3.03 | 2.04 | 4,877 |
| **2020** | 43,518 | 2.89 | 1.75 | 4,673 |

| YEAR | ENERGY INTENSITY | | | |
|---|---|---|---|---|
| | Primary Energy Intensity (toe/GDP at 2015 Prices (RM Million)) | Final Energy Intensity (toe/GDP at 2015 Prices (RM Million)) | Electricity Intensity (toe/GDP at 2015 Prices (RM Million)) | Electricity Intensity (GWh/GDP at 2015 Prices (RM Million)) |
| 2000 | 85.82 | 51.29 | 9.089 | 0.106 |
| 2001 | 87.44 | 54.14 | 9.611 | 0.112 |
| 2002 | 85.29 | 54.27 | 9.654 | 0.112 |
| 2003 | 87.75 | 53.29 | 9.728 | 0.113 |
| 2004 | 89.48 | 53.86 | 9.585 | 0.111 |
| 2005 | 89.52 | 52.45 | 9.513 | 0.111 |
| 2006 | 85.65 | 50.04 | 9.436 | 0.110 |
| 2007 | 87.19 | 50.79 | 9.378 | 0.109 |
| 2008 | 86.99 | 48.87 | 9.299 | 0.108 |
| 2009 | 86.93 | 48.29 | 9.796 | 0.114 |
| 2010 | 83.39 | 45.65 | 9.897 | 0.115 |
| 2011 | 81.63 | 45.42 | 9.653 | 0.112 |
| 2012 | 84.36 | 48.85 | 9.921 | 0.115 |
| 2013 | 84.29 | 48.83 | 10.024 | 0.117 |
| 2014 | 80.98 | 46.62 | 9.860 | 0.115 |
| 2015 | 76.84 | 44.04 | 9.684 | 0.113 |
| 2016 | 76.26 | 46.55 | 10.082 | 0.117 |
| 2017 | 72.53 | 48.04 | 9.692 | 0.113 |
| 2018 | 70.33 | 47.41 | 9.645 | 0.112 |
| 2019 | 69.30 | 46.69 | 9.584 | 0.111 |
| 2020 | 70.02 | 42.50 | 9.739 | 0.113 |



| YEAR | FINAL ENERGY AND ELECTRICITY ELASTICITY | |
|---|---|---|
| | Final Energy Elasticity | Electricity Elasticity |
| 2000 | 1.02 | 1.05 |
| 2001 | 11.81 | 12.15 |
| 2002 | 1.04 | 1.09 |
| 2003 | 0.67 | 1.14 |
| 2004 | 1.17 | 0.77 |
| 2005 | 0.48 | 0.85 |
| 2006 | 0.13 | 0.85 |
| 2007 | 1.25 | 0.90 |
| 2008 | 0.18 | 0.82 |
| 2009 | 1.77 | (2.48) |
| 2010 | 0.21 | 1.15 |
| 2011 | 0.90 | 0.51 |
| 2012 | 2.45 | 1.54 |
| 2013 | 0.99 | 1.23 |
| 2014 | 0.20 | 0.71 |
| 2015 | (0.14) | 0.63 |
| 2016 | 2.34 | 1.96 |
| 2017 | 1.58 | 0.30 |
| 2018 | 0.72 | 0.89 |
| 2019 | 0.64 | 0.85 |
| 2020 | 2.53 | 0.72 |

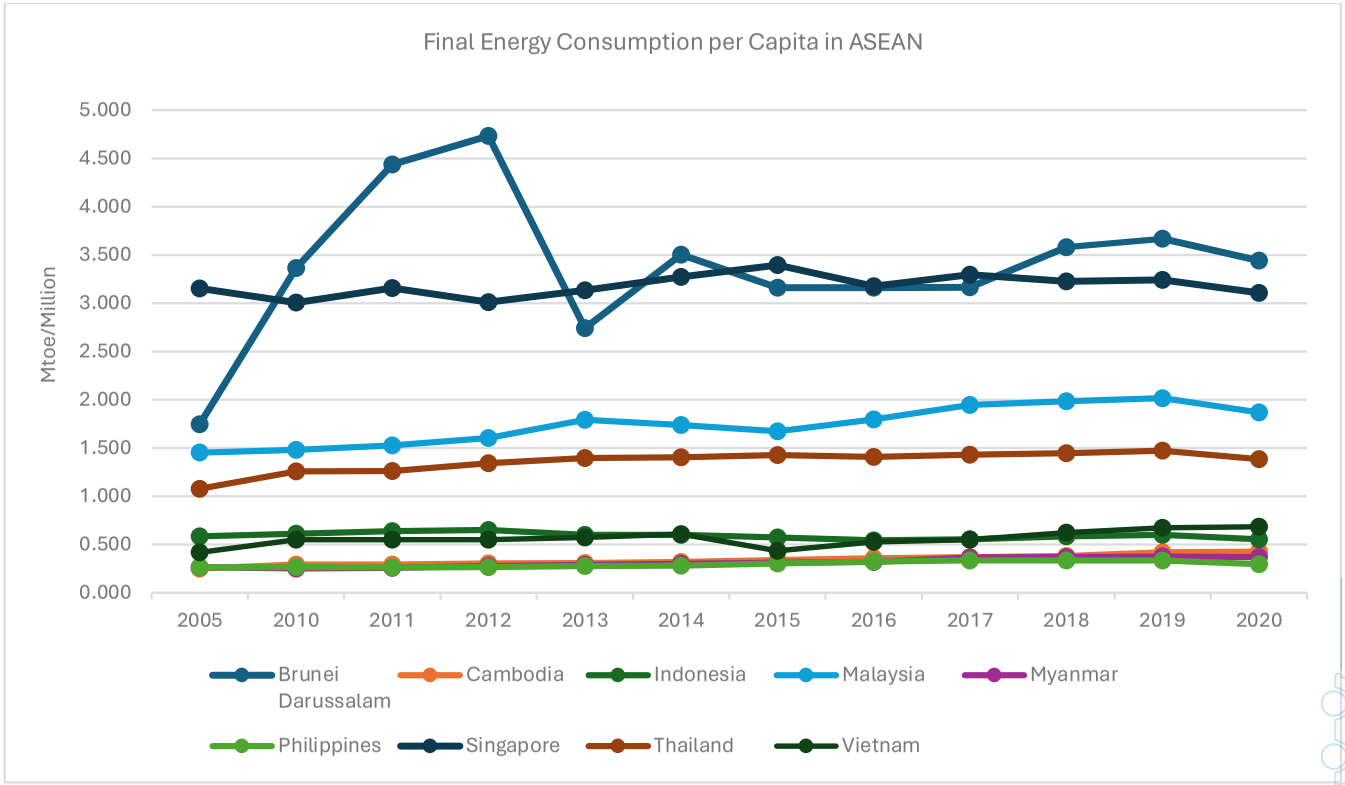


# FINAL ENERGY CONSUMPTION PER CAPITA IN ASEAN

**Unit : Mtoe/Millions**

| Mtoe/millions | 2005 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Brunei Darussalam** | 1.747 | 3.364 | 4.438 | 4.733 | 2.743 | 3.502 | 3.163 | 3.160 | 3.164 | 3.581 | 3.667 | 3.441 |
| **Cambodia** | 0.251 | 0.292 | 0.294 | 0.303 | 0.309 | 0.319 | 0.338 | 0.358 | 0.368 | 0.382 | 0.420 | 0.426 |
| **Indonesia** | 0.585 | 0.613 | 0.640 | 0.651 | 0.599 | 0.599 | 0.575 | 0.544 | 0.553 | 0.583 | 0.601 | 0.554 |
| **Malaysia** | 1.452 | 1.480 | 1.527 | 1.604 | 1.793 | 1.740 | 1.674 | 1.798 | 1.945 | 1.983 | 2.017 | 1.871 |
| **Myanmar** | 0.265 | 0.252 | 0.257 | 0.276 | 0.287 | 0.300 | 0.310 | 0.321 | 0.367 | 0.371 | 0.376 | 0.369 |
| **Philippines** | 0.263 | 0.267 | 0.263 | 0.265 | 0.276 | 0.283 | 0.303 | 0.323 | 0.336 | 0.335 | 0.335 | 0.295 |
| **Singapore** | 3.152 | 3.006 | 3.158 | 3.013 | 3.133 | 3.273 | 3.395 | 3.178 | 3.296 | 3.227 | 3.240 | 3.107 |
| **Thailand** | 1.078 | 1.256 | 1.261 | 1.342 | 1.398 | 1.402 | 1.427 | 1.408 | 1.430 | 1.446 | 1.472 | 1.385 |
| **Vietnam** | 0.418 | 0.550 | 0.550 | 0.552 | 0.575 | 0.607 | 0.433 | 0.527 | 0.551 | 0.625 | 0.673 | 0.684 |

Unit: Mtoe/Millions



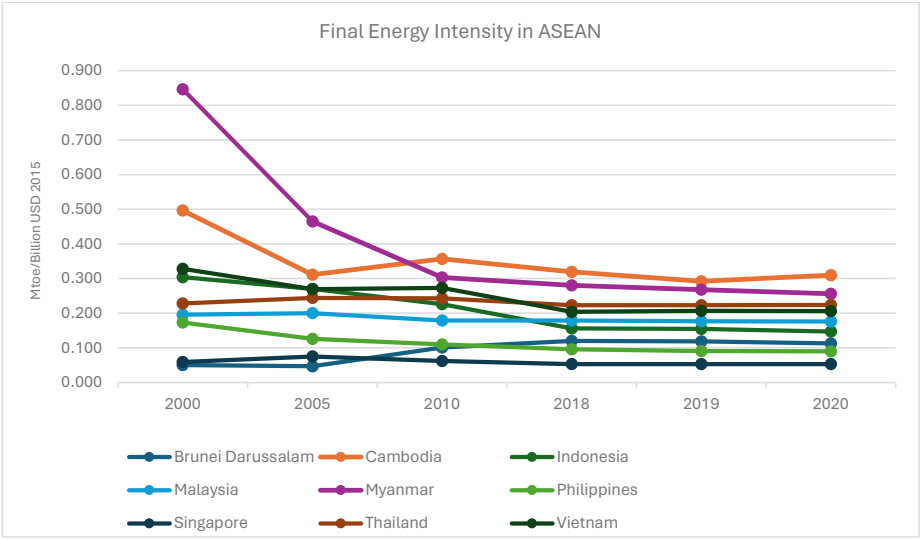

Source: World Energy Balances, 2022 Edition, International Energy Agency (IEA)

# FINAL ENERGY INTENSITY IN ASEAN

**Unit : Mtoe/Billion USD 2015**

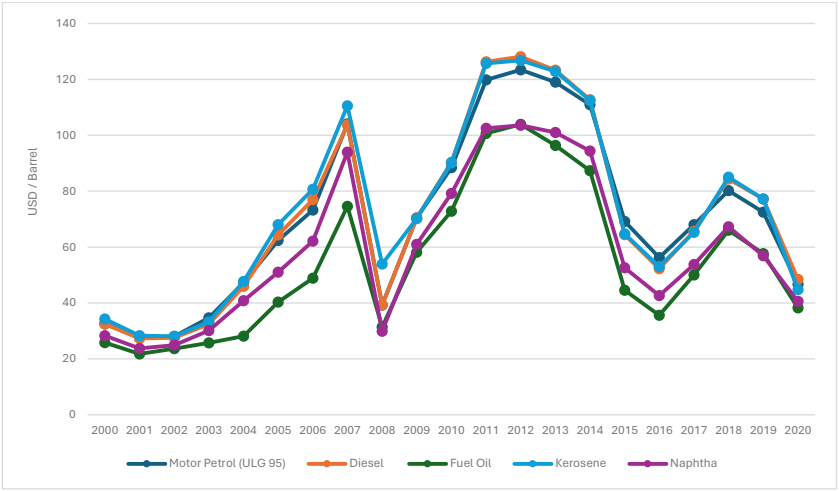
| Mtoe/billion 2015 US$ | 2000 | 2005 | 2010 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|
| **Brunei Darussalam** | 0.050 | 0.047 | 0.101 | 0.120 | 0.119 | 0.113 |
| **Cambodia** | 0.496 | 0.311 | 0.357 | 0.319 | 0.292 | 0.310 |
| **Indonesia** | 0.304 | 0.270 | 0.226 | 0.156 | 0.155 | 0.147 |
| **Malaysia** | 0.196 | 0.200 | 0.179 | 0.179 | 0.177 | 0.176 |
| **Myanmar** | 0.846 | 0.465 | 0.303 | 0.280 | 0.268 | 0.256 |
| **Philippines** | 0.173 | 0.126 | 0.110 | 0.096 | 0.091 | 0.090 |
| **Singapore** | 0.059 | 0.075 | 0.062 | 0.053 | 0.053 | 0.053 |
| **Thailand** | 0.228 | 0.244 | 0.243 | 0.223 | 0.223 | 0.224 |
| **Vietnam** | 0.328 | 0.269 | 0.273 | 0.204 | 0.207 | 0.206 |

Source: World Energy Balances, 2022 Edition, International Energy Agency (IEA)



# ENERGY PRICES

# EX-SINGAPORE PRICES OF MAJOR PETROLEUM PRODUCTS



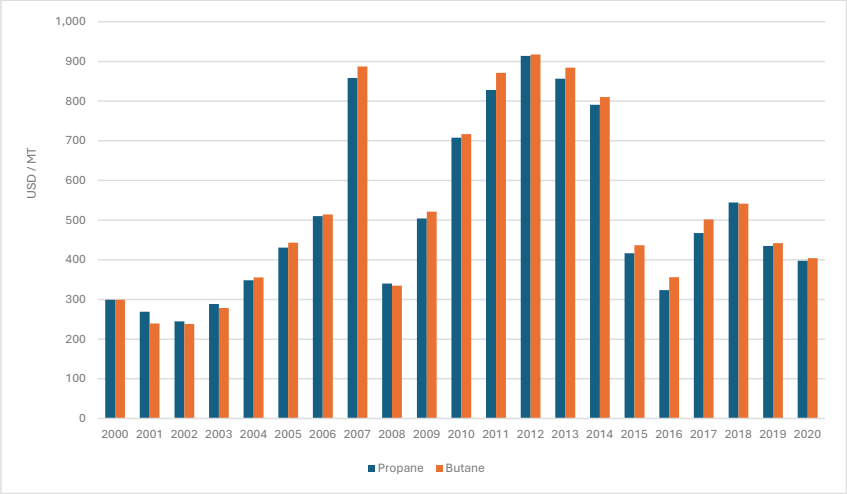

**Unit : USD/Barrel**

| YEAR | Motor Petrol (ULG 95) | Diesel | Fuel Oil | Kerosene | Naphtha |
|---|---|---|---|---|---|
| **2000** | 32.64 | 32.48 | 25.82 | 34.27 | 28.32 |
| **2001** | 27.43 | 27.32 | 21.78 | 28.32 | 23.75 |
| **2002** | 28.04 | 27.55 | 23.63 | 28.08 | 24.93 |
| **2003** | 34.69 | 32.46 | 25.72 | 33.25 | 30.14 |
| **2004** | 47.23 | 45.92 | 28.15 | 47.69 | 40.82 |
| **2005** | 62.38 | 64.35 | 40.32 | 67.99 | 51.04 |
| **2006** | 73.20 | 76.93 | 48.84 | 80.72 | 62.13 |
| **2007** | 104.05 | 103.74 | 74.60 | 110.50 | 93.98 |
| **2008** | 39.25 | 39.32 | 31.40 | 53.90 | 29.90 |
| **2009** | 70.38 | 70.42 | 58.12 | 70.14 | 60.96 |
| **2010** | 88.41 | 90.35 | 72.85 | 90.18 | 79.24 |
| **2011** | 119.79 | 126.28 | 100.68 | 125.71 | 102.49 |
| **2012** | 123.42 | 128.10 | 103.92 | 126.79 | 103.57 |
| **2013** | 119.00 | 123.27 | 96.35 | 122.85 | 100.99 |
| **2014** | 110.97 | 112.69 | 87.31 | 112.50 | 94.40 |
| **2015** | 69.17 | 64.47 | 44.52 | 64.69 | 52.62 |
| **2016** | 56.26 | 52.24 | 35.62 | 53.00 | 42.65 |
| **2017** | 67.99 | 65.65 | 49.99 | 65.27 | 53.79 |
| **2018** | 80.23 | 84.33 | 65.98 | 85.04 | 67.29 |
| **2019** | 72.49 | 77.23 | 57.63 | 77.24 | 56.90 |
| **2020** | 46.7 | 48.42 | 38.21 | 44.82 | 40.55 |

Source: PETRONAS

Note: Data shown are prices Ex-Singapore, in USD per Barrel, taken from Industry Sources

# ANNUAL LIQUEFIED PETROLEUM GAS (LPG) CONTRACT PRICES – ARAB GULF

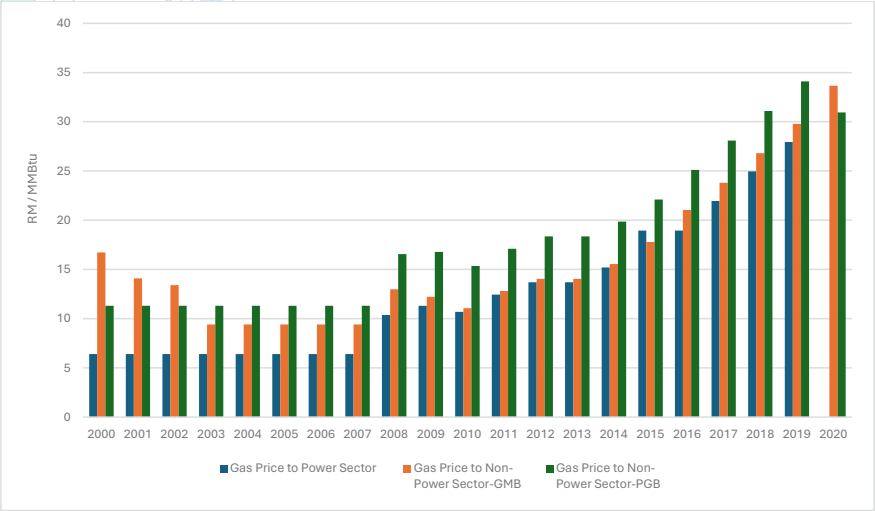



**Unit : USD/MT**

| YEAR | Propane | Butane |
|---|---|---|
| **2000** | 299.29 | 299.46 |
| **2001** | 269.29 | 239.43 |
| **2002** | 244.58 | 238.48 |
| **2003** | 288.84 | 278.46 |
| **2004** | 348.61 | 355.33 |
| **2005** | 430.79 | 442.89 |
| **2006** | 510.27 | 514.00 |
| **2007** | 858.00 | 887.50 |
| **2008** | 340.00 | 335.00 |
| **2009** | 504.37 | 521.43 |
| **2010** | 708.01 | 716.81 |
| **2011** | 828.03 | 871.12 |
| **2012** | 914.12 | 917.45 |
| **2013** | 856.79 | 884.14 |
| **2014** | 790.70 | 810.58 |
| **2015** | 416.75 | 436.57 |
| **2016** | 323.67 | 356.17 |
| **2017** | 467.56 | 502.06 |
| **2018** | 544.24 | 541.65 |
| **2019** | 434.58 | 441.67 |
| **2020** | 397.40 | 404.13 |

Source: PETRONAS
Note: Yearly LPG contract prices - Arab Gulf, in USD per Metric Tonne, taken from Industry Sources

# AVERAGE ANNUAL PRICES OF NATURAL GAS IN MALAYSIA

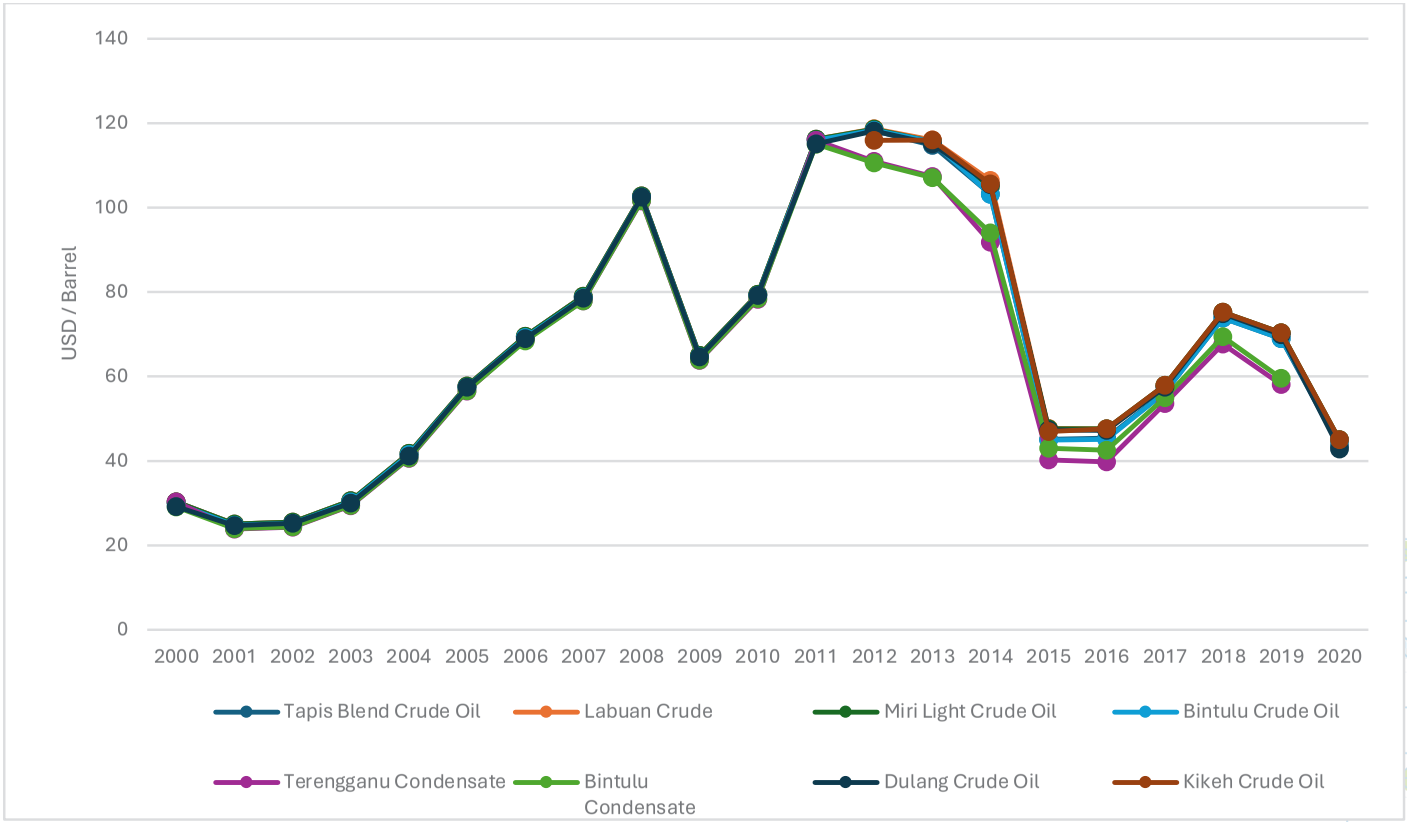



**Unit : RM/ MMBtu**

| YEAR | Gas Price to Power Sector | Gas Price to Non-Power Sector-GMB | Gas Price to Non-Power Sector-PGB |
|---|---|---|---|
| **2000** | 6.40 | 16.72 | 11.32 |
| **2001** | 6.40 | 14.10 | 11.32 |
| **2002** | 6.40 | 13.40 | 11.32 |
| **2003** | 6.40 | 9.40 | 11.32 |
| **2004** | 6.40 | 9.40 | 11.32 |
| **2005** | 6.40 | 9.40 | 11.32 |
| **2006** | 6.40 | 9.40 | 11.32 |
| **2007** | 6.40 | 9.40 | 11.32 |
| **2008** | 10.36 | 12.98 | 16.55 |
| **2009** | 11.30 | 12.21 | 16.77 |
| **2010** | 10.70 | 11.05 | 15.35 |
| **2011** | 12.45 | 12.80 | 17.10 |
| **2012** | 13.70 | 14.05 | 18.35 |
| **2013** | 13.70 | 14.05 | 18.35 |
| **2014** | 15.20 | 15.55 | 19.85 |
| **2015** | 18.95 | 17.80 | 22.10 |
| **2016** | 18.95 | 21.05 | 25.10 |
| **2017** | 21.95 | 23.80 | 28.10 |
| **2018** | 24.95 | 26.80 | 31.10 |
| **2019** | 27.95 | 29.80 | 34.10 |
| **2020** | N/A | 33.65 | 30.95 |

Source: PETRONAS
Note: Starting Jan 2020, gas price for power sector is based on market price

# OFFICIAL SELLING PRICES OF MALAYSIAN CRUDE OIL



**Unit: USD / Barrel**

| YEAR | Tapis Blend Crude Oil | Labuan Crude | Miri Light Crude Oil | Bintulu Crude Oil | Terengganu Condensate | Bintulu Condensate | Dulang Crude Oil | Kikeh Crude Oil |
|---|---|---|---|---|---|---|---|---|
| **2000** | 30.25 | 30.25 | 30.25 | 29.95 | 30.29 | 29.09 | 29.18 | - |
| **2001** | 25.06 | 25.06 | 25.06 | 24.78 | 23.86 | 23.96 | 24.68 | - |
| **2002** | 25.52 | 25.52 | 25.52 | 25.22 | 24.32 | 24.42 | 25.23 | - |
| **2003** | 30.60 | 30.60 | 30.60 | 30.33 | 29.40 | 29.50 | 29.99 | - |
| **2004** | 41.84 | 41.84 | 41.84 | 41.54 | 40.64 | 40.74 | 41.17 | - |
| **2005** | 57.71 | 57.71 | 57.71 | 57.43 | 56.51 | 56.61 | 57.41 | - |
| **2006** | 69.56 | 69.56 | 69.56 | 69.28 | 68.66 | 68.45 | 68.96 | - |
| **2007** | 78.96 | 78.96 | 78.96 | 78.66 | 77.91 | 77.92 | 78.59 | - |
| **2008** | 102.79 | 102.79 | 102.79 | 102.49 | 101.59 | 101.69 | 102.49 | - |
| **2009** | 64.97 | 64.97 | 64.97 | 64.67 | 63.77 | 63.87 | 64.67 | - |
| **2010** | 79.51 | 79.51 | 79.51 | 79.21 | 78.31 | 78.41 | 79.21 | - |
| **2011** | 116.25 | 116.25 | 116.25 | 115.95 | 115.95 | 115.05 | 115.15 | - |
| **2012** | 118.22 | 118.66 | 118.56 | 118.36 | 110.92 | 110.62 | 118.16 | 115.94 |
| **2013** | 114.70 | 116.00 | 115.70 | 115.70 | 107.40 | 107.10 | 115.10 | 116.00 |
| **2014** | 103.26 | 106.41 | 104.89 | 103.13 | 91.82 | 93.99 | 105.46 | 105.66 |
| **2015** | 45.12 | 47.73 | 47.63 | 44.94 | 40.28 | 42.98 | 47.35 | 46.96 |
| **2016** | 45.43 | 47.63 | 47.63 | 45.13 | 39.76 | 42.56 | 47.23 | 47.63 |
| **2017** | 56.30 | 57.90 | 57.90 | 56.30 | 53.57 | 54.97 | 57.50 | 57.90 |
| **2018** | 73.84 | 75.24 | 75.24 | 73.84 | 67.71 | 69.41 | 74.84 | 75.24 |
| **2019** | 68.93 | 70.33 | 70.33 | 68.93 | 58.08 | 59.58 | 69.93 | 70.33 |
| **2020** | 43.65 | 45.05 | 45.05 | 44.85 | - | - | 42.85 | 45.05 |

Source: PETRONAS

## AVERAGE SELLING PRICES OF TNB

Unit: sen/kWh

| YEAR | Domestic | Commercial | Industrial | Mining | Public Lighting | Agriculture | Green Tariff | Average |
|---|---|---|---|---|---|---|---|---|
| 2015 | 32.67 | 47.68 | 36.56 | 25.00 | 25.49 | 45.86 | - | 39.45 |
| 2016 | 33.21 | 46.76 | 37.13 | 25.34 | 25.57 | 45.78 | - | 39.55 |
| 2017 | 32.87 | 47.16 | 36.97 | 25.07 | 25.53 | 45.54 | - | 39.53 |
| 2018 | 33.09 | 47.28 | 37.30 | 24.61 | 25.57 | 45.69 | - | 39.68 |
| 2019 | 33.74 | 47.20 | 37.62 | 24.07 | 25.13 | 45.98 | 8.00 | 39.89 |
| 2020 | 34.91 | 47.48 | 38.01 | 25.55 | 25.37 | 45.77 | 8.00 | 40.07 |
| 2021 | 35.29 | 47.42 | 37.91 | 26.26 | 25.37 | 45.90 | - | 39.94 |

Source: TNB

## AVERAGE SELLING PRICES OF SESB

Unit: sen/kWh

| YEAR | Domestic | Commercial | Industrial | Public Lighting | Average |
|---|---|---|---|---|---|
| 2015 | 29.14 | 37.63 | 30.8 | 22.54 | 33.13 |
| 2016 | 28.86 | 38.21 | 31.36 | 23.09 | 33.41 |
| 2017 | 28.39 | 38.26 | 31.09 | 23.27 | 33.30 |
| 2018 | 29.11 | 39.19 | 31.36 | 24.61 | 34.00 |
| 2019 | 29.60 | 39.38 | 31.58 | 25.14 | 34.31 |
| 2020 | 30.20 | 39.61 | 31.87 | 25.47 | 34.29 |
| 2021 | 30.26 | 38.41 | 31.63 | 25.30 | 34.43 |

Source: SESB

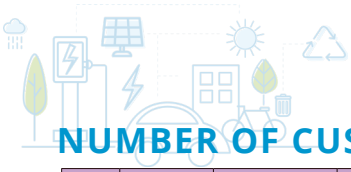
## AVERAGE SELLING PRICES OF SEB

Unit: sen/kWh

| YEAR | Domestic | Commercial | Industrial | Public Lighting | Average |
|---|---|---|---|---|---|
| 2015 | 28.25 | 31.72 | 24.48 | na | 28.50 |
| 2016 | 28.30 | 30.53 | 24.15 | 47.12 | 28.20 |
| 2017 | 28.21 | 30.54 | 23.86 | 47.18 | 28.04 |
| 2018 | 28.27 | 30.50 | 23.69 | 47.17 | 27.96 |
| 2019 | 28.47 | 30.65 | 24.16 | 47.20 | 28.22 |
| 2020 | 30.20 | 39.61 | 31.87 | 25.47 | 34.29 |
| 2021 | 28.96 | 30.59 | 23.96 | 47.28 | 28.30 |

Source: SEB

# ELECTRICITY SUPPLY **PERFORMANCE**



# NUMBER OF CUSTOMERS OF TNB, SESB AND SEB

| YEAR | | Domestic | Commercial | Industry | Public Lighting | Mining | Others (Including Agriculture) | TOTAL |
|---|---|---|---|---|---|---|---|---|
| 2015 | TNB | 6,920,122 | 1,475,306 | 27,672 | 65,888 | 28 | 1,627 | **8,490,643** |
| | SESB | 460,321 | 85,581 | 2,756 | 5,596 | - | - | **554,254** |
| | SEB | 516,084 | 88,297 | 1,004 | 8,939 | - | - | **614,324** |
| | **TOTAL** | **7,896,527** | **1,649,184** | **31,432** | **80,423** | **28** | **1,627** | 9,659,221 |
| 2016 | TNB | 6,989,968 | 1,464,815 | 27,556 | 67,808 | 34 | 1,808 | **8,551,989** |
| | SESB | 478,049 | 90,510 | 1,545 | 5,906 | - | - | **576,010** |
| | SEB | 536,466 | 91,359 | 1,013 | 9,457 | - | 4 | **638,299** |
| | **TOTAL** | **8,004,483** | **1,646,684** | **30,114** | **83,171** | **34** | **1,812** | 9,766,298 |
| 2017 | TNB | 7,181,846 | 1,510,341 | 28,867 | 70,402 | 38 | 2,112 | **8,793,606** |
| | SESB | 491,809 | 93,738 | 1,550 | 6,061 | - | - | **593,158** |
| | SEB | 554,467 | 93,627 | 1,051 | 10,040 | - | 4 | **659,189** |
| | **TOTAL** | **8,228,122** | **1,697,706** | **31,468** | **86,503** | **38** | **2,116** | 10,045,953 |
| 2018 | TNB | 7,378,425 | 1,553,607 | 29,749 | 72,554 | 45 | 2,228 | **9,036,608** |
| | SESB | 505,239 | 96,167 | 1,589 | 6,129 | - | - | **609,124** |
| | SEB | 568,712 | 96,416 | 1,066 | 10,491 | - | 4 | **676,689** |
| | **TOTAL** | **8,452,376** | **1,746,190** | **32,404** | **89,174** | **45** | **2,232** | 10,322,421 |
| 2019 | TNB | 7,553,229 | 1,575,198 | 30,520 | 75,463 | 53 | 2,326 | **9,236,789** |
| | SESB | 519,308 | 98,479 | 15,987 | 6,335 | - | - | **640,109** |
| | SEB | 583,613 | 99,774 | 1,059 | 11,146 | - | 4 | **695,596** |
| | **TOTAL** | **8,656,150** | **1,773,451** | **47,566** | **92,944** | **53** | **2,330** | 10,572,494 |
| 2020 | TNB | 7,728,383 | 1,590,434 | 31,637 | 77,982 | 53 | 2,431 | **9,430,920** |
| | SESB | 529,185 | 99,974 | 1,603 | 6,535 | - | - | **637,297** |
| | SEB | 598,106 | 101,453 | 1,067 | 11,484 | - | - | **712,110** |
| | **TOTAL** | **8,855,674** | **1,791,861** | **34,307** | **96,001** | **53** | **2,431** | 10,780,327 |
| 2021 | TNB | 7,916,379 | 1,618,366 | 32,846 | 80,866 | 60 | 2,548 | **9,651,065** |
| | SESB | 544,186 | 103,352 | 1,614 | 6,585 | - | - | **655,737** |
| | SEB | 617,255 | 104,537 | 1,072 | 12,071 | - | 1 | **734,936** |
| | **TOTAL** | **9,077,820** | **1,826,255** | **35,532** | **99,522** | **60** | **2,549** | 11,041,738 |

# TRANSMISSION SYSTEM CAPACITY OF TNB, SESB AND SEB

| System | 2018 | | | 2019 | | | 2020 | | | 2021 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TNB | SESB | SEB | TNB | SESB | SEB | TNB | SESB | SEB | TNB | SESB | SEB |
| **TRANSMISSION SYSTEM LINES/CABLES (km)** | | | | | | | | | | | | |
| **500kV** | 1,628 | - | 753 | 1,886 | - | 753 | 2,176 | - | 377 | 2,567 | - | 753 |
| **275 kV** | 9,047 | 598 | 2,810 | 9,597 | 598 | 3,068 | 9,406* | 598 | 1,560 | 9,526 | 807 | 3,100 |
| **132 kV** | 12,407 | 2,180 | 840 | 12,482 | 2,217 | 916 | 12,697 | 2,240 | 454 | 12,761 | 2,244 | 1,200 |
| **66 kV** | - | 110 | - | - | 103 | - | - | 103 | - | - | 103 | - |
| **TRANSMISSION SUBSTATIONS** | | | | | | | | | | | | |
| **Number** | 443 | 45 | 37 | 457 | 46 | 42 | 462 | 48 | 43 | 472 | 49 | 46 |
| **Capacity (MVA)** | 115,120 | 5,049 | 10,736 | 121,590 | 5,489 | 10,726 | 125,490 | 5,399 | 11,936 | 130,710 | 6,349 | 13,586 |

Note : * Including 627.64 cct-km 500 kV lines energized at 275kV

# DISTRIBUTION SYSTEM CAPACITY OF TNB, SESB AND SEB

| System | 2018 | | | 2019 | | | 2020 | | | 2021 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TNB | SESB | SEB | TNB | SESB | SEB | TNB | SESB | SEB | TNB | SESB | SEB |
| **DISTRIBUTION SYSTEM LINES/CABLES (km)** | | | | | | | | | | | | |
| **Overhead Lines** [a,b,c] | 352,565 | 9,465 | 26,236 | 366,568 | 10,048 | 26,850 | 379,468 | 9,840 | 27,634 | 392,894 | 12,820 | 28,427 |
| **Underground Cables** [a,b,c] | 307,474 | 1,109.05 | 8,769 | 316,439 | 316,439.00 | 9,098 | 323,844 | 1,612 | 9,540 | 330,241 | 1,710 | 10,320 |
| **DISTRIBUTIONS SUBSTATIONS** | | | | | | | | | | | | |
| **Number** | 81,327 | 7,957 | 13,824 | 83,467 | 8,597 | 13,544 | 85,127 | 8,610 | 14,395 | 86,468 | 8,592 | 12,264 |
| **Capacity (MVA)** | 114,089 | 5,441 | 9,600 | 117,436 | 6,091 | 5,940 | 120,301 | 6,114 | 9,845 | 123,084 | 6,289 | 10,126 |

Notes:
a. Only 11kV and 33 kV for SESB's overhead lines and underground cables
b. SESB data is financial year data

# PERFORMANCE HIGHLIGHTS OF TNB, SESB AND SEB

| System | 2018 | | | 2019 | | | 2020 | | | 2021 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TNB | SESB | SEB | TNB | SESB | SEB | TNB | SESB | SEB | TNB | SESB | SEB |
| Maximum Demand (MW) | 18,338 | 955 | 3,504 | 18,566 | 1,001 | 3,777 | 18,808 | 987 | 3,664 | 18,585 | 1,003 | 4,107 |
| Total Units Generated (GWh) | 17,827 | 1,033 | 27,177 | 16,735 | 1,125 | 29,456 | 16,642 | 1,178 | 28,088 | 17,041 | 1,250 | 31,025 |
| Total Units Sold (GWh) | 113,469 | 5,345 | 24,316 | 116,525 | 5,576 | 25,492 | 110,879 | 5,331 | 26,211 | 111,858 | 5,356 | 28,590 |
| Sales Revenue of Electricity (RM million) | 45,029 | 1,830 | 5,266 | 46,487 | 1,913 | 5,585 | 44,435 | 1,828 | 5,460 | 44,654 | 1,843 | 2,234 |
| Installed Capacity (MW) | 5,066 | 328 [a] | 4,641 | 4,766 | 328[a] | 5,204 | 4,509 | 329[a] | 5,242 | 4,529 | 311* | 5,682 |
| Total Number of Employees | 28,371 | 3,179 | 4,841 | 28,825 | 3,180 | 5,207 | 27,957 | 3,134 | 5,380 | 27,243 | 3,197 | 5,442 |
| Sales Revenue Per Employee (RM million) | 1.59 | 0.58 | 1.09 | 1.61 | 0.60 | 1.07 | 1.59 | 0.58 | 1.02 | 1.64 | 0.58 | 0.41 |
| Unit Sold Per Employee (GWh) | 4.00 | 1.68 | 5.33 | 4.04 | 1.75 | 5.20 | 3.96 | 1.70 | 4.87 | 4.11 | 1.68 | 5.25 |
| Installed Capacity Per Employee (MW) | 0.18 | 0.10 | 0.96 | 0.17 | 0.10 | 1.00 | 0.16 | 0.10 | 0.97 | 0.17 | 0.11 | 1.04 |
| Total Purchased Units (GWh) | 108,912 | 5,382 | - | 112,899 | 5,597 | - | 110,059 | 5,072 | - | 116,356 | 5,263 | - |
| Total Units Exported (GWh) | 0.08 | - | 1,509.00 | 0.26 | - | 1,697.00 | 3.00 | - | 1,568.00 | 1.00 | - | 973.30 |
| Total Units Imported (GWh) | 19.98 | - | | 40.58 | - | - | 18.00 | - | - | 34.00 | - | - |

Note: 1. a = Dependable Capacity

# REVENUE, ASSET SIZE, EMPLOYMENT AND ANNUAL INVESTMENT OF TNB AND SESB

| | | Revenue (RM Billion) | Asset Size (RM Billion) | Employment | Annual Investment (RM Billion) |
|---|---|---|---|---|---|
| TNB | 2010 | 28.4 | 60.0 | 25,571 | 3.8 |
| | 2011 | 30.2 | 60.5 | 26,732 | 4.6 |
| | 2012 | 33.3 | 62.5 | 28,105 | 4.9 |
| | 2013 | 34.8 | 69.1 | 29,269 | 5.6 |
| | 2014 | 39.8 | 71.0 | 30,065 | 6.5 |
| | 2015 | 40.3 | 73.1 | 29,602 | 7.7 |
| | 2016 | 41.3 | 74.9 | 28,807 | 6.6 |
| | 2017 | 44.2 | 75.8 | 27,990 | 6.1 |
| | 2018 | 47.1 | 83.9 | 28,371 | 7.5 |
| | 2019 | 47.2 | 71.3 | 28,825 | 7.6 |
| | 2020 | 44.4 | 181.4 | 27,957 | 7.8 |
| | 2021 | 44.7 | 181.4 | 27,243 | 7.9 |
| SESB | 2010 | 1.1 | 3.0 | 2,617 | 0.3 |
| | 2011 | 1.1 | 4.0 | 2,614 | 0.3 |
| | 2012 | 1.4 | 4.0 | 2,675 | 0.3 |
| | 2013 | 1.5 | 3.9 | 2,759 | 0.3 |
| | 2014 | 1.7 | 5.7 | 2,975 | 0.2 |
| | 2015 | 1.9 | 6.3 | 3,092 | 0.3 |
| | 2016 | 2.1 | 6.4 | 3,282 | 0.4 |
| | 2017 | 2.2 | 6.9 | 3,264 | 0.4 |
| | 2018 | 2.1 | 7.1 | 3,179 | 0.3 |
| | 2019 | 2.3 | 5.0 | 3,180 | 0.4 |
| | 2020 | 2.2 | 10.3 | 3,134 | 0.3 |
| | 2021 | 1.8 | N/A | 3,197 | N/A |

Source: TNB, SESB

# NUMBER OF ELECTRICITY SUPPLY INTERRUPTIONS

| YEAR | Peninsular Malaysia | Sabah | Sarawak |
|---|---|---|---|
| **2010** | 101,126 | 24,173 | 8,003 |
| **2011** | 83,347 | 25,334 | 7,759 |
| **2012** | 75,271 | 26,841 | 7,881 |
| **2013** | 79,372 | 24,849 | 7,994 |
| **2014** | 70,629 | 22,739 | 9,496 |
| **2015** | 63,920 | 19,585 | 6,158 |
| **2016** | 58,175 | 20,105 | 7,550 |
| **2017** | 60,058 | 18,611 | 6,089 |
| **2018** | 64,198 | 17,017 | 5,772 |
| **2019** | 69,621 | 20,534 | 6,728 |
| **2020** | 64,512 | 22,863 | 5,425 |
| **2021** | 70,004 | 23,193 | 5,215 |

# PERFORMANCE OF DISTRIBUTION SYSTEM IN PENINSULAR MALAYSIA

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| **Electricity Supply Interruptions per 1,000 Customers** | | | | | | | |
| **Scheduled Interruptions** | 0.17 | 0.16 | 0.06 | 0.05 | 0.04 | 0.08 | 0.05 |
| **Unscheduled Interruptions** | 7.25 | 6.68 | 7.01 | 7.51 | 7.73 | 7.06 | 7.39 |
| **SAIDI, SAIFI & CAIDI** | | | | | | | |
| **SAIDI (Minutes/ Customer/Year) by Voltage Level** | 51.49 | 49.29 | 54.49 | 48.22 | 48.13 | 44.95 | 45.25 |
| **SAIFI (Number of Interruptions/ Customer/Year) by Voltage Level** | 0.83 | 0.90 | 0.93 | 0.86 | 0.83 | 0.8 | 0.78 |
| **CAIDI (Minutes/ Interrupted Customer/Year) by Voltage Level** | 62.04 | 54.77 | 58.59 | 56.07 | 57.99 | 56.05 | 58.31 |

# SYSTEM AVERAGE INTERRUPTION DURATION INDEX (SAIDI) BY STATE IN PENINSULAR MALAYSIA

| State | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Johor | 58.98 | 49.39 | 56.04 | 41.73 | 41.91 | 42.98 | 46.86 |
| Kedah | 57.42 | 60.82 | 82.51 | 73.30 | 65.76 | 64.98 | 57.94 |
| Kelantan | 56.18 | 67.9 | 59.34 | 49.91 | 39.33 | 42.69 | 37.94 |
| WP Kuala Lumpur | 32.36 | 32.39 | 41.01 | 28.59 | 26.68 | 28.19 | 30.04 |
| Melaka | 42.48 | 38.04 | 42.62 | 18.59 | 21.99 | 27.28 | 23.51 |
| Negeri Sembilan | 56.86 | 51.03 | 35.56 | 57.37 | 37.58 | 43.96 | 35.98 |
| Pahang | 62.61 | 57.22 | 51.30 | 46.01 | 60.84 | 45.80 | 40.63 |
| Perak | 51.64 | 46.23 | 52.83 | 43.89 | 43.26 | 43.20 | 54.60 |
| Perlis | 34.09 | 35.98 | 144.10 | 56.67 | 61.72 | 41.45 | 38.42 |
| Pulau Pinang | 54.49 | 51.05 | 58.12 | 78.66 | 89.34 | 51.74 | 49.22 |
| WP Putrajaya (including Cyberjaya) | 0.63 | 0.13 | 0.55 | 0.73 | 0.04 | 0.08 | 1.22 |
| Selangor | 50.74 | 54.67 | 52.34 | 64.77 | 61.55 | 58.52 | 61.46 |
| Terengganu | 41.46 | 39.65 | 42.82 | 36.67 | 30.70 | 33.62 | 35.84 |
| **PENINSULAR MALAYSIA** | **51.49** | **49.29** | **54.49** | **48.22** | **48.13** | **44.95** | **45.25** |

# SYSTEM AVERAGE INTERRUPTION FREQUENCY INDEX (SAIFI) BY STATE IN PENINSULAR MALAYSIA

**Unit : Number of Interruptions/Customer/Year**

| SAIFI by State | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Johor | 0.70 | 0.70 | 0.55 | 0.63 | 0.75 | 0.90 | 0.75 |
| Kedah | 1.20 | 1.40 | 1.19 | 1.26 | 1.22 | 1.24 | 1.11 |
| Kelantan | 1.25 | 1.45 | 1.53 | 1.47 | 1.02 | 1.12 | 1.19 |
| WP Kuala Lumpur | 0.48 | 0.57 | 0.61 | 0.46 | 0.43 | 0.50 | 0.46 |
| Melaka | 0.58 | 0.64 | 0.55 | 0.28 | 0.44 | 0.48 | 0.44 |
| Negeri Sembilan | 0.77 | 0.78 | 0.44 | 0.77 | 0.51 | 0.70 | 0.71 |
| Pahang | 1.44 | 1.56 | 1.39 | 0.65 | 0.82 | 0.66 | 0.61 |
| Perak | 0.80 | 0.94 | 0.71 | 1.41 | 1.48 | 1.37 | 1.45 |
| Perlis | 0.46 | 0.57 | 2.32 | 0.79 | 1.02 | 0.60 | 0.67 |
| Pulau Pinang | 0.83 | 0.82 | 0.69 | 1.68 | 1.37 | 1.64 | 1.56 |
| WP Putrajaya (including Cyberjaya) | 0.01 | 0.15 | 0.00 | 0.09 | 0.00 | 0.02 | 0.10 |
| Selangor | 0.74 | 0.84 | 0.60 | 0.94 | 0.76 | 0.75 | 0.73 |
| Terengganu | 0.87 | 1.01 | 1.10 | 1.00 | 0.93 | 0.76 | 0.82 |
| **PENINSULAR MALAYSIA** | **0.83** | **0.90** | **0.93** | **0.86** | **0.83** | **0.80** | **0.78** |

# CUSTOMER AVERAGE INTERRUPTION DURATION INDEX (CAIDI) BY STATE IN PENINSULAR MALAYSIA

**Unit : Number of Interruptions/Customer/Year**

| CAIDI by State | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Johor | 84.26 | 70.56 | 101.89 | 66.24 | 55.88 | 48.02 | 62.90 |
| Kedah | 47.85 | 43.44 | 69.33 | 58.17 | 53.90 | 52.57 | 52.10 |
| Kelantan | 44.94 | 46.83 | 38.78 | 33.95 | 38.56 | 38.04 | 31.85 |
| WP Kuala Lumpur | 67.42 | 56.82 | 67.23 | 62.15 | 62.05 | 56.05 | 65.68 |
| Melaka | 73.24 | 59.44 | 77.50 | 66.39 | 49.98 | 57.07 | 53.91 |
| Negeri Sembilan | 73.84 | 65.42 | 80.81 | 74.51 | 73.69 | 62.80 | 50.89 |
| Pahang | 65.65 | 62.26 | 84.23 | 31.13 | 74.20 | 69.08 | 66.83 |
| Perak | 43.48 | 36.68 | 36.91 | 71.73 | 29.23 | 31.53 | 37.60 |
| Perlis | 64.55 | 49.18 | 74.41 | 46.82 | 60.51 | 68.73 | 57.78 |
| Pulau Pinang | 74.11 | 63.12 | 62.11 | 70.78 | 65.21 | 31.53 | 31.51 |
| WP Putrajaya (including Cyberjaya) | 63.00 | 0.87 | 0.00 | 8.11 | 0.00 | 3.71 | 12.05 |
| Selangor | 68.57 | 65.08 | 87.23 | 68.90 | 80.99 | 78.45 | 84.08 |
| Terengganu | 47.66 | 39.26 | 42.39 | 36.67 | 33.01 | 44.24 | 43.81 |
| **PENINSULAR MALAYSIA** | **62.04** | **54.77** | **58.99** | **56.07** | **57.99** | **56.05** | **58.31** |

# PERFORMANCE OF DISTRIBUTION SYSTEM IN SABAH

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| **Electricity Supply Interruptions per 1,000 Customers** | | | | | | | |
| **Scheduled Interruptions** | 1.81 | 2.34 | 3.46 | 3.01 | 3.19 | 4.19 | 4.13 |
| **Unscheduled Interruptions** | 33.32 | 32.15 | 28.85 | 15.04 | 17.35 | 18.67 | 19.06 |
| **SAIDI, SAIFI & CAIDI** | | | | | | | |
| **SAIDI (Minutes/ Customer/Year)** | 379.26 | 311.01 | 240.9 | 267.87 | 205.31 | 189.43 | 332.14 |
| **SAIFI (Number of Interrup-tion/ Customer/Year)** | 9.63 | 8.60 | 6.61 | 8.61 | 10.83 | 12.41 | 12.1 |
| **CAIDI (Minutes/ Interrupted Customer/Year)** | 39.38 | 36.16 | 36.44 | 31.11 | 29.26 | 15.26 | 29.27 |

# PERFORMANCE OF DISTRIBUTION SYSTEM IN SARAWAK

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| **SAIDI (Minutes/ Customer/Year)** | 143.00 | 119.00 | 110.60 | 95.81 | 83.42 | 77.68 | 84.78 |
| **SAIFI (Number of Interrup-tion/ Customer/Year)** | 1.69 | 1.46 | 1.28 | 1.20 | 1.07 | 1.02 | 1.01 |
| **CAIDI (Minutes/ Interrupted Customer/Year)** | 84.62 | 81.51 | 86.72 | 79.63 | 78.29 | 76.00 | 84.00 |

# PIPED GAS SUPPLY
# **PERFORMANCE**

# NUMBER OF NATURAL GAS CUSTOMERS BY SECTOR

| YEAR | Licensee | Domestic | Commercial | Industrial | Total |
|---|---|---|---|---|---|
| **2015** | GMB | 12,571 | 862 | 795 | **14,228** |
| | SEC | - | - | 22 | **22** |
| **2016** | GMB | 12,339 | 935 | 819 | **14,093** |
| | SEC | - | - | 23 | **23** |
| **2017** | GMB | 12,818 | 1017 | 853 | **14,688** |
| | SEC | - | 2 | 21 | **23** |
| **2018** | GMB | 12,683 | 1014 | 879 | **14,576** |
| | SEC | 0 | 0 | 24 | **24** |
| **2019** | GMB | 12,620 | 1056 | 933 | **14,609** |
| | SEC | 0 | 2 | 23 | **25** |
| **2020** | GMES | 11,348 | 946 | 961 | **13,255** |
| | SEC | 0 | 2 | 24 | **26** |
| | PEGT | 0 | 1 | 2 | **3** |
| **2021** | GMES | 10,335 | 879 | 989 | **12,203** |
| | PEGT | 0 | 1 | 2 | **3** |
| | SHELL | 0 | 0 | 1 | **1** |
| | SEC | 0 | 2 | 27 | **29** |
| **2022** | GMES | 9,502 | 770 | 1021 | **11,293** |
| | PEGT | 0 | 1 | 8 | **9** |
| | SHELL | 0 | 0 | 5 | **5** |
| | PETROLIFE | 0 | 0 | 2 | **2** |
| | SEC | 0 | 2 | 28 | **30** |

1) GMB (Gas Malaysia Berhad), GMD (Gas Malaysia Distribution Sdn. Bhd.), GMES (Gas Malaysia Energy and Services Sdn. Bhd.), PEGT (Petronas Energy and Gas Trading Sdn. Bhd.), PETROLIFE (PETROLIFE Aero Sdn. Bhd.), SHELL (SHELL Malaysia Trading Sdn. Bhd.)

# NATURAL GAS CONSUMPTION BY SECTOR

Unit : mmBtu

| YEAR | Licensee | Domestic | Commercial | Industrial | Total |
|---|---|---|---|---|---|
| 2015 | GMB | 28,710 | 1,021,607 | 157,720,218 | **158,770,535** |
| | SEC | - | - | 294,387 | **294,387** |
| 2016 | GMB | 24,738 | 1,007,563 | 162,451,003 | **163,483,304** |
| | SEC | - | - | 284,156 | **284,156** |
| 2017 | GMB | 25,850 | 1,045,193 | 182,502,651 | **183,573,694** |
| | SEC | - | 41,557 | 274,759 | **316,316** |
| 2018 | GMB | 26,100 | 1,017,938 | 192,474,505 | **193,518,543** |
| | SEC | 0 | 0 | 322,911 | **322,911** |
| 2019 | GMB | 26,488 | 996,089 | 199,848,019 | **200,870,596** |
| | SEC | 0 | 27,041 | 426,637 | **453,678** |
| 2020 | GMES | 30,204 | 606,643 | 199,216,710 | **199,853,557** |
| | SEC | 0 | 24,489 | 648,362 | **672,851** |
| | PEGT | 0 | 1,882,358 | 2,053,341 | **3,935,699** |
| 2021 | GMES | 27,114 | 469,909 | 202,682,539 | **203,179,562** |
| | PEGT | 0 | 1,399,889 | 1,676,448 | **3,076,337** |
| | SHELL | 0 | 0 | 1,800,709 | **1,800,709** |
| | SEC | 0 | 33,071 | 823,130 | **856,202** |
| 2022 | GMES | 23,624 | 761,984 | 155,402,960 | **156,188,568** |
| | PEGT | 0 | 1,440,250 | 28,255,640 | **29,695,890** |
| | SHELL | 0 | 0 | 4,436,091 | **4,436,091** |
| | PETROLIFE | 0 | 0 | 1,707,820 | **1,707,820** |
| | SEC | 0 | 44,729 | 655,660 | **700,389** |

# NATURAL GAS PIPE LENGTH

Unit : km

| YEAR | Peninsular (GMD) | | Sabah (SEC) | |
|---|---|---|---|---|
| | Polyethylene Pipe | Stainless Steel Pipe | Polyethylene Pipe | Stainless Steel Pipe |
| 2015 | 567.04 | 1,472.70 | 6.78 | 1.30 |
| 2016 | 571.00 | 1,543.00 | 6.78 | 1.30 |
| 2017 | 577.00 | 1,594.00 | 6.78 | 1.30 |
| 2018 | 426.00 | 1,680.00 | 6.78 | 1.30 |
| 2019 | 586.00 | 1,810.00 | 6.81 | 4.00 |
| 2020 | 420.43 | 1,939.71 | 9.81 | 4.00 |
| 2021 | 582.86 | 2,038.32 | 11.00 | 4.00 |
| 2022 | 586.54 | 2,111.33 | 12.16 | 4.00 |

# PERFORMANCE HIGHLIGHTS

| YEAR | Licensee | Demand (mmBtu) | *Sales of Gas (RM '000) | Total Number of Employees | Revenue per Employee (RM '000) | Unit Sold Per Employee (mmBtu) |
|---|---|---|---|---|---|---|
| 2015 | GMB | 158,770,535 | 3,594,520 | 451 | **7,970** | 352,041 |
| | SEC | 294,387 | 9,789 | 74 | **132** | 3,978 |
| 2016 | GMB | 163,483,304 | 3,973,843 | 430 | **9,241** | 380,194 |
| | SEC | 284,124 | 9,872 | 80 | **123** | 3,552 |
| 2017 | GMB | 183,573,694 | 5,260,870 | 487 | **10,803** | 376,948 |
| | SEC | 274,759 | 11,424 | 83 | **138** | 3,310 |
| 2018 | GMB | 191,791,567 | 6,178,724,795 | 504 | **12,367,545** | 380,539 |
| | SEC | 322,911 | 1,437,160 | 79 | **32,482** | 4,077 |
| 2019 | GMB | 200,870,594 | 6,838,254 | 530 | **12,902** | 379,001 |
| | SEC | 455,797 | 12,371 | 83 | **149** | 5,492 |
| 2020 | GMES | 199,853,557 | 6,738,208 | 60 | **112,303** | 3,330,893 |
| | PEGT | 3,935,699 | 117,108 | 22 | **5,323** | 178,895 |
| | SEC | 672,851 | 15,503,910 | 80 | **193,799** | 8,410 |
| 2021 | GMES | 203,179,560 | 5,868,426 | 60 | **97,807** | 3,386,326 |
| | PEGT | 3,076,337 | 81,284 | 35 | **2,322** | 87,895 |
| | SHELL | N/A | N/A | N/A | **N/A** | N/A |
| | SEC | 856,202 | 20,875,711 | 83 | **251,515** | 10,316 |
| 2022 | GMES | 156,188,580 | 7,598,947 | 60 | **126,649** | 2,603,143 |
| | PEGT | 29,695,890 | 1,356,263 | 45 | **30,139** | 659,909 |
| | SHELL | N/A | N/A | N/A | **N/A** | N/A |
| | PETROLIFE | 1,707,820 | 84,280 | 35 | **2,408** | 48,795 |
| | SEC | 700,389 | 19,851,921 | 107 | **185,532** | 6,546 |

* GMES Shipping License starts from 01.01.2020

# NUMBER OF SUPPLY INTERRUPTIONS IN PENINSULAR MALAYSIA AND SABAH

| YEAR | GMD | SEC |
|---|---|---|
| **2015** | 22 | 0 |
| **2016** | 14 | 0 |
| **2017** | 16 | 0 |
| **2018** | 29 | 0 |
| **2019** | 13 | 0 |
| **2020** | 4 | 0 |
| **2021** | 2 | 2 |
| **2022** | 3 | 4 |

* GMD Distribution License starts from 01.01.2020

# SAIDI, SAIFI, CAIDI, NETWORK INTEGRITY AND CUSTOMER SERVICE

| YEAR | SAIDI (Minutes/Customer/Year) | | SAIFI (Disruptions/Customer/ Year) | | CAIDI (Minute/Disruption) | |
|---|---|---|---|---|---|---|
| | Peninsular | Sabah | Peninsular | Sabah | Peninsu-lar | Sabah |
| 2015 | 0.0874 | N/A | 0.0016 | N/A | 54.0500 | N/A |
| 2016 | 0.5812 | N/A | 0.0010 | N/A | 575.2300 | N/A |
| 2017 | 0.1067 | N/A | 0.0025 | N/A | 42.5100 | N/A |
| 2018 | 0.3060 | N/A | 0.0008 | N/A | 404.8200 | N/A |
| 2019 | 0.1780 | N/A | 0.0010 | N/A | 259.5600 | N/A |
| 2020 | 5.7780 | N/A | 0.0040 | N/A | 1381.6300 | N/A |
| 2021 | 1.4393 | N/A | N/A | N/A | N/A | N/A |
| 2022 | 0.0000 | N/A | N/A | N/A | N/A | N/A |

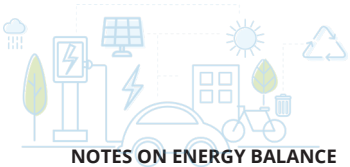
| YEAR | Network Integrity (Disruptions/Customer/Year) | | Customer Service | |
|---|---|---|---|---|
| | Peninsular | Sabah | Peninsular | Sabah |
| 2021 | 2 | N/A | 47 | N/A |
| 2022 | 1.2 | N/A | 35 | N/A |

# INDUSTRIAL SALES VOLUME BY INDUSTRY GROUPING

Unit: mmBtu

| YEAR | Licensee | Natural Gas Consumption by Sub-Sector (mmBtu) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Non-Power | | | | | | | | | | Power | Export |
| | | Non-Metallic Industry | Basic Metal Industry | Rubber products | Food, Beverages & Tobacco | Chemical Products | Electrical & Electronic | Machinery & Equipment | Fabricated Metal Products | Glass Products | Others | | |
| 2020 | GMES | 9,431,627 | 8,300,981 | 73,714,916 | 42,336,782 | 24,825,286 | 1,392,590 | 172,199 | 3,420,951 | 18,137,579 | 17,806,394 | 0 | 0 |
| | PEGT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,884,748 | 2,050,952 | 0 |
| 2021 | GMES | 9,442,045 | 8,382,949 | 68,792,166 | 41,767,885 | 24,963,431 | 1,632,353 | 176,869 | 3,287,899 | 21,367,334 | 22,869,608 | 0 | 0 |
| | PEGT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,400,681 | 1,675,656 | 0 |
| | SHELL | 0 | 0 | 1,800,709 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | SEC | 5,689 | 0 | 50,524 | 74,388 | 0 | 0 | 0 | 144,285 | 0 | 581,315 | 0 | 0 |
| 2022 | GMES | 10,453,772 | 8,892,374 | 42,241,487 | 39,097,997 | 15,604,892 | 1,616,399 | 211,321 | 3,340,002 | 9,850,137 | 24,094,579 | 0 | 0 |
| | PEGT | 0 | 5,753,638 | 3,909,752 | 5,795,226 | 0 | 0 | 0 | 0 | 11,089,885 | 1,440,677 | 1,706,712 | 0 |
| | SHELL | 0 | 0 | 1,287,321 | 0 | 3,148,770 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | PETROLIFE | 0 | 0 | 0 | 0 | 938,740 | 0 | 0 | 0 | 769,080 | 0 | 0 | 0 |
| | SEC | 0 | 140,519 | 76,650 | 99,396 | 330,766 | 0 | 0 | 0 | 0 | 53,058 | 0 | 0 |

# NOTES ON
# **ENERGY BALANCE**



## NOTES ON ENERGY BALANCE

The net calorific value (NCV) was chosen as the basis of calculations rather than the gross calorific value (GCV). The Joule was used as the rigorous accounting unit, while the "tonne oil equivalent" (1 toe= 41.84 Gigajoules) was chosen as the final unit for presentation in the Energy Balance

### COMMERCIAL ENERGY BALANCE FORMAT

The rows of the Energy Balance tables contain the following items:-

| | |
|---|---|
| **Primary supply** | Refers to supply of energy that has not undergone the transformations / conversion process within the country. |
| **Primary production (1)** | Refers to the quantity of fuels extracted. Data for natural gas excludes the amount of reinjected and flared gas. Gross production of hydro is shown in conventional fuel equivalent input. |
| **Gas Flaring, Reinjection & Use (2)** | Refers to the quantity of gas flared, re-injected into the gas fields and use for production purpose. |
| **Imports (3) and exports (4)** | Refer to the amount of primary and secondary energy obtained from, or supplied to other countries. In the energy balance format, imports always carry a positive and export a negative sign. |
| **Bunkers (5)** | Refer to the amount of fuels delivered to ocean-going ships of all flags engaged in international traffic. |
| **Stock change (6)** | Refers to the difference between the amounts of fuel in stocks at the beginning and end of year and should ideally cover producers, importers and industrial consumers. At this stage, however, only oil companies' stocks are taken into account. A negative sign indicates net increases while a positive sign indicates net decreases in stocks. |
| **Total** | Under primary supply, 'total' is the addition of columns to obtain total availability. Under transformation, 'total' is the addition of columns to obtain transformation and conversion losses. |
| **Gas Plants (9)** | Shows the input of natural gas into the LNG, MDS, GPP-LPG and RGT plants and their respective outputs. |
| **Refineries (10), Power Stations and Co-generation & Private licensees (11)** | Shows the input of any energy product (negative sign) for the purpose of converting it to one or more secondary products (positive sign). |
| **Losses and Own Use (12)** | Refers to losses of electrical energy and natural gas which occur outside the utilities and plants (i.e. distribution losses) and the consumption of energy by utilities and plants for operating their installation (i.e. electricity for operating auxiliary equipment and petroleum products used in the crude distillation process respectively). It does not, however, include conversion loss that is accounted for in the 'total' column. |
| **Secondary supply (14)** | Refers to the supply of energy from the transformation process and after deducting the energy sector's own use and losses, including power station use. |

| | |
|---|---|
| **Residential and commercial (15 & 16)** | Not only refers to energy used within households and commercial establishments but includes government buildings and institutions. |
| **Industry (17)** | Is a very broad-based sector ranging from manufacturing to mining and construction. Diesel sales through distributors are assumed to be to industrial consumers. |
| **Transport (18)** | Basically refers to all sales of motor gasoline and diesel from service stations and sales of aviation fuel. It also includes diesel and motor gasoline sold directly to government and military. |
| **Agriculture (19)** | Covers agriculture and forestry. |
| **Fishery (20)** | May involve the capture of wild fish or raising fish through fish farming or aquaculture. |
| **Non-energy use (21)** | Use of products resulting from the transformation process for non-energy purpose (i.e. bitumen/lubricants, asphalt/ greases) and use of energy products (such as natural gas) as industrial feed stocks |
| **Final use (22)** | Refer to the quantity of energy of all kinds delivered to the final user. |

NOTES:

I. Non-commercial energy such as firewood and other biomass fuels have been excluded in the energy balance until more reliable data are made available.

II. The output side of the final user's equipment of device i.e. useful energy will not be dealt with in the balance as it will involve assessing the efficiencies of end - use equipment operating under various different conditions.

**NOTES ON ELECTRICITY**

| | |
|---|---|
| **Reserve Margin** | Total capacity margin is defined as the amount of installed generation available over and above system peak load<br>**Reserve Margin = Installed Capacity –Peak Demand / Peak Demand** |
| **Peak Demand** | The maximum power demand registered by a customer or a group of customers or a system in a stated period of time such as a month or a year. The value may be the maximum instantaneous load or more usually, the average load over a designated interval of time, such as half an hour and is normally stated in kilowatts or megawatts. |
| **Installed Capacity** | Installed capacity is defined as the maximum possible capacity (nameplate rating) that can be provided by the plant. |
| **Dependable Capacity** | The maximum capacity, modified for ambient limitations for a specified period of time, such as a month or a season. |
| **Available Capacity** | Available capacity refers to the Latest Tested Net Capacity. It is the dependable capacity, modified for equipment limitation at any time. |
| **Unit Generated (Gross Generation)** | The total amount of electric energy produced by generating units and measured at the generating terminal in kilowatt-hours (kWh) or megawatt hours (MWh) |
| **Unit Sent Out From Station(s) (Net Generation)** | The amount of gross generation less the electrical energy consumed at the generating station(s) for station service or auxiliaries. |

**NOTES ON COAL**

| | |
|---|---|
| **Measured Resources** | Refers to coal for which estimates of the rank and quantity have been computed to a high degree of geologic assurance, from sample analyses and measurements from closely spaced and geologically well known sample sites. |
| **Indicated Resources** | Refers to coal for which estimates of the rank, quality, and quantity have been computed to a moderate degree of geologic assurance, partly from sample analyses and measurements and partly from reasonable geologic projections. |
| **Inferred Resources** | Refers to coal of a low degree of geologic assurance in unexplored extensions of demonstrated resources for which estimates of the quality and size are based on geologic evidence and projection. Quantitative estimates are based on broad knowledge of the geologic character of the bed or region where few measurements or sampling points are available and on assumed continuation from demonstrated coal for which there is geologic evidence. |

**CONVERSION COEFFICIENTS AND EQUIVALENCE**

**TJ/1000 Tonnes [1]**

| | | | |
|---|---|---|---|
| Hard coal | 29.3076 | Lignite/brown coal | 11.2834 |
| Coke/oven coke | 26.3768 | Peat | 9.5250 |
| Gas coke | 26.3768 | Charcoal | 28.8888 |
| Brown coal coke | 19.6361 | Fuelwood [2] | 13.4734 |
| Pattern fuel briquettes | 29.3076 | Lignite briquettes | 19.6361 |

**Natural Gas Products (TJ/1000 Tonnes)**

| | | | |
|---|---|---|---|
| **Liquefied Natural Gas (LNG)** | 45.1923 | **Natural Gas** | 1TJ/ million scf<br>0.9479<br>mmbtu/GJ |
| **Butane** | 50.393 | **Ethane** | 1,067.82<br>GJ/mscf |
| **Propane** | 49.473 | **Methane** | 1,131.31<br>GJ/mscf |

**Electricity**

| | |
|---|---|
| **Electricity** | 3.6 TJ/GWh |

**Petroleum Products (TJ/1000 Tonnes)**

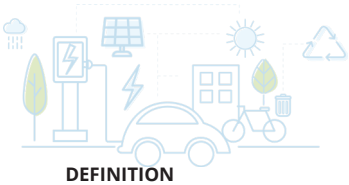
| | | | |
|---|---|---|---|
| Crude petroleum (imported) | 42.6133 | Gas oil/diesel oil | 42.4960 |
| Crude petroleum (domestic) | 43.3000 | Residual fuel oil | 41.4996 |
| Plant condensate | 44.3131 | Naphtha | 44.1289 |
| Aviation gasoline (AVGAS) | 43.9614 | White/industrial spirit | 43.2078 |
| Liquefied petroleum gas (LPG) | 45.5440 | Lubricants | 42.1401 |
| Motor gasoline | 43.9614 | Bitumen (asphalt) | 41.8000 |
| Natural gasoline | 44.8992 | Petroleum waxes | 43.3334 |
| Aviation turbine fuel (ATF) | 43.1994 | Petroleum coke | 36.4000 |
| Kerosene | 43.1994 | Other petroleum products | 42.4960 |

1,000 Tonnes Oil Equivalent (toe) = 41.84 TJ
Notes:- 1. Unless otherwise indicated
2. Assuming 9.7 TJ/1000 cu m

**CONVERSION COEFFICIENTS FOR CRUDE OIL AND PETROLEUM PRODUCTS**

**Barrels to tonne**

| Product | Barrels/tonne |
|---|---|
| Crude Oil - Import | 7.33 |
| - Local | 7.60 |
| Motor Gasoline | 8.55 |
| Diesel Oil | 7.50 |
| Fuel Oil | 6.60 |
| Kerosene | 7.90 |
| LPG | 11.76 |
| ATF | 7.91 |
| AVGAS | 9.05 |
| Non-energy | 6.50 |



**DEFINITION**

The sources of energy covered in the Energy Balances are as follows:-

| | |
|---|---|
| **Natural Gas** | Is a mixture of gaseous hydrocarbons (mainly methane), which occurs in either gas fields or in association with crude oil in oil fields. |
| **Liquefied Natural Gas (LNG)** | Is a natural gas that is liquefied for ocean transportation and export. |
| **Crude oil** | Is a natural product that is extracted from mineral deposits and consists essentially of many different non-aromatic hydrocarbons (paraffinic, cyclonic, etc.). |
| **Aviation gasoline (AVGAS)** | Is a special blended grade of gasoline for use in aircraft engines of the piston type. Distillation range normally falls within 30□C and 200□C. |
| **Liquefied Petroleum Gas (LPG)** | Commercial LPG consists essentially of a mixture of propane and butane gases which are held in the liquid state by pressure or refrigeration. |
| **Motor gasoline (Mogas)** | Petroleum distillate used as fuel in spark- ignition internal combustion engines. Distillation range is within 30□C and 250□C. |
| **Aviation turbine Fuel (ATF)** | Fuel for use in aviation gas turbines mainly refined from kerosene. Distillation range from 150□C and 250□C. |
| **Kerosene** | Is a straight-run fraction from crude oil, with boiling range from150□C to 250□C. Its main uses are for domestic lighting and cooking. |
| **Diesel oil (or gas oil)** | Distillation falls within 200□C and 340□C. Diesel fuel for high-speed diesel engines (i.e. automotive) is 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. |
| **Fuel oil** | Heavy distillates, residues or blends of these, used as fuel for production of heat and power. Fuel oil production at the refinery is essentially a matter of selective blending of available components rather than of special processing. Fuel oil viscosities vary widely depending on the blend of distillates and residues. |
| **Non-energy products** | Refer mainly 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 party refined light distillate, which is further, blended into motor gasoline or used as feedstock 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 from 380□C to 500□C. |
| **Refinery gas** | 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. |
| **Coal and coke** | Solid fuels consisting essentially of carbon, hydrogen, oxygen and sulphur. Coal in the energy balance is mainly bituminous coal (medium grade in terms of energy content) and some anthracite (high quality hard coal). Coke is obtained from coal by heating at high temperature in the absence of air. |

| | |
|---|---|
| **Hydropower** | Is the inferred primary energy available for electricity production and is shown in terms of conventional fossil fuel equivalent using the average thermal efficiency of conversion for the year, i.e. the hypothetical amount of fossil fuel, which would be needed to produce the same amount of electricity in existing thermal power plants. |
| **Electricity Production** | Production of electricity refers to production from public utilities as well as independent power producers (IPPs) and private installations & co-generation plants which obtain licenses from the Electricity and Gas Supply Department of Energy Commission. Figures for 'fuel input' into power stations & co-generation plants were only available for Tenaga Nasional Berhad, SEB, SESB, IPPs as well as GDC Sdn. Bhd. Estimates were made using average conversion efficiency to obtain the fuel input into private installations. |

# ENERGY COMMISSION CONTACT INFORMATION

**HEADQUARTERS**

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| REGIONAL OFFICES | ADDRESS | CONTACT NUMBER |
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| Perak | Tingkat 1, Bangunan KWSP<br>Jalan Greentown<br>30450 Ipoh<br>PERAK | T: 05 253 5413<br>F: 05 255 3525 |
| Kelantan & Terengganu | Tingkat 6, Bangunan KWSP<br>Jalan Padang Garong<br>15000 Kota Bharu<br>KELANTAN | T: 09 748 7390<br>F: 09 744 5498 |
| Pahang | Tingkat 7, Menara Zenith<br>Jalan Putra Square 6<br>25000 Kuantan<br>PAHANG | T: 09 514 2803<br>F: 09 514 2804 |
| Selangor, Kuala Lumpur & Putrajaya | Tingkat 10, Menara PKNS<br>No 17, Jalan Yong Shook Lin<br>46050 Petaling Jaya<br>SELANGOR | T: 03 7955 8930<br>F: 03 7955 8939 |
| Johor | Suite 18A, Aras 18<br>Menara ANSAR 65, Jalan Trus<br>80000 Johor Bahru<br>JOHOR | T: 07 224 8861<br>F: 07 224 9410 |
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| Labuan | Operating from the following Regional Office starting 1st January 2024 until further notice:<br><br>Tingkat 3, Wisma PERKESO<br>Jalan Persekutuan, MITC<br>75450 Ayer Keroh<br>MELAKA | T: 06 231 9594<br>F: 06 231-9620 |

# NOTES

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