Suruhanjaya Tenaga
Energy Commission

National Energy Balance
2014

PUBLISHED BY:

SURUHANJAYA TENAGA (ENERGY COMMISSION)
No. 12, Jalan Tun Hussein, Precinct 2, 62100 Putrajaya, Malaysia
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ISSN NO.: 0128 – 6323
ST(P) 02/04/2016

PRINTED IN MALAYSIA

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PREFACE

Malaysia is fortunate as we are endowed with both conventional and renewable sources of energy and has achieved considerable progress in harnessing those resources, in line with our National Energy Policy objectives and strategies. Indeed, over the years, our country has experienced significant changes in its energy supply-demand balance in order to meet the changing needs as we strive to become a developed economy.

In 2014, the Malaysian economy recorded a stronger growth of 6.0 percent (2013: 4.7 percent), driven primarily by the continued strength of domestic demand and supported by an improvement in external trade performance. However, primary energy supply grew by only 1.9 percent compared to 4.9 percent during the previous year, whilst final energy consumption grew 1.2 percent, lower than the 4.6 percent growth recorded in the previous year.

The transportation sector continued to be the country's largest consumer of energy since 2008. However, final energy consumption in the transportation sector grew at a slower rate of 8.8 percent in 2014 as compared to 13.2 percent in 2013. Similarly, final energy consumption in the industry sector, which remained as the second largest consumer of energy, declined by 2.5 percent to 13,162 ktoe (thousand tonnes of oil equivalent), mainly due to lower consumption of natural gas and petroleum products.

Electricity generation fuel mix in 2014 did not change much from the previous year's, with the share of natural gas at 43.9 percent, coal at 43.2 percent, fuel oil and diesel oil at 2.8 percent, hydro at 8.7 percent and renewables at 0.5 percent. Total installed capacity as at the end of 2014 was 29,938 MW (Megawatt), an increase of 0.6 percent from 29,748 MW in 2013. Total electricity consumption recorded a growth of 4.3 percent to 128,330 GWh (Gigawatt-hours), with the highest share by the industrial sector at 45.9 percent, followed by the commercial sector at 32.3 percent and residential sector at 21.2 percent.

I am happy to note that the country's final energy intensity has reduced by 4.5 percent, from 54.0 toe (tonnes of oil equivalent)/RM million in 2013 to 51.6 toe/RM million. At the same time, our electricity intensity has also improved from 0.129 GWh/RM million in 2013 to 0.127 GWh/RM million, equivalent to a reduction of 1.6 percent. This shows that our efforts in improving energy use efficiently are bearing fruits.

This National Energy Balance (NEB) 2014 publication includes new data on Malaysia's energy consumption according to sub-sectors such as manufacturing and residential sub-sectors as compared to the previous NEB publications, which included total energy consumption according to sectors only.

I would like to take this opportunity to thank all who have been involved in the preparation of this report, in particular, the relevant government agencies, power utilities, independent power producers, private oil companies, coal producers as well as the cement and iron & steel manufacturers for your continuing support in providing relevant and accurate data for the report.

Thank you.

Datuk Seri Panglima Dr. Maximus Johnity Ongkili
Minister of Energy, Green Technology and
Water Malaysia

INTRODUCTION

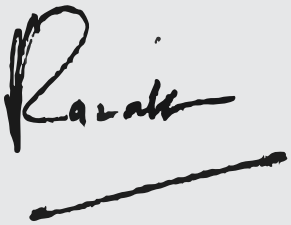
The National Energy Balance (NEB) 2014 marks the 5th publication of NEB by Energy Commission (Suruhanjaya Tenaga - ST). Every year we strive to ensure the comprehensiveness and accuracy of the data and statistics presented, as well as improving the overall outlook of the report. Data submission through our Malaysia Energy Information Hub (MEIH) portal that was first introduced back in 2012 has proven to be an effective enabler to enhance our efficiency in data collection process, facilitating easy access to the data providers. We hope with the consistency and continual cooperation between data providers and the staff of ST, we can further improve, streamline and ensure the MEIH portal is informational and periodically updated for the users.

The NEB 2014 report has been compiled to cater for varied users, from government sectors to university students and for various other purposes too. The report provides useful information for related entities and agencies to understand the flow of energy, how the input and output energy balance out, and we can see where Malaysia stands in comparison to other developing countries. As Malaysia adapts a policy towards Sustainable Development, these data and information would be vital for future projections and decision making for the country's development.

ST is in the midst of conducting a survey on households' energy consumption, and as of now, we are in the process of analysing and compiling the results. The purpose of the survey is to gain an insight of the amount of energy usage among Malaysians' households based on different types of dwellings, education backgrounds and household income. The survey results are expected to provide a reflection of our country's economic status and the level of awareness in energy efficiency amongst the general population. With the availability of this data, further analysis by government bodies or related agencies can be conducted for forecasting the future energy consumption and formulating mechanisms to implement energy efficiency initiatives not just for the commercial and industrial sectors, but also for the residential customers.

Here, I would like to take this opportunity to thank the Honourable Minister and the Ministry of Energy, Green Technology and Water for their guidance and support in ensuring the success of NEB publication. We would also acknowledge and appreciate the efforts of the data providers for providing data in a timely and systematic manner, and to those who have directly or indirectly assisted us in publishing the NEB 2014. We look forward towards a continuous and meaningful participation from all.

Thank you.



Dato' Abdul Razak Bin Abdul Majid
Chairman of Energy Commission
Malaysia

DATA COMPILATION

The first stage in compiling the overall energy balance is to rearrange the data to fit into a standard structure of commodity (or partial) balance. The commodity balance shows clearly the production, imports, exports, stock change and consumption for each energy commodity. The basic sequence adhered to in the overall balance is: -

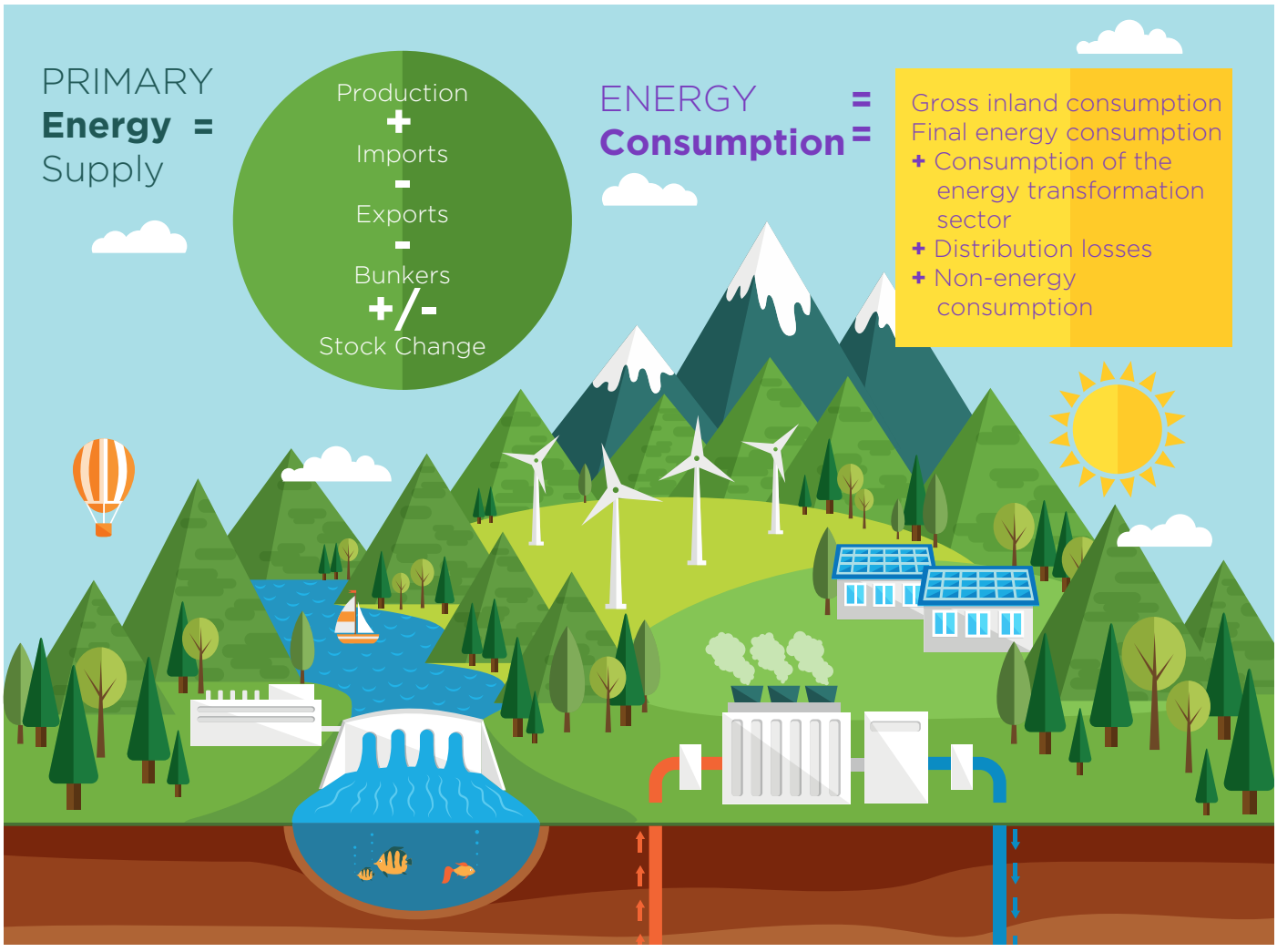
Production + Imports - Exports +/- Stock change = **APPARENT INLAND DELIVERIES (OR CONSUMPTION)**

In practice, however, "Apparent inland deliveries" deduced from supply statistics hardly ever match actual sales data. It is necessary, therefore, to include two "statistical discrepancies" - the first to account for the difference in apparent inland delivery of primary supply mainly due to the difficulties in obtaining actual stock change data and difference in data compilation at source and the second to account for the difference in secondary supply as the result of the transformation processes of one form of energy to another.

In addition, the statistical discrepancies also act as a balancing tool to minimise possible errors. In the case of oil and oil products, losses in transportation and distribution, as well as statistical errors are included in the statistical discrepancies. However, for electricity, distribution losses and the sector's own use of electricity are accounted for in the "losses and own use".

Stock changes are not fully accounted for in the balance. It is extremely difficult to obtain stocks of all energy commodities at distributors and final users. Only oil companies' stocks are readily available and these would include stocks at refineries and depots. The statistical discrepancy might also include unrecorded stock changes. Coal stocks at TNB power station and a producer in Sarawak are taken into account in this report.

In summary, the flow of energy is represented by the following equations: -



EXECUTIVE SUMMARY

ENERGY OVERVIEW

The Malaysian economy recorded a stronger growth of 6.0 percent in 2014 (2013: 4.7 percent), driven primarily by the continued strength of domestic demand and supported by an improvement in external trade performance. Net exports turned around to contribute positively to growth after seven years of negative contribution, as Malaysia benefitted from the recovery in the advanced economies and the sustained demand from the regional economies. While the growth in private domestic demand remained strong, public sector expenditure registered slower growth, consistent with the Government's fiscal consolidation efforts.

In the energy sector, final energy consumption for 2014 recorded a positive growth of 1.2 percent, lower than the growth recorded in the previous year (4.6 percent). On the other hand, primary energy supply marked 1.9 percent growth rate in 2014 as compared to 4.9 percent in 2013.

PRIMARY ENERGY SUPPLY

In 2014, the primary energy supply grew only 1.9 percent compared to 4.9 percent during the previous year. The growth was anticipated by higher total primary energy supply for all types of energy except for crude oil. The total primary supply for crude oil declined by 1.4 percent due to higher net export. At a lesser rate, production of crude oil increased by a narrow margin of 3.4 percent from 28,576 ktoe in 2013 to 29,545 ktoe in 2014. The production of coal during year 2014 decreased by 7.1 percent, this has led to the lower export of coal by 65.0 percent. Total primary energy supply from renewables had also recorded an increase from 2013 levels to 2014. In 2014, the primary supply of solar registered at 63 ktoe compared to only 38 ktoe in 2013. The total primary energy supply of biodiesel increased to 300 ktoe from 188 ktoe in 2013. In 2014, total primary energy supply of hydro had also recorded a positive increase by 13.0 percent from 2013 level to settle at 3,038 ktoe.

In terms of total shares, crude oil and petroleum products shares increased slightly from 36.4 percent in 2013 to 36.7 percent in 2014. The share of natural gas, decreased to 43.4 percent from 44.1 percent during the same period. The share of coal and coke has remained unchanged at 16.6 percent. Hydro has also increased from 3.0 percent to 3.3 percent in 2014.

ENERGY TRANSFORMATION

Since the commencement of PETRONAS's third LNG plant (MLNG TIGA) in Bintulu in March 2003, conversion of natural gas to Liquefied Natural Gas (LNG) has continuously increased. In year 2014, 28,117 ktoe of LNG was produced compared to 17,231 ktoe in 2000, an increase of 63 percent within fourteen years.

Natural gas is not only transformed in the LNG plant but also in the Middle Distillate Synthesis (MDS) and GPP-LPG plants. In 2014, out of 39,193 ktoe of natural gas used in the transformation plants, 93.0 percent was used by the LNG plant and the balance of 2.5 percent and 4.5 percent was transformed in the MDS and GPP-LPG plants respectively. LNG production, which is the main output of the LNG plant, raised by 0.3 percent in 2014 supported by the increase in the global LNG demand. The plant also produced 96 ktoe of LPG, adding up to the country's total LPG production of 1,250 ktoe which was mainly produced by the GPP-LPG plant. Since the introduction of LPG as an alternative fuel for cooking in the country, large supplies of LPG was actively channelled to the household and commercial sectors. LPG was supplied to the households and small commercial premises in small canisters (14 kg - 50 kg), and to large commercial and industrial customers in bulk.

On the other hand, the MDS plant, which has been in operation since 1993, converts the non-associated natural gas into high quality synthetic oil products (diesel, kerosene, naphtha) and other chemical products. The increasing demand of MDS products is evident by the 0.1 percent upsurge of MDS production in gas conversion plant in 2014.

The total installed refinery capacity as of the end of 2014 was about 492 kilo barrels per day (kbpd), not including the condensates splitter capacity of 74.3 kbpd. The maximum capacity at PETRONAS Kertih refinery is 49 kbpd, which totalled up the capacity of PETRONAS's owned refineries to 249 kbpd.

The other refineries owned by SHELL and Petron Malaysia have a maximum capacity of about 155 kbpd and 88 kbpd respectively. Together, these refineries have an estimated combined refining capacity of 492 kbpd.

Refineries supplied about 24,120 ktoe of petroleum products in 2014 representing a slight decrease of 2.4 percent from refinery output of year 2013. Input to these refineries consists of both local crude and

imported crude, mainly from the Middle East. The share of imported crude oil in the refinery mix increased from 35 percent in 2013 to 38 percent in 2014, to fulfill the domestic consumption requirement.

ELECTRICITY

Malaysia's total installed capacity as of the end of 2014 was 29,973.8 MW, an increase of 0.6 percent from 29,748 MW in 2013. Around 78 percent of the installed capacity is located in Peninsular Malaysia, 14 percent in Sarawak and remaining 8 percent in Sabah. Gross electricity generation registered at 147,480 GWh, an increase of 2.8 percent as compared to 143,497 GWh in 2013. The peak demand for Peninsular Malaysia was recorded at 16,901 MW, Sarawak at 2,306 MW and Sabah Grid at 908 MW.

The share of natural gas as energy input in power stations increased from 43.7 percent in 2013 to 43.8 percent in 2014. The oil's share of fuel used for generation continued to decline and in 2014, oil accounted for only 2.9 percent. This was in line with the government's strategy in emphasizing the use of non-oil indigenous energy sources in the power sector. The share of coal, slightly decreased from 43.7 percent in 2013 to 43.2 percent in 2014. Hydro share was at 9.6 percent while the remaining were renewables at 0.5 percent.

The total electricity consumption for Malaysia recorded a growth of 4.3 percent from 123,079 GWh in 2013 to 128,330 GWh in 2014. The share in electricity consumption was highest for the industrial sector at 45.9 percent, followed by the commercial sector at 32.3 percent, residential sector at 21.2 percent, agriculture at 0.4 percent and transport at 0.2 percent.

FINAL ENERGY CONSUMPTION

In 2014, total final energy consumption was recorded at 52,209 ktoe, an annual growth increase of 1.2 percent compared to 4.6 percent growth in 2013, due to increasing demand from all sectors. The domestic growth has been sustained by the manufacturing and services sectors.

Analysis on the consumption by fuel type showed that the share of petroleum products increased marginally from 57.0 percent in 2013 to 57.1 percent in 2014. Of this share, petrol and diesel were the major contributors at 43.0 percent and 34.4 percent respectively. Meanwhile, the share of electricity increased to 21.1 percent in 2014 compared to 20.5 percent in the previous year. The share of natural gas in final energy consumption decreased slightly to 18.5 percent from 19.5 percent in the previous year due mainly to the lower consumption from non-energy sector. Coal and coke consumption increased by 11.1 percent to 1,709 ktoe, due to increase in cement production for the construction industry as cement production increased 4.6 percent in 2014 compared to the previous year.

The final energy consumption in the industry sector has decreased 2.5 percent to record at 13,162 ktoe. The reduction in growth was contributed by lower consumption of natural gas and petroleum products by the manufacturing sub-sector which resulted in a downward trend of energy intensity. This sub-sector, though, has put greater increase in efficiency to drive for higher productivity in order to minimise production costs. However, despite the decrease in energy growth, the industrial sector showed stronger performance in terms of value added contribution to the strong growth in the manufacturing sector during the year.

The final energy consumption in transportation sector was increased by 8.8 percent, placing the sector as the highest consumer overtaking the industrial sector. The increment in growth was reflected by the higher consumption of petroleum products especially from diesel and Aviation Turbine Fuel (ATF) & Aviation Gasoline (AV Gas). As we all know, the Government through the Cabinet Meeting on November 2014, has decided that starting from December 1, 2014, the retail price of RON95 petrol and diesel will be determined by the flotation method (managed float). The same method has been implemented for the retail price of RON97 since July 2010. In this case the retail prices of petroleum products in Malaysia was determined via the Automatic Price Mechanism (APM) since 1983. Through APM, the Government will set the retail price at a certain level at which the cost of the product change will not change the retail price. However, in the floatation method (managed float), the average change in the cost of the product will determine the pricing for the next month. This means if the market price of crude oil increases, the retail price of RON97, RON95 and diesel will also increase and vice versa.

The residential and commercial sectors consumption for energy also continued to increase rapidly, with the increased attributed to electricity consumption growth of 3.2 percent. These sectors are also highly dependable on natural gas, which is supplied to households, government buildings, hotels, hospitals and even airports as well as food courts and restaurants. In 2014, these sectors maintained in natural gas usage of 23 ktoe. In addition, the collaboration between natural gas suppliers with developers have enabled the bulk volume of natural gas supplies to residential areas.

As of 2014, the non-energy consumption for energy showed a slight decrease of 14.6 percent, of which a total of 4,472 ktoe of natural gas has been supplied for this non-energy use application. The reduction of natural gas usage was due to lower consumption especially in Peninsular Malaysia as the consumption of natural gas dropped about 30.5 percent to settle

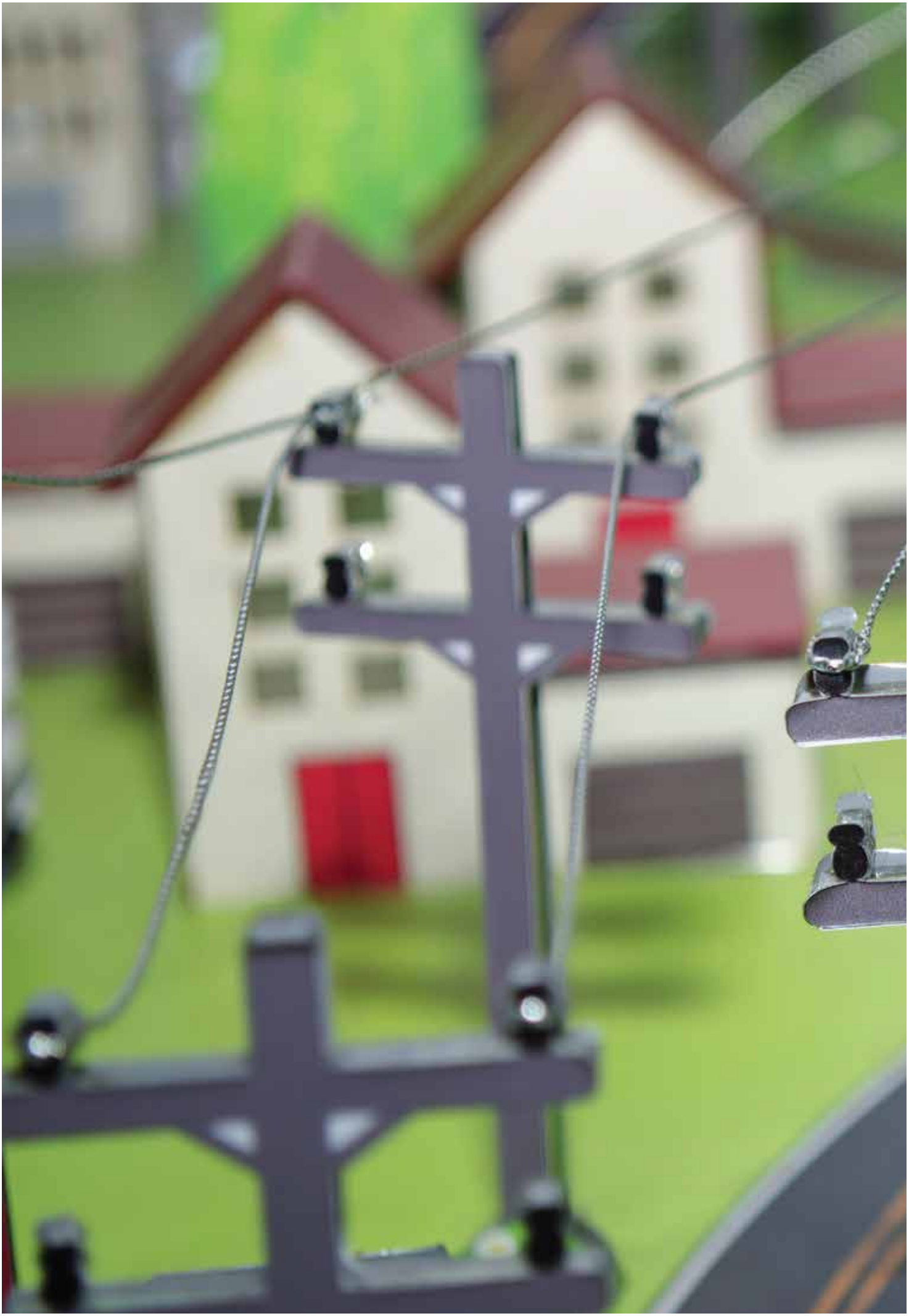
at 67,995 mmscf. The consumption of natural gas for non-energy used was also contributed by the sales of fertilizers and pesticides of which the gas is used as feedstock in industrial projects such as ASEAN Bintulu Fertilizer plant for production of ammonia and urea and the methanol plant in Labuan.

OUTLOOK IN 2015

Overall, the Malaysian economy is projected to register a steady growth of 4.5 - 5.5 percent in 2015 (2014: 6.0 percent), supported mainly by a sustained expansion in domestic demand amid strong domestic fundamentals and a resilient export sector. Domestic demand will continue to anchor growth in 2015, driven by private sector spending.

Malaysia's energy supply and consumption will be expected to grow further in 2015. The decline in global oil prices is expected to affect upstream oil and gas projects, particularly in the enhanced oil recovery (EOR) and marginal oilfield activity. The impact will, however, be partially mitigated by the implementation of projects that have already been contracted out and existing long-gestation projects such as deep-water exploration.

In terms of energy consumption, all major sectors are expected to benefit from lower commodity prices and remain the key driver of economic growth in 2015. For households, lower fuel prices will lead to additional disposable income and support private consumption.



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KEY ECONOMIC AND **ENERGY DATA**

TABLE 1: KEY ECONOMIC AND ENERGY DATA

	2014				
	Q1	Q2	Q3	Q4	TOTAL
GDP at current prices (RM million)*	266,114	272,267	278,828	289,371	**1,106,580**
GDP at 2010 prices (RM million)*	240,787	248,767	257,198	265,753	**1,012,505**
GNI at current prices (RM million)*	259,535	264,307	269,218	276,198	**1,069,258**
Population ('000 people)**	30,502	30,598	30,697	30,797	**30,598**
Primary Energy Supply (ktoe)	22,234	23,279	23,997	22,978	**92,487**
Final Energy Consumption (ktoe)	12,883	13,327	13,160	12,839	**52,209**
Electricity Consumption (ktoe)	2,626	2,810	2,816	2,790	**11,042**
Electricity Consumption (GWh)	30,522	32,655	32,729	32,424	**128,330**
PER CAPITA					
GDP at Current Prices (RM)*	34,898	35,593	36,333	37,584	**36,165**
Primary Energy Supply (toe)	0.729	0.761	0.782	0.746	**3.023**
Final Energy Consumption (toe)	0.422	0.436	0.429	0.417	**1.706**
Electricity Consumption (kWh)	1,001	1,067	1,066	1,053	**4,194**
ENERGY INTENSITY					
Primary Energy Supply (toe/GDP at 2010 prices (RM million))	92.3	93.6	93.3	86.5	**91.3**
Final Energy Consumption (toe/GDP at 2010 prices (RM million))	53.5	53.6	51.2	48.3	**51.6**
Electricity Consumption (toe/GDP at 2010 prices (RM million))	10.9	11.3	10.9	10.5	**10.9**
Electricity Consumption (GWh/GDP at 2010 prices (RM million))	0.127	0.131	0.127	0.122	**0.127**

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

TABLE 2: KEY ECONOMIC AND ENERGY DATA BY REGION

PENINSULAR MALAYSIA	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
GDP at Current Prices (RM million)*	464,431	507,814	562,522	641,175	600,630	672,787	739,348	793,280	836,142	910,243
GDP at 2010 Prices (RM million)*	537,441	567,920	603,537	634,266	621,915	672,787	709,029	752,858	789,428	839,047
Population ('000 people)**	20,785	21,180	21,577	21,970	22,363	22,754	23,099	23,417	23,868	24,157
Final Energy Consumption (ktoe)	32,195	34,390	37,921	38,530	34,521	35,593	35,968	36,683	41,859	42,470
Electricity Consumption (ktoe)	6,366	6,669	7,030	7,307	7,567	8,145	8,427	8,791	9,108	9,315
Electricity Consumption (GWh)	73,987	77,504	81,710	84,924	87,950	94,666	97,939	102,174	105,861	108,259
PER CAPITA										
GDP at Current Prices (RM)*	22,344	23,976	26,071	29,185	26,858	29,569	32,008	33,876	35,031	37,681
Final Energy Consumption (toe)	1.549	1.624	1.757	1.754	1.544	1.564	1.557	1.567	1.754	1.758
Electricity Consumption (kWh)	3,560	3,659	3,787	3,866	3,933	4,161	4,240	4,363	4,435	4,482
ENERGY INTENSITY										
Final Energy Consumption (toe/GDP at 2010 prices (RM million))	59.9	60.6	62.8	60.7	55.5	52.9	50.7	48.7	53.0	50.6
Electricity Consumption (toe/GDP at 2010 prices (RM million))	11.8	11.7	11.6	11.5	12.2	12.1	11.9	11.7	11.5	11.1
Electricity Consumption (GWh/GDP at 2010 prices (RM million))	0.138	0.136	0.135	0.134	0.141	0.141	0.138	0.136	0.134	0.129

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

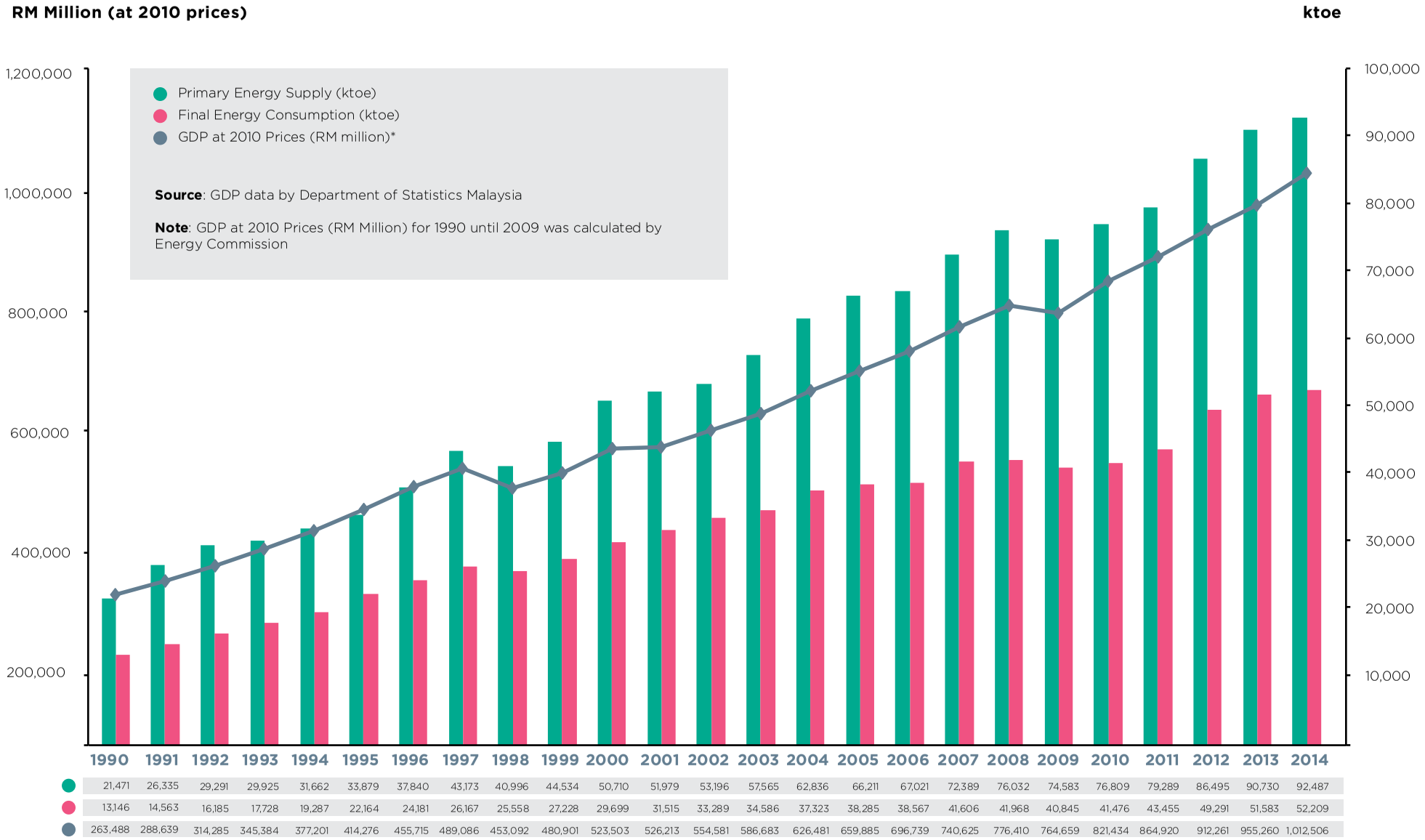
SABAH	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
GDP at Current Prices (RM million)*	36,258	40,649	48,129	60,312	55,102	61,516	69,672	71,347	72,243	77,479
GDP at 2010 prices (RM million)*	47,529	50,552	52,235	57,029	59,763	61,516	63,191	65,390	67,700	71,074
Population ('000 people)**	2,978	3,045	3,116	3,190	3,267	3,348	3,435	3,523	3,703	3,767
Final Energy Consumption (ktoe)	2,806	2,587	2,879	3,068	3,046	2,758	3,466	4,671	4,097	4,128
Electricity Consumption (ktoe)	238	255	285	299	329	355	368	425	439	423
Electricity Consumption (GWh)	2,766	2,969	3,317	3,474	3,818	4,127	4,275	4,943	5,097	4,919
PER CAPITA										
GDP at Current Prices (RM)*	12,176	13,350	15,448	18,909	16,864	18,373	20,284	20,250	19,510	20,571
Final Energy Consumption (toe)	0.942	0.850	0.924	0.962	0.932	0.824	1.009	1.326	1.106	1.096
Electricity Consumption (kWh)	929	975	1,065	1,089	1,169	1,233	1,245	1,403	1,377	1,306
ENERGY INTENSITY										
Final Energy Consumption (toe/GDP at 2010 prices (RM million))	59.0	51.2	55.1	53.8	51.0	44.8	54.8	71.4	60.5	58.1
Electricity Consumption (toe/GDP at 2010 prices (RM million))	5.0	5.1	5.5	5.2	5.5	5.8	5.8	6.5	6.5	6.0
Electricity Consumption (GWh/GDP at 2010 prices (RM million))	0.058	0.059	0.064	0.061	0.064	0.067	0.068	0.076	0.075	0.069

Note (*) : 1. GDP data by States from Department of Statistics Malaysia
2. GDP for Sabah including WP Labuan
(**): Mid-year population from Department of Statistics Malaysia

SARAWAK	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
GDP at Current Prices (RM million)*	59,218	66,262	74,739	91,739	78,680	87,131	102,713	106,625	110,436	118,858
GDP at 2010 prices (RM million)*	75,096	78,434	84,965	85,209	83,521	87,131	92,700	94,013	98,132	102,385
Population ('000 people)**	2,282	2,325	2,366	2,408	2,451	2,487	2,528	2,570	2,643	2,675
Final Energy Consumption (ktoe)	3,274	3,330	3,461	3,302	3,277	3,125	4,086	5,358	5,628	5,612
Electricity Consumption (ktoe)	339	348	368	380	391	493	445	795	1,043	1,304
Electricity Consumption (GWh)	3,940	4,045	4,277	4,416	4,544	5,730	5,172	9,237	12,118	15,152
PER CAPITA										
GDP at Current Prices (RM)*	32,902	33,737	35,909	35,380	34,079	35,033	36,671	36,585	37,136	38,278
Final Energy Consumption (toe)	1.434	1.432	1.463	1.371	1.337	1.256	1.616	2.085	2.130	2.098
Electricity Consumption (kWh)	1,726	1,740	1,808	1,834	1,854	2,304	2,046	3,594	4,586	5,665
ENERGY INTENSITY										
Final Energy Consumption (toe/GDP at 2010 prices (RM million))	43.6	42.5	40.7	38.8	39.2	35.9	44.1	57.0	57.3	54.8
Electricity Consumption (toe/GDP at 2010 prices (RM million))	4.5	4.4	4.3	4.5	4.7	5.7	4.8	8.5	10.6	12.7
Electricity Consumption (GWh/GDP at 2010 prices (RM million))	0.052	0.052	0.050	0.052	0.054	0.066	0.056	0.098	0.123	0.148

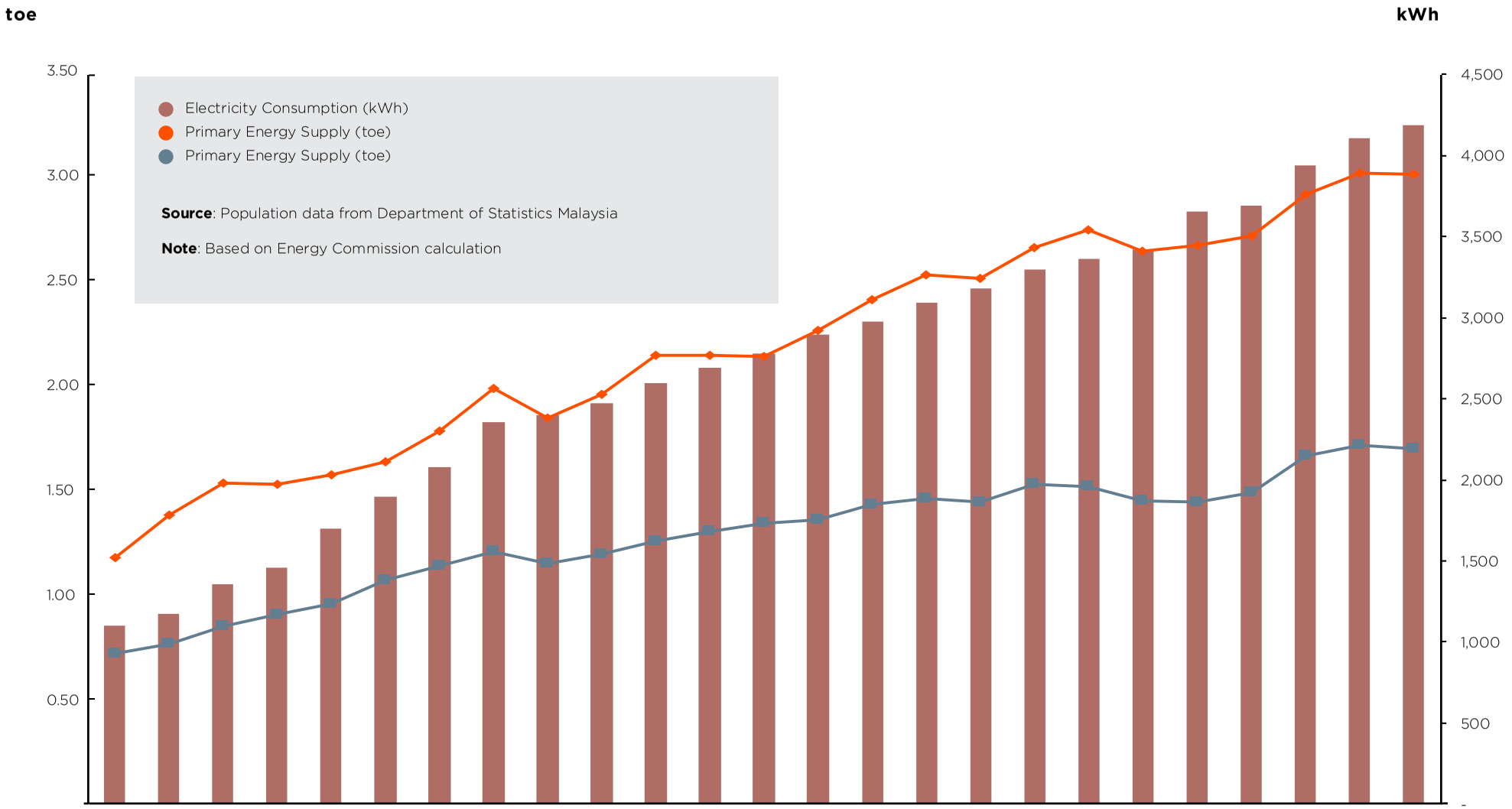
Note (*): GDP data by States from Department of Statistics Malaysia (**): Mid-year population from Department of Statistics Malaysia

FIGURE 1: TRENDS IN GDP, PRIMARY ENERGY SUPPLY AND FINAL ENERGY CONSUMPTION



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Primary Energy Supply (ktoe)	21,471	26,335	29,291	29,925	31,662	33,879	37,840	43,173	40,996	44,534	50,710	51,979	53,196	57,565	62,836	66,211	67,021	72,389	76,032	74,583	76,809	79,289	86,495	90,730	92,487
Final Energy Consumption (ktoe)	13,146	14,563	16,185	17,728	19,287	22,164	24,181	26,167	25,558	27,228	29,699	31,515	33,289	34,586	37,323	38,285	38,567	41,606	41,968	40,845	41,476	43,455	49,291	51,583	52,209
GDP at 2010 Prices (RM million)*	263,488	288,639	314,285	345,384	377,201	414,276	455,715	489,086	453,092	480,901	523,503	526,213	554,581	586,683	626,481	659,885	696,739	740,625	776,410	764,659	821,434	864,920	912,261	955,260	1,012,506

FIGURE 2: PRIMARY ENERGY SUPPLY, ELECTRICITY CONSUMPTION AND FINAL ENERGY CONSUMPTION PER CAPITA



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
●	1,101	1,178	1,358	1,460	1,700	1,902	2,080	2,359	2,406	2,472	2,603	2,695	2,783	2,898	2,980	3,099	3,183	3,300	3,367	3,429	3,656	3,693	3,943	4,114	4,194
●	1.19	1.39	1.54	1.53	1.58	1.64	1.79	2.00	1.85	1.97	2.16	2.15	2.15	2.27	2.43	2.54	2.52	2.68	2.76	2.66	2.69	2.73	2.93	3.03	3.02
●	0.73	0.77	0.85	0.91	0.96	1.07	1.15	1.21	1.16	1.20	1.26	1.31	1.35	1.37	1.44	1.47	1.45	1.54	1.52	1.45	1.45	1.50	1.67	1.72	1.71

FIGURE 3: TRENDS IN GDP AND ELECTRICITY CONSUMPTION

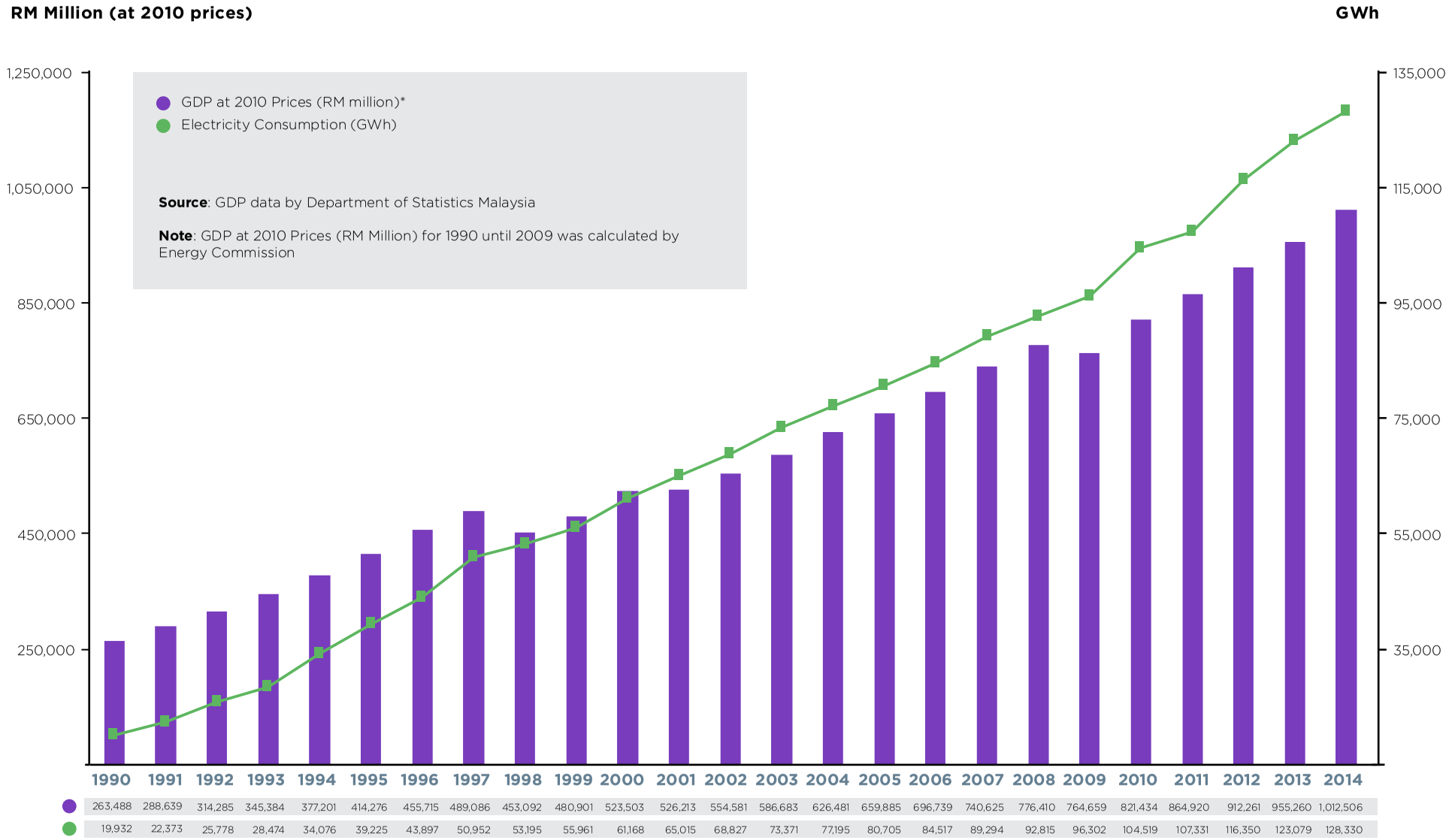
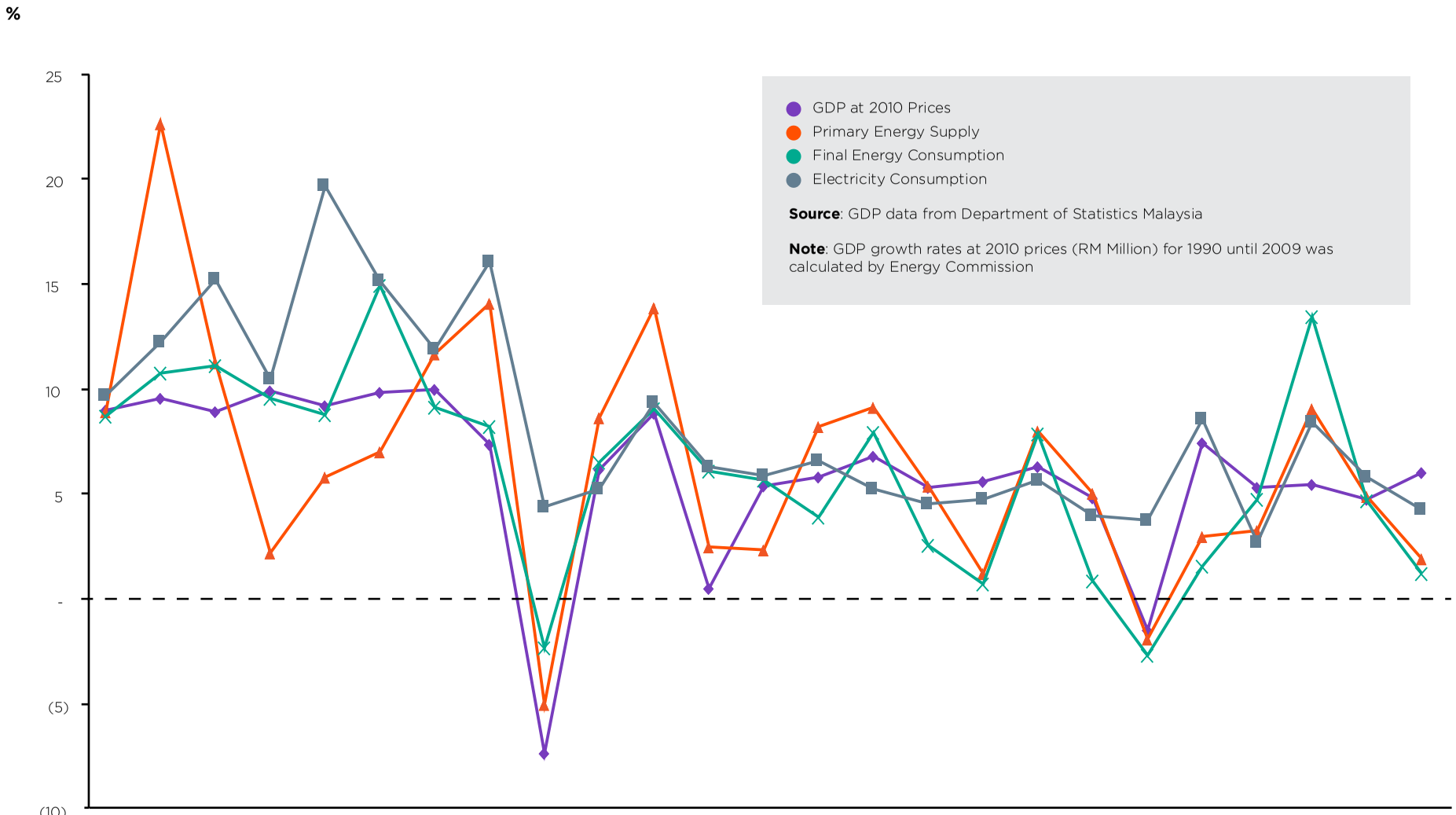


FIGURE 4: ANNUAL GROWTH RATES OF GDP, PRIMARY ENERGY SUPPLY, FINAL ENERGY CONSUMPTION AND ELECTRICITY CONSUMPTION



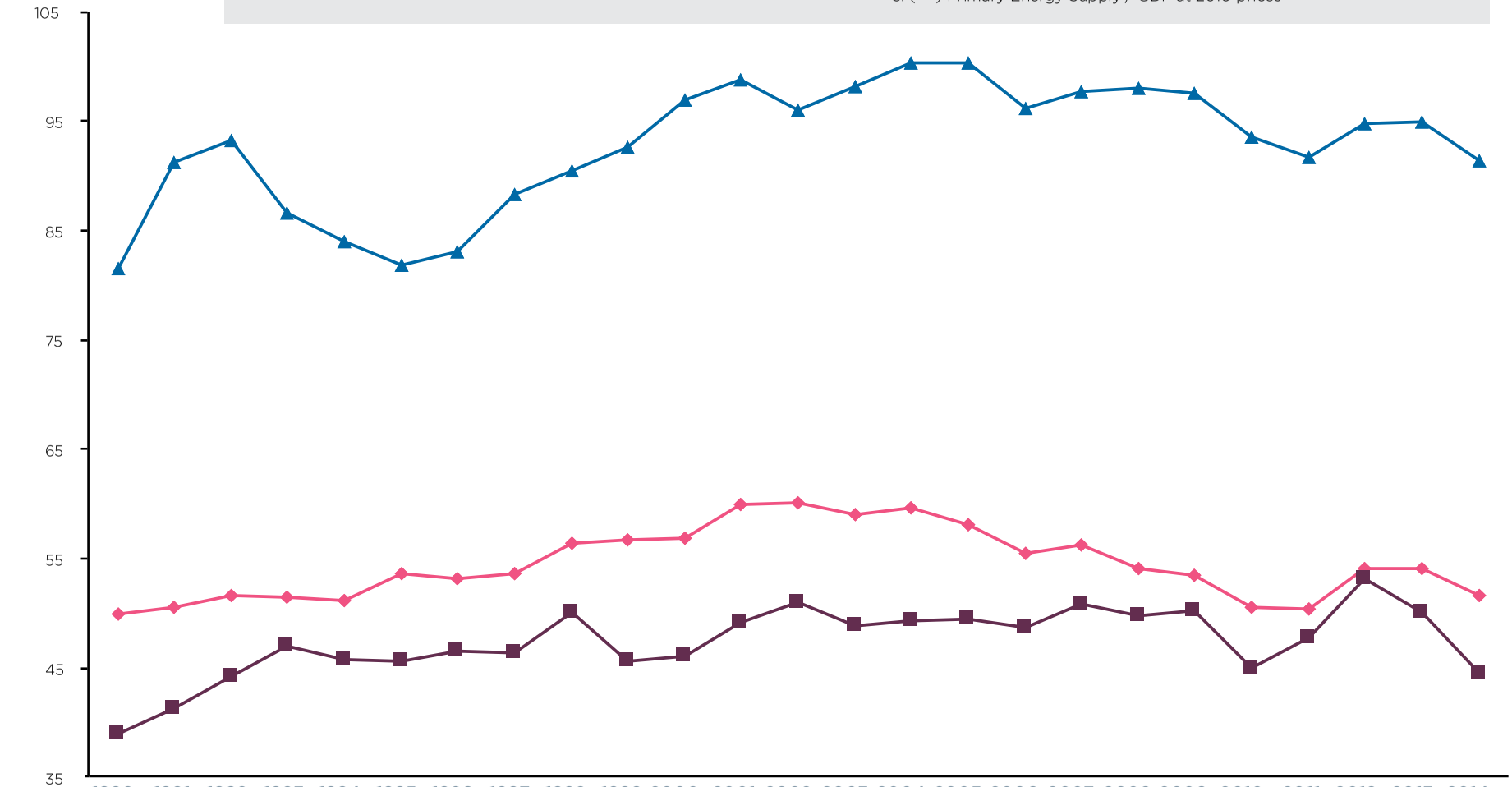
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
GDP at 2010 Prices	9.00	9.55	8.89	9.89	9.21	9.83	10.00	7.32	(7.36)	6.14	8.86	0.52	5.39	5.79	6.78	5.33	5.58	6.30	4.83	(1.51)	7.42	5.29	5.47	4.71	5.99
Primary Energy Supply	8.90	22.65	11.22	2.16	5.80	7.00	11.69	14.09	(5.04)	8.63	13.87	2.50	2.34	8.21	9.16	5.37	1.22	8.01	5.03	(1.91)	2.98	3.23	9.09	4.90	1.94
Final Energy Consumption	8.70	10.78	11.14	9.53	8.79	14.92	9.10	8.21	(2.33)	6.53	9.08	6.11	5.63	3.90	7.91	2.58	0.74	7.88	0.87	(2.68)	1.54	4.77	13.43	4.65	1.21
Electricity Consumption	9.70	12.24	15.22	10.46	19.67	15.11	11.91	16.07	4.40	5.20	9.30	6.29	5.86	6.60	5.21	4.55	4.72	5.65	3.94	3.76	8.53	2.69	8.40	5.78	4.27

FIGURE 5: PRIMARY AND FINAL ENERGY INTENSITY

- Final Energy Intensity (toe/RM Million at 2010 Prices)*
- Industrial Energy Intensity (toe/RM Million at 2010 Prices)**
- Primary Energy Supply (toe/GDP at 2010 Prices)***

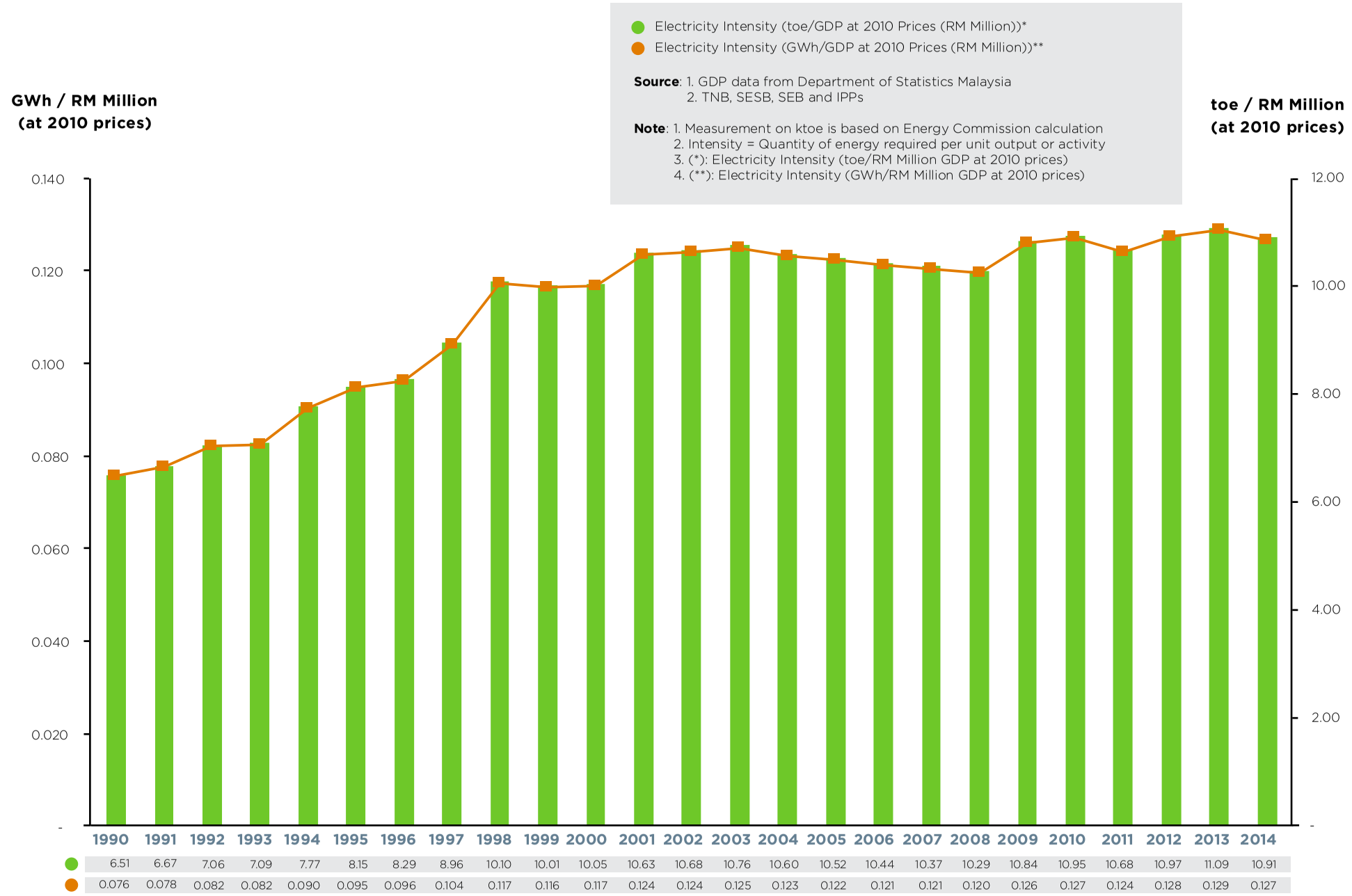
Source: GDP data from Department of Statistics Malaysia

Note:
1. Measurement on ktoe is based on Energy Commission calculation
2. Intensity = Quantity of energy required per unit output or activity
3. (*): Final Energy Consumption (including non-energy use)/ GDP at 2010 prices
4. (**): Industrial Energy Consumption / Industrial GDP at 2010 prices
5. (***) Primary Energy Supply / GDP at 2010 prices



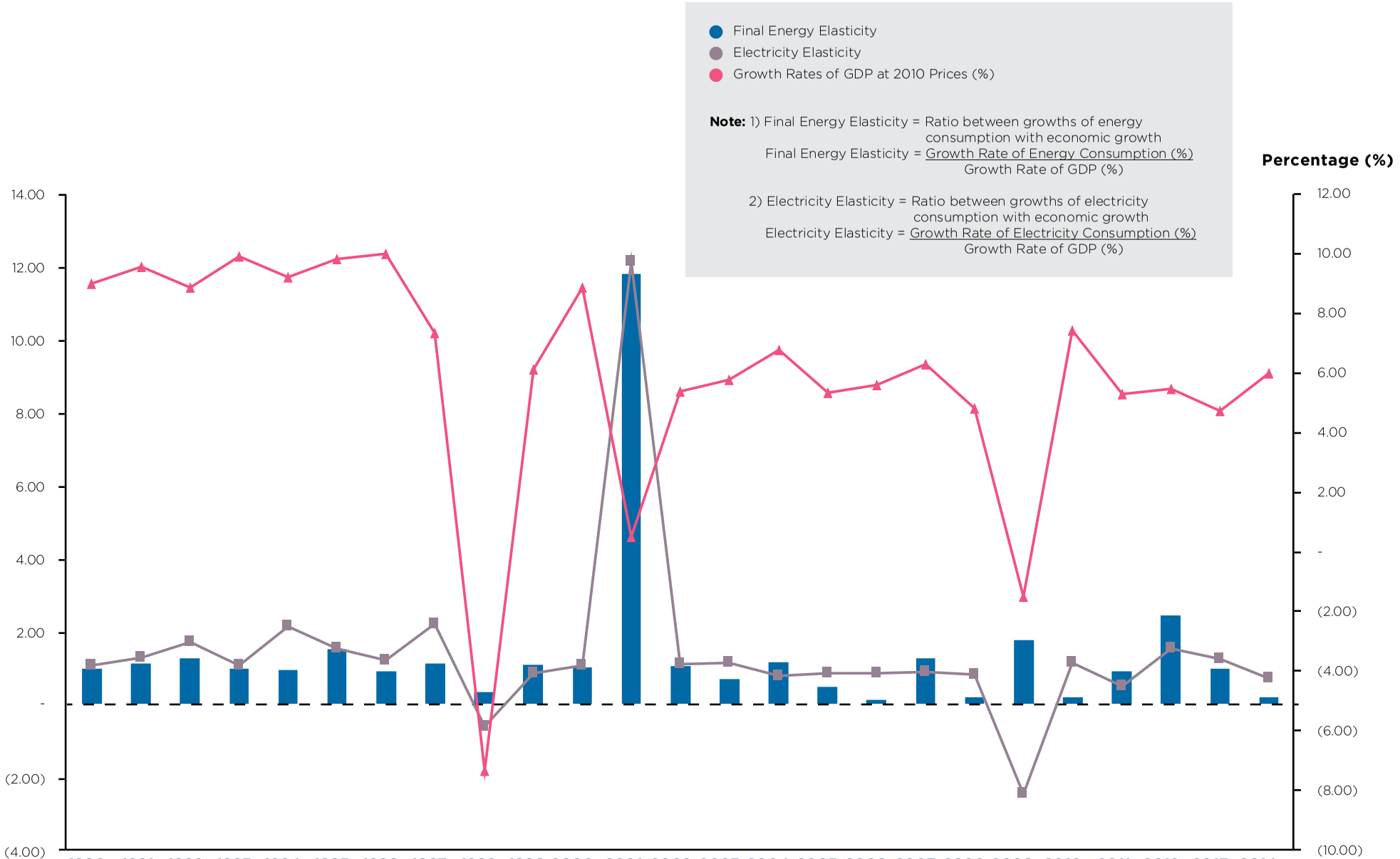
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
●	49.89	50.45	51.50	51.33	51.13	53.50	53.06	53.50	56.41	56.62	56.73	59.89	60.03	58.95	59.58	58.02	55.35	56.18	54.05	53.42	50.49	50.24	54.03	54.00	51.56
●	38.85	41.16	44.19	46.90	45.66	45.52	46.42	46.30	49.98	45.52	45.92	49.08	51.00	48.84	49.31	49.36	48.69	50.83	49.69	50.21	44.99	47.72	53.12	49.97	44.43
●	81.49	91.24	93.20	86.64	83.94	81.78	83.03	88.27	90.48	92.61	96.87	98.78	95.92	98.12	100.30	100.34	96.19	97.74	97.93	97.54	93.51	91.67	94.81	94.98	91.34

FIGURE 6: ELECTRICITY INTENSITY



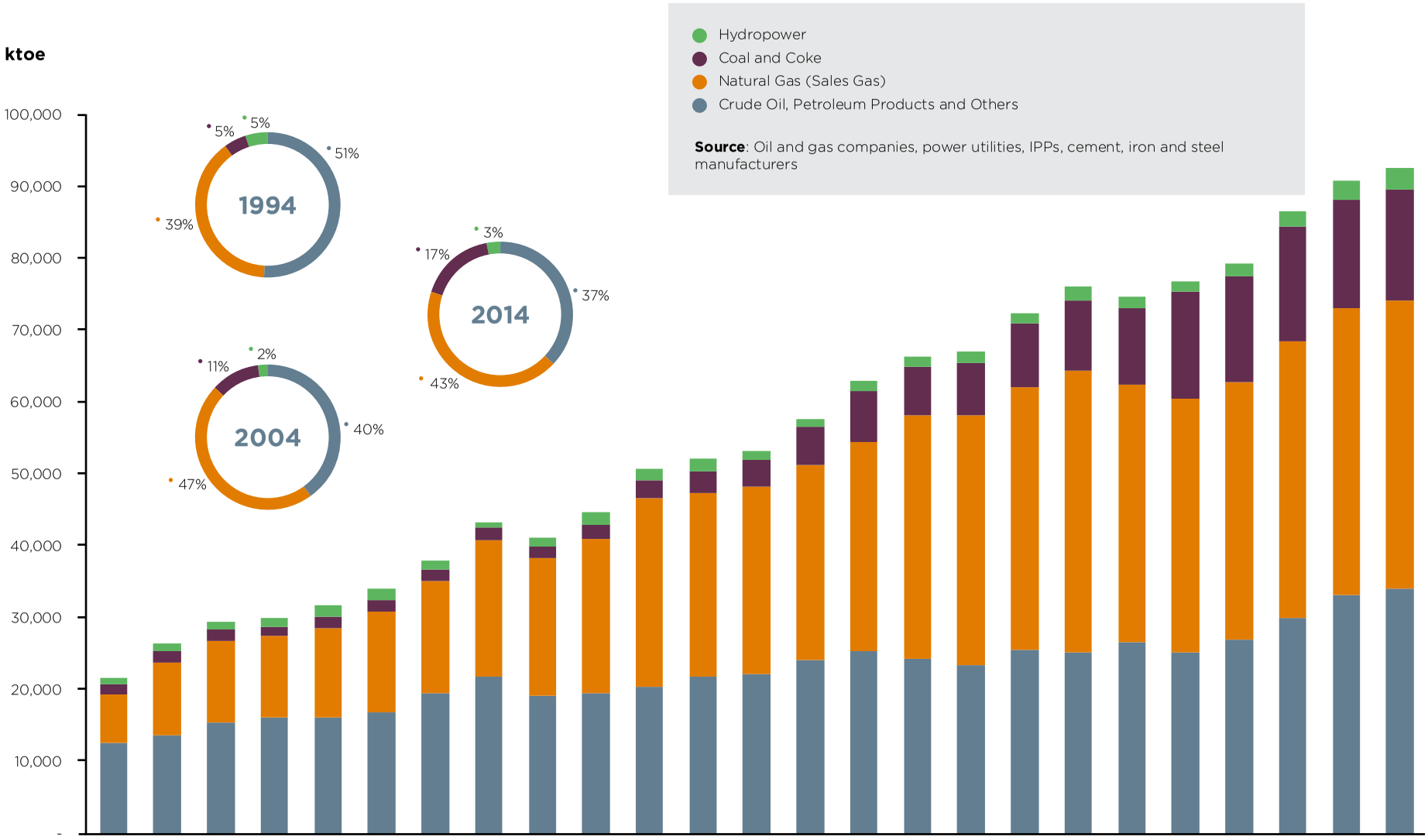
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
●	6.51	6.67	7.06	7.09	7.77	8.15	8.29	8.96	10.10	10.01	10.05	10.63	10.68	10.76	10.60	10.52	10.44	10.37	10.29	10.84	10.95	10.68	10.97	11.09	10.91
●	0.076	0.078	0.082	0.082	0.090	0.095	0.096	0.104	0.117	0.116	0.117	0.124	0.124	0.125	0.123	0.122	0.121	0.121	0.120	0.126	0.127	0.124	0.128	0.129	0.127

FIGURE 7: FINAL ENERGY AND ELECTRICITY ELASTICITY



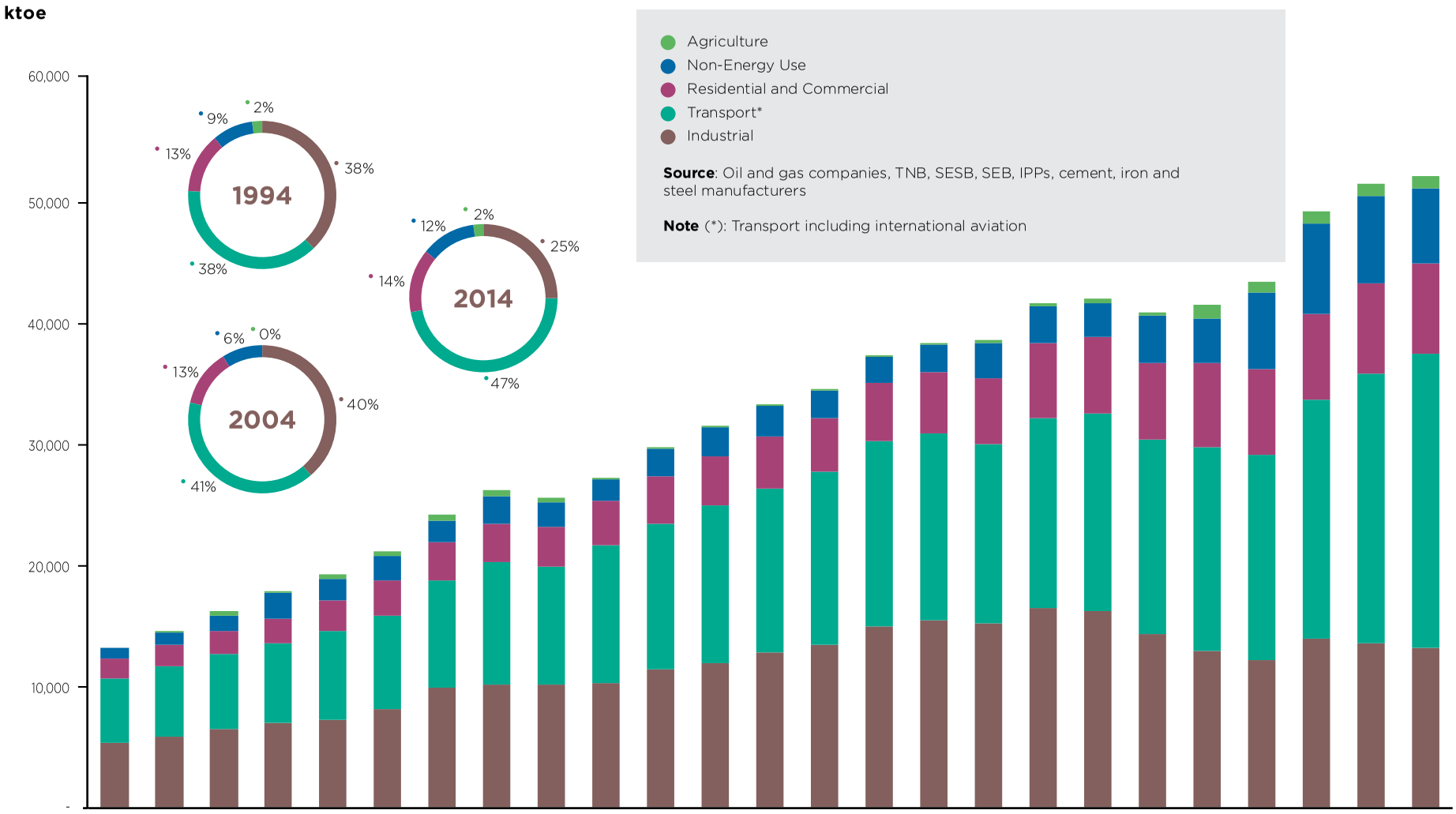
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
●	0.97	1.13	1.25	0.96	0.95	1.52	0.91	1.12	0.32	1.06	1.02	11.81	1.04	0.67	1.17	0.48	0.13	1.25	0.18	1.77	0.21	0.90	2.45	0.99	0.20
●	1.08	1.28	1.71	1.06	2.14	1.54	1.19	2.19	(0.60)	0.85	1.05	12.15	1.09	1.14	0.77	0.85	0.85	0.90	0.82	(2.48)	1.15	0.51	1.54	1.23	0.71
●	9.00	9.55	8.89	9.89	9.21	9.83	10.00	7.32	(7.36)	6.14	8.86	0.52	5.39	5.79	6.78	5.33	5.58	6.30	4.83	(1.51)	7.42	5.29	5.47	4.71	5.99

FIGURE 8: PRIMARY ENERGY SUPPLY



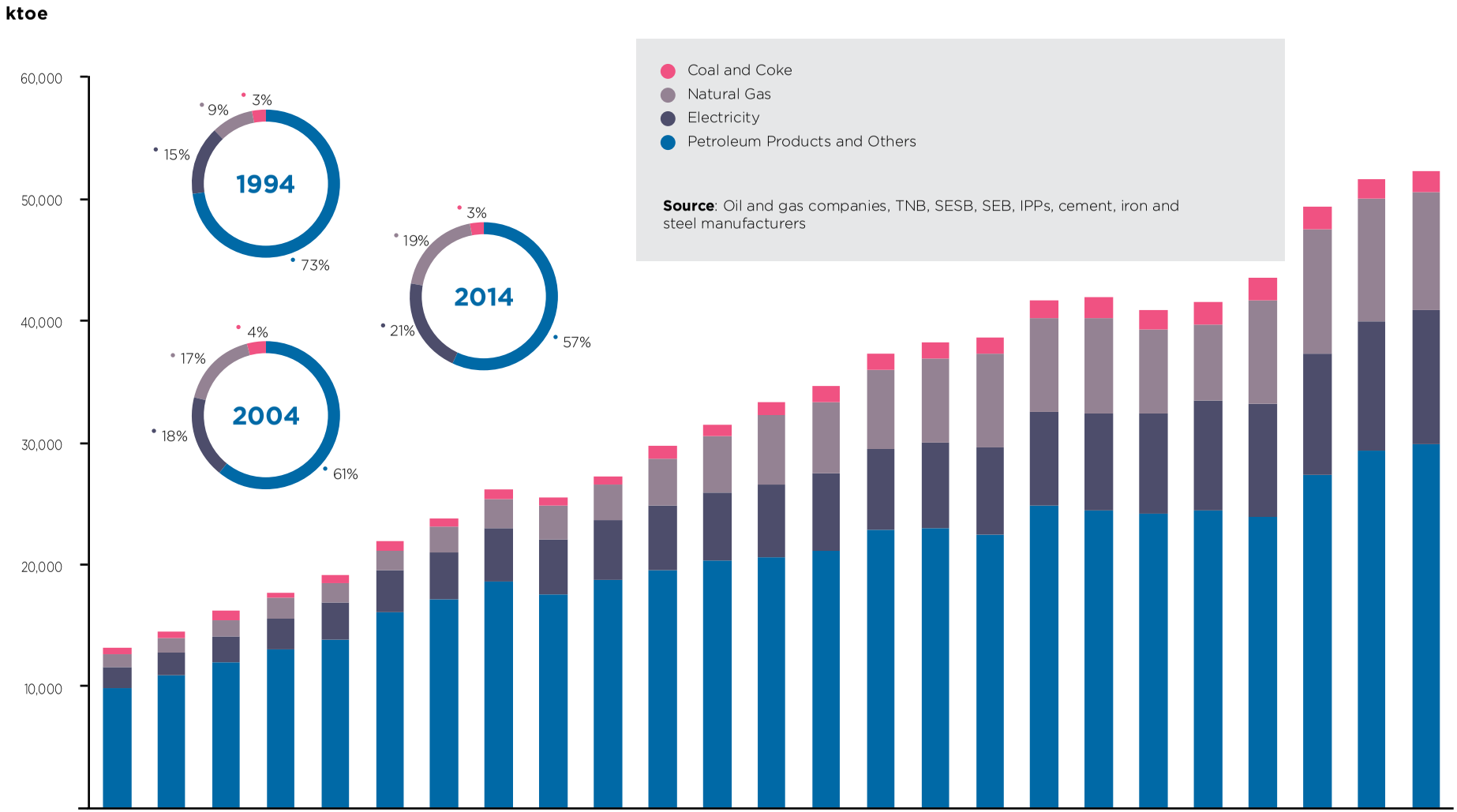
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Hydropower	915	1,053	997	1,262	1,652	1,540	1,243	790	1,113	1,668	1,612	1,687	1,329	1,056	1,329	1,313	1,567	1,522	1,964	1,627	1,577	1,850	2,150	2,688	3,038
Coal and Coke	1,326	1,564	1,640	1,352	1,563	1,612	1,677	1,622	1,731	1,940	2,486	2,970	3,642	5,316	7,109	6,889	7,299	8,848	9,782	10,623	14,777	14,772	15,882	15,067	15,357
Natural Gas (Sales Gas)	6,801	10,112	11,381	11,360	12,392	13,960	15,567	19,041	19,101	21,476	26,370	25,649	26,101	27,257	29,145	33,913	34,917	36,639	39,289	35,851	35,447	35,740	38,647	39,973	40,113
Crude Oil, Petroleum Products and Others	12,429	13,606	15,273	15,951	16,055	16,767	19,353	21,720	19,051	19,450	20,242	21,673	22,124	23,936	25,253	24,096	23,240	25,381	24,996	26,482	25,008	26,927	29,815	33,003	33,979

FIGURE 9: FINAL ENERGY CONSUMPTION BY SECTORS



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Agriculture	-	130	391	62	422	446	486	490	307	106	104	98	96	98	87	101	253	265	287	211	1,074	916	1,053	1,051	1,045
Non-Energy Use	838	1,071	1,222	2,027	1,817	1,994	1,744	2,298	2,023	1,799	2,250	2,378	2,511	2,345	2,183	2,173	2,819	2,958	2,876	3,868	3,696	6,377	7,497	7,277	6,217
Residential and Commercial	1,622	1,721	1,891	2,069	2,502	2,837	3,162	3,073	3,314	3,653	3,868	4,048	4,387	4,399	4,754	5,134	5,430	6,212	6,205	6,336	6,951	6,993	7,065	7,403	7,459
Transport*	5,386	5,806	6,226	6,558	7,262	7,827	8,951	10,201	9,793	11,393	12,071	13,137	13,442	14,271	15,385	15,384	14,819	15,717	16,395	16,119	16,828	17,070	19,757	22,357	24,327
Industrial	5,300	5,835	6,455	7,012	7,283	8,060	9,838	10,106	10,121	10,277	11,406	11,852	12,854	13,472	14,914	15,492	15,248	16,454	16,205	14,312	12,928	12,100	13,919	13,496	13,162

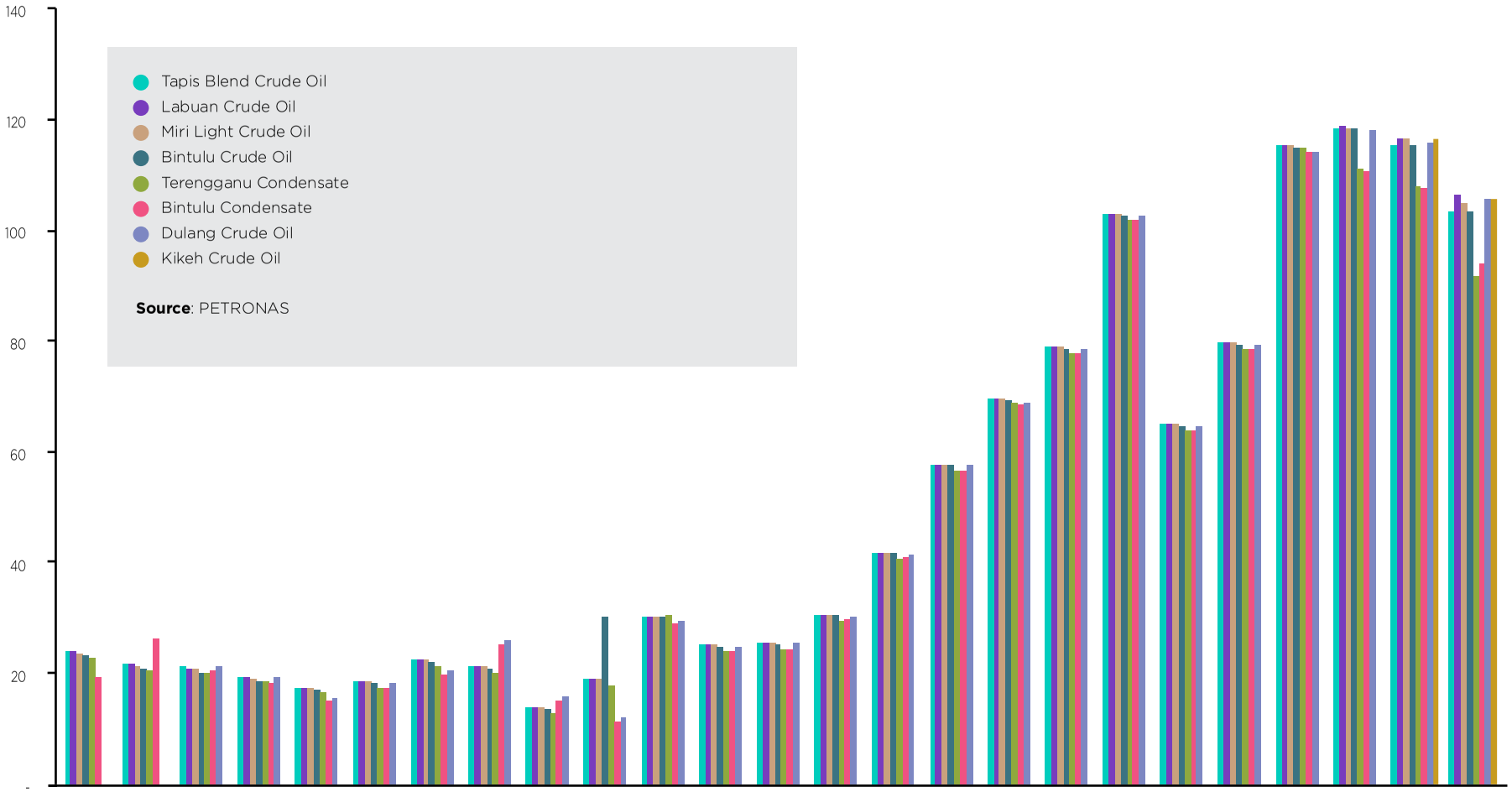
FIGURE 10: FINAL ENERGY CONSUMPTION BY TYPE OF FUELS



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Coal and Coke	513	599	672	487	598	712	727	740	767	608	991	977	1,086	1,212	1,305	1,348	1,335	1,361	1,713	1,613	1,826	1,759	1,744	1,539	1,709
Natural Gas	1,069	1,099	1,344	1,701	1,660	1,654	2,079	2,465	2,726	3,023	3,862	4,620	5,642	5,886	6,490	6,981	7,562	7,709	7,818	6,802	6,254	8,515	10,206	10,076	9,641
Electricity	1,715	1,925	2,218	2,450	2,932	3,375	3,777	4,384	4,577	4,815	5,263	5,594	5,922	6,313	6,642	6,944	7,272	7,683	7,986	8,286	8,993	9,236	10,011	10,590	11,042
Petroleum Products and Others	9,825	10,914	11,927	13,075	13,894	16,142	17,203	18,578	17,488	18,782	19,582	20,323	20,638	21,175	22,886	23,012	22,398	24,852	24,451	24,145	24,403	23,946	27,329	29,379	29,817

FIGURE 11: OFFICIAL SELLING PRICES OF MALAYSIAN CRUDE OIL

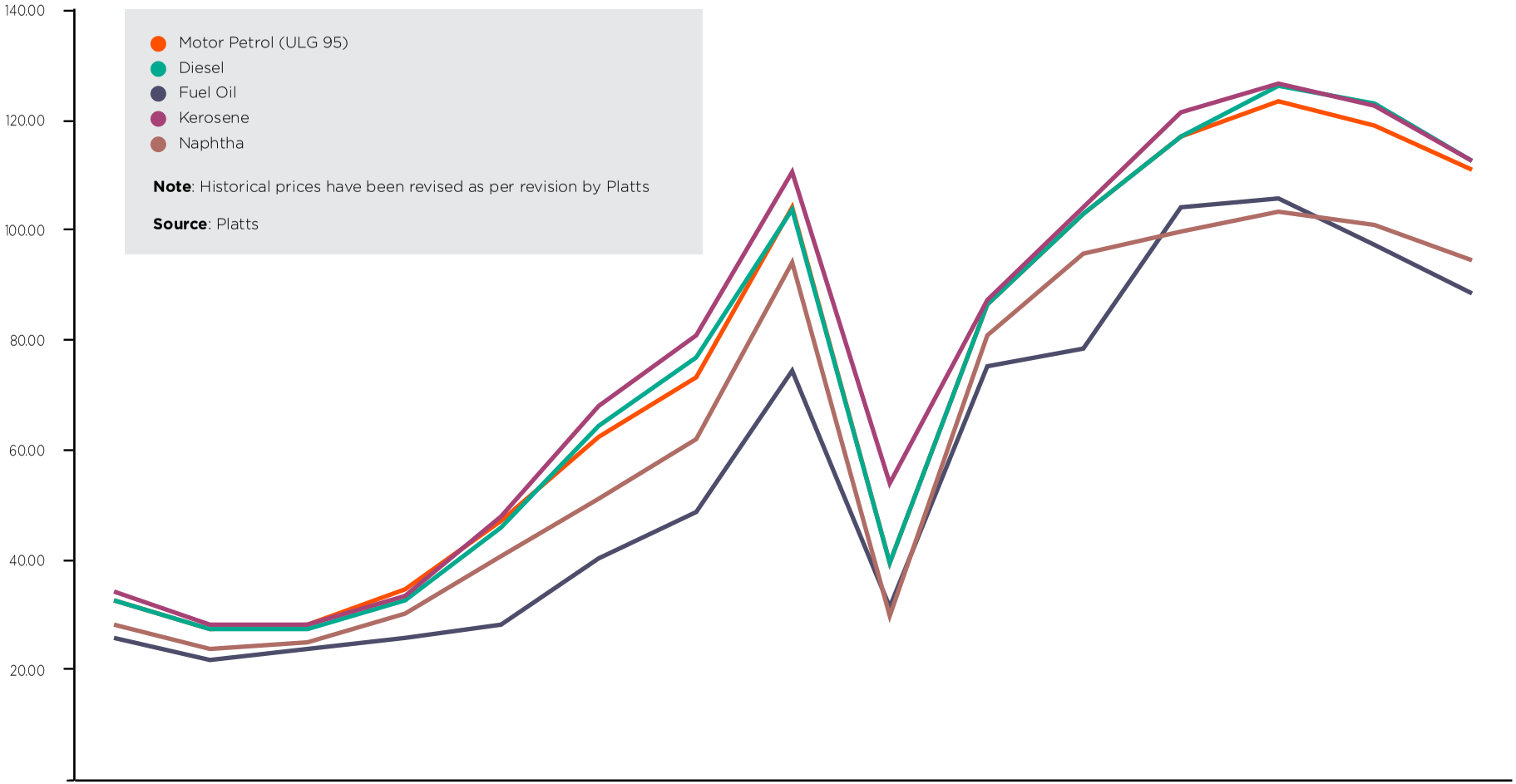
USD / Barrels



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Tapis Blend Crude Oil	23.86	21.47	20.98	19.11	17.30	18.53	22.28	21.18	13.81	18.95	30.25	25.06	25.52	30.60	41.84	57.71	69.56	78.96	102.79	64.97	79.51	115.33	118.22	115.30	103.26
Labuan Crude Oil	23.76	21.37	20.88	19.11	17.40	18.63	22.38	21.33	13.84	18.95	30.25	25.06	25.52	30.60	41.84	57.71	69.56	78.96	102.79	64.97	79.51	115.33	118.66	116.60	106.41
Miri Light Crude Oil	23.56	21.17	20.68	18.91	17.20	18.43	22.18	21.28	13.83	18.95	30.25	25.06	25.52	30.60	41.84	57.71	69.56	78.96	102.79	64.97	79.51	115.33	118.56	116.30	104.89
Bintulu Crude Oil	23.06	20.67	20.18	18.46	16.90	18.06	21.89	20.78	13.48	29.95	29.95	24.78	25.22	30.33	41.54	57.43	69.28	78.66	102.49	64.67	79.21	115.03	118.36	115.44	103.13
Terengganu Condensate	22.76	20.37	19.88	18.26	16.45	17.33	21.08	19.98	12.61	17.76	30.29	23.86	24.32	29.40	40.64	56.51	68.66	77.91	101.59	63.77	78.31	115.03	110.92	108.00	91.82
Bintulu Condensate	19.10	26.35	20.20	18.25	15.00	17.36	19.79	25.13	14.80	11.14	29.09	23.96	24.42	29.50	40.74	56.61	68.45	77.92	101.69	63.87	78.41	114.13	110.62	107.70	93.99
Dulang Crude Oil	-	-	21.15	19.20	15.40	18.16	20.30	25.66	15.57	11.84	29.18	24.68	25.23	29.99	41.17	57.41	68.96	78.59	102.49	64.67	79.21	114.23	118.16	115.70	105.46
Kikeh Crude Oil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	116.60	105.66

FIGURE 12: EX-SINGAPORE PRICES OF MAJOR PETROLEUM PRODUCTS

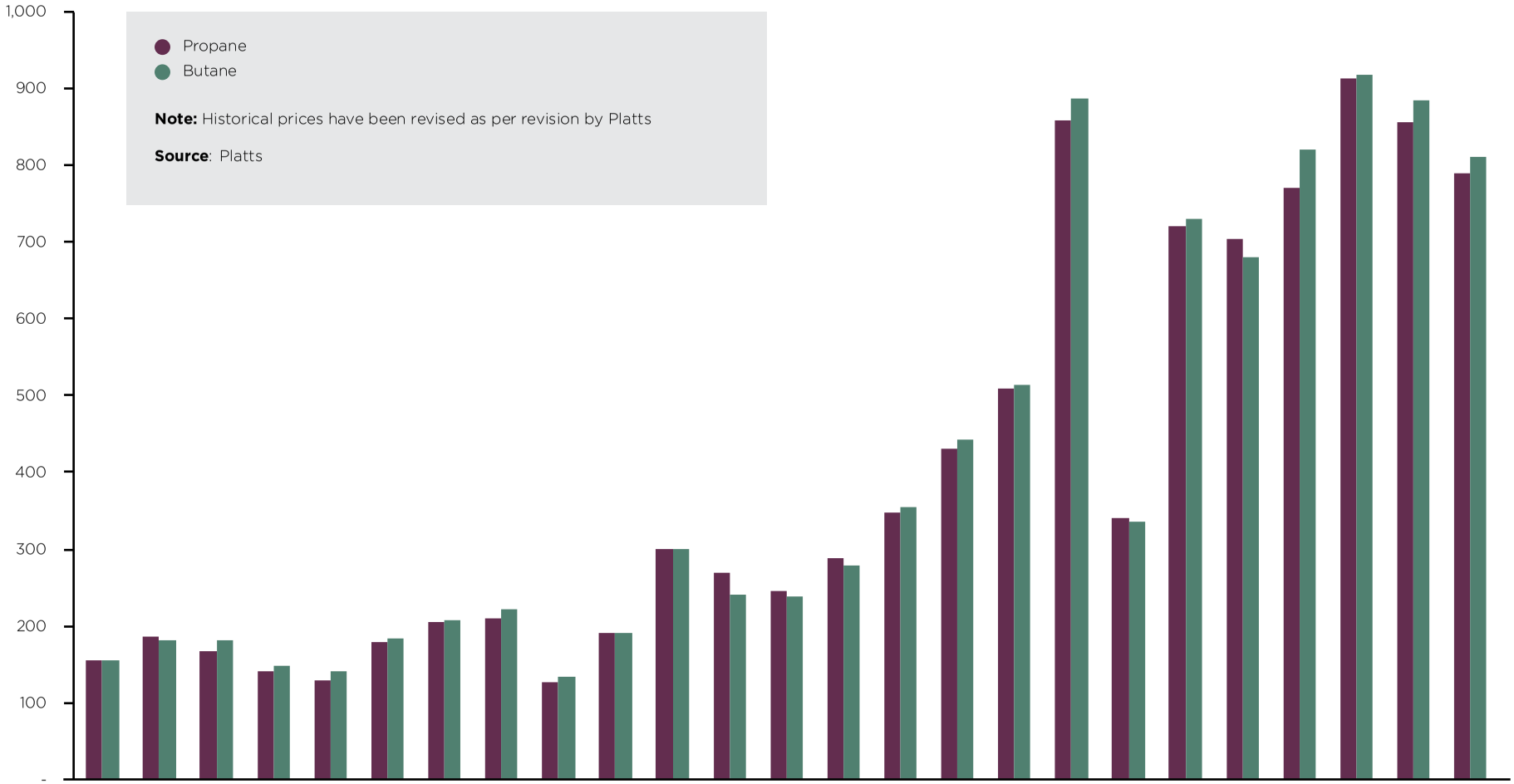
USD / Barrels



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Motor Petrol (ULG 95)	32.64	27.43	28.04	34.69	47.23	62.38	73.20	104.05	39.25	86.55	103.15	117.00	123.42	119.00	110.97
Diesel	32.48	27.32	27.55	32.46	45.92	64.35	76.93	103.74	39.32	86.60	103.17	117.10	126.15	123.27	112.69
Fuel Oil	25.82	21.78	23.63	25.72	28.15	40.32	48.84	74.60	31.40	75.30	78.40	104.10	105.72	97.44	88.40
Kerosene	34.27	28.32	28.08	33.25	47.69	67.99	80.72	110.50	53.90	87.25	104.30	121.64	126.79	122.85	112.50
Naphtha	28.32	23.75	24.93	30.14	40.82	51.04	62.13	93.98	29.90	80.72	95.91	99.90	103.57	100.99	94.40

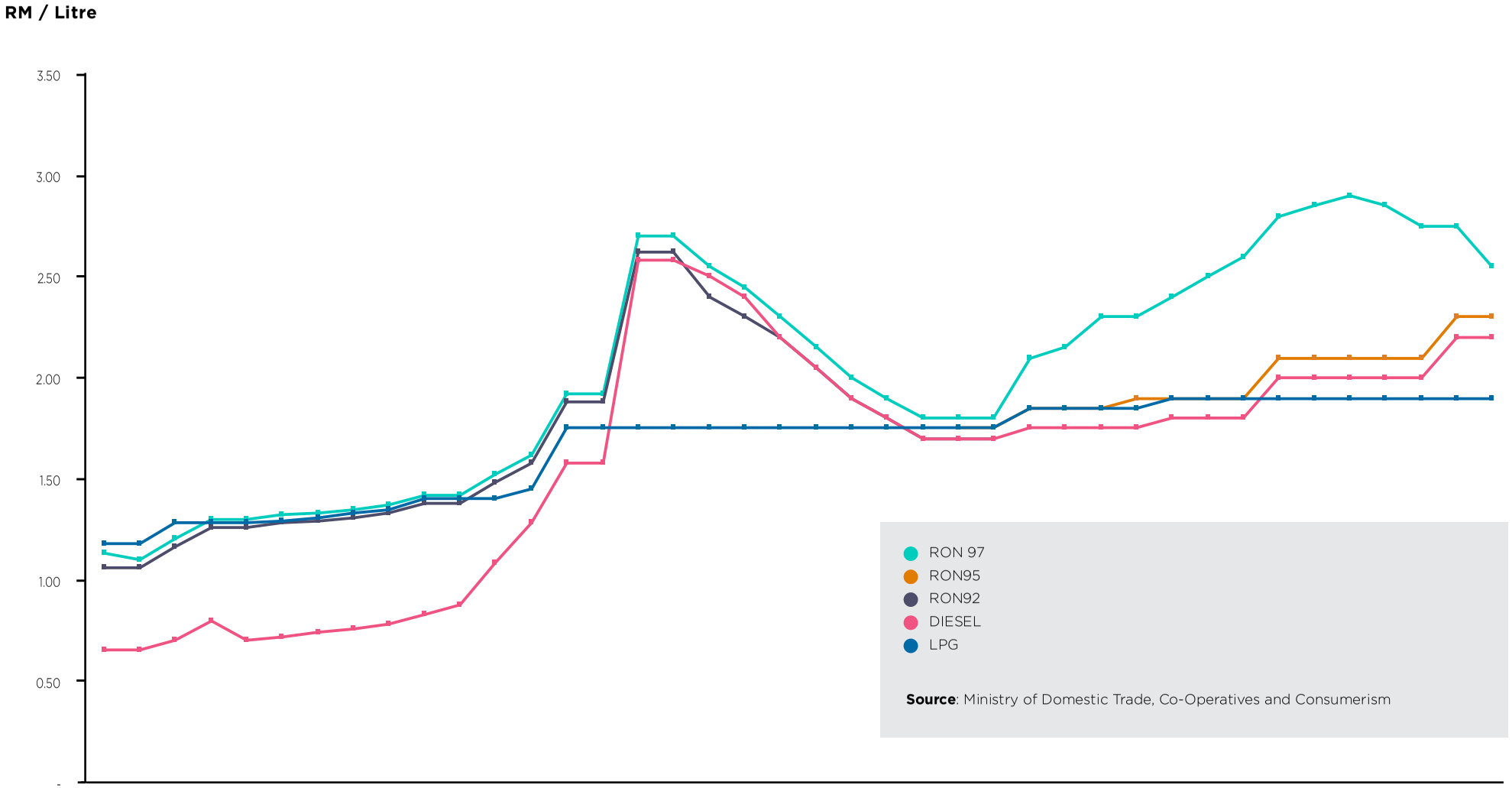
FIGURE 13: ANNUAL LIQUEFIED PETROLEUM GAS (LPG) CONTRACT PRICES – ARAB GULF

USD / Metric Tonne



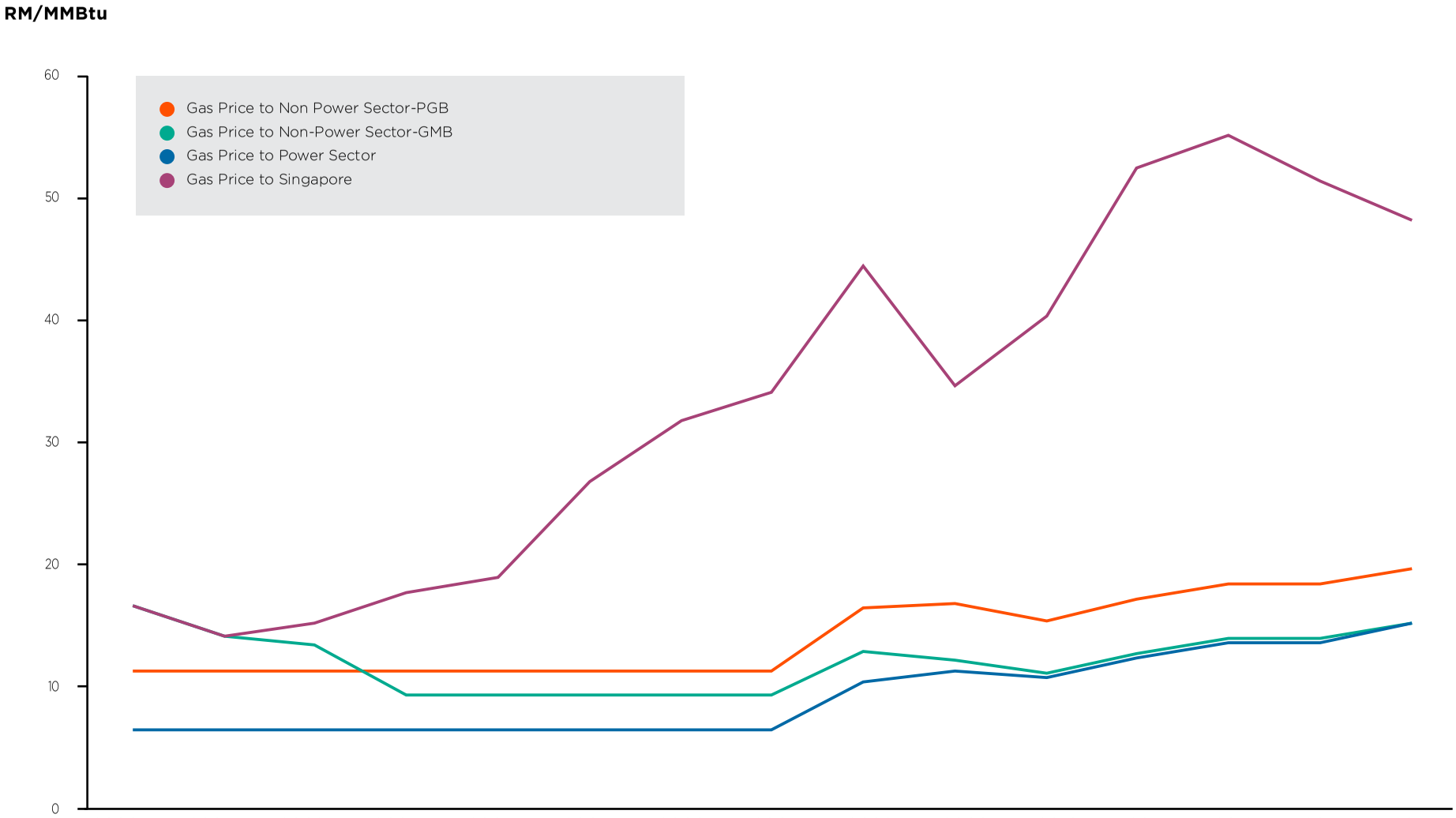
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
●	155.96	186.89	167.13	140.02	129.13	178.62	204.42	210.35	126.50	191.07	299.29	269.29	244.58	288.84	348.61	430.79	510.27	858.00	340.00	720.00	705.00	770.00	914.12	856.79	790.70
●	156.13	182.19	179.95	147.67	140.90	183.82	207.21	222.21	134.55	190.84	299.46	239.43	238.48	278.46	355.33	442.89	514.00	887.50	335.00	730.00	680.00	820.00	917.45	884.14	810.58

FIGURE 14: RETAIL FUEL PRICES IN MALAYSIA



	01 JAN 1991	01 JAN 1994	01 OCT 2000	20 OCT 2001	16 NOV 2001	01 MAY 2002	01 NOV 2002	01 MAR 2003	01 MAY 2004	01 OCT 2004	01 MAR 2005	05 MAY 2005	31 JUL 2005	28 FEB 2006	16 APR 2008	05 JUN 2008	06 JUN 2008	23 AUG 2008	25 SEP 2008	15 OCT 2008	01 NOV 2008	18 NOV 2008	03 DEC 2008	16 DEC 2008	12 MAY 2009	01 SEP 2009	16 JUL 2010	02 NOV 2010	01 DEC 2010	04 DEC 2010	05 JAN 2011	01 FEB 2011	12 AUG 213	08 JAN 2014	07 FEB 2014	07 MAR 2014	06 JUN 2014	09 SEP 2014	02 OCT 2014	19 NOV 2014
RON 97	1.13	1.10	1.20	1.30	1.30	1.32	1.33	1.35	1.37	1.42	1.42	1.52	1.62	1.92	1.92	2.70	2.70	2.55	2.45	2.30	2.15	2.00	1.90	1.80	1.80	1.80	2.10	2.15	2.30	2.30	2.40	2.50	2.60	2.80	2.85	2.90	2.85	2.75	2.75	2.55
RON95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.75	1.75	1.85	1.85	1.85	1.90	1.90	1.90	1.90	2.10	2.10	2.10	2.10	2.10	2.30	2.30
RON92	1.06	1.06	1.16	1.26	1.26	1.28	1.29	1.31	1.33	1.38	1.38	1.48	1.58	1.88	1.88	2.62	2.62	2.40	2.30	2.20	2.05	1.90	1.80	1.70	1.70	1.70	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIESEL	0.65	0.65	0.70	0.80	0.70	0.72	0.74	0.76	0.78	0.83	0.88	1.08	1.28	1.58	1.58	2.58	2.58	2.50	2.40	2.20	2.05	1.90	1.80	1.70	1.70	1.70	1.75	1.75	1.75	1.75	1.80	1.80	1.80	2.00	2.00	2.00	2.00	2.00	2.20	2.20
LPG	1.18	1.18	1.28	1.28	1.28	1.29	1.31	1.33	1.35	1.40	1.40	1.40	1.45	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.85	1.85	1.85	1.85	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90

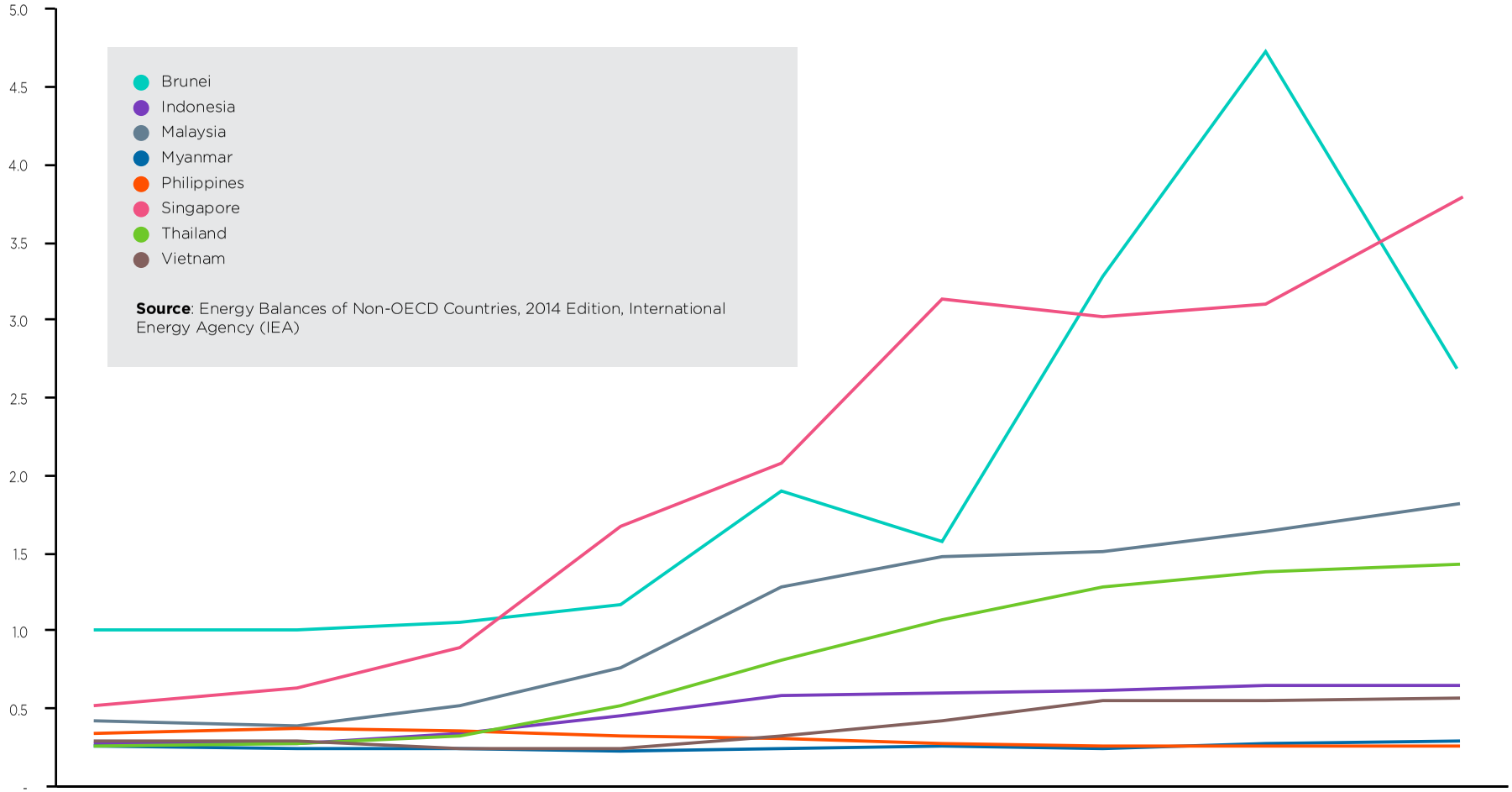
FIGURE 15: AVERAGE ANNUAL PRICES OF NATURAL GAS IN MALAYSIA



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Gas Price to Non Power Sector-PGB	11.32	11.32	11.32	11.32	11.32	11.32	11.32	11.32	16.55	16.77	15.35	17.10	18.35	18.35	19.60
Gas Price to Non-Power Sector-GMB	16.72	14.10	13.40	9.40	9.40	9.40	9.40	9.40	12.98	12.21	11.05	12.80	14.05	14.05	15.30
Gas Price to Power Sector	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	10.36	11.30	10.70	12.45	13.70	13.70	15.20
Gas Price to Singapore	16.72	14.10	15.30	17.74	18.92	26.76	31.77	34.10	44.41	34.58	40.42	52.47	55.08	51.36	48.28

FIGURE 16: FINAL ENERGY CONSUMPTION PER CAPITA IN ASEAN

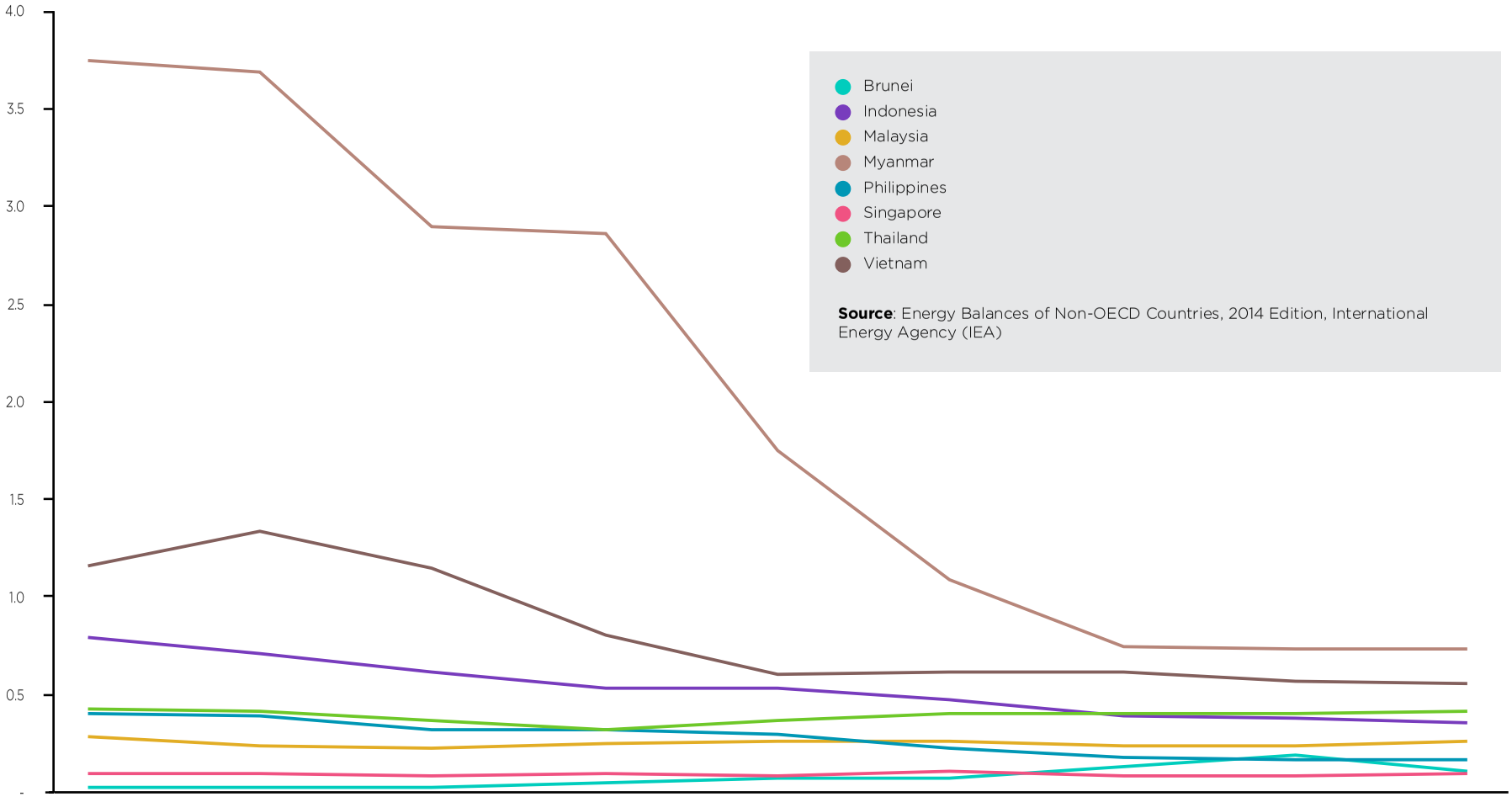
Mtoe/Millions



	1971	1973	1980	1990	2000	2005	2010	2012	2013
Brunei	1.000	1.000	1.050	1.167	1.900	1.575	3.275	4.725	2.750
Indonesia	0.274	0.277	0.342	0.446	0.580	0.600	0.621	0.647	0.648
Malaysia	0.413	0.393	0.525	0.769	1.276	1.481	1.512	1.639	1.821
Myanmar	0.258	0.245	0.242	0.223	0.237	0.259	0.249	0.274	0.286
Philippines	0.343	0.364	0.349	0.317	0.308	0.266	0.254	0.252	0.262
Singapore	0.519	0.636	0.888	1.670	2.078	3.130	3.018	3.102	3.648
Thailand	0.252	0.271	0.320	0.510	0.812	1.065	1.279	1.375	1.430
Vietnam	0.285	0.286	0.243	0.243	0.323	0.426	0.555	0.556	0.568

FIGURE 17: FINAL ENERGY INTENSITY IN ASEAN

Mtoe/Billion US$ 2005



Source: Energy Balances of Non-OECD Countries, 2014 Edition, International Energy Agency (IEA)

	1971	1973	1980	1990	2000	2005	2010	2012	2013
Brunei	0.024	0.021	0.025	0.051	0.066	0.066	0.133	0.184	0.109
Indonesia	0.790	0.710	0.614	0.532	0.534	0.470	0.396	0.373	0.358
Malaysia	0.289	0.236	0.226	0.244	0.262	0.266	0.240	0.241	0.260
Myanmar	3.749	3.686	2.893	2.866	1.753	1.083	0.742	0.738	0.728
Philippines	0.406	0.396	0.315	0.316	0.290	0.221	0.181	0.168	0.166
Singapore	0.097	0.098	0.089	0.099	0.083	0.106	0.087	0.086	0.099
Thailand	0.424	0.419	0.363	0.325	0.368	0.396	0.404	0.406	0.416
Vietnam	1.164	1.340	1.144	0.807	0.608	0.610	0.616	0.564	0.552

02.

OIL

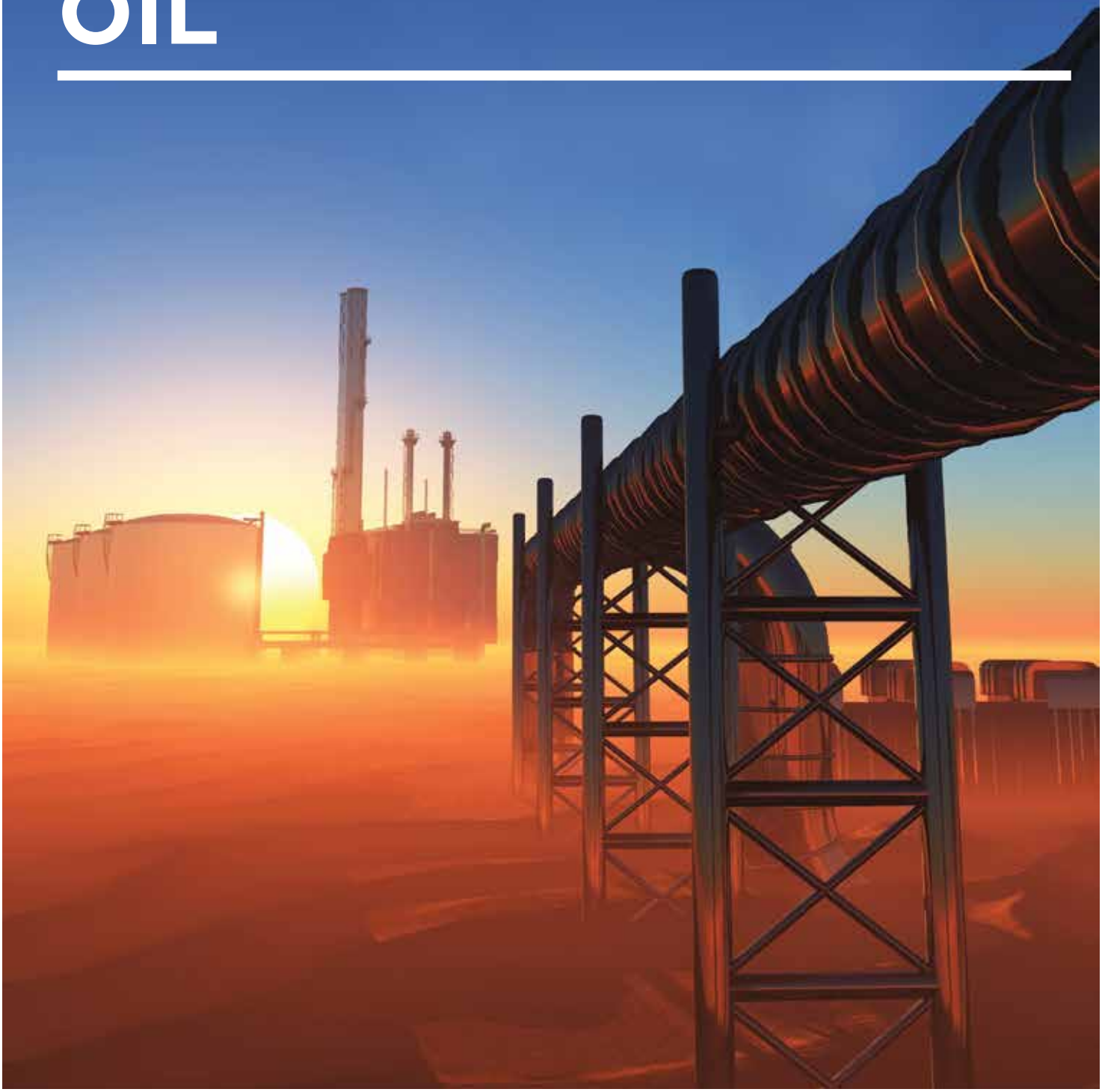


TABLE 3: PRODUCTION AND RESERVES OF OIL AS OF 1ST JANUARY 2014

	RESERVES BILLION BARRELS			PRODUCTION THOUSAND BARRELS PER DAY		
REGION	CRUDE OIL	CONDENSATES	TOTAL	CRUDE OIL	CONDENSATES	TOTAL
Peninsular Malaysia	1.971	0.370	**2.341**	217.61	34.69	**252.30**
Sabah	1.779	0.106	**1.885**	156.61	1.59	**158.20**
Sarawak	1.072	0.494	**1.566**	120.12	72.25	**192.36**
TOTAL	**4.822**	**0.970**	**5.792**	**494.34**	**108.53**	**602.87**

Source: PETRONAS

TABLE 4: REFINERY LICENSED CAPACITY

	LOCATION	START-UP DATE	THOUSAND BARRELS/DAY
SHELL Refining Co. (FOM) Bhd	Port Dickson, Negeri Sembilan	1963	155
Petron Malaysia	Port Dickson, Negeri Sembilan	1960	88
PETRONAS	Kertih, Terengganu*	1983	49
PETRONAS	Melaka	1994	100
Malaysia Refining Company Sdn Bhd (PETRONAS / ConocoPhillips)	Melaka	1998	100
TOTAL			**492**

Source: PETRON, PETRONAS & SHELL **Note** (*) : Excludes condensate splitter of 74,300 bpd

TABLE 5: BREAKDOWN ON SALES OF PETROLEUM PRODUCTS IN THOUSAND BARRELS

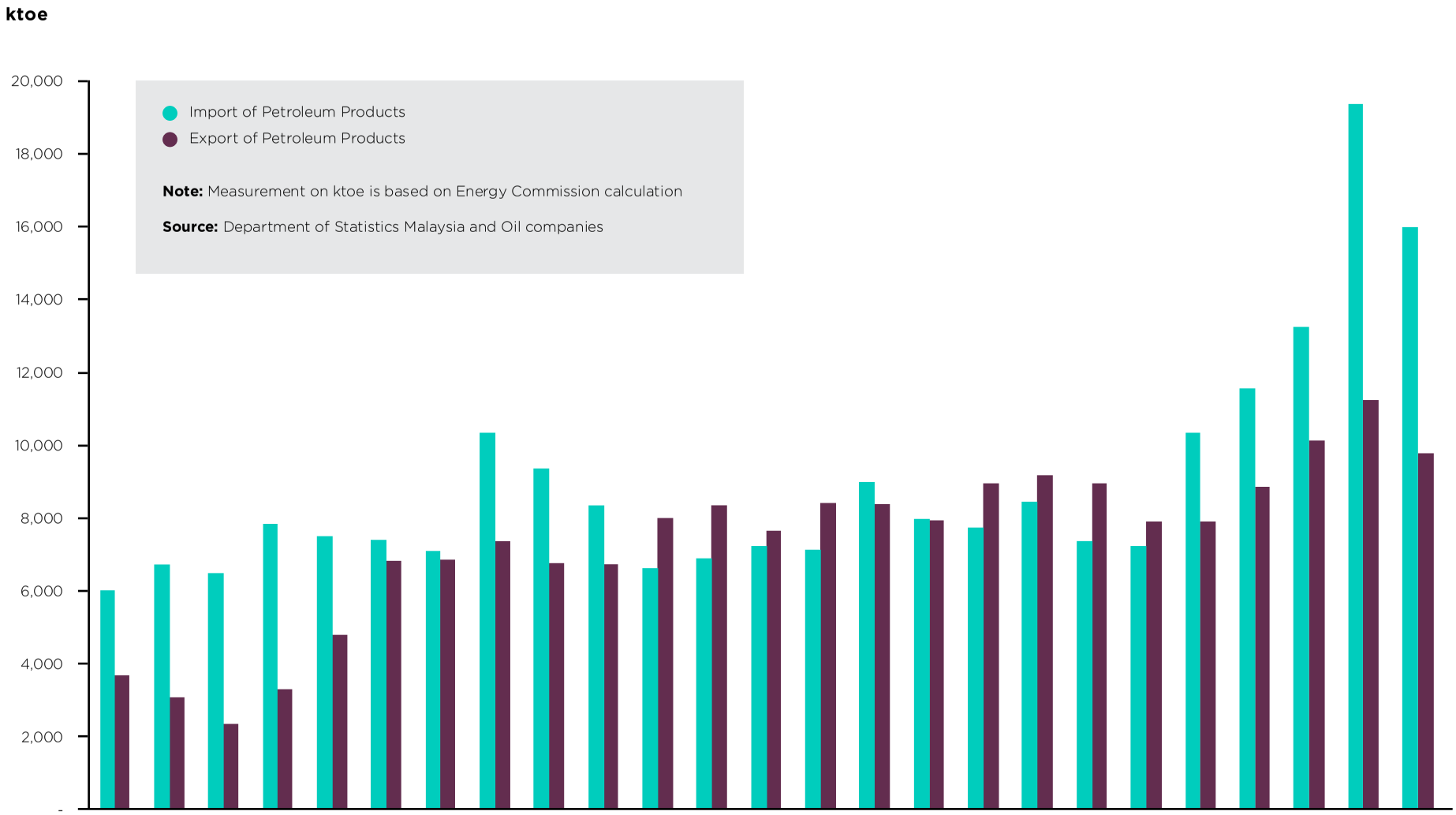
PETROLEUM PRODUCTS	PENINSULAR MALAYSIA	SABAH	SARAWAK	TOTAL
Petrol	91,256	5,778	6,354	**103,387**
Diesel	59,826	10,667	13,206	**83,700**
Fuel Oil	5,073	455	0	**5,527**
Kerosene	112	28	33	**173**
LPG	14,222	868	848	**15,938**
ATF & AV Gas	23,479	511	204	**24,195**
Non Energy	2,827	356	659	**3,842**
TOTAL	**196,794**	**18,663**	**21,305**	**236,761**

Source: Oil companies

FIGURE 18: NET EXPORT OF CRUDE OIL

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
21,902	22,200	22,215	20,063	18,160	18,518	16,859	16,022	16,626	16,274	10,036	9,128	11,017	10,826	11,292	10,963	9,342	7,509	6,482	6,517	9,365	2,300	1,993	1,684	2,051

FIGURE 19: EXPORT AND IMPORT OF PETROLEUM PRODUCTS



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Import of Petroleum Products	6,031	6,728	6,499	7,835	7,492	7,411	7,095	10,331	9,360	8,357	6,619	6,881	7,220	7,116	8,980	7,961	7,734	8,452	7,376	7,243	10,359	11,579	13,242	19,383	16,009
Export of Petroleum Products	3,913	3,272	2,513	3,507	5,094	7,261	7,317	7,840	7,194	7,161	8,533	8,900	8,158	8,972	8,912	8,435	9,535	9,780	9,527	8,419	8,431	9,421	10,784	11,983	10,399

FIGURE 20: PRODUCTION OF PETROLEUM PRODUCTS FROM REFINERIES

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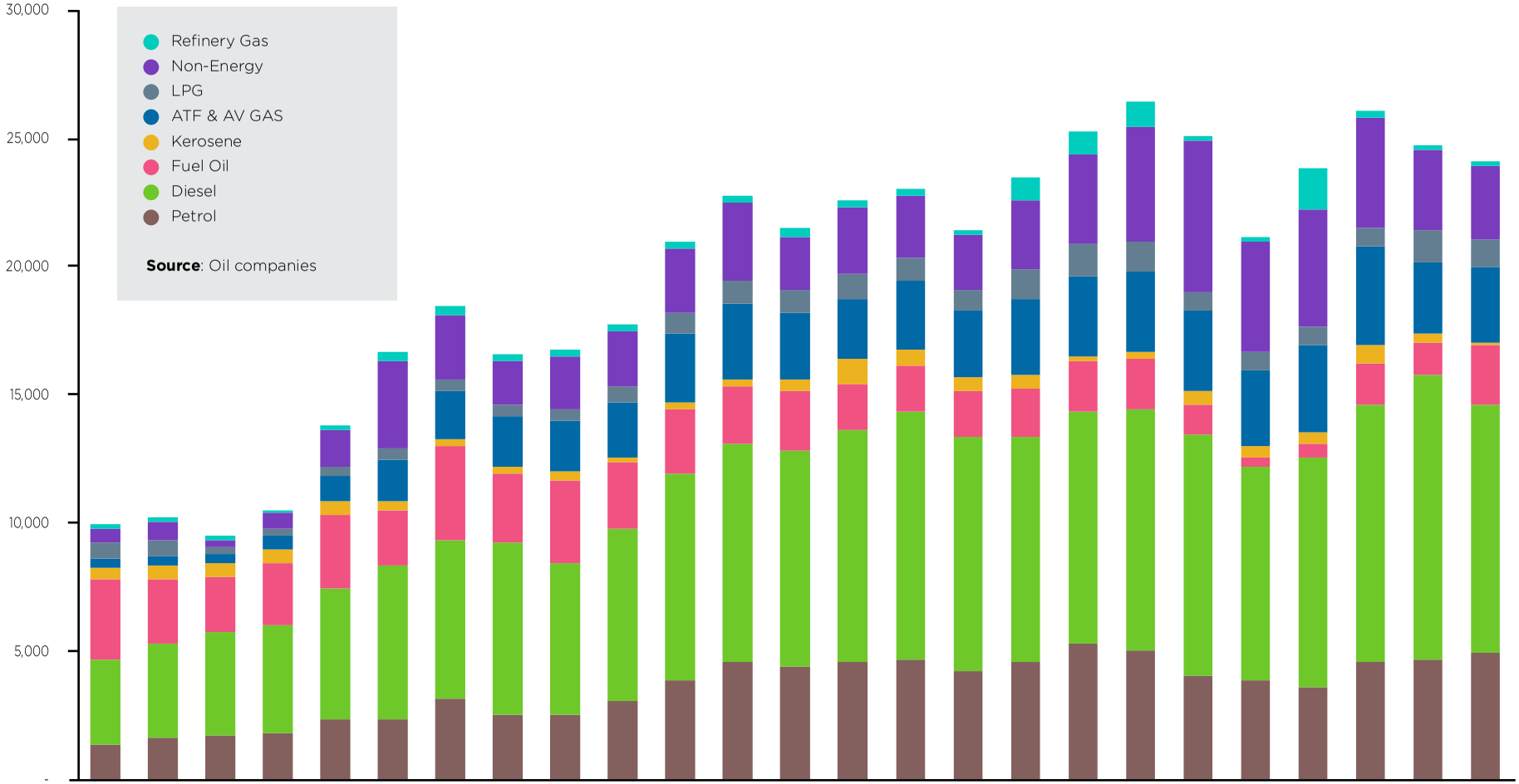
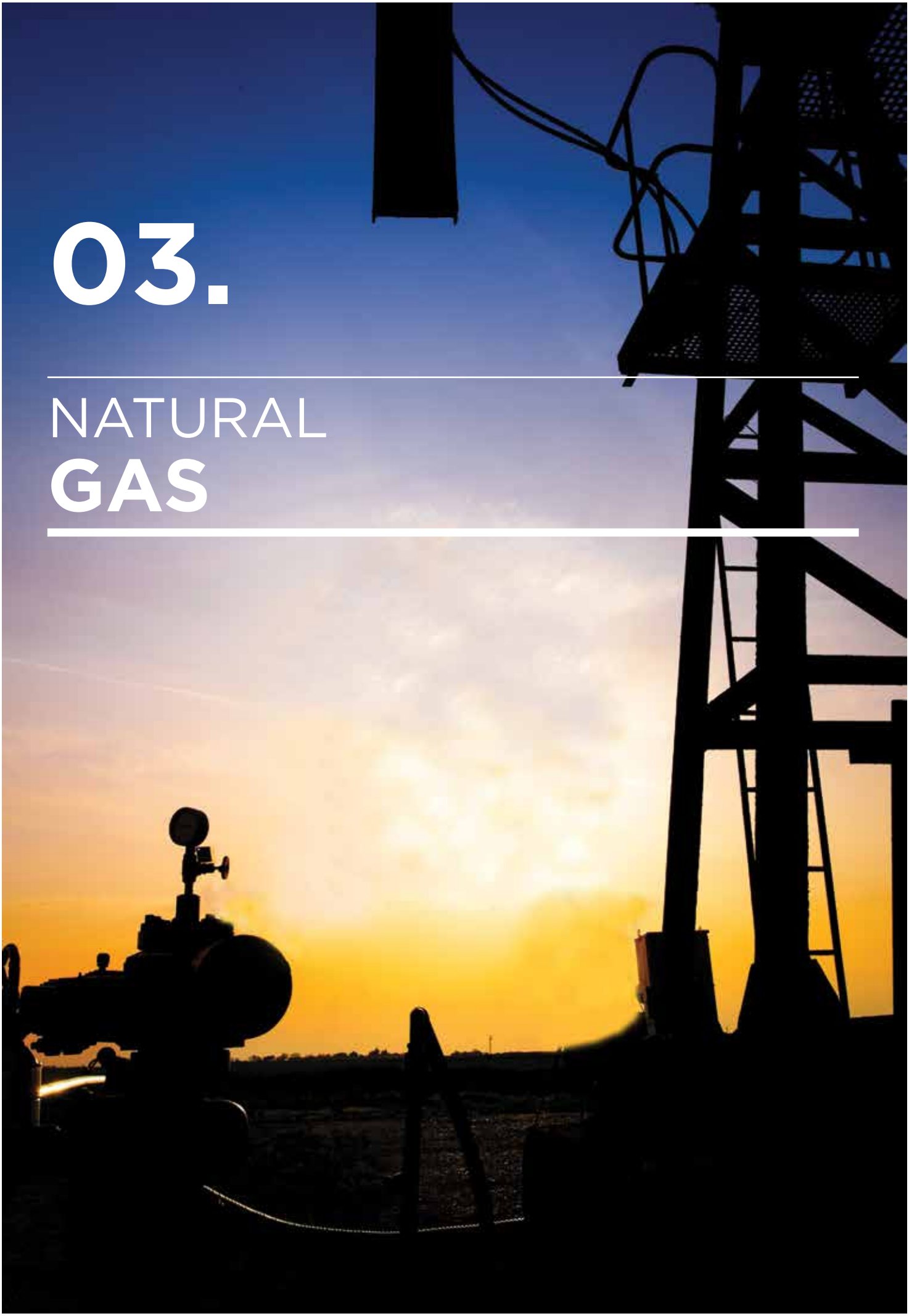


	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Refinery Gas	151	168	143	106	162	385	331	203	192	230	241	331	294	262	215	202	849	938	991	195	209	1,659	197	195	192
Non-Energy	561	772	324	600	1,468	3,380	2,554	1,783	2,117	2,159	2,492	3,020	2,127	2,623	2,455	2,157	2,750	3,461	4,475	5,905	4,357	4,572	4,318	3,089	2,826
LPG	613	548	200	244	319	431	371	371	449	617	838	875	897	932	897	822	1,118	1,228	1,208	732	697	665	702	1,252	1,102
ATF & AV GAS	360	390	412	517	980	1,587	1,899	2,000	1,985	2,140	2,660	2,954	2,570	2,367	2,693	2,553	2,938	3,138	3,139	3,085	2,891	3,457	3,917	2,750	2,916
Kerosene	491	526	541	576	563	360	292	265	285	210	239	283	414	983	591	521	537	234	245	565	483	419	654	387	100
Fuel Oil	3,106	2,547	2,110	2,375	2,887	2,212	3,696	2,716	3,233	2,603	2,532	2,269	2,332	1,763	1,813	1,777	1,933	1,990	1,994	1,144	327	571	1,608	1,286	2,340
Diesel	3,350	3,681	4,048	4,249	5,108	6,011	6,174	6,744	5,926	6,712	8,059	8,462	8,401	9,062	9,611	9,161	8,752	9,033	9,364	9,415	8,369	8,925	10,033	11,063	9,725
Petrol	1,347	1,611	1,724	1,816	2,316	2,320	3,134	2,491	2,545	3,056	3,893	4,623	4,460	4,584	4,724	4,245	4,607	5,285	5,066	4,052	3,873	3,599	4,618	4,702	4,918

FIGURE 21: FINAL CONSUMPTION FOR PETROLEUM PRODUCTS

Petrol	**43.1%**
Diesel	**34.4%**
ATF & AV GAS	**10.7%**
LPG	**8.9%**
Non-Energy	**2.0%**
Fuel Oil	**0.8%**
Kerosene	**0.1%**

Source: Oil companies



03.

NATURAL **GAS**

TABLE 6: RESERVES AND PRODUCTION OF NATURAL GAS AS OF 1ST JANUARY 2014

REGION	RESERVES			PRODUCTION
	TRILLION STANDARD CUBIC FEET (TSCF)			MILLION STANDARD CUBIC FEET PER DAY (MMSCFD)
	ASSOCIATED	NON-ASSOCIATED	TOTAL	
Peninsular Malaysia	9.688	25.242	**34.930**	2,003.06
Sabah	3.724	10.029	**13.753**	404.34
Sarawak	3.024	48.955	**51.979**	4,185.23*
TOTAL	**16.436**	**84.226**	**100.662**	**6,592.63**

Notes (*): Refers to the amount of gas produced/generated from associated fields
1 cubic feet = 0.028317 cubic metre
Associated Gas: Natural gas produced in association with oil
Non-Associated Gas: Natural gas produced from a gas reservoir not associated with oil

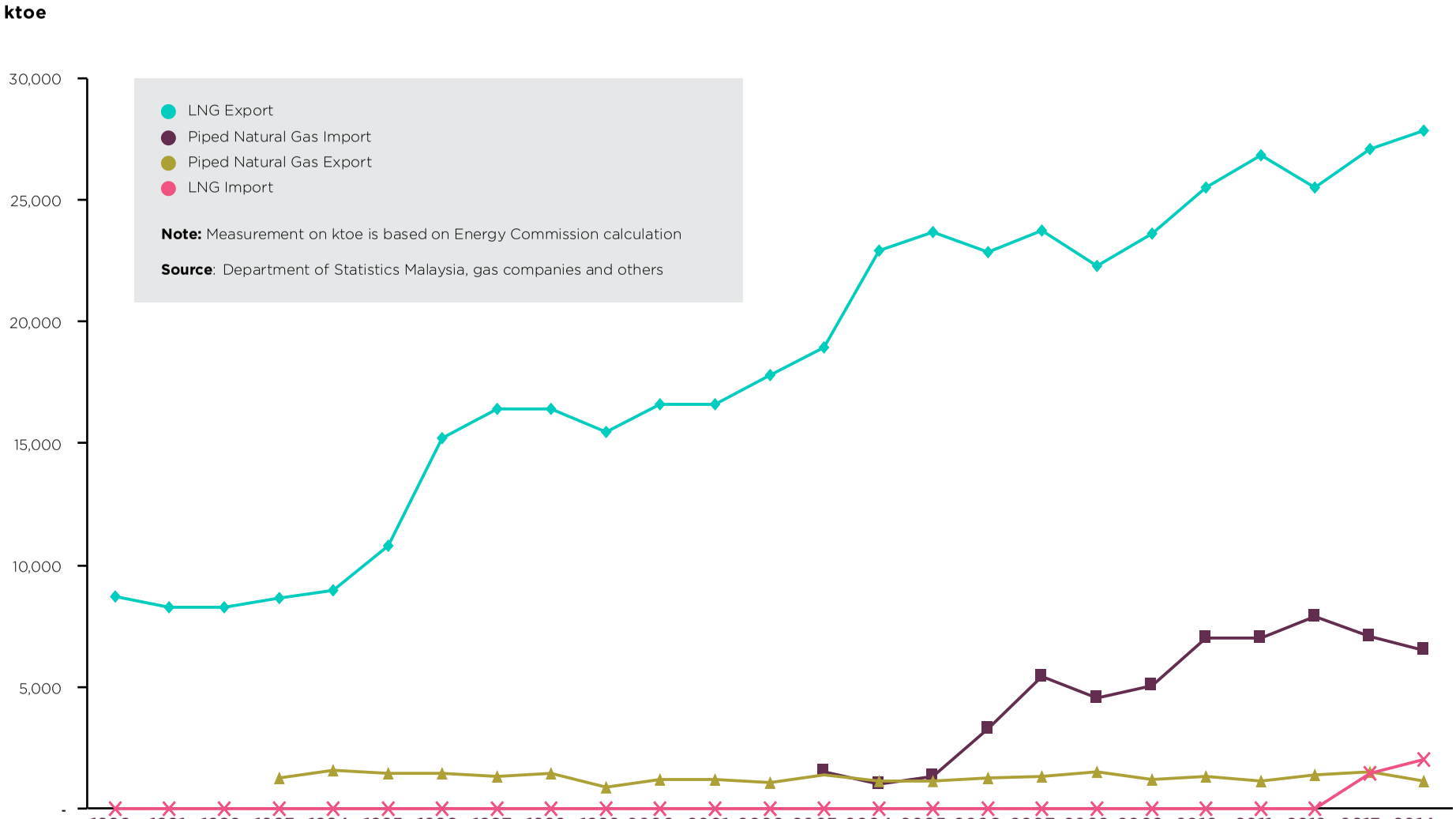
Source : PETRONAS

TABLE 7: CONSUMPTION OF NATURAL GAS IN MMSCF, 2014

SECTORS	PENINSULAR MALAYSIA	SABAH	SARAWAK	MALAYSIA
Residential	32	-	-	32
Commercial	850	-	-	850
Industry	177,909	6,019	1,775	185,703
Non-Energy	67,995	47,798	54,789	170,581
Transport	10,539	-	-	10,539
Power Stations	468,291	36,177	31,169	535,637
Co-Generation	64,879	-	-	64,879
Total	**790,495**	**89,994**	**87,733**	**968,222**

Source: Power utilities, IPPs, PETRONAS and gas distribution companies

FIGURE 22: EXPORT AND IMPORT OF PIPED NATURAL GAS AND LNG



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
LNG Export	8,686	8,278	8,262	8,654	8,938	10,790	15,251	16,396	16,429	15,445	16,633	16,636	17,803	18,965	22,944	23,707	22,874	23,777	22,277	23,606	25,487	26,856	25,547	27,089	27,835
Piped Natural Gas Import	-	-	-	-	-	-	-	-	-	-	-	-	-	1,501	999	1,340	3,313	5,435	4,565	5,055	7,013	6,979	7,866	7,098	6,472
Piped Natural Gas Export	-	-	1	1,258	1,589	1,474	1,474	1,340	1,444	860	1,198	1,178	1,098	1,402	1,143	1,134	1,257	1,295	1,524	1,166	1,340	1,147	1,368	1,497	1,129
LNG Import	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,450	2,019

FIGURE 23: NATURAL GAS CONSUMPTION BY SECTORS

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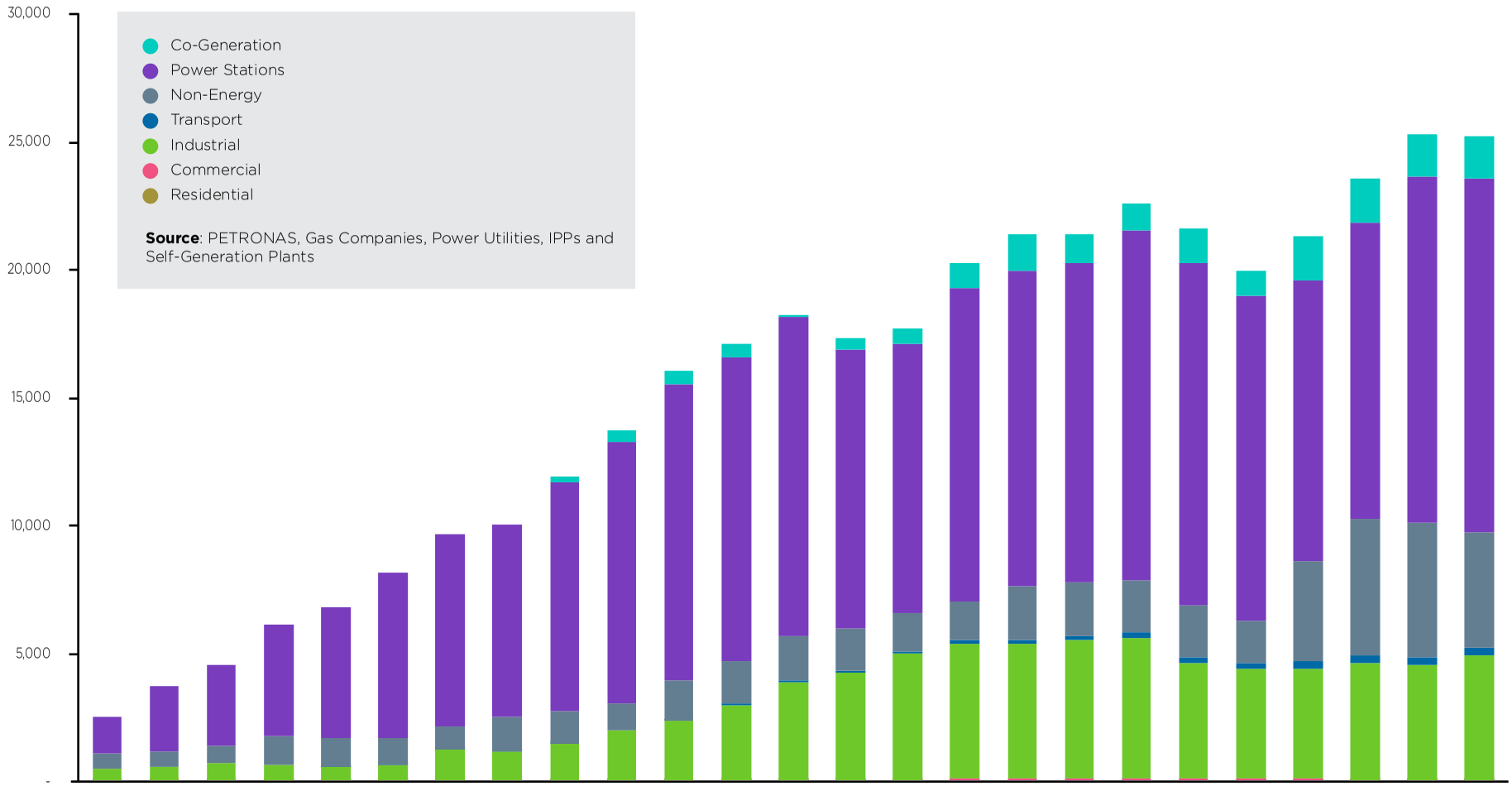
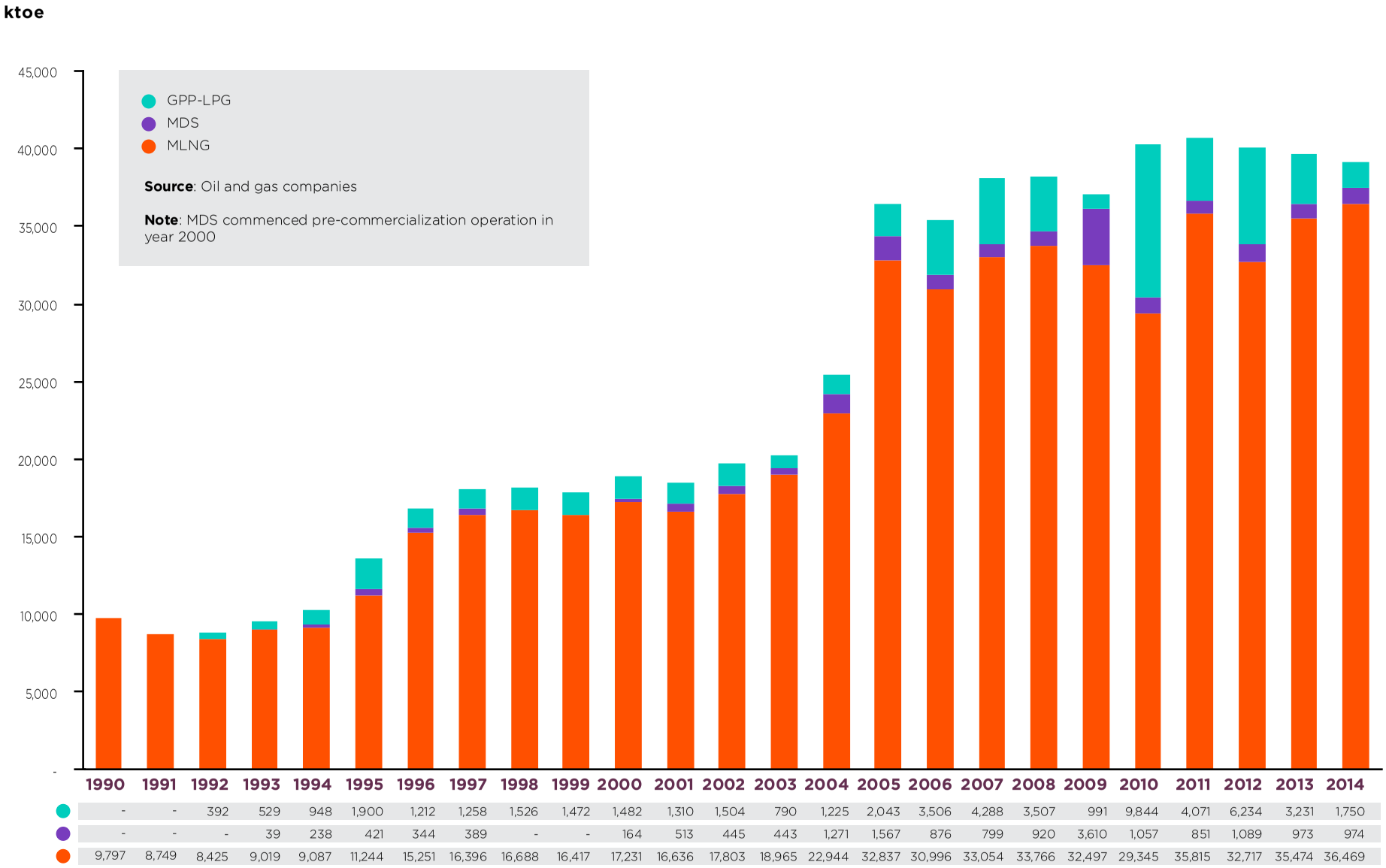


	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Co-Generation	-	-	-	-	-	-	-	-	271	488	530	495	128	469	568	923	1,431	1,140	1,030	1,385	1,031	1,697	1,734	1,650	1,678
Power Stations	1,361	2,533	3,144	4,374	5,119	6,414	7,489	7,531	8,886	10,162	11,580	11,922	12,424	10,893	10,545	12,271	12,330	12,476	13,651	13,390	12,628	10,956	11,533	13,520	13,860
Non-Energy	609	604	657	1,141	1,163	1,064	870	1,378	1,282	1,118	1,512	1,655	1,775	1,616	1,476	1,541	2,110	2,112	2,046	1,995	1,661	3,967	5,336	5,276	4,472
Transport	-	-	-	-	5	5	4	5	4	-	7	14	28	40	54	95	120	147	194	236	247	272	292	289	276
Industrial	452	487	679	552	484	577	1,197	1,074	1,430	1,891	2,327	2,937	3,824	4,207	4,937	5,317	5,301	5,416	5,541	4,544	4,310	4,300	4,556	4,488	4,869
Commercial	4	4	4	4	4	4	4	4	6	9	12	10	11	18	18	23	24	28	31	25	30	32	22	22	22
Residential	4	4	4	4	4	4	4	4	4	5	4	4	4	5	5	5	5	6	6	2	6	7	1	1	1

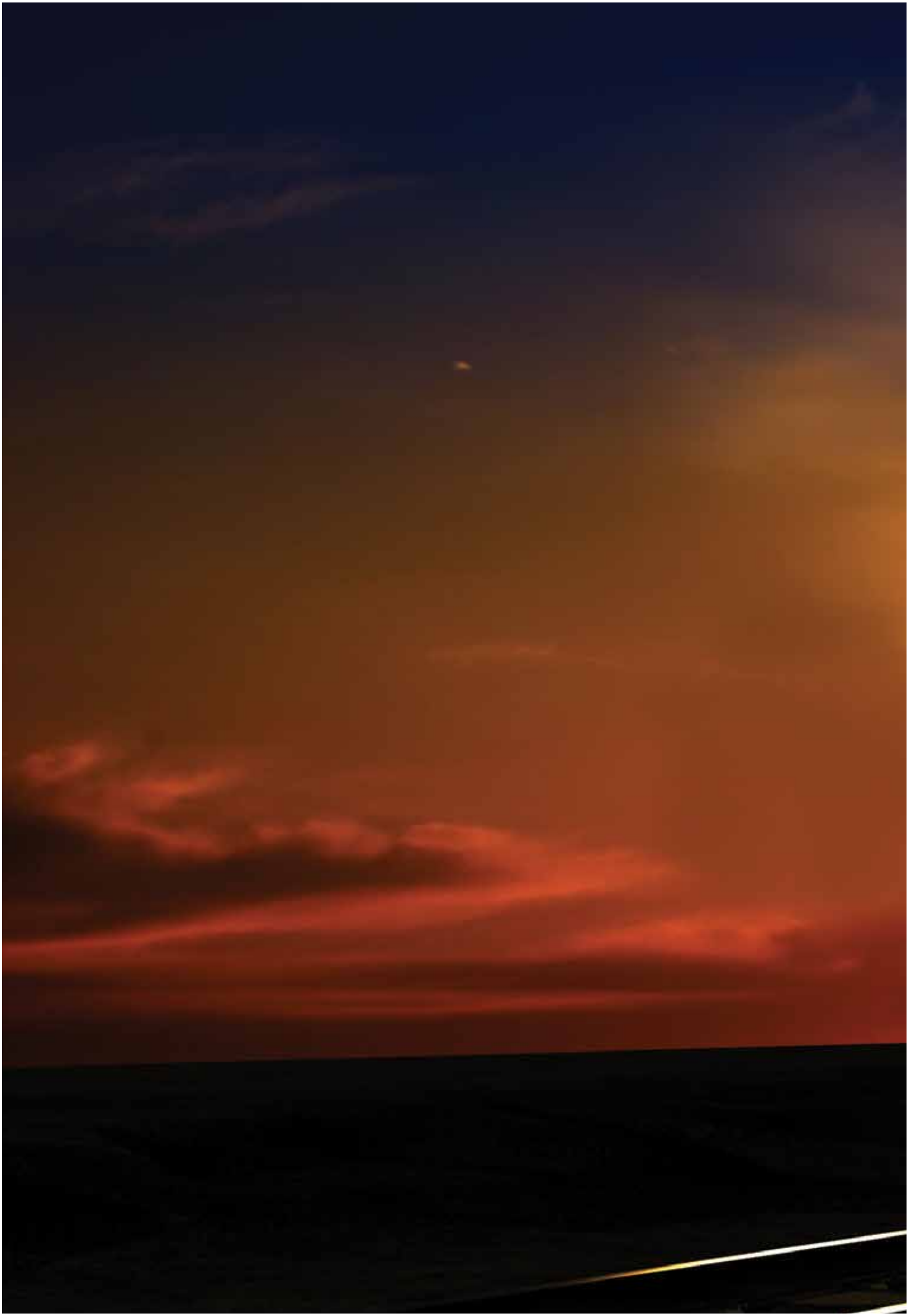
FIGURE 24: CONVERSION IN GAS PLANTS



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
GPP-LPG	-	-	392	529	948	1,900	1,212	1,258	1,526	1,472	1,482	1,310	1,504	790	1,225	2,043	3,506	4,288	3,507	991	9,844	4,071	6,234	3,231	1,750
MDS	-	-	-	39	238	421	344	389	-	-	164	513	445	443	1,271	1,567	876	799	920	3,610	1,057	851	1,089	973	974
MLNG	9,797	8,749	8,425	9,019	9,087	11,244	15,251	16,396	16,688	16,417	17,231	16,636	17,803	18,965	22,944	32,837	30,996	33,054	33,766	32,497	29,345	35,815	32,717	35,474	36,469

Source: Oil and gas companies

Note: MDS commenced pre-commercialization operation in year 2000



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COAL

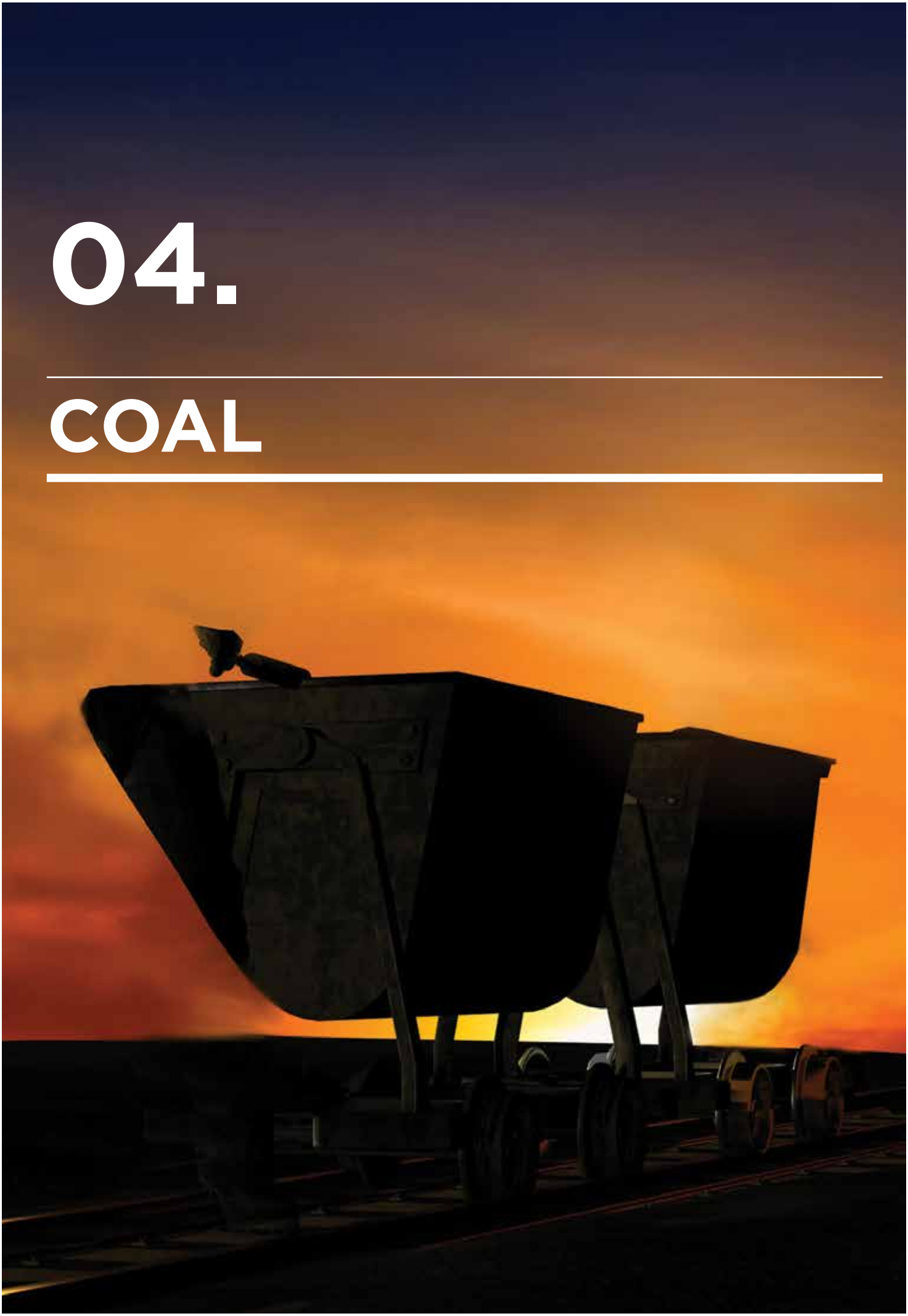


TABLE 8: PRODUCTION AND RESERVES OF COAL AS OF 31ST DECEMBER 2014

LOCATION	RESERVES (MILLION TONNES)			COAL TYPE	PRODUCTION
	MEASURED	INDICATED	INFERRED		(METRIC TONNES)
SARAWAK					
1. Abok & Silantek, Sri Aman	7.25	10.60	32.40	Coking Coal, Semi-Anthracite and Anthracite	66,177
2. Merit-Pila, Kapit	170.26	107.02	107.84	Sub-Bituminous	603,840
3. Bintulu	6.00	0.00	14.00	Bituminous (partly coking coal)	-
4. Mukah - Balingian	86.95	170.73	646.53	Lignite, Hydrous Lignite and Sub-Bituminous	2,017,747
5. Tutoh Area	5.58	34.66	162.33	Sub-Bituminous	-
SUBTOTAL	**276.04**	**323.01**	**963.10**		**2,687,764**
SABAH					
1. Salimpopon	4.80	14.09	7.70	Sub-Bituminous	-
2. Labuan	-	-	8.90	Sub-Bituminous	-
3. Maliau	-	-	215.00	Bituminous	-
4. Malibau	-	17.90	25.00		-
5. SW Malibau	-	23.23	-		-
6. Pinangan West Middle Block	-	-	42.60	Bituminous	-
SUBTOTAL	**4.80**	**55.22**	**299.20**		-
SELANGOR					
1. Batu Arang	-	-	17.00	Sub-Bituminous	-
SUBTOTAL	**0.00**	**0.00**	**17.00**		-
TOTAL	**280.84**	**378.23**	**1,279.30**		
GRAND TOTAL		**1,938.37**			**2,687,764**

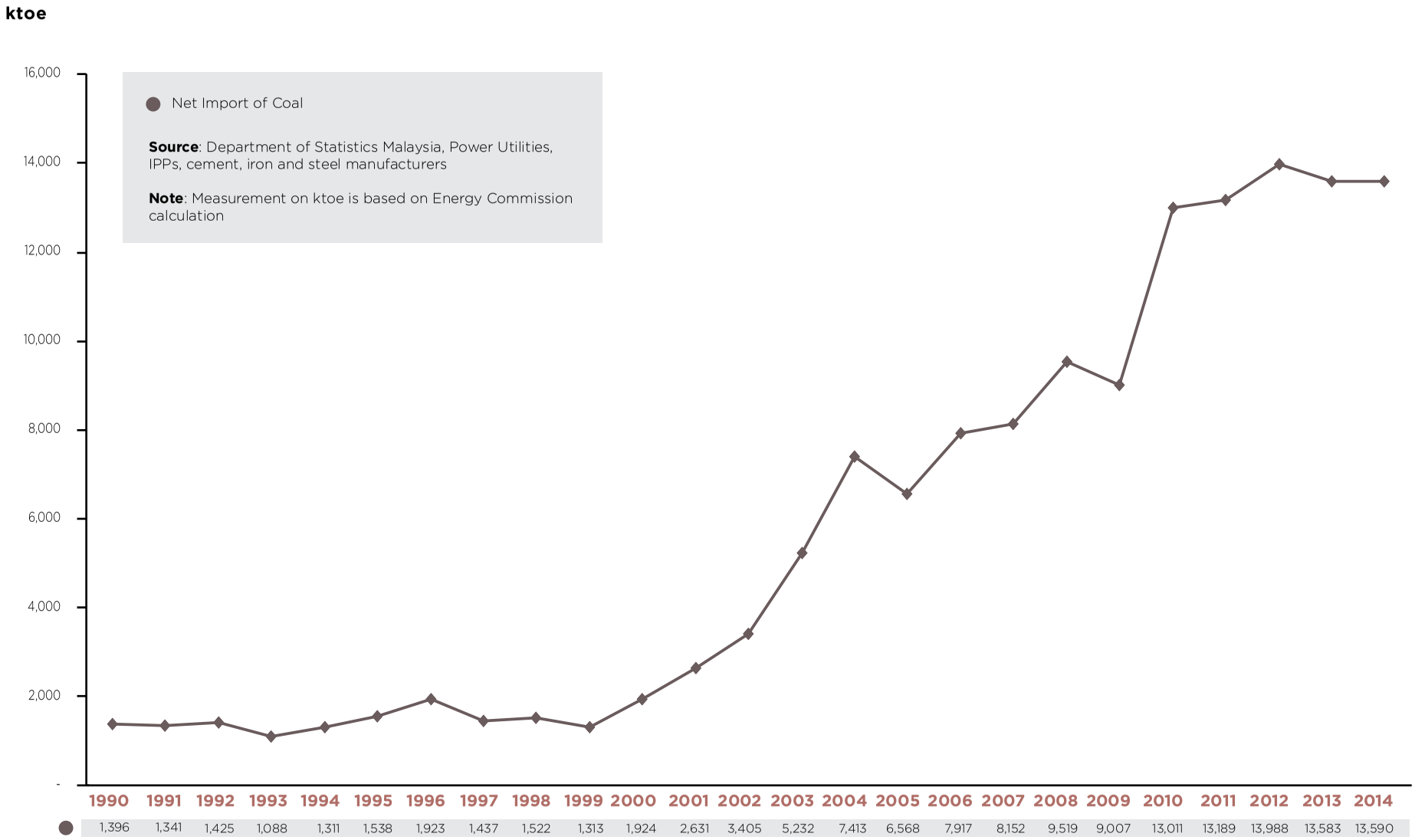
Source: Department of Mineral and Geosciences Malaysia

TABLE 9: CONSUMPTION OF COAL IN METRIC TONNES, 2014

SECTORS	PENINSULAR MALAYSIA	SABAH	SARAWAK	MALAYSIA
Industry	2,566,073	-	145,362	2,711,435
Power Stations	19,517,775	-	2,130,791	21,648,567
TOTAL	**22,083,849**	**0**	**2,276,153**	**24,360,002**

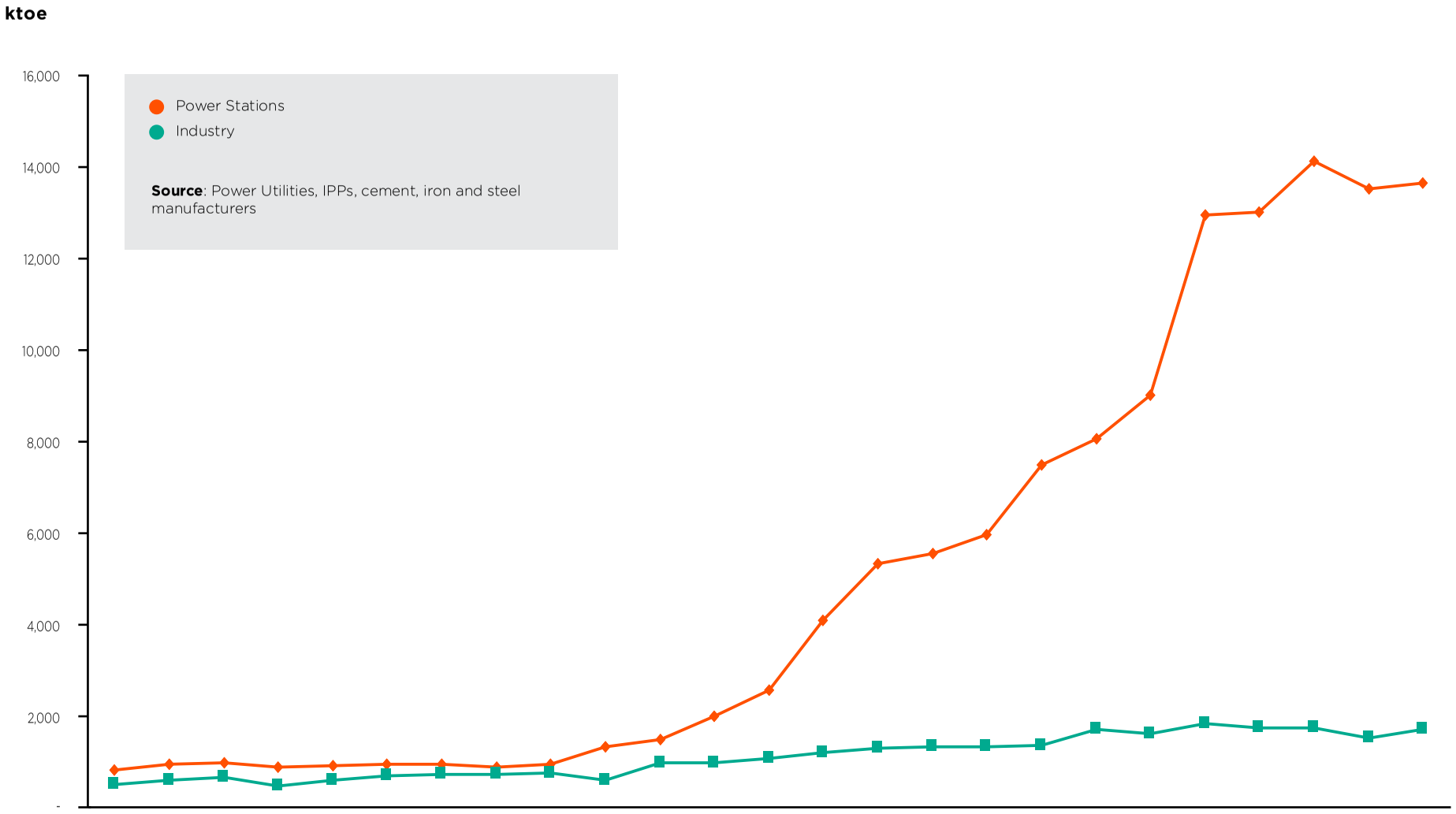
Source: Power Utilities, IPPs, cement, iron and steel manufacturers

FIGURE 25: NET IMPORT OF COAL



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
●	1,396	1,341	1,425	1,088	1,311	1,538	1,923	1,437	1,522	1,313	1,924	2,631	3,405	5,232	7,413	6,568	7,917	8,152	9,519	9,007	13,011	13,189	13,988	13,583	13,590

FIGURE 26: COAL CONSUMPTION BY SECTORS



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Power Stations	813	963	968	884	925	957	950	882	964	1,332	1,495	1,994	2,556	4,104	5,327	5,541	5,963	7,486	8,069	9,010	12,951	13,013	14,138	13,527	13,648
Industry	513	599	672	487	598	712	727	740	767	608	991	977	1,086	1,212	1,305	1,348	1,335	1,361	1,713	1,613	1,826	1,759	1,744	1,539	1,709

05.

ELECTRICITY

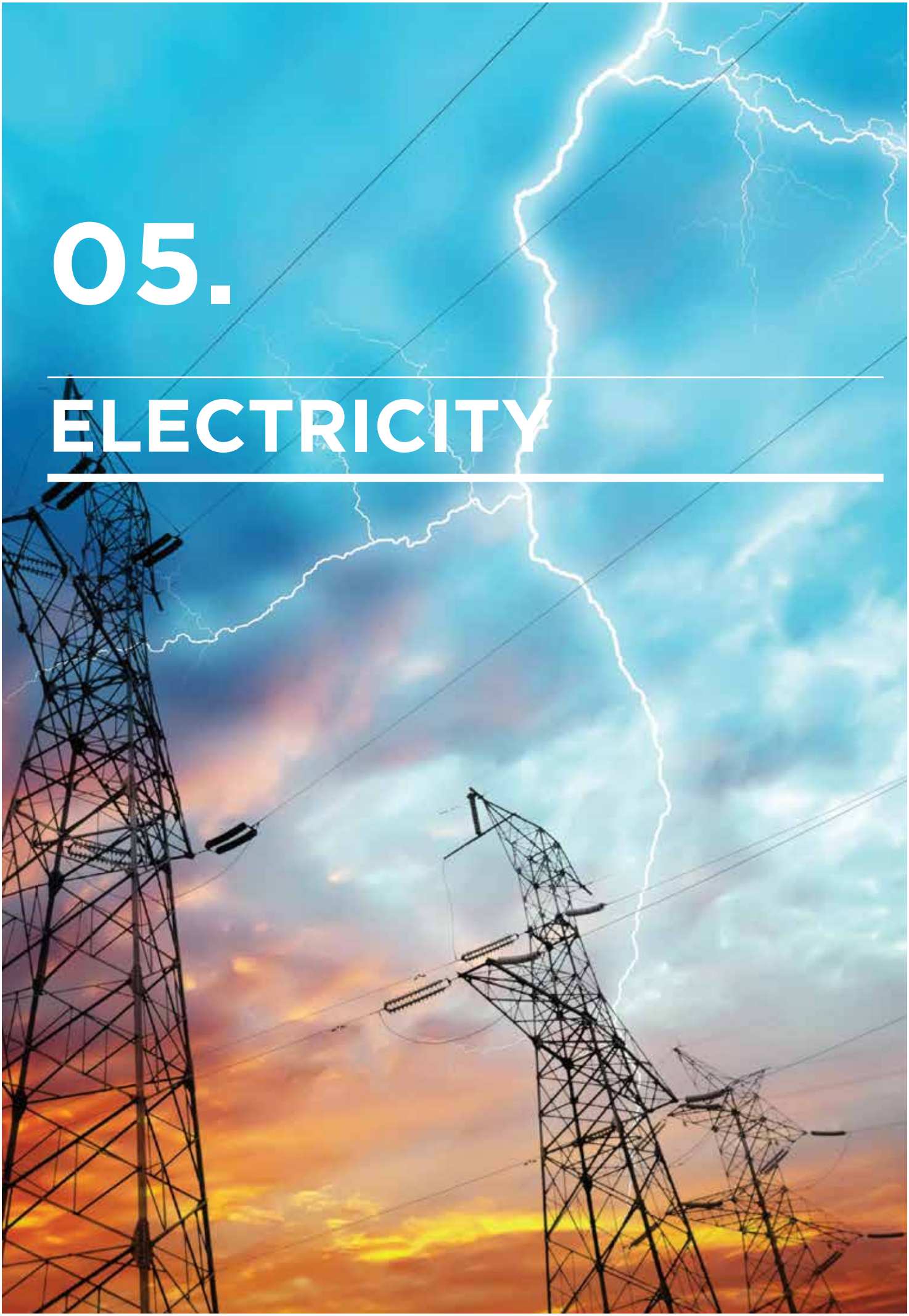


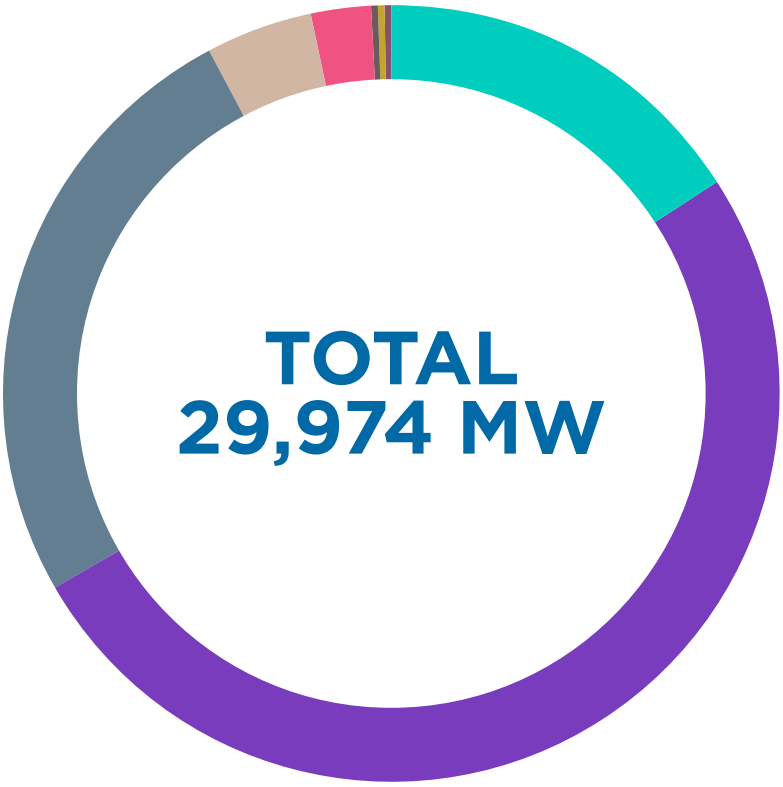
TABLE 10: INSTALLED CAPACITY AS OF 31ST DECEMBER 2014 IN MW

		HYDRO	NATURAL GAS	COAL	DIESEL	BIOMASS	SOLAR	BIOGAS	OTHERS	TOTAL
PENINSULAR MALAYSIA	TNB	1,911.0	4,705.0	0.0	0.0	0.0	0.0	0.0	0.0	**6,616.0**
	IPPs	20.0	8,069.0	7,200.0	0.0	0.0	0.0	0.0	0.0	**15,289.0**
	Co-Generation	0.0	514.0	0.0	8.2	79.2	0.0	0.0	51.3	**652.7**
	Self-Generation	5.3	0.0	0.0	337.6	293.3	1.0	0.0	0.0	**637.2**
	SREP / FiT	9.2	0.0	0.0	0.0	19.0	159.7	11.7	0.0	**199.6**
	SUBTOTAL	**1,945.5**	**13,288.0**	**7,200.0**	**345.8**	**391.5**	**160.7**	**11.7**	**51.3**	**23,394.5**
SABAH	SESB	70.0	112.0	0.0	180.8	0.0	0.0	0.0	0.0	**362.8**
	IPPs	0.0	922.2	0.0	189.9	0.0	0.0	0.0	0.0	**1,112.1**
	Co-Generation	0.0	41.8	0.0	7.5	110.2	0.0	0.0	0.0	**159.5**
	Self-Generation	0.0	0.0	0.0	424.5	115.0	0.0	3.2	0.0	**542.7**
	SREP / FiT	6.9	0.0	0.0	0.0	52.0	0.3	0.0	0.0	**59.2**
	SUBTOTAL	**76.9**	**1,076.0**	**0.0**	**802.7**	**277.2**	**0.3**	**3.2**	**0.0**	**2,236.3**
SARAWAK	SEB	351.0	595.0	480.0	158.0	0.0	0.0	0.0	0.0	**1,584.0**
	IPPs	2,400.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**2,400.0**
	Co-Generation	0.0	289.0	0.0	0.0	0.0	0.0	0.0	0.0	**289.0**
	Self-Generation	0.0	0.0	0.0	8.8	60.0	0.0	0.0	1.1	**69.9**
	SUBTOTAL	**2,751.0**	**884.0**	**480.0**	**166.8**	**60.0**	**0.0**	**0.0**	**1.1**	**4,342.9**
TOTAL		**4,773.4**	**15,248.0**	**7,680.0**	**1,315.3**	**728.8**	**161.0**	**14.9**	**52.3**	**29,973.8**
SHARE (%)		**15.9%**	**50.9%**	**25.6%**	**4.4%**	**2.4%**	**0.5%**	**0.1%**	**0.2%**	**100.0%**

Source: Power Utilities, IPPs and SEDA Malaysia

Note: Excluding plants that are not in operation

FIGURE 27: SHARE OF INSTALLED CAPACITY AS OF 31ST DECEMBER 2014



Natural Gas	**50.9%**
Coal	**25.6%**
Hydro	**15.9%**
Diesel	**4.4%**
Biomass	**2.4%**
Solar	**0.5%**
Others	**0.2%**
Biogas	**0.1%**

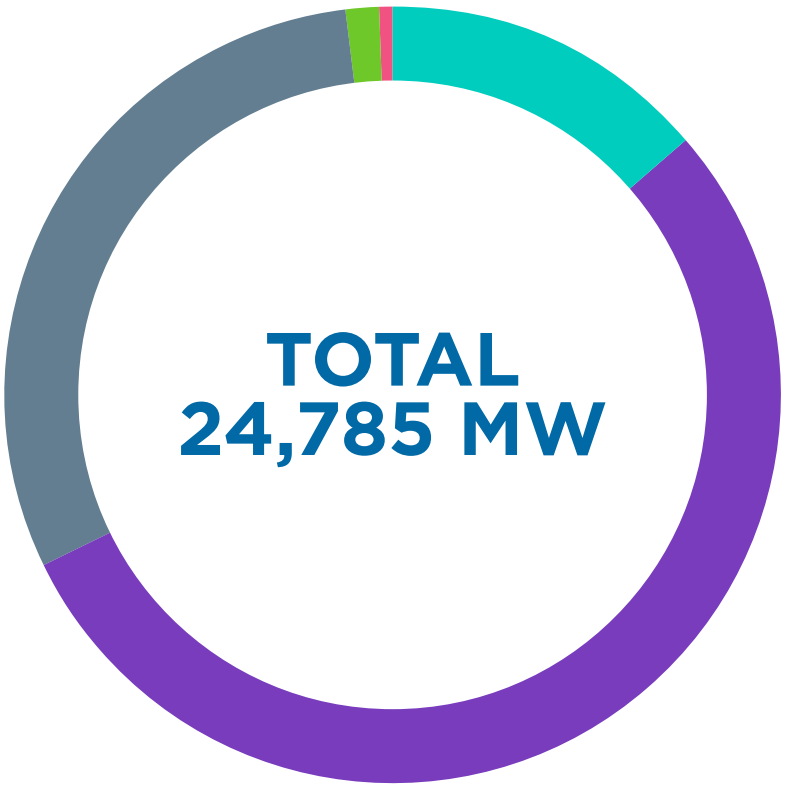
Source: Power Utilities and IPPs

TABLE 11: AVAILABLE CAPACITY AS OF 31ST DECEMBER 2014 IN MW

		HYDRO	NATURAL GAS	COAL	DIESEL	BIOMASS	TOTAL
PENINSULAR MALAYSIA	TNB	1,867.0	4,511.0	0.0	0.0	0.0	**6,378.0**
	IPPs	0.0	7,388.5	7,058.4	0.0	0.0	**14,446.9**
	SUBTOTAL	**1,867.0**	**11,899.5**	**7,058.4**	**0.0**	**0.0**	**20,824.9**
SABAH*	SESB	69.2	104.5	0.0	150.7	0.0	**324.4**
	IPPs	0.0	870.0	0.0	77.0	0.0	**947.0**
	FiT/SREP	6.5	0.0	0.0	0.0	43.0	**49.5**
	SUBTOTAL	**75.7**	**974.5**	**0.0**	**227.7**	**43.0**	**1,320.9**
SARAWAK	SEB	101.0	576.0	423.0	139.0	0.0	**1,239.0**
	IPPs	1,400.0	0.0	0.0	0.0	0.0	**1,400.0**
	SUBTOTAL	**1,501.0**	**576.0**	**423.0**	**139.0**	0.0	**2,639.0**
TOTAL		**3,443.7**	**13,450.0**	**7,481.4**	**366.7**	**43.0**	**24,784.8**

Note: * Dependable Capacity **Source**: Power Utilities and IPPs

FIGURE 28: SHARE OF AVAILABLE CAPACITY AS OF 31ST DECEMBER 2014



Natural Gas	**54.2%**
Coal	**30.2%**
Hydro	**13.9%**
Diesel	**1.5%**
Biomass	**0.2%**

Source: Power Utilities and IPPs

TABLE 12: INSTALLED CAPACITY OF MAJOR HYDRO POWER STATIONS

STATION	INSTALLED CAPACITY (MW)	TOTAL (MW)
PENINSULAR MALAYSIA		
1. TERENGGANU		
- Stesen Janakuasa Sultan Mahmud Kenyir	4 x 100	400.0
2. PERAK		
- Stesen Janakuasa Temenggor	4 x 87	348.0
- Stesen Janakuasa Bersia	3 x 24	72.0
- Stesen Janakuasa Kenering	3 x 40	120.0
- Chenderoh	3 x 10.7 + 1 x 8.4	40.5
- Sg. Piah Hulu	2 x 7.3	14.6
- Sg. Piah Hilir	2 x 27	54.0
3. PAHANG		
- Stesen Janakuasa Sultan Yussuf, Jor	4 x 25	100.0
- Stesen Janakuasa Sultan Idris II, Woh	3 x 50	150.0
- Cameron Highland Scheme*		11.9
4. KELANTAN		
- Pergau	4 x 150	600.0
- Kenerong Upper	2 x 6	12.0
- Kenerong Lower	2 x 4	8.0
SUBTOTAL		**1,931.0**
SABAH		
- Tenom Pangi	3 x 22	66.0
SUBTOTAL		**66.0**
SARAWAK		
- Batang Ai	4 x 27	108.0
- Bakun	8 x 300	2,400.0
- Murum	1 x 236	236.0
SUBTOTAL		**2,744.0**
TOTAL		**4,741.0**

Source: TNB, SESB and SEB **Note**(*): Cameron Highland Scheme includes Odak, Habu, Kg. Raja, Kg. Terla and Robinson Falls stations

TABLE 13: INSTALLED CAPACITY OF MINI HYDRO POWER STATIONS

STATION	TOTAL (MW)
1. KEDAH	
- Sg Tawar Besar	0.552
- Sg Mempelam	0.381
- Sg Mahang	0.454
2. PERAK	
- Sg Tebing Tinggi	0.152
- Sg Asap	0.110
- Sg Kinjang	0.325
- Sg Bil	0.225
- Sg Kenas	0.500
- Sg Chempias	0.120
- Sg Temelong	0.800
3. PAHANG	
- Sg Sempam G2	1.250
- Sg Pertang	0.340
- Sg Perdak	0.342
- Sg Sia	0.520
4. KELANTAN	
- Sg Renyok G1	0.800
- Sg Renyok G2	0.800
- Sg Sok	0.560
- Sg Rek	0.252
5. TERENGGANU	
- Sg Berang	0.364
- Sg Cheralak	0.480
SUBTOTAL	**9.327**
SABAH	
- Melangkap (Kota Belud)	1.000
- Sayap (Kota Belud)	1.000
- Bombalai (Tawau)	1.000
- Merotai (Tawau)	1.000
- Kiau (Kota Belud)	0.350
- Naradau (Ranau)	1.760
- Kedamaian (Kota Belud)	2.103
- Pengapuyan (Kota Marudu)	4.830
SUBTOTAL	**13.043**
SARAWAK	
- Sg Pasir	0.760
- Penindin	0.352
- Sebako	0.333
- Lundu	0.352
- Kalamuku 1	0.500
- Kalamuku 2	0.500
- Sg Keijin	0.500
- Sg Kota 1	2.000
- Sg Kota 2	2.000
SUBTOTAL	**7.297**
TOTAL	**29.667**

Source: TNB, SESB and SEB

TABLE 14: TRANSMISSION NETWORK IN CIRCUIT – KILOMETRES

UTILITY	500 KV	275 KV	132 KV	66 KV
TNB	668	8,714	12,088	-
SESB	-	585	1,731	95
SEB	-	1,235	372	-

Source: TNB, SESB and SEB

TABLE 15: DISTRIBUTION NETWORK IN CIRCUIT – KILOMETRES

UTILITY	OVERHEAD LINES	UNDERGROUND CABLES
TNB	516,780	678,026
SESB	9,038	903
SEB	23,210	7,274

Source: TNB, SESB and SEB

TABLE 16: GROSS GENERATION, CONSUMPTION, AVAILABLE CAPACITY, PEAK DEMAND AND RESERVE MARGIN FOR ELECTRICITY IN MALAYSIA

REGION	ELECTRICITY GROSS GENERATION		ELECTRICITY CONSUMPTION		AVAILABLE CAPACITY**	PEAK DEMAND	RESERVE MARGIN
	GWh	%	GWh	%	MW	MW	%
PENINSULAR MALAYSIA	125,025	84.8	108,259	84.4	20,825	16,901	23.2
SABAH*	5,761	3.9	4,919	3.8	1,321	908	45.6
SARAWAK	16,694	11.3	15,152	11.8	2,639	2,036	29.6
TOTAL	**147,480**	**100.0**	**128,330**	**100.0**	**24,785**		

Source: TNB and IPPs, SESB and SEB

Note (*): Most diesel units in SESB are aged sets hence they are derated due to thermal limitations. However, during operational state, some generating units are not available due to maintenance outages as well as random breakdowns; the actual operation capacity available to system operation for dispatch was very limited.

(**): Available Capacity for Peninsular Malaysia was based on Tested Annual Available Capacity (TAAC), Available Capacity for Sabah was based on Dependable Capacity

FIGURE 29: SHARE OF ENERGY INPUT IN POWER STATIONS

Natural Gas	**43.8%**
Coal	**43.2%**
Hydropower	**9.6%**
Diesel	**2.0%**
Fuel Oil	**0.9%**
Renewables	**0.5%**

Note: Figures exclude fuel consumption for self-generation plants

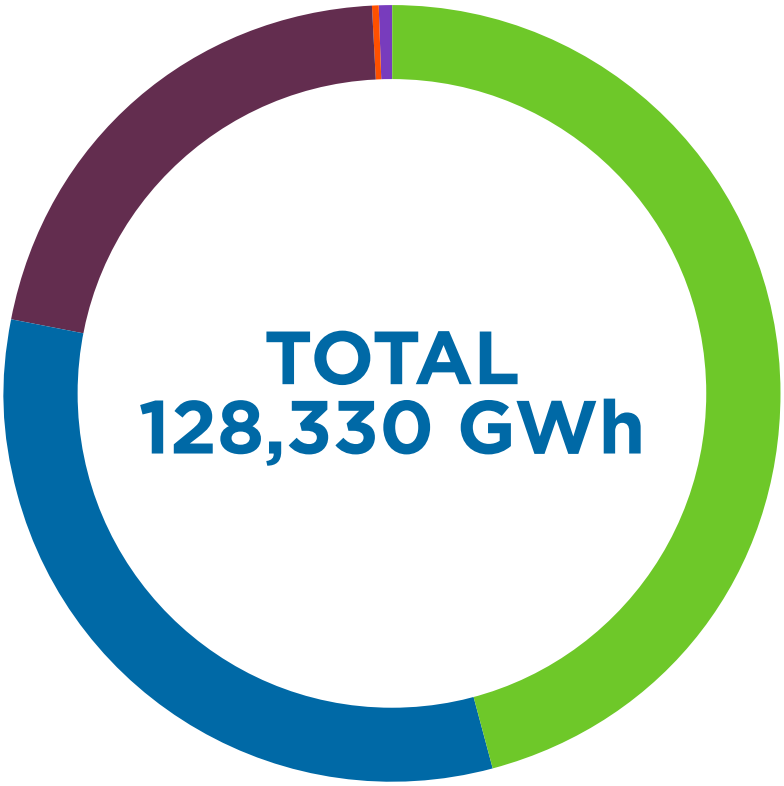
Source: Power utilities and IPPs

TABLE 17: ELECTRICITY CONSUMPTION BY SECTORS IN GWh

REGION	INDUSTRY		COMMERCIAL		RESIDENTIAL		TRANSPORT		AGRICULTURE		TOTAL
	GWh	%	GWh	%	GWh	%	GWh	%	GWh	%	GWh
PENINSULAR MALAYSIA	46,755	79.3	37,108	89.5	23,721	87.0	261	100.0	413.5	100.0	**108,259**
SABAH	1,230	2.1	2,043	4.9	1,647	6.0	-	-	-	-	**4,919**
SARAWAK	10,966	18.6	2,290	5.5	1,896	7.0	-	-	-	-	**15,152**
TOTAL	**58,951**	**100.0**	**41,441**	**100.0**	**27,264**	**100.0**	**261**	**100.0**	**414**	**100.0**	**128,330**

Source: Power utilities, IPPs and Self-Generators

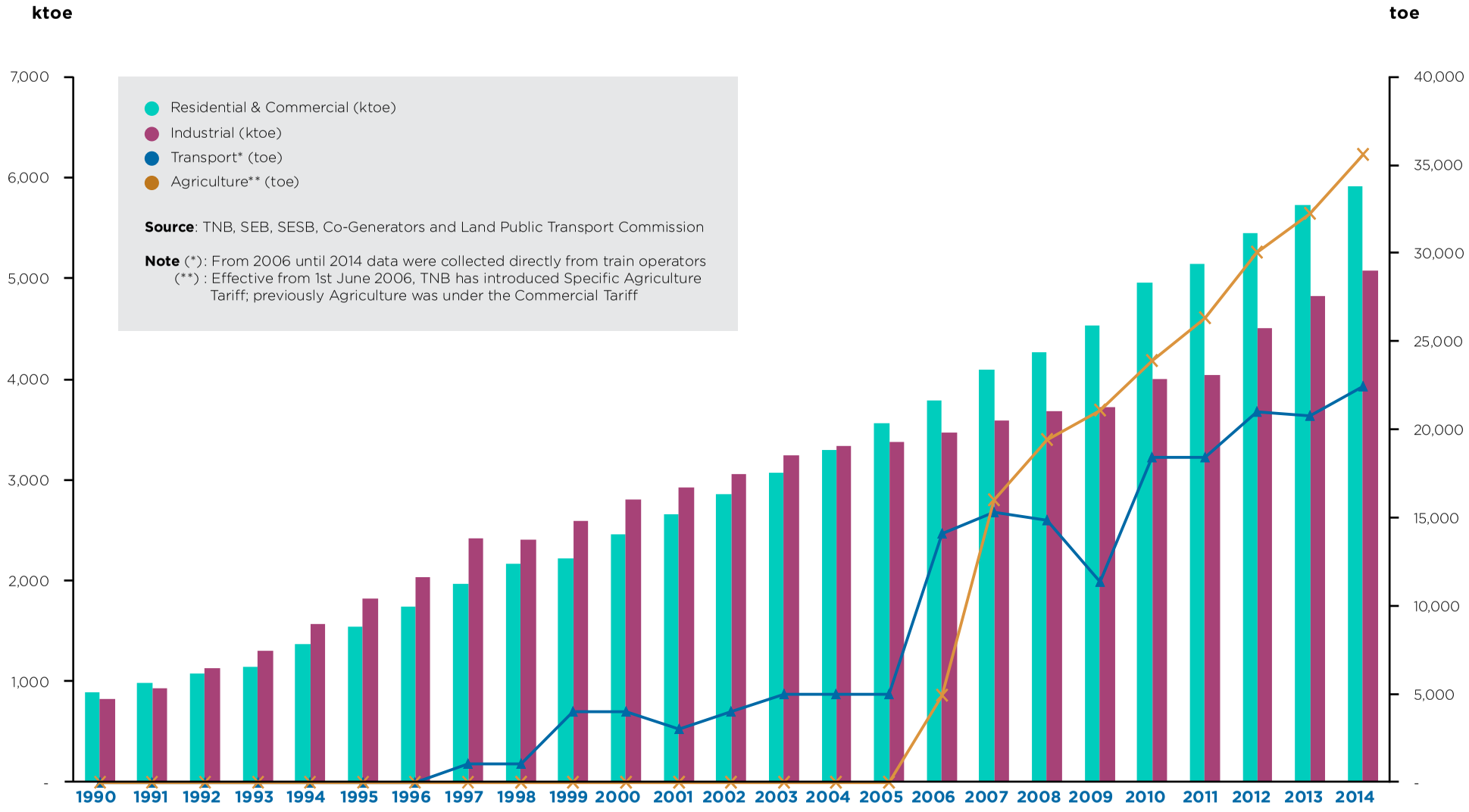
FIGURE 30: SHARE OF ELECTRICITY CONSUMPTION BY SECTORS



Industry	**45.9%**
Commercial	**32.3%**
Residential	**21.2%**
Agriculture	**0.4%**
Transport	**0.2%**

Source: Power utilities, IPPs and Self-Generators

FIGURE 31: ELECTRICITY CONSUMPTION BY SECTORS



Source: TNB, SEB, SESB, Co-Generators and Land Public Transport Commission

Note (*): From 2006 until 2014 data were collected directly from train operators
(**) : Effective from 1st June 2006, TNB has introduced Specific Agriculture Tariff; previously Agriculture was under the Commercial Tariff

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Residential & Commercial (ktoe)	885	988	1,081	1,147	1,365	1,549	1,747	1,961	2,165	2,220	2,453	2,660	2,859	3,066	3,298	3,567	3,792	4,094	4,266	4,535	4,957	5,146	5,451	5,728	5,912
Industrial (ktoe)	830	937	1,137	1,303	1,567	1,826	2,029	2,422	2,411	2,591	2,805	2,930	3,059	3,242	3,340	3,371	3,475	3,587	3,687	3,719	3,994	4,045	4,509	4,818	5,072
Transport* (toe)	-	-	-	-	-	-	-	1,000	1,000	4,000	4,000	3,000	4,000	5,000	5,000	5,000	14,117	15,295	14,862	11,358	18,439	18,428	21,027	20,774	22,443
Agriculture** (toe)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,886	15,991	19,393	21,080	23,920	26,312	30,014	32,240	35,578

TABLE 18: ELECTRICITY GENERATION AND INSTALLED CAPACITY OF RENEWABLE ENERGY BY PUBLIC LICENSEE BY REGION IN 2014

REGION	TYPE OF PRIME MOVER	INSTALLED CAPACITY (MW)	UNIT GENERATED (MWh)
PENINSULAR MALAYSIA	Mini Hydro - FiT	9.2	41,976
	Mini Hydro - IPP	20.0	52,880
	Mini Hydro - Cameron Highlands Scheme	11.9	30,321
	Mini Hydro - TNB	9.3	8,753
	Solar - Non-FiT	1.3	797
	Solar - FiT	159.7	158,870
	Biogas - FiT	11.7	43,624
	Biomass - FiT	19.0	5,245
	SUBTOTAL	**242.2**	**342,467**
SABAH	Mini Hydro-SESB	8.0	19,943
	Mini Hydro - FiT	6.5	16,650
	Biomass - FiT	41.0	230
	Biomass - Co-Gen	24.2	92,400
	SUBTOTAL	**79.7**	**129,223**
SARAWAK	Mini Hydro -SEB	7.3	11,540
	Solar	0.3	301
	SUBTOTAL	**7.6**	**11,841**
GRAND TOTAL		**329.4**	**483,531**

Source: Energy Commission, TNB, SESB, SEB, Ministry of Public Utilities Sarawak and SEDA Malaysia

Note: Public Licence is the licensee that generates for his own use and for supply to other persons

TABLE 19: ELECTRICITY GENERATION AND INSTALLED CAPACITY OF RENEWABLE ENERGY BY PRIVATE LICENSEE BY REGION IN 2014

REGION	TYPE OF PRIME MOVER	INSTALLED CAPACITY (MW)	UNIT GENERATED (MWh)
PENINSULAR MALAYSIA	Biomass - Self-Gen	293.3	110,137
	SUBTOTAL	**293.3**	**110,137**
SABAH	Biomass - Co-Gen	93.5	63,450
	Biomass - Self-Gen	118.2	178,000
	SUBTOTAL	**211.7**	**241,450**
SARAWAK	Biomass	60.0	43,260
	SUBTOTAL	**60.0**	**43,260**
GRAND TOTAL		**565.1**	**394,847**

Source: Energy Commission, TNB, SESB, SEB and Ministry of Public Utilities Sarawak

Note: Private Licence is the licensee that generates for his own use only

06.

KEY ENERGY **STATISTICS**

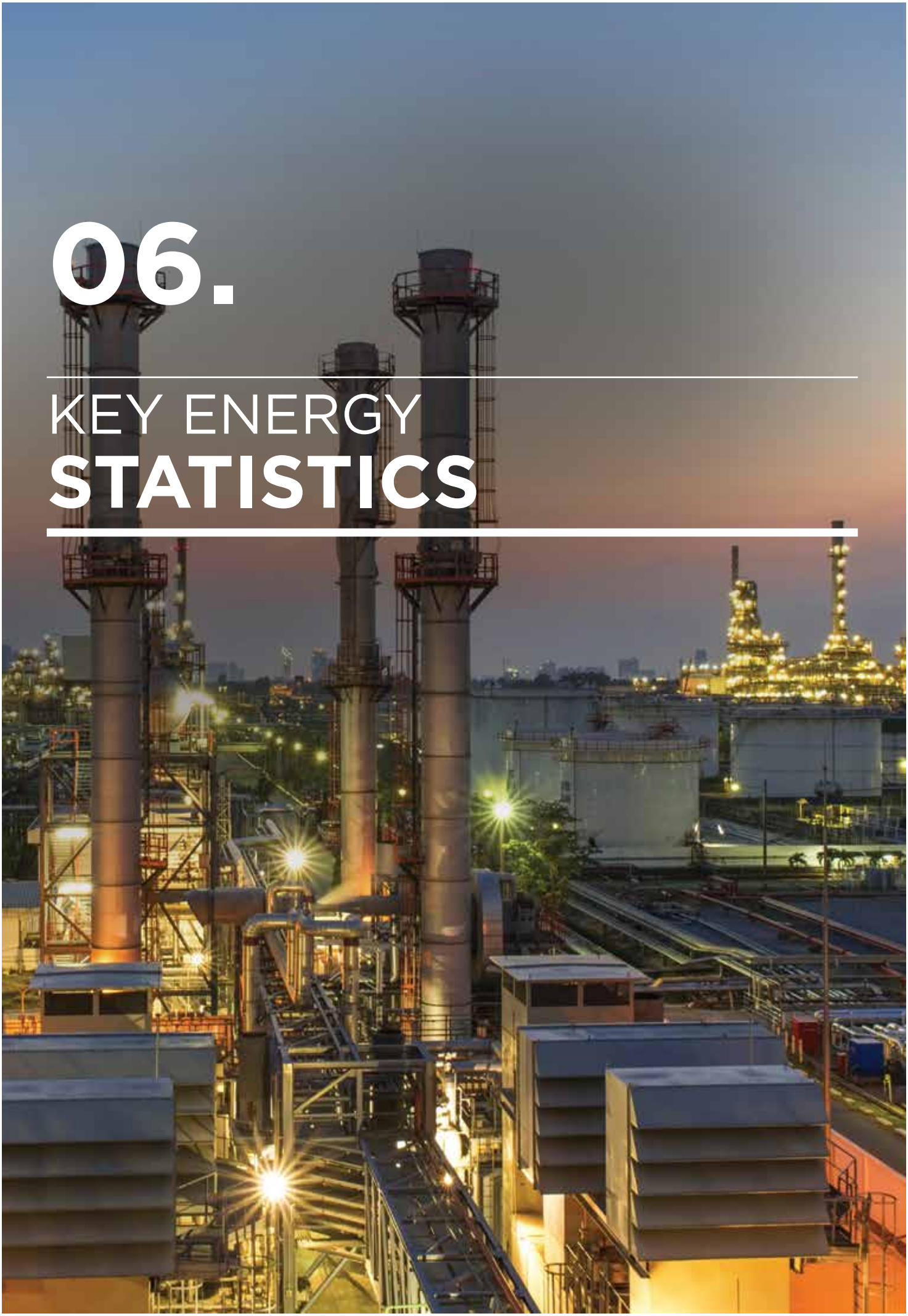


TABLE 20:PRIMARY ENERGY SUPPLY IN KTOE

	CRUDE OIL	PETROLEUM PRODUCTS & OTHERS	NATURAL GAS	COAL & COKE	HYDRO POWER	TOTAL	ANNUAL GROWTH RATE (%)	SHARE (%)			
								CRUDE OIL AND PETROLEUM PRODUCTS & OTHERS	NATURAL GAS	COAL AND COKE	HYDROPOWER
1990	8,783	3,646	6,801	1,326	915	**21,471**	8.9	57.9	31.7	6.2	4.3
1991	9,443	4,163	10,112	1,564	1,053	**26,335**	22.7	51.7	38.4	5.9	4.0
1992	10,175	5,098	11,381	1,640	997	**29,291**	11.2	52.1	38.9	5.6	3.4
1993	10,135	5,816	11,360	1,352	1,262	**29,925**	2.2	53.3	38.0	4.5	4.2
1994	13,605	2,450	12,392	1,563	1,652	**31,662**	5.8	50.7	39.1	4.9	5.2
1995	16,159	608	13,960	1,612	1,540	**33,879**	7.0	49.5	41.2	4.8	4.5
1996	18,255	1,098	15,567	1,677	1,243	**37,840**	11.7	51.1	41.1	4.4	3.3
1997	17,917	3,803	19,041	1,622	790	**43,173**	14.1	50.3	44.1	3.8	1.8
1998	17,132	1,919	19,101	1,731	1,113	**40,996**	(5.0)	46.5	46.6	4.2	2.7
1999	17,643	1,807	21,476	1,940	1,668	**44,534**	8.6	43.7	48.2	4.4	3.7
2000	21,673	(1,431)	26,370	2,486	1,612	**50,710**	13.9	39.9	52.0	4.9	3.2
2001	23,590	(1,917)	25,649	2,970	1,687	**51,979**	2.5	41.7	49.3	5.7	3.2
2002	22,647	(523)	26,101	3,642	1,329	**53,196**	2.3	41.6	49.1	6.8	2.5
2003	25,344	(1,408)	27,257	5,316	1,056	**57,565**	8.2	41.6	47.3	9.2	1.8
2004	25,335	(82)	29,145	7,109	1,329	**62,836**	9.2	40.2	46.4	11.3	2.1
2005	24,339	(243)	33,913	6,889	1,313	**66,211**	5.4	36.4	51.2	10.4	2.0
2006	24,910	(1,670)	34,917	7,299	1,567	**67,023**	1.2	34.7	52.1	10.9	2.3
2007	26,571	(1,190)	36,639	8,848	1,522	**72,390**	8.0	35.1	50.6	12.2	2.1
2008	26,776	(1,780)	39,289	9,782	1,964	**76,031**	5.0	32.9	51.7	12.9	2.6
2009	26,386	96	35,851	10,623	1,627	**74,583**	(1.9)	35.5	48.1	14.2	2.2
2010	22,487	2,521	35,447	14,777	1,577	**76,809**	3.0	32.6	46.1	19.2	2.1
2011	24,679	2,248	35,740	14,772	1,850	**79,289**	3.2	34.0	45.1	18.6	2.3
2012	28,053	1,762	38,647	15,882	2,150	**86,494**	9.1	34.5	44.7	18.4	2.5
2013	27,154	5,849	39,973	15,067	2,688	**90,731**	4.9	36.4	44.1	16.6	3.0
2014	26,765	7,213	40,113	15,357	3,038	**92,487**	1.9	36.7	43.4	16.6	3.3

TABLE 21: NET IMPORT AND EXPORT OF ENERGY IN KTOE

	NET EXPORT OF CRUDE OIL	NET EXPORT OF LNG	NET EXPORT OF NATURAL GAS	NET EXPORT OF ELECTRICITY	NET IMPORT OF PETROLEUM PRODUCTS	NET IMPORT OF COAL AND COKE
1990	21,902	8,686	-	5	2,618	1,396
1991	22,200	8,278	-	2	3,456	1,341
1992	22,215	8,262	1	2	3,986	1,425
1993	20,063	8,654	1,258	(2)	4,328	1,088
1994	18,160	8,928	1,589	(4)	2,398	1,311
1995	18,518	10,790	1,474	2	150	1,538
1996	16,859	15,251	1,474	1	778	1,923
1997	16,022	16,396	1,340	(1)	2,491	1,437
1998	16,626	16,429	1,444	(1)	2,164	1,522
1999	16,274	15,445	1,177	-	1,196	1,313
2000	10,036	16,633	1,198	-	(1,914)	1,924
2001	9,128	16,636	1,163	-	(2,019)	2,631
2002	11,017	17,803	1,098	3	(936)	3,405
2003	10,826	18,965	(99)	17	(1,856)	5,232
2004	11,292	22,944	144	45	68	7,413
2005	10,963	22,299	(206)	192	(474)	6,568
2006	9,342	22,873	(2,404)	200	(1,798)	7,917
2007	7,509	23,777	(4,140)	195	(1,329)	8,152
2008	6,482	22,277	(3,041)	41	(1,609)	9,519
2009	6,517	23,606	(3,889)	8	(1,177)	9,007
2010	9,365	26,857	(4,183)	(32)	1,930	13,011
2011	2,300	26,856	(5,832)	(31)	2,159	13,189
2012	1,993	25,547	(6,498)	(7)	2,458	13,988
2013	1,684	25,639	(5,602)	(16)	7,400	13,583
2014	2,051	25,816	(5,343)	(0)	5,611	13,590

TABLE 22: CONVERSION IN GAS PLANTS IN KTOE

	INPUT	GAS PLANTS		
	NATURAL GAS	MLNG	GPP - LPG	MDS
1990	9,797	9,797	na	na
1991	8,749	8,749	na	na
1992	8,817	8,425	392	na
1993	9,587	9,019	529	39
1994	10,273	9,087	948	238
1995	13,565	11,244	1,900	421
1996	16,807	15,251	1,212	344
1997	18,043	16,396	1,258	389
1998	18,214	16,688	1,526	na
1999	17,889	16,417	1,472	na
2000	18,877	17,231	1,482	164
2001	18,459	16,636	1,310	513
2002	19,752	17,803	1,504	445
2003	20,198	18,965	790	443
2004	25,440	22,944	1,225	1,271
2005	36,447	32,837	2,043	1,567
2006	35,378	30,996	3,506	876
2007	38,141	33,054	4,288	799
2008	38,193	33,766	3,507	920
2009	37,098	32,497	3,610	991
2010	40,246	29,345	9,844	1,057
2011	40,737	35,815	4,071	851
2012	40,042	32,718	6,235	1,089
2013	39,678	35,474	3,231	973
2014	39,193	36,469	1,750	974

Note: na means not applicable
Middle Distillate Synthesis (MDS) commenced pre-commercialization operation in year 2000
MLNG plant produced LPG in the year 2003

TABLE 23: CONVERSION IN REFINERIES IN KTOE

	INPUT			OUTPUT								
	LOCAL CRUDE OIL	IMPORTED CRUDE OIL & OTHERS	TOTAL INPUT	PETROL	DIESEL	FUEL OIL	KEROSENE	ATF & AV GAS	LPG	NON-ENERGY	REFINERY GAS	TOTAL OUTPUT
1990	8,072	2,342	10,414	1,347	3,350	3,106	491	360	613	561	151	**9,979**
1991	8,476	2,113	10,589	1,611	3,681	2,547	526	390	548	772	168	**10,243**
1992	9,016	1,409	10,425	1,724	4,048	2,110	541	412	200	324	143	**9,502**
1993	8,502	3,195	11,697	1,816	4,249	2,375	576	517	244	600	106	**10,483**
1994	12,326	1,853	14,179	2,316	5,108	2,887	563	980	319	1,468	162	**13,803**
1995	15,991	969	16,960	2,320	6,011	2,212	360	1,587	431	3,380	385	**16,686**
1996	15,879	3,501	19,380	3,134	6,174	3,696	292	1,899	371	2,554	331	**18,451**
1997	16,382	3,224	19,606	2,491	6,744	2,716	265	2,000	371	1,783	203	**16,573**
1998	15,942	1,347	17,289	2,545	5,926	3,233	285	1,985	449	2,117	192	**16,732**
1999	14,595	4,437	19,032	3,056	6,712	2,603	210	2,140	617	2,159	230	**17,727**
2000	15,421	6,743	22,164	3,893	8,059	2,532	239	2,660	838	2,492	241	**20,954**
2001	13,299	10,546	23,845	4,623	8,462	2,269	283	2,954	875	3,020	331	**22,817**
2002	14,838	8,032	22,870	4,460	8,401	2,332	414	2,570	897	2,127	294	**21,495**
2003	17,127	8,322	25,449	4,584	9,062	1,763	983	2,367	932	2,623	262	**22,576**
2004	16,810	8,764	25,574	4,724	9,611	1,813	591	2,693	897	2,455	215	**22,999**
2005	18,216	6,271	24,487	4,245	9,161	1,777	521	2,553	822	2,157	202	**21,438**
2006	16,797	8,113	24,910	4,607	8,752	1,933	537	2,938	1,118	2,750	849	**23,484**
2007	17,320	9,251	26,571	5,285	9,033	1,990	234	3,138	1,228	3,461	938	**25,307**
2008	18,638	8,138	26,776	5,066	9,364	1,994	245	3,139	1,208	4,475	991	**26,482**
2009	20,685	5,812	26,497	4,052	9,415	1,144	565	3,085	732	5,905	195	**25,093**
2010	14,003	8,706	22,709	3,873	8,369	327	483	2,891	697	4,357	209	**21,206**
2011	14,874	9,904	24,777	3,599	8,925	571	419	3,457	665	4,572	1,659	**23,867**
2012	17,213	10,347	27,560	4,708	10,033	1,608	654	3,918	702	4,318	197	**26,138**
2013	17,365	9,289	26,654	4,702	11,063	1,286	387	2,750	1,252	3,089	195	**24,724**
2014	16,351	10,066	26,417	4,918	9,725	2,340	100	2,916	1,102	2,826	192	**24,120**

TABLE 24: CONVERSION IN POWER STATIONS (EXCLUDE CO-GENERATION & PRIVATE LICENSED PLANTS) IN KTOE

	INPUT:								INPUT SHARE (%)					OUTPUT:
	FUEL OIL	DIESEL	NATURAL GAS	HYDRO POWER	COAL	RENEWABLES	TOTAL INPUT	ANNUAL GROWTH RATE (%)	FUEL AND DIESEL OIL	NATURAL GAS	HYDRO POWER*	COAL & COKE	RENEWABLES	TOTAL ELECTRICITY GENERATED
1990	2,873	116	1,361	915	813	-	6,078	21.2	49.2	22.4	15.1	13.4	-	1,979
1991	2,687	164	2,533	1,053	963	-	7,400	21.8	38.5	34.2	14.2	13.0	-	2,283
1992	2,352	160	3,144	997	968	-	7,621	3.0	33.0	41.3	13.1	12.7	-	2,521
1993	2,388	87	4,374	1,262	884	-	8,995	18.0	27.5	48.6	14.0	9.8	-	2,987
1994	1,957	249	5,119	1,652	925	-	9,902	10.1	22.3	51.7	16.7	9.3	-	3,362
1995	2,073	265	6,414	1,540	957	-	11,249	13.6	20.8	57.0	13.7	8.5	-	3,909
1996	2,354	284	7,489	1,243	950	-	12,320	9.5	21.4	60.8	10.1	7.7	-	4,421
1997	2,482	185	7,531	790	882	-	11,870	(3.7)	22.5	63.4	6.7	7.4	-	4,977
1998	2,130	275	8,886	1,113	964	-	13,368	12.6	18.0	66.5	8.3	7.2	-	5,013
1999	950	172	10,162	1,668	1,332	-	14,284	6.9	7.9	71.1	11.7	9.3	-	5,409
2000	592	191	11,580	1,612	1,495	-	15,470	8.3	5.1	74.9	10.4	9.7	-	5,731
2001	730	278	11,922	1,687	1,994	-	16,611	7.4	6.1	71.8	10.2	12.0	-	5,940
2002	1,363	476	12,424	1,329	2,556	-	18,148	9.3	10.1	68.5	7.3	14.1	-	6,191
2003	289	340	10,893	1,056	4,104	-	16,682	(8.1)	3.8	65.3	6.3	24.6	-	6,568
2004	274	272	10,545	1,329	5,327	-	17,747	6.4	3.1	59.4	7.5	30.0	-	6,716
2005	275	298	12,271	1,313	5,541	-	19,698	11.0	2.9	62.3	6.7	28.1	-	6,706
2006	171	617	12,524	1,567	5,964	-	20,843	5.8	3.8	60.1	7.5	28.6	-	7,240
2007	199	314	12,549	1,522	7,486	-	22,070	5.9	2.3	56.9	6.9	33.9	-	8,385
2008	181	299	13,651	1,964	8,069	-	24,164	9.5	2.0	56.5	8.1	33.4	-	8,422
2009	205	384	13,390	1,627	9,010	-	24,616	1.9	2.4	54.4	6.6	36.6	-	8,531
2010	125	415	12,628	1,577	12,951	-	27,696	12.5	1.9	45.6	5.7	46.8	-	9,404
2011	1,103	981	10,977	1,850	13,013	-	27,924	0.8	7.5	39.3	6.6	46.6	-	10,193
2012	550	811	11,533	2,150	14,138	80	29,262	4.8	4.7	39.4	7.3	48.3	0.3	11,032
2013	392	623	13,520	2,688	13,527	208	30,958	5.8	3.3	43.7	8.7	43.7	0.7	11,630
2014	269	622	13,860	3,038	13,648	171	31,608	2.1	2.9	43.8	9.6	43.2	0.5	12,227

Note (*): Figures calculated from average efficiency of thermal stations of respective year

TABLE 25: FINAL ENERGY CONSUMPTION BY SECTORS IN KTOE

	INDUSTRY	TRANSPORT	RESIDENTIAL AND COMMERCIAL	NON-ENERGY USE	AGRICULTURE	TOTAL	ANNUAL GROWTH RATE (%)	INDUSTRY INCLUDING AGRICULTURE & NON-ENERGY	INDUSTRY GDP*	INDUSTRY ENERGY INTENSITY (TOE/RM MILLION AT 2010 PRICES)
1990	5,300	5,386	1,622	838	-	**13,146**	11.0	6,138	157,991	39
1991	5,835	5,806	1,721	1,071	130	**14,563**	10.8	7,036	170,942	41
1992	6,455	6,226	1,891	1,222	391	**16,185**	11.1	8,068	182,592	44
1993	7,012	6,558	2,069	2,027	62	**17,728**	9.5	9,101	194,045	47
1994	7,283	7,262	2,502	1,817	422	**19,286**	8.8	9,522	208,528	46
1995	8,060	7,827	2,837	1,994	446	**21,164**	9.7	10,500	230,658	46
1996	9,838	8,951	3,162	1,744	486	**24,181**	14.3	12,068	259,952	46
1997	10,106	10,201	3,073	2,298	490	**26,168**	8.2	12,894	278,490	46
1998	10,121	9,793	3,314	2,023	307	**25,558**	(2.3)	12,451	249,109	50
1999	10,277	11,393	3,653	1,799	106	**27,228**	6.5	12,182	267,643	46
2000	11,406	12,071	3,868	2,250	104	**29,699**	9.1	13,760	299,623	46
2001	11,852	13,137	4,048	2,378	98	**31,513**	6.1	14,328	291,938	49
2002	12,854	13,442	4,387	2,511	96	**33,290**	5.6	15,461	303,130	51
2003	13,472	14,271	4,399	2,345	98	**34,585**	3.9	15,915	325,828	49
2004	14,914	15,385	4,754	2,183	87	**37,323**	7.9	17,184	348,491	49
2005	15,492	15,384	5,134	2,173	101	**38,284**	2.6	17,766	359,941	49
2006	15,248	14,819	5,430	2,819	253	**38,569**	0.7	18,320	376,262	49
2007	16,454	15,717	6,212	2,958	265	**41,606**	7.9	19,677	387,084	51
2008	16,205	16,395	6,205	2,876	287	**41,968**	0.9	19,368	389,775	50
2009	14,312	16,119	6,336	3,868	211	**40,846**	(2.7)	18,391	366,284	50
2010	12,928	16,828	6,951	3,696	1,074	**41,477**	1.5	17,698	393,381	45
2011	12,100	17,070	6,993	6,377	916	**43,456**	4.8	19,393	406,412	48
2012	13,919	19,757	7,065	7,497	1,053	**49,291**	13.4	22,469	422,958	53
2013	13,496	22,357	7,403	7,277	1,051	**51,584**	4.7	21,824	436,748	50
2014	13,162	24,327	7,459	6,217	1,045	**52,209**	1.2	20,423	459,682	44

Note (*): 1. Defined as total GDP for Agriculture, Forestry and Fishing, Mining and Quarrying, Manufacturing and Construction

2. Industrial GDP for year 1990-2009 was calculated by Energy Commission

TABLE 26: FINAL ENERGY CONSUMPTION BY TYPE OF FUELS IN KTOE

	PETROLEUM PRODUCTS AND OTHERS	ELECTRICITY	*GAS FOR NON-ENERGY USE*	*GAS FOR HEATING*	NATURAL GAS	COAL AND COKE	TOTAL	TOTAL (EXCL. NON-ENERGY USE)	ANNUAL GROWTH RATE (%)
1990	9,825	1,715	*609*	*460*	1,069	513	**13,122**	12,513	8.2
1991	10,914	1,925	*604*	*495*	1,099	599	**14,537**	13,933	11.3
1992	11,927	2,218	*657*	*687*	1,344	672	**16,161**	15,504	11.3
1993	13,075	2,450	*1,141*	*560*	1,701	487	**17,713**	16,572	6.9
1994	13,894	2,932	*1,163*	*497*	1,660	598	**19,084**	17,921	8.1
1995	16,142	3,375	*1,064*	*590*	1,654	712	**21,883**	20,819	16.2
1996	17,203	3,777	*870*	*1,209*	2,079	727	**23,786**	22,916	10.1
1997	18,578	4,384	*1,378*	*1,087*	2,465	740	**26,167**	24,789	8.2
1998	17,488	4,577	*1,282*	*1,444*	2,726	767	**25,558**	24,276	(2.1)
1999	18,782	4,815	*1,118*	*1,905*	3,023	608	**27,228**	26,110	7.6
2000	19,582	5,263	*1,512*	*2,350*	3,862	991	**29,698**	28,186	8.0
2001	20,323	5,594	*1,655*	*2,965*	4,620	977	**31,514**	29,859	5.9
2002	20,638	5,922	*1,775*	*3,867*	5,642	1,086	**33,288**	31,513	5.5
2003	21,175	6,313	*1,616*	*4,270*	5,886	1,212	**34,586**	32,970	4.6
2004	22,886	6,642	*1,476*	*5,014*	6,490	1,305	**37,323**	35,847	8.7
2005	23,012	6,944	*1,541*	*5,440*	6,981	1,348	**38,285**	36,744	2.5
2006	22,398	7,272	*2,120*	*5,442*	7,562	1,335	**38,567**	36,447	(0.8)
2007	24,852	7,683	*2,112*	*5,597*	7,709	1,361	**41,605**	39,493	8.4
2008	24,451	7,986	*2,046*	*5,772*	7,818	1,713	**41,968**	39,922	1.1
2009	24,145	8,286	*1,995*	*4,807*	6,802	1,613	**40,846**	38,851	(2.7)
2010	24,403	8,993	*1,661*	*4,593*	6,254	1,826	**41,476**	39,815	2.5
2011	23,946	9,236	*3,906*	*4,609*	8,515	1,759	**43,456**	39,550	(0.7)
2012	27,329	10,011	*5,336*	*4,870*	10,206	1,744	**49,290**	43,954	11.1
2013	29,379	10,590	*5,276*	*4,800*	10,076	1,539	**51,584**	46,308	5.4
2014	29,817	11,042	*4,472*	*5,168*	9,641	1,709	**52,209**	47,736	3.1

TABLE 27: FINAL CONSUMPTION FOR PETROLEUM PRODUCTS IN KTOE

	DIESEL	PETROL	FUEL OIL	LPG	KEROSENE	ATF & AV GAS	NON-ENERGY & OTHERS	TOTAL
1990	4,421	2,901	883	548	203	628	239	**9,823**
1991	4,873	3,135	945	612	180	690	479	**10,914**
1992	5,291	3,326	1,088	733	160	764	565	**11,927**
1993	5,339	3,666	1,293	1,119	149	875	635	**13,076**
1994	5,643	4,139	1,392	926	152	978	664	**13,894**
1995	5,810	4,548	1,506	2,215	177	1,160	726	**16,142**
1996	6,735	5,205	1,770	1,215	197	1,335	746	**17,203**
1997	7,314	5,586	1,978	1,245	169	1,439	847	**18,578**
1998	6,252	5,854	1,678	1,301	165	1,619	619	**17,488**
1999	6,506	6,793	1,792	1,523	162	1,424	582	**18,782**
2000	7,627	6,387	1,875	1,362	131	1,574	625	**19,581**
2001	6,827	8,116	1,497	1,392	99	1,762	630	**20,323**
2002	8,042	6,948	1,589	1,542	92	1,785	639	**20,637**
2003	7,360	8,539	1,256	1,437	93	1,852	639	**21,176**
2004	9,262	7,839	1,463	1,542	86	2,056	637	**22,885**
2005	8,672	8,211	1,953	1,510	81	2,010	574	**23,011**
2006	8,540	7,517	1,901	1,520	79	2,152	684	**22,393**
2007	9,512	8,600	2,202	1,474	76	2,155	832	**24,851**
2008	9,167	8,842	1,963	1,475	75	2,112	818	**24,452**
2009	8,634	8,766	1,291	2,506	30	2,120	799	**24,146**
2010	8,388	9,560	478	2,920	19	2,380	657	**24,402**
2011	8,712	8,155	414	2,892	19	2,553	1,178	**23,923**
2012	9,410	10,843	768	2,892	38	2,521	743	**27,215**
2013	9,568	12,656	329	2,946	31	2,998	662	**29,190**
2014	10,161	12,705	246	2,632	23	3,158	592	**29,517**

TABLE 28: SELECTED ENERGY AND ECONOMIC INDICATORS (1990-2014)

	GDP AT CURRENT PRICES (RM MILLION)*	GDP AT 2010 PRICES (RM MILLION)*	POPULATION ('000 PEOPLE)*	PRIMARY ENERGY SUPPLY (KTOE)	FINAL ENERGY CONSUMPTION (KTOE)	ELECTRICITY CONSUMPTION (KTOE)	ELECTRICITY CONSUMPTION (GWh)	AVERAGE ANNUAL GROWTH (%)		
								GDP AT 2010 PRICES	PRIMARY ENERGY SUPPLY	FINAL ENERGY CONSUMPTION
1990	128,658	263,488	18,102	21,471	13,146	1,715	19,932	9.00	8.90	8.70
1991	145,991	288,639	18,547	26,335	14,563	1,925	22,373	9.55	22.65	10.78
1992	162,800	314,285	19,068	29,291	16,185	2,218	25,778	8.89	11.22	11.14
1993	186,042	345,384	19,602	29,925	17,728	2,450	28,474	9.89	2.16	9.53
1994	211,181	377,201	20,142	31,662	19,287	2,932	34,076	9.21	5.80	8.79
1995	240,365	414,276	20,682	33,879	22,164	3,375	39,225	9.83	7.00	14.92
1996	274,138	455,715	21,223	37,840	24,181	3,777	43,897	10.00	11.69	9.10
1997	304,458	489,086	21,769	43,173	26,167	4,384	50,952	7.32	14.09	8.21
1998	306,022	453,092	22,334	40,996	25,558	4,577	53,195	(7.36)	(5.04)	(2.33)
1999	324,952	480,901	22,910	44,534	27,228	4,815	55,961	6.14	8.63	6.53
2000	370,817	523,503	23,495	50,710	29,699	5,263	61,168	8.86	13.87	9.08
2001	366,841	526,213	24,031	51,979	31,515	5,594	65,015	0.52	2.50	6.11
2002	398,714	554,581	24,543	53,196	33,289	5,922	68,827	5.39	2.34	5.63
2003	435,708	586,683	25,038	57,565	34,586	6,313	73,371	5.79	8.21	3.90
2004	493,223	626,481	25,542	62,836	37,323	6,642	77,195	6.78	9.16	7.91
2005	543,578	659,885	26,046	66,211	38,285	6,944	80,705	5.33	5.37	2.58
2006	596,784	696,739	26,550	67,021	38,567	7,272	84,517	5.58	1.22	0.74
2007	665,340	740,625	27,058	72,389	41,606	7,683	89,294	6.30	8.01	7.88
2008	769,949	776,410	27,568	76,032	41,968	7,986	92,815	4.83	5.03	0.87
2009	712,857	764,659	28,082	74,583	40,845	8,286	96,302	(1.51)	(1.91)	(2.68)
2010	821,434	821,434	28,589	76,809	41,476	8,993	104,519	7.42	2.98	1.54
2011	911,733	864,920	29,062	79,289	43,455	9,235	107,331	5.29	3.23	4.77
2012	971,252	912,261	29,510	86,495	49,291	10,011	116,350	5.47	9.09	13.43
2013	1,018,821	955,260	30,214	90,730	51,583	10,590	123,079	4.71	4.90	4.65
2014	1,106,580	1,012,506	30,598	92,487	52,209	11,042	128,330	5.99	1.94	1.21

Source (*): GDP and Population data from Department of Statistics, Malaysia

	PER CAPITA				ENERGY INTENSITY				ENERGY ELASTICITY	
ELECTRICITY CONSUMPTION	GDP AT CURRENT PRICES (RM)	PRIMARY ENERGY SUPPLY (TOE)	FINAL ENERGY CONSUMPTION (TOE)	ELECTRICITY CONSUMPTION (kWh)	PRIMARY ENERGY SUPPLY (TOE/ GDP AT 2010 PRICES (RM MILLION))	FINAL ENERGY CONSUMPTION (TOE/GDP AT 2010 PRICES (RM MILLION))	ELECTRICITY CONSUMPTION (TOE/GDP AT 2010 PRICES (RM MILLION))	ELECTRICITY CONSUMPTION (GWH/GDP AT 2010 PRICES (RM MILLION))	FINAL ENERGY	ELECTRICITY
9.70	7,107	1.19	0.73	1,101	81.49	49.89	6.51	0.076	0.97	1.08
12.24	7,871	1.42	0.79	1,206	91.24	50.45	6.67	0.078	1.13	1.28
15.22	8,538	1.54	0.85	1,352	93.20	51.50	7.06	0.082	1.25	1.71
10.46	9,491	1.53	0.90	1,453	86.64	51.33	7.09	0.082	0.96	1.06
19.67	10,485	1.57	0.96	1,692	83.94	51.13	7.77	0.090	0.95	2.14
15.11	11,622	1.64	1.07	1,897	81.78	53.50	8.15	0.095	1.52	1.54
11.91	12,917	1.78	1.14	2,068	83.03	53.06	8.29	0.096	0.91	1.19
16.07	13,986	1.98	1.20	2,341	88.27	53.50	8.96	0.104	1.12	2.19
4.40	13,702	1.84	1.14	2,382	90.48	56.41	10.10	0.117	0.32	(0.60)
5.20	14,184	1.94	1.19	2,443	92.61	56.62	10.01	0.116	1.06	0.85
9.30	15,783	2.16	1.26	2,603	96.87	56.73	10.05	0.117	1.02	1.05
6.29	15,266	2.16	1.31	2,706	98.78	59.89	10.63	0.124	11.81	12.15
5.86	16,246	2.17	1.36	2,804	95.92	60.03	10.68	0.124	1.04	1.09
6.60	17,402	2.30	1.38	2,930	98.12	58.95	10.76	0.125	0.67	1.14
5.21	19,311	2.46	1.46	3,022	100.30	59.58	10.60	0.123	1.17	0.77
4.55	20,870	2.54	1.47	3,099	100.34	58.02	10.52	0.122	0.48	0.85
4.72	22,478	2.52	1.45	3,183	96.19	55.35	10.44	0.121	0.13	0.85
5.65	24,589	2.68	1.54	3,300	97.74	56.18	10.37	0.121	1.25	0.90
3.94	27,929	2.76	1.52	3,367	97.93	54.05	10.29	0.120	0.18	0.82
3.76	25,385	2.66	1.45	3,429	97.54	53.42	10.84	0.126	1.77	(2.48)
8.53	28,733	2.69	1.45	3,656	93.51	50.49	10.95	0.127	0.21	1.15
2.69	31,372	2.73	1.50	3,693	91.67	50.24	10.68	0.124	0.90	0.51
8.40	32,913	2.93	1.67	3,943	94.81	54.03	10.97	0.128	2.45	1.54
5.78	33,720	3.00	1.71	4,074	94.98	54.00	11.09	0.129	0.99	1.23
4.27	36,165	3.02	1.71	4,194	91.34	51.56	10.91	0.127	0.20	0.71

Note (*): GDP at 2010 Prices (RM Million) for 1990 until 2009 was calculated by Energy Commission

TABLE 29: ENERGY BALANCE TABLE IN 2014 (KTOE)

COMMERCIAL ENERGY BALANCE FOR MALAYSIA 2014 (KILOTONNES OF OIL EQUIVALENT)

ENERGY SOURCE	NATURAL GAS	LNG	CRUDE OIL (1/)	OTHERS (2/)	TOTAL PETROLEUM PRODUCTS	PETROLEUM PRODUCTS			
						PETROL	DIESEL	FUEL OIL	LPG
PRIMARY SUPPLY									
1. Primary Production	63,091	0	29,545	0	**0**	0	0	0	0
2. Gas Flaring, Reinjection & Use	-2,505	0	0	0	**0**	0	0	0	0
3. Imports	6,472	2,019	9,780	26	**16,009**	8,134	5,925	408	416
4. Exports	-1,129	-27,835	-11,831	-68	**-10,398**	-36	-5,239	-2,605	-346
5. Bunkers	0	0	0	0	**-208**	0	-2	-205	0
6. Stock Change	0	0	-497	0	**1,296**	-35	262	634	66
7. Statistical Discrepancy	0	0	-232	0	**0**	0	0	0	0
8. Primary Supply	**65,929**	**-25,816**	**26,765**	**-42**	**6,699**	**8,062**	**946**	**-1,768**	**136**
TRANSFORMATION									
9. Gas Plants									
9.1 MLNG	-36,469	28,117	0	0	**96**	0	0	0	96
9.2 MDS	-974	0	0	0	**420**	0	108	0	0
9.3 GPP-LPG (3&4/)	-1,750	0	0	0	**1,250**	0	0	0	1,250
Subtotal	**-39,193**	**28,117**	**0**	**0**	**1,765**	**0**	**108**	**0**	**1,346**
10. Refineries	0	0	-26,417	42	**24,120**	4,918	9,725	2,340	1,102
11. Power Stations & Self-Generation									
11.1 Hydro Stations	0	0	0	0	**0**	0	0	0	0
11.2 Thermal Stations	-13,860	-2,019	0	0	**-890**	0	-622	-269	0
11.3 Self-Generation (5/)	-1,678	0	0	0	**-25**	0	-25	0	0
Subtotal	**-15,538**	**-2,019**	**0**	**0**	**-915**	**0**	**-647**	**-269**	**0**
12. Losses & Own Use	-1,558	-283	-348	0	**-2,098**	0	0	-17	0
13. Statistical Discrepancy	-0	0	0	0	**-54**	-275	30	-40	47
14. Secondary Supply	**-56,288**	**25,816**	**-26,765**	**42**	**22,818**	**4,643**	**9,216**	**2,014**	**2,495**
FINAL USE CONSUMPTION									
15. Residential	1	0	0	0	**647**	0	0	0	640
16. Commercial	22	0	0	0	**877**	0	156	0	721
17. Industrial	4,869	0	0	0	**1,511**	273	858	245	119
18. Transport	276	0	0	0	**23,750**	12,333	8,259	0	0
19. Agriculture	0	0	0	0	**1**	0	0	1	0
20. Fishery	0	0	0	0	**987**	99	888	0	0
21. Non-Energy Use	4,472	0	0	0	**1,744**	0	0	0	1,152
22. Total Final Consumption	**9,641**	**0**	**0**	**0**	**29,517**	**12,705**	**10,161**	**246**	**2,632**
									ELECTRICITY OUTPUT
Main Activity Producer									
Gross Electricity Generation - GWh	69,556	0	0	0	**3,401**	0	1,895	1,506	0
Autoproducer									
Gross Electricity Generation - GWh	4,280	0	0	0	**89**	0	89	0	0

1/ Crude production includes Condensates comprising Pentane and Heavier Hydrocarbons.
2/ Others Refer to Non-Crude Energy Forms (consist of Imported Light Diesel, Slop Reprocess, Crude Residuum & Middle East Residue) Which are Used as Refinary Intake.
3/ GPP-LPG Extracts Liquid Products i.e Condensates, Ethane, Butane, Propane from Natural Gas, Ethane is Not included under LPG production.
4/ Butane and Propane as MTBE Feedstocks are Presented as Non-Energy use under LPG column. Ethane is Presented under Natural Gas Column.
5/ Estimated figures based from the Energy Commission, Statistics of Electricity Supply Industry in Malaysia 2014.

Note: Total may not necessarily add up due to rounding

KEROSENE	ATF & AV GAS	NON-ENERGY	REFINERY GAS	COAL & COKE	HYDRO POWER	SOLAR	BIOMASS	BIOGAS	BIODIESEL	ELECTRICITY	TOTAL
0	0	0	0	1,694	3,038	63	181	12	612	0	**98,236**
0	0	0	0	0	0	0	0	0	0	0	**-2,505**
145	381	600	0	13,704	0	0	0	0	0	2	**48,011**
-211	-534	-1,428	0	-114	0	0	0	0	-89	-1	**-51,465**
0	0	0	0	0	0	0	0	0	0	0	**-208**
-5	386	-11	0	-16	0	0	0	0	-223	0	**560**
0	0	0	0	89	0	0	0	0	0	0	**-144**
-72	**233**	**-838**	**0**	**15,357**	**3,038**	**63**	**181**	**12**	**300**	**0**	**92,487**
0	0	0	0	0	0	0	0	0	0	0	**-8,256**
40	0	272	0	0	0	0	0	0	0	0	**-554**
0	0	0	0	0	0	0	0	0	0	0	**-500**
40	**0**	**272**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**-9,310**
100	2,916	2,826	192	0	0	0	0	0	0	0	**-2,255**
0	0	0	0	0	-3,038	0	0	0	0	1,152	**-1,886**
0	0	0	0	-13,648	0	-63	-96	-12	0	11,075	**-19,514**
0	0	0	0	0	0	0	-85	0	0	402	**-1,385**
0	**0**	**0**	**0**	**-13,648**	**-3,038**	**-63**	**-181**	**-12**	**0**	**12,629**	**-22,785**
0	0	-1,889	-192	0	0	0	0	0	0	-1,341	**-5,628**
-46	9	221	-0	0	0	0	0	0	0	-247	**-300**
94	**2,925**	**1,430**	**0**	**-13,648**	**-3,038**	**-63**	**-181**	**-12**	**0**	**11,041**	**-40,278**
7	0	0	0	0	0	0	0	0	0	2,346	**2,993**
0	0	0	0	0	0	0	0	0	0	3,566	**4,465**
16	0	0	0	1,709	0	0	0	0	0	5,072	**13,162**
0	3,158	0	0	0	0	0	0	0	279	22	**24,327**
0	0	0	0	0	0	0	0	0	0	36	**36**
0	0	0	0	0	0	0	0	0	22	0	**1,009**
0	0	592	0	0	0	0	0	0	0	0	**6,217**
23	**3,158**	**592**	**0**	**1,709**	**0**	**0**	**0**	**0**	**300**	**11,042**	**52,209**
0	0	0	0	55,827	13,388	227	345	44	0	0	**142,788**
0	0	0	0	0	0	0	304	0	0	0	**4,673**

TABLE 30: ENERGY BALANCE TABLE IN FIRST QUARTER (Q1) OF 2014 (KTOE)

COMMERCIAL ENERGY BALANCE FOR MALAYSIA 2014 (KILOTONNES OF OIL EQUIVALENT)

ENERGY SOURCE	NATURAL GAS	LNG	CRUDE OIL (1/)	OTHERS (2/)	TOTAL PETROLEUM PRODUCTS	PETROLEUM PRODUCTS			
						PETROL	DIESEL	FUEL OIL	LPG
PRIMARY SUPPLY									
1. Primary Production	16,217	0	7,180	0	**0**	0	0	0	0
2. Gas Flaring, Reinjection & Use	-715	0	0	0	**0**	0	0	0	0
3. Imports	1,827	428	2,874	10	**4,228**	1,990	1,901	111	92
4. Exports	-372	-7,269	-2,479	-19	**-2,727**	-18	-1,811	-441	-98
5. Bunkers	0	0	0	0	**-36**	0	-1	-35	0
6. Stock Change	0	0	-978	0	**46**	4	-92	71	-8
7. Statistical Discrepancy	0	0	-59	0	**0**	0	0	0	0
8. Primary Supply	**16,957**	**-6,841**	**6,539**	**-9**	**1,511**	**1,976**	**-2**	**-295**	**-14**
TRANSFORMATION									
9. Gas Plants									
9.1 MLNG	-9,391	7,138	0	0	**25**	0	0	0	25
9.2 MDS	-243	0	0	0	**110**	0	27	0	0
9.3 GPP-LPG (3&4/)	-456	0	0	0	**349**	0	0	0	349
Subtotal	**-10,089**	**7,138**	**0**	**0**	**484**	**0**	**27**	**0**	**374**
10. Refineries	0	0	-6,473	9	**6,333**	1,235	2,650	577	350
11. Power Stations & Self-Generation									
11.1 Hydro Stations	0	0	0	0	**0**	0	0	0	0
11.2 Thermal Stations	-3,787	-428	0	0	**-299**	0	-189	-110	0
11.3 Self-Generation (5/)	-423	0	0	0	**-6**	0	-6	0	0
Subtotal	**-4,210**	**-428**	**0**	**0**	**-305**	**0**	**-195**	**-110**	**0**
12. Losses & Own Use	-423	131	-66	0	**-520**	0	0	-4	0
13. Statistical Discrepancy	0	0	0	0	**36**	-97	74	59	1
14. Secondary Supply	**-14,721**	**6,841**	**-6,539**	**9**	**6,029**	**1,137**	**2,556**	**522**	**725**
FINAL USE CONSUMPTION									
15. Residential	0	0	0	0	**153**	0	0	0	151
16. Commercial	6	0	0	0	**203**	0	19	0	185
17. Industrial	1,104	0	0	0	**559**	63	241	227	26
18. Transport	69	0	0	0	**5,873**	3,025	2,067	0	0
19. Agriculture	0	0	0	0	**1**	0	0	1	0
20. Fishery	0	0	0	0	**252**	25	228	0	0
21. Non-Energy Use	1,057	0	0	0	**497**	0	0	0	349
22. Total Final Consumption	**2,236**	**0**	**0**	**0**	**7,539**	**3,113**	**2,554**	**227**	**711**
									ELECTRICITY OUTPUT
Main Activity Producer									
Gross Electricity Generation - GWh	18,428	0	0	0	**1,242**	0	660	582	0
Autoproducer									
Gross Electricity Generation - GWh	1,064	0	0	0	**23**	0	23	0	0

1/ Crude production includes Condensates comprising Pentane and Heavier Hydrocarbons.
2/ Others Refer to Non-Crude Energy Forms (consist of Imported Light Diesel, Slop Reprocess, Crude Residuum & Middle East Residue) Which are Used as Refinary Intake.
3/ GPP-LPG Extracts Liquid Products i.e Condensates, Ethane, Butane, Propane from Natural Gas, Ethane is Not included under LPG production.
4/ Butane and Propane as MTBE Feedstocks are Presented as Non-Energy use under LPG column. Ethane is Presented under Natural Gas Column.
5/ Estimated figures based from the Energy Commission, Statistics of Electricity Supply Industry in Malaysia 2014.

Note: Total may not necessarily add up due to rounding

KEROSENE	ATF & AV GAS	NON-ENERGY	REFINERY GAS	COAL & COKE	HYDRO POWER	SOLAR	BIOMASS	BIOGAS	BIODIESEL	ELECTRICITY	TOTAL
0	0	0	0	454	731	16	46	3	129	0	**24,776**
0	0	0	0	0	0	0	0	0	0	0	**-715**
0	93	40	0	2,649	0	0	0	0	0	1	**12,017**
-10	-94	-255	0	-43	0	0	0	0	-16	0	**-12,926**
0	0	-0	0	0	0	0	0	0	0	0	**-36**
3	36	32	0	128	0	0	0	0	-42	0	**-846**
0	0	0	0	23	0	0	0	0	0	0	**-36**
-8	**35**	**-182**	**0**	**3,211**	**731**	**16**	**46**	**3**	**70**	**1**	**22,234**
0	0	0	0	0	0	0	0	0	0	0	**-2,228**
10	0	73	0	0	0	0	0	0	0	0	**-133**
0	0	0	0	0	0	0	0	0	0	0	**-107**
10	**0**	**73**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**-2,467**
87	741	645	48	0	0	0	0	0	0	0	**-130**
0	0	0	0	0	-731	0	0	0	0	264	**-467**
0	0	0	0	-2,799	0	-16	-24	-3	0	2,615	**-4,741**
0	0	0	0	0	0	0	-21	0	0	100	**-350**
0	**0**	**0**	**0**	**-2,799**	**-731**	**-16**	**-46**	**-3**	**0**	**2,979**	**-5,558**
0	0	-467	-48	0	0	0	0	0	0	-237	**-1,114**
-86	5	80	-0	0	0	0	0	0	0	-117	**-80**
12	**746**	**331**	**0**	**-2,799**	**-731**	**-16**	**-46**	**-3**	**0**	**2,626**	**-9,351**
2	0	0	0	0	0	0	0	0	0	559	**713**
0	0	0	0	0	0	0	0	0	0	846	**1,055**
2	0	0	0	412	0	0	0	0	0	1,208	**3,283**
0	782	0	0	0	0	0	0	0	66	5	**6,014**
0	0	0	0	0	0	0	0	0	0	8	**8**
0	0	0	0	0	0	0	0	0	4	0	**256**
0	0	148	0	0	0	0	0	0	0	0	**1,554**
4	**782**	**148**	**0**	**412**	**0**	**0**	**0**	**0**	**70**	**2,626**	**12,883**
0	0	0	0	10,754	3,071	57	86	11	0	0	**33,648**
0	0	0	0	0	0	0	77	0	0	0	**1,164**

TABLE 31: ENERGY BALANCE TABLE IN SECOND QUARTER (Q2) OF 2014 (KTOE)

COMMERCIAL ENERGY BALANCE FOR MALAYSIA 2014 (KILOTONNES OF OIL EQUIVALENT)

ENERGY SOURCE	NATURAL GAS	LNG	CRUDE OIL (1/)	OTHERS (2/)	TOTAL PETROLEUM PRODUCTS	PETROLEUM PRODUCTS			
						PETROL	DIESEL	FUEL OIL	LPG
PRIMARY SUPPLY									
1. Primary Production	15,862	0	7,277	0	**0**	0	0	0	0
2. Gas Flaring, Reinjection & Use	-716	0	0	0	**0**	0	0	0	0
3. Imports	1,516	535	1,886	10	**4,960**	2,337	1,993	117	50
4. Exports	-280	-6,762	-3,208	-13	**-3,284**	-12	-1,659	-798	-123
5. Bunkers	0	0	0	0	**-36**	0	-1	-35	0
6. Stock Change	0	0	444	0	**497**	-50	103	258	-6
7. Statistical Discrepancy	0	0	-1	0	**0**	0	0	0	0
8. Primary Supply	**16,382**	**-6,227**	**6,399**	**-3**	**2,137**	**2,275**	**436**	**-458**	**-79**
TRANSFORMATION									
9. Gas Plants									
9.1 MLNG	-8,940	7,002	0	0	**21**	0	0	0	21
9.2 MDS	-253	0	0	0	**111**	0	28	0	0
9.3 GPP-LPG (3&4/)	-405	0	0	0	**268**	0	0	0	268
Subtotal	**-9,599**	**7,002**	**0**	**0**	**400**	**0**	**28**	**0**	**289**
10. Refineries	0	0	-6,281	3	**6,170**	1,235	2,541	581	429
11. Power Stations & Self-Generation									
11.1 Hydro Stations	0	0	0	0	**0**	0	0	0	0
11.2 Thermal Stations	-3,646	-535	0	0	**-310**	0	-221	-89	0
11.3 Self-Generation (5/)	-396	0	0	0	**-6**	0	-6	0	0
Subtotal	**-4,042**	**-535**	**0**	**0**	**-316**	**0**	**-227**	**-89**	**0**
12. Losses & Own Use	-350	-241	-117	0	**-518**	0	0	-5	0
13. Statistical Discrepancy	-0	-0	0	0	**-285**	-283	-7	-22	2
14. Secondary Supply	**-13,992**	**6,227**	**-6,399**	**3**	**5,451**	**951**	**2,336**	**465**	**719**
FINAL USE CONSUMPTION									
15. Residential	0	0	0	0	**178**	0	0	0	177
16. Commercial	6	0	0	0	**186**	0	23	0	163
17. Industrial	1,129	0	0	0	**353**	102	205	8	33
18. Transport	69	0	0	0	**6,200**	3,099	2,306	0	0
19. Agriculture	0	0	0	0	**0**	0	0	0	0
20. Fishery	0	0	0	0	**263**	25	238	0	0
21. Non-Energy Use	1,185	0	0	0	**408**	0	0	0	268
22. Total Final Consumption	**2,390**	**0**	**0**	**0**	**7,588**	**3,226**	**2,772**	**8**	**641**
								ELECTRICITY OUTPUT	
Main Activity Producer									
Gross Electricity Generation - GWh	18,260	0	0	0	**1,176**	0	704	472	0
Autoproducer									
Gross Electricity Generation - GWh	1,068	0	0	0	**22**	0	22	0	0

1/ Crude production includes Condensates comprising Pentane and Heavier Hydrocarbons.
2/ Others Refer to Non-Crude Energy Forms (consist of Imported Light Diesel, Slop Reprocess, Crude Residuum & Middle East Residue) Which are Used as Refinary Intake.
3/ GPP-LPG Extracts Liquid Products i.e Condensates, Ethane, Butane, Propane from Natural Gas, Ethane is Not included under LPG production.
4/ Butane and Propane as MTBE Feedstocks are Presented as Non-Energy use under LPG column. Ethane is Presented under Natural Gas Column.
5/ Estimated figures based from the Energy Commission, Statistics of Electricity Supply Industry in Malaysia 2014.

Note: Total may not necessarily add up due to rounding

KEROSENE	ATF & AV GAS	NON-ENERGY	REFINERY GAS	COAL & COKE	HYDRO POWER	SOLAR	BIOMASS	BIOGAS	BIODIESEL	ELECTRICITY	TOTAL
0	0	0	0	431	730	15	44	3	154	0	**24,516**
0	0	0	0	0	0	0	0	0	0	0	**-716**
145	125	194	0	3,422	0	0	0	0	0	1	**12,329**
-176	-99	-417	0	0	0	0	0	0	-23	-1	**-13,570**
0	0	-0	0	0	0	0	0	0	0	0	**-36**
-4	191	5	0	-186	0	0	0	0	-45	0	**711**
0	0	0	0	45	0	0	0	0	0	0	**45**
-35	**217**	**-219**	**0**	**3,712**	**730**	**15**	**44**	**3**	**86**	**0**	**23,279**
0	0	0	0	0	0	0	0	0	0	0	**-1,917**
9	0	74	0	0	0	0	0	0	0	0	**-142**
0	0	0	0	0	0	0	0	0	0	0	**-138**
9	**0**	**74**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**-2,197**
4	578	758	45	0	0	0	0	0	0	0	**-108**
0	0	0	0	0	-730	0	0	0	0	273	**-457**
0	0	0	0	-3,260	0	-15	-23	-3	0	2,864	**-4,928**
0	0	0	0	0	0	0	-20	0	0	100	**-322**
0	**0**	**0**	**0**	**-3,260**	**-730**	**-15**	**-44**	**-3**	**0**	**3,238**	**-5,707**
0	0	-468	-45	0	0	0	0	0	0	-333	**-1,559**
29	-1	-4	0	0	0	0	0	0	0	-95	**-380**
43	**577**	**359**	**0**	**-3,260**	**-730**	**-15**	**-44**	**-3**	**0**	**2,810**	**-9,952**
1	0	0	0	0	0	0	0	0	0	590	**769**
0	0	0	0	0	0	0	0	0	0	912	**1,104**
6	0	0	0	453	0	0	0	0	0	1,293	**3,228**
0	795	0	0	0	0	0	0	0	81	6	**6,355**
0	0	0	0	0	0	0	0	0	0	9	**9**
0	0	0	0	0	0	0	0	0	6	0	**269**
0	0	140	0	0	0	0	0	0	0	0	**1,593**
8	**795**	**140**	**0**	**453**	**0**	**0**	**0**	**0**	**86**	**2,810**	**13,327**
0	0	0	0	13,881	3,177	57	86	11	0	0	**36,648**
0	0	0	0	0	0	0	75	0	0	0	**1,165**

TABLE 32: ENERGY BALANCE TABLE IN THIRD QUARTER (Q3) OF 2014 (KTOE)

COMMERCIAL ENERGY BALANCE FOR MALAYSIA 2014 (KILOTONNES OF OIL EQUIVALENT)

ENERGY SOURCE	NATURAL GAS	LNG	CRUDE OIL (1/)	OTHERS (2/)	TOTAL PETROLEUM PRODUCTS	PETROLEUM PRODUCTS			
						PETROL	DIESEL	FUEL OIL	LPG
PRIMARY SUPPLY									
1. Primary Production	14,768	0	7,021	0	**0**	0	0	0	0
2. Gas Flaring, Reinjection & Use	-579	0	0	0	**0**	0	0	0	0
3. Imports	1,494	641	2,490	4	**4,048**	2,008	1,523	86	133
4. Exports	-215	-6,405	-2,566	-19	**-2,436**	-6	-1,177	-681	-77
5. Bunkers	0	0	0	0	**-108**	0	-1	-108	0
6. Stock Change	0	0	186	0	**725**	197	84	212	96
7. Statistical Discrepancy	0	0	-79	0	**0**	0	0	0	0
8. Primary Supply	**15,469**	**-5,764**	**7,051**	**-15**	**2,228**	**2,200**	**429**	**-491**	**151**
TRANSFORMATION									
9. Gas Plants									
9.1 MLNG	-8,190	6,470	0	0	**19**	0	0	0	19
9.2 MDS	-220	0	0	0	**92**	0	22	0	0
9.3 GPP-LPG (3&4/)	-418	0	0	0	**296**	0	0	0	296
Subtotal	**-8,829**	**6,470**	**0**	**0**	**407**	**0**	**22**	**0**	**315**
10. Refineries	0	0	-6,975	15	**5,304**	1,039	2,147	591	195
11. Power Stations & Self-Generation									
11.1 Hydro Stations	0	0	0	0	**0**	0	0	0	0
11.2 Thermal Stations	-3,341	-641	0	0	**-141**	0	-106	-35	0
11.3 Self-Generation (5/)	-428	0	0	0	**-6**	0	-6	0	0
Subtotal	**-3,768**	**-641**	**0**	**0**	**-147**	**0**	**-112**	**-35**	**0**
12. Losses & Own Use	-398	-65	-75	0	**-520**	0	0	-3	0
13. Statistical Discrepancy	-0	0	0	0	**115**	41	59	-54	-24
14. Total Final Consumption	**-12,996**	**5,764**	**-7,051**	**15**	**5,159**	**1,080**	**2,117**	**498**	**485**
FINAL USE CONSUMPTION									
15. Residential	0	0	0	0	**155**	0	0	0	153
16. Commercial	6	0	0	0	**215**	0	29	0	186
17. Industrial	1,408	0	0	0	**339**	45	251	7	30
18. Transport	69	0	0	0	**6,015**	3,210	2,031	0	0
19. Agriculture	0	0	0	0	**0**	0	0	0	0
20. Fishery	0	0	0	0	**259**	25	234	0	0
21. Non-Energy Use	991	0	0	0	**404**	0	0	0	268
22. Total Final Consumption	**2,473**	**0**	**0**	**0**	**7,387**	**3,280**	**2,545**	**7**	**637**
									ELECTRICITY OUTPUT
Main Activity Producer									
Gross Electricity Generation - GWh	16,957	0	0	0	**497**	0	283	214	0
Autoproducer									
Gross Electricity Generation - GWh	1,057	0	0	0	**22**	0	22	0	0

1/ Crude production includes Condensates comprising Pentane and Heavier Hydrocarbons.
2/ Others Refer to Non-Crude Energy Forms (consist of Imported Light Diesel, Slop Reprocess, Crude Residuum & Middle East Residue) Which are Used as Refinary Intake.
3/ GPP-LPG Extracts Liquid Products i.e Condensates, Ethane, Butane, Propane from Natural Gas, Ethane is Not included under LPG production.
4/ Butane and Propane as MTBE Feedstocks are Presented as Non-Energy use under LPG column. Ethane is Presented under Natural Gas Column.
5/ Estimated figures based from the Energy Commission, Statistics of Electricity Supply Industry in Malaysia 2014.

Note: Total may not necessarily add up due to rounding

KEROSENE	ATF & AV GAS	NON-ENERGY	REFINERY GAS	COAL & COKE	HYDRO POWER	SOLAR	BIOMASS	BIOGAS	BIODIESEL	ELECTRICITY	TOTAL
0	0	0	0	403	704	16	46	3	147	0	**23,109**
0	0	0	0	0	0	0	0	0	0	0	**-579**
0	77	221	0	3,748	0	0	0	0	0	0	**12,424**
-10	-59	-425	0	-16	0	0	0	0	-4	-0	**-11,661**
0	0	-0	0	0	0	0	0	0	0	0	**-108**
-3	106	33	0	70	0	0	0	0	-67	0	**913**
0	0	0	0	-21	0	0	0	0	0	0	**-100**
-14	**123**	**-171**	**0**	**4,184**	**704**	**16**	**46**	**3**	**75**	**-0**	**23,997**
0	0	0	0	0	0	0	0	0	0	0	**-1,701**
10	0	61	0	0	0	0	0	0	0	0	**-128**
0	0	0	0	0	0	0	0	0	0	0	**-123**
10	**0**	**61**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**-1,952**
3	646	635	49	0	0	0	0	0	0	0	**-1,656**
0	0	0	0	0	-704	0	0	0	0	276	**-429**
0	0	0	0	-3,776	0	-16	-24	-3	0	2,870	**-5,072**
0	0	0	0	0	0	0	-22	0	0	99	**-356**
0	**0**	**0**	**0**	**-3,776**	**-704**	**-16**	**-46**	**-3**	**0**	**3,245**	**-5,857**
0	0	-468	-49	0	0	0	0	0	0	-394	**-1,453**
8	5	80	0	0	0	0	0	0	0	-34	**81**
21	**651**	**307**	**0**	**-3,776**	**-704**	**-16**	**-46**	**-3**	**0**	**2,816**	**-10,837**
2	0	0	0	0	0	0	0	0	0	618	**774**
0	0	0	0	0	0	0	0	0	0	895	**1,116**
5	0	0	0	408	0	0	0	0	0	1,287	**3,442**
0	775	0	0	0	0	0	0	0	69	6	**6,159**
0	0	0	0	0	0	0	0	0	0	9	**9**
0	0	0	0	0	0	0	0	0	6	0	**265**
0	0	136	0	0	0	0	0	0	0	0	**1,394**
7	**775**	**136**	**0**	**408**	**0**	**0**	**0**	**0**	**75**	**2,816**	**13,160**
0	0	0	0	15,901	3,207	57	86	11	0	0	**36,716**
0	0	0	0	0	0	0	76	0	0	0	**1,156**

TABLE 33: ENERGY BALANCE TABLE IN FOURTH QUARTER (Q4) OF 2014 (KTOE)

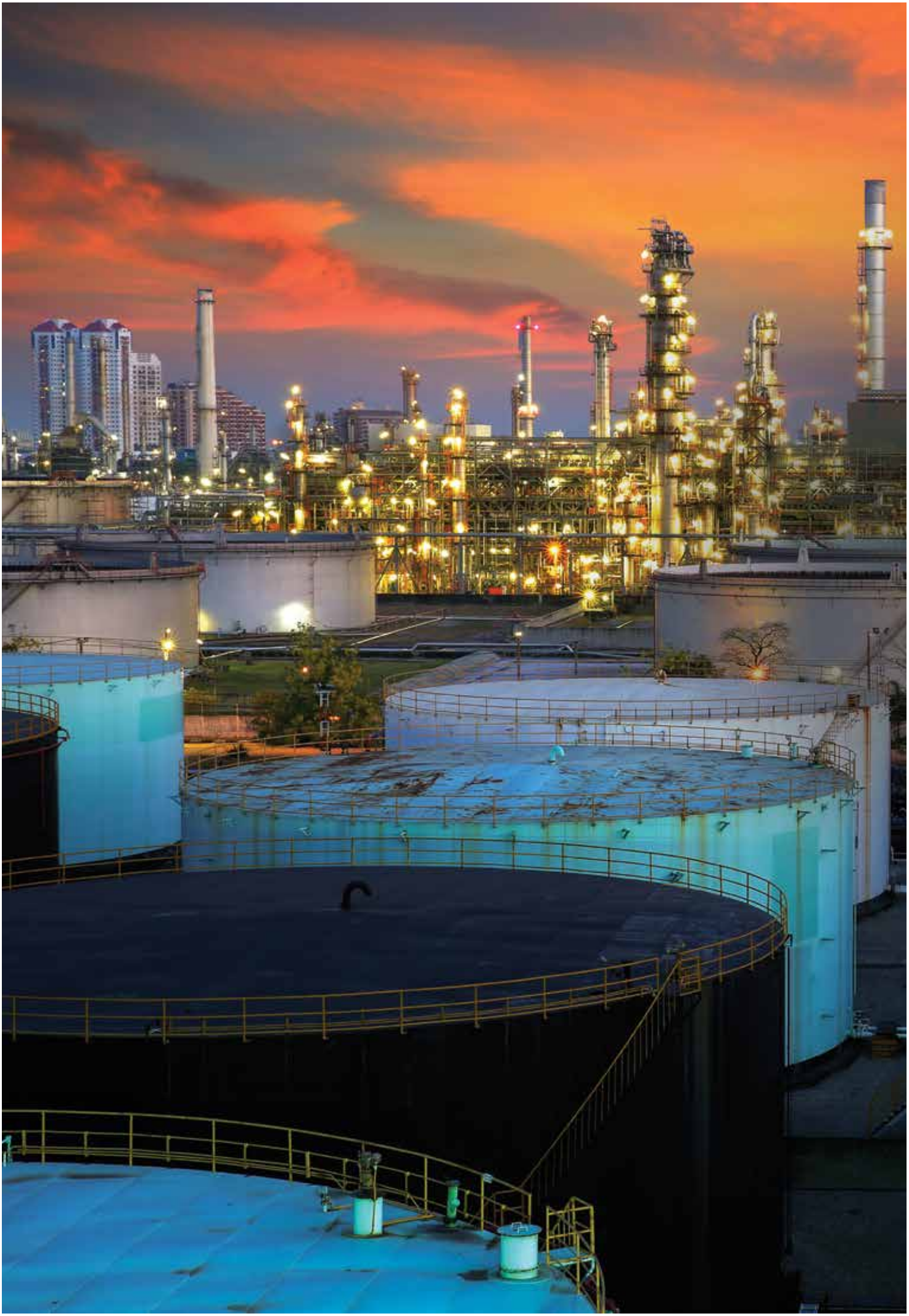
COMMERCIAL ENERGY BALANCE FOR MALAYSIA 2014 (KILOTONNES OF OIL EQUIVALENT)

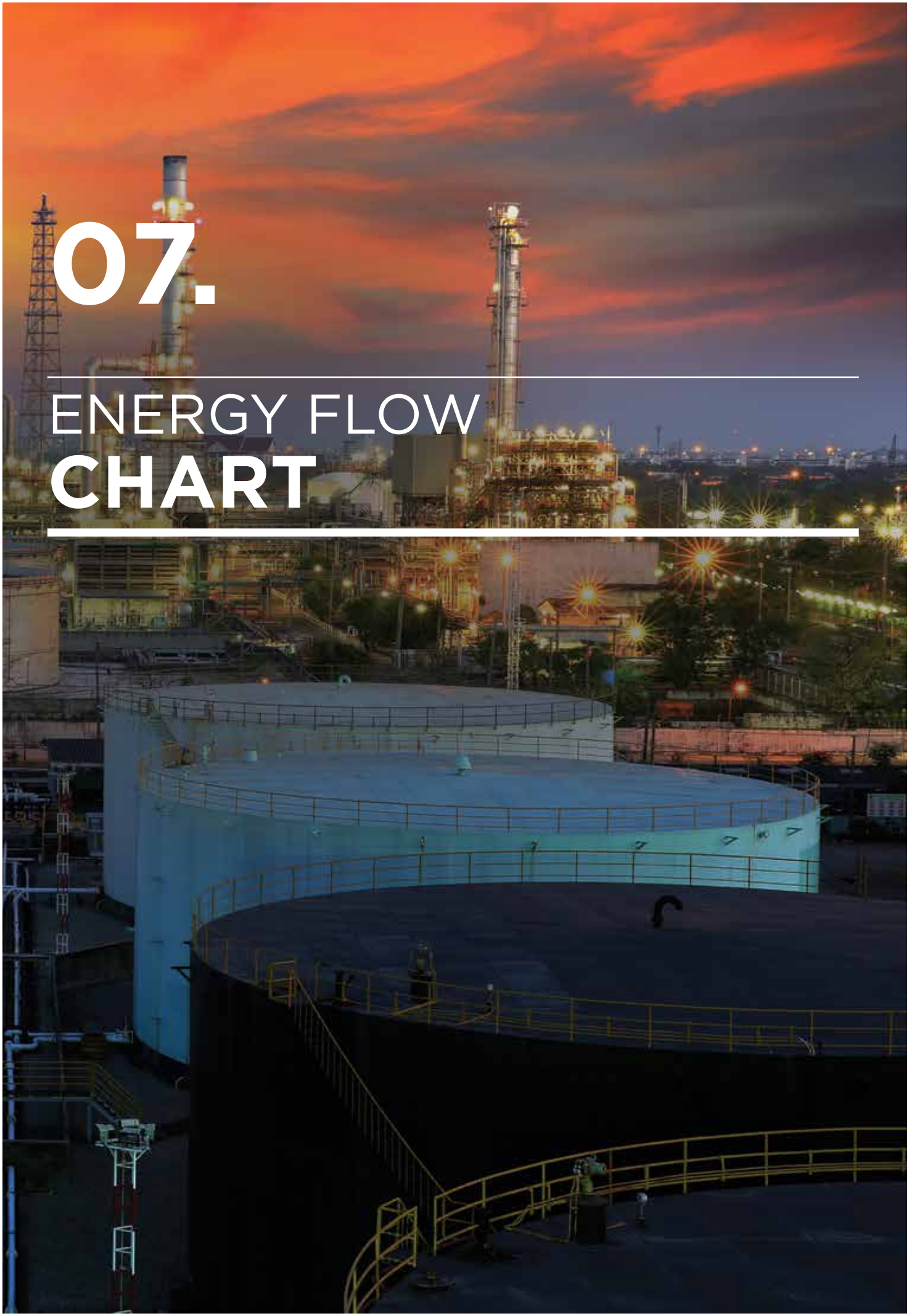
ENERGY SOURCE	NATURAL GAS	LNG	CRUDE OIL (1/)	OTHERS (2/)	TOTAL PETROLEUM PRODUCTS	PETROLEUM PRODUCTS			
						PETROL	DIESEL	FUEL OIL	LPG
PRIMARY SUPPLY									
1. Primary Production	16,244	0	8,067	0	**0**	0	0	0	0
2. Gas Flaring, Reinjection & Use	-495	0	0	0	**0**	0	0	0	0
3. Imports	1,635	415	2,530	3	**2,773**	1,799	509	94	141
4. Exports	-263	-7,399	-3,577	-18	**-1,951**	0	-592	-685	-47
5. Bunkers	0	0	0	0	**-28**	0	-1	-27	0
6. Stock Change	0	0	-149	0	**28**	-186	166	93	-16
7. Statistical Discrepancy	0	0	-93	0	**0**	0	0	0	0
8. Primary Supply	**17,122**	**-6,984**	**6,778**	**-16**	**823**	**1,612**	**82**	**-525**	**78**
TRANSFORMATION									
9. Gas Plants									
9.1 MLNG	-9,948	7,506	0	0	**31**	0	0	0	31
9.2 MDS	-258	0	0	0	**106**	0	31	0	0
9.3 GPP-LPG (3&4/)	-470	0	0	0	**337**	0	0	0	337
Subtotal	**-10,675**	**7,506**	**0**	**0**	**475**	**0**	**31**	**0**	**369**
10. Refineries	0	0	-6,688	16	**6,312**	1,410	2,387	590	129
11. Power Stations & Self-Generation									
11.1 Hydro Stations	0	0	0	0	**0**	0	0	0	0
11.2 Thermal Stations	-3,087	-415	0	0	**-141**	0	-107	-34	0
11.3 Self-Generation (5/)	-431	0	0	0	**-6**	0	-6	0	0
Subtotal	**-3,518**	**-415**	**0**	**0**	**-147**	**0**	**-113**	**-34**	**0**
12. Losses & Own Use	-387	-107	-90	0	**-540**	0	0	-5	0
13. Statistical Discrepancy	0	0	0	0	**79**	64	-96	-22	68
14. Secondary Supply	**-14,580**	**6,984**	**-6,778**	**16**	**6,178**	**1,474**	**2,208**	**529**	**565**
FINAL USE CONSUMPTION									
15. Residential	0	0	0	0	**160**	0	0	0	159
16. Commercial	6	0	0	0	**273**	0	85	0	188
17. Industrial	1,227	0	0	0	**260**	63	162	4	29
18. Transport	69	0	0	0	**5,661**	3,000	1,855	0	0
19. Agriculture	0	0	0	0	**0**	0	0	0	0
20. Fishery	0	0	0	0	**213**	24	188	0	0
21. Non-Energy Use	1,240	0	0	0	**435**	0	0	0	268
22. Total Final Consumption	**2,542**	**0**	**0**	**0**	**7,001**	**3,087**	**2,290**	**4**	**643**
								ELECTRICITY OUTPUT	
Main Activity Producer									
Gross Electricity Generation - GWh	15,911	0	0	0	**486**	0	249	237	0
Autoproducer									
Gross Electricity Generation - GWh	1,090	0	0	0	**22**	0	22	0	0

1/ Crude production includes Condensates comprising Pentane and Heavier Hydrocarbons.
2/ Others Refer to Non-Crude Energy Forms (consist of Imported Light Diesel, Slop Reprocess, Crude Residuum & Middle East Residue) Which are Used as Refinary Intake.
3/ GPP-LPG Extracts Liquid Products i.e Condensates, Ethane, Butane, Propane from Natural Gas, Ethane is Not included under LPG production.
4/ Butane and Propane as MTBE Feedstocks are Presented as Non-Energy use under LPG column. Ethane is Presented under Natural Gas Column.
5/ Estimated figures based from the Energy Commission, Statistics of Electricity Supply Industry in Malaysia 2014.

Note: Total may not necessarily add up due to rounding

KEROSENE	ATF & AV GAS	NON-ENERGY	REFINERY GAS	COAL & COKE	HYDRO POWER	SOLAR	BIOMASS	BIOGAS	BIODIESEL	ELECTRICITY	TOTAL
0	0	0	0	406	871	16	46	3	183	0	**25,836**
0	0	0	0	0	0	0	0	0	0	0	**-495**
0	86	145	0	3,886	0	0	0	0	0	0	**11,242**
-15	-282	-330	0	-55	0	0	0	0	-46	-0	**-13,307**
0	0	-0	0	0	0	0	0	0	0	0	**-28**
-0	53	-81	0	-29	0	0	0	0	-69	0	**-218**
0	0	0	0	41	0	0	0	0	0	0	**-52**
-15	**-143**	**-266**	**0**	**4,250**	**871**	**16**	**46**	**3**	**69**	**-0**	**22,978**
0	0	0	0	0	0	0	0	0	0	0	**-2,410**
11	0	65	0	0	0	0	0	0	0	0	**-152**
0	0	0	0	0	0	0	0	0	0	0	**-132**
11	**0**	**65**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**-2,694**
6	951	789	50	0	0	0	0	0	0	0	**-360**
0	0	0	0	0	-871	0	0	0	0	338	**-533**
0	0	0	0	-3,813	0	-16	-24	-3	0	2,726	**-4,773**
0	0	0	0	0	0	0	-21	0	0	102	**-356**
0	**0**	**0**	**0**	**-3,813**	**-871**	**-16**	**-46**	**-3**	**0**	**3,167**	**-5,663**
0	0	-485	-50	0	0	0	0	0	0	-377	**-1,501**
2	-0	64	0	0	0	0	0	0	0	-0	**79**
19	**950**	**433**	**0**	**-3,813**	**-871**	**-16**	**-46**	**-3**	**0**	**2,790**	**-10,139**
1	0	0	0	0	0	0	0	0	0	578	**738**
0	0	0	0	0	0	0	0	0	0	913	**1,191**
2	0	0	0	437	0	0	0	0	0	1,284	**3,208**
0	807	0	0	0	0	0	0	0	62	6	**5,799**
0	0	0	0	0	0	0	0	0	0	9	**9**
0	0	0	0	0	0	0	0	0	6	0	**219**
0	0	167	0	0	0	0	0	0	0	0	**1,675**
4	**807**	**167**	**0**	**437**	**0**	**0**	**0**	**0**	**69**	**2,790**	**12,839**
0	0	0	0	15,292	3,933	57	86	11	0	0	**35,775**
0	0	0	0	0	0	0	76	0	0	0	**1,188**





07.

ENERGY FLOW **CHART**

ENERGY FLOW CHART

PRIMARY SUPPLY

PRIMARY SUPPLY*

1 NATURAL GAS 43.4%
2 CRUDE OIL 28.9%
3 COAL & COKE 16.6%
4 PETROLEUM PRODUCTS & OTHERS 7.2%
5 HYDROPOWER 3.3%
6 RENEWABLES 0.6%

PRIMARY PRODUCTION

1 NATURAL GAS 64.2%
2 CRUDE OIL 30.1%
3 HYDROPOWER 3.1%
4 COAL & COKE 1.7%
5 RENEWABLES 0.9%

IMPORTS

1 PETROLEUM PRODUCTS 33.3%
2 COAL & COKE 28.5%
3 CRUDE OIL & OTHERS 20.4%
4 NATURAL GAS & LNG 17.8%

EXPORTS

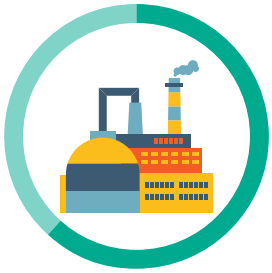
1 LNG 54.1%
2 CRUDE OIL & OTHERS 23.1%
3 PETROLEUM PRODUCTS 20.2%
4 NATURAL GAS 2.2%
5 COAL & COKE 0.2%
6 RENEWABLES 0.2%

TRANSFORMATION

GAS PLANT INPUT

93.0% LNG
4.5% GPP-LPG
2.5% MDS

OIL REFINERIES INPUT



61.9% LOCAL
38.1% IMPORT

POWER STATIONS & SELF GENERATION INPUT

49.6% NATURAL GAS
38.5% COAL & COKE
8.6% HYDRO
1.8% DIESEL
0.8% FUEL OIL
0.7% RENEWABLES

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

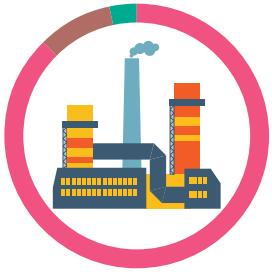
GAS PLANT OUTPUT

- **94.1%** LNG
- **4.2%** LPG
- **0.9%** NON-ENERGY
- **0.4%** DIESEL
- **0.3%** LPG (FROM LNG)
- **0.1%** KEROSENE

OIL REFINERIES OUTPUT

- **42.2%** DIESEL
- **21.4%** PETROL
- **12.7%** ATF & AV GAS
- **12.3%** NON-ENERGY
- **10.2%** FUEL OIL
- **0.8%** REFINERY GAS
- **0.4%** KEROSENE

POWER STATIONS & SELF GENERATION OUTPUT



- **87.7%** THERMAL
- **9.1%** HYDRO
- **3.2%** SELF-GENERATION

FINAL USE

FINAL USE BY SECTOR

1. TRANSPORT — 46.6%
2. INDUSTRIAL — 25.2%
3. NON-ENERGY USE — 11.9%
4. COMMERCIAL — 8.6%
5. RESIDENTIAL — 5.7%
6. FISHERY — 1.9%
7. AGRICULTURE — 0.1%

FINAL USE BY FUEL

1. PETROLEUM PRODUCTS — 57.1%
2. ELECTRICITY — 21.1%
3. NATURAL GAS — 18.5%
4. COAL & COKE — 3.3%

08.

MANUFACTURING INDUSTRY IN **PENINSULAR MALAYSIA**

INTRODUCTION

A survey was conducted with 520 manufacturing companies in Peninsular Malaysia to understand the energy consumption pattern of manufacturing industry in Peninsular Malaysia. Monthly data of energy consumption was collected for the year 2010 to 2013 for eight types of energy; electricity, natural gas, petrol, diesel, fuel oil, LPG, kerosene and coal.

Manufacturing industry sub-sectors included are; Iron and Steel, Chemical (including Petro-Chemical), Non Ferrous Metals, Non Metallic Mineral Products, Transportation Equipment, Machinery, Food, Beverages and Tobacco, Pulp, Paper and Printing, Wood and Wood Products, Textiles and Leather and Not Elsewhere Specified (Industry). This is in accordance to the breakdown of the manufacturing sub-sectors by the International Energy Agency (IEA) and APEC format of classification of the industrial sector. The gathered data on energy consumption in the manufacturing industry will then be an input to the National Energy Balance (NEB).

MANUFACTURING SUB-SECTORS

LOCATION OF MANUFACTURING COMPANIES

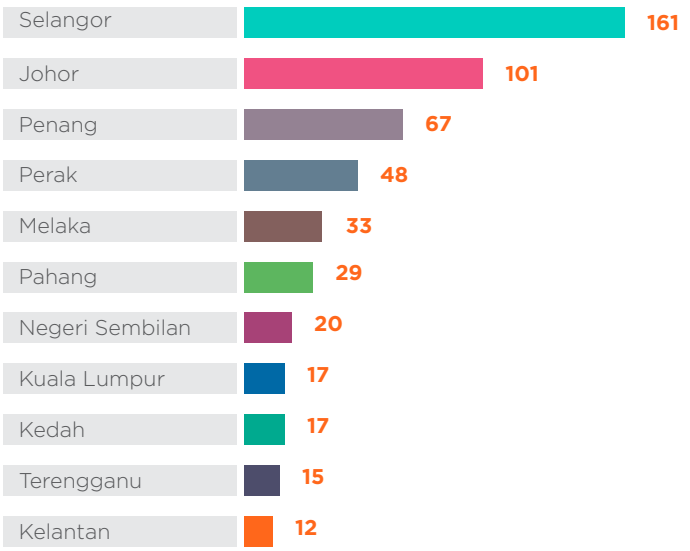


TABLE 34: FINAL ENERGY CONSUMPTION BY SUB-SECTORS IN MANUFACTURING SECTOR, 2010

YEAR: 2010 / UNIT: KTOE	NATURAL GAS	PETROL	DIESEL	FUEL OIL	LPG	KEROSENE	COAL & COKE	ELECTRICITY	TOTAL
Iron and Steel	1,463	-	363	59	143	-	-	558	**2,586**
Chemical	378	21	132	68	7	-	-	470	**1,077**
Non Ferrous Metals	20	-	-	-	-	-	-	277	**297**
Non Metallic Mineral Products	114	-	65	71	-	-	1,716	514	**2,480**
Transportation Equipment	29	-	407	-	1	5	-	241	**682**
Machinery	2	24	35	-	-	-	-	127	**188**
Food, Beverages and Tobacco	1,227	15	32	9	1	-	-	196	**1,481**
Pulp, Paper and Printing	192	7	154	-	-	-	-	504	**857**
Wood and Wood Products	40	3	61	89	-	-	-	234	**426**
Textile and Leather	132	4	206	7	2	-	-	255	**606**
Not Elsewhere Specified	50	3	8	24	60	-	-	292	**437**
TOTAL	**3,646**	**76**	**1,465**	**326**	**214**	**5**	**1,716**	**3,669**	**11,117**

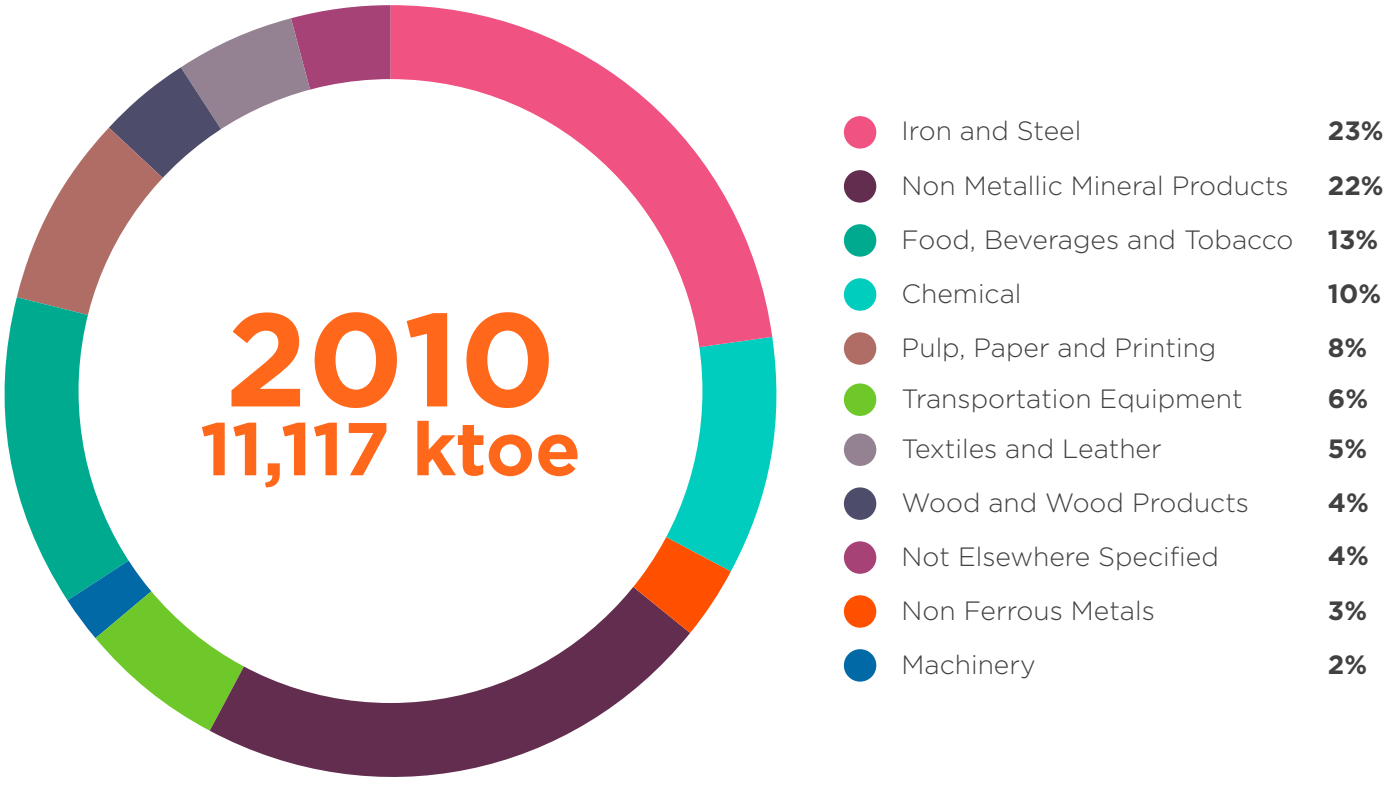


TABLE 35: FINAL ENERGY CONSUMPTION BY SUB-SECTORS IN MANUFACTURING SECTOR, 2011

YEAR: 2011 / UNIT: KTOE	NATURAL GAS	PETROL	DIESEL	FUEL OIL	LPG	KEROSENE	COAL & COKE	ELECTRICITY	TOTAL
Iron and Steel	1,673	-	230	34	121	-	-	559	**2,617**
Chemical	429	37	88	62	6	-	-	501	**1,125**
Non Ferrous Metals	57	-	-	-	-	-	-	296	**353**
Non Metallic Mineral Products	126	-	45	59	-	-	1,565	525	**2,320**
Transportation Equipment	45	-	296	-	2	8	-	243	**593**
Machinery	2	43	19	-	-	-	-	125	**188**
Food, Beverages and Tobacco	1,347	27	16	10	1	-	-	204	**1,605**
Pulp, Paper and Printing	150	13	61	-	-	-	-	539	**763**
Wood and Wood Products	56	6	40	74	-	-	-	215	**390**
Textile and Leather	151	8	91	6	1	-	-	275	**533**
Not Elsewhere Specified	62	8	5	20	69	-	-	311	**474**
TOTAL	**4,099**	**141**	**890**	**264**	**200**	**8**	**1,565**	**3,794**	**10,961**

- Iron and Steel **24%**
- Non Metallic Mineral Products **21%**
- Food, Beverages and Tobacco **15%**
- Chemical **10%**
- Pulp, Paper and Printing **7%**
- Transportation Equipment **5%**
- Textiles and Leather **5%**
- Wood and Wood Products **4%**
- Not Elsewhere Specified **4%**
- Non Ferrous Metals **3%**
- Machinery **2%**

TABLE 36: FINAL ENERGY CONSUMPTION BY SUB-SECTORS IN MANUFACTURING SECTOR, 2012

YEAR: 2012 / UNIT: KTOE	NATURAL GAS	PETROL	DIESEL	FUEL OIL	LPG	KEROSENE	COAL & COKE	ELECTRICITY	TOTAL
Iron and Steel	1,724	-	337	50	84	-	-	576	**2,770**
Chemical	511	53	132	160	4	-	-	520	**1,380**
Non Ferrous Metals	107	-	-	-	-	-	-	294	**401**
Non Metallic Mineral Products	114	-	66	123	-	-	1,589	543	**2,435**
Transportation Equipment	51	-	461	-	1	12	-	267	**792**
Machinery	2	65	31	-	-	-	-	138	**236**
Food, Beverages and Tobacco	1,416	26	31	22	1	-	-	212	**1,708**
Pulp, Paper and Printing	191	20	113	-	-	-	-	546	**871**
Wood and Wood Products	56	8	43	154	-	-	-	220	**482**
Textile and Leather	141	10	99	13	1	-	-	265	**528**
Not Elsewhere Specified	64	6	10	42	26	-	-	322	**471**
TOTAL	**4,379**	**188**	**1,322**	**564**	**117**	**12**	**1,589**	**3,903**	**12,073**

- Iron and Steel **23%**
- Non Metallic Mineral Products **20%**
- Food, Beverages and Tobacco **14%**
- Chemical **12%**
- Transportation Equipment **7%**
- Pulp, Paper and Printing **7%**
- Wood and Wood Products **4%**
- Textiles and Leather **4%**
- Not Elsewhere Specified **4%**
- Non Ferrous Metals **3%**
- Machinery **2%**

TABLE 37: FINAL ENERGY CONSUMPTION BY SUB-SECTORS IN MANUFACTURING SECTOR, 2013

YEAR: 2013 / UNIT: KTOE	NATURAL GAS	PETROL	DIESEL	FUEL OIL	LPG	KEROSENE	COAL & COKE	ELECTRICITY	TOTAL
Iron and Steel	1,702	-	402	22	107	-	-	612	**2,845**
Chemical	568	64	157	67	6	-	-	536	**1,397**
Non Ferrous Metals	74	-	-	-	-	-	-	303	**377**
Non Metallic Mineral Products	116	-	59	52	-	-	1,387	560	**2,173**
Transportation Equipment	55	-	528	-	1	13	-	271	**869**
Machinery	3	69	36	-	-	-	-	150	**258**
Food, Beverages and Tobacco	1,429	60	37	11	2	-	-	220	**1,758**
Pulp, Paper and Printing	128	21	90	-	-	-	-	443	**682**
Wood and Wood Products	17	7	49	29	-	-	-	280	**381**
Textile and Leather	143	12	41	6	1	-	-	270	**473**
Not Elsewhere Specified	61	8	15	18	30	-	-	335	**467**
TOTAL	**4,296**	**240**	**1,414**	**204**	**145**	**13**	**1,387**	**3,979**	**11,679**

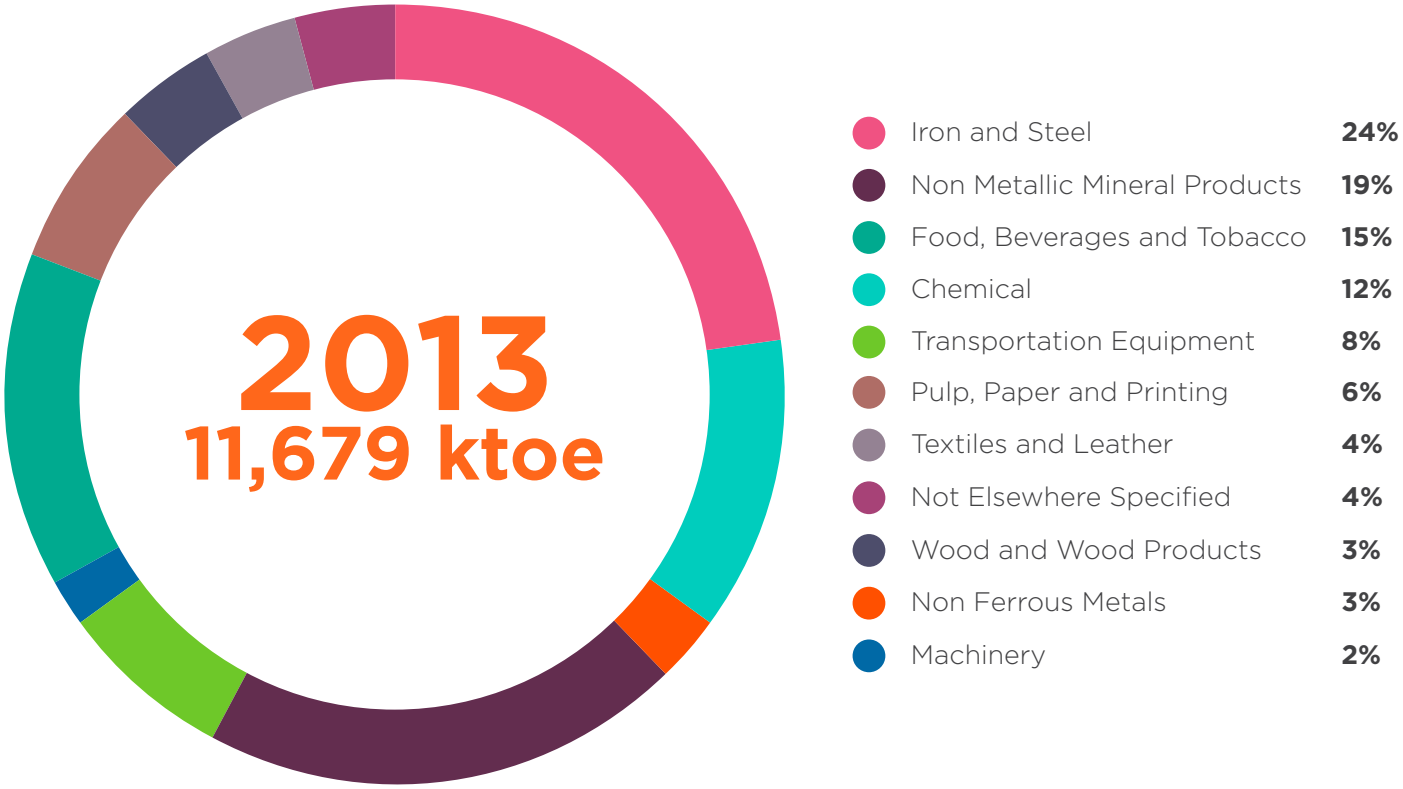
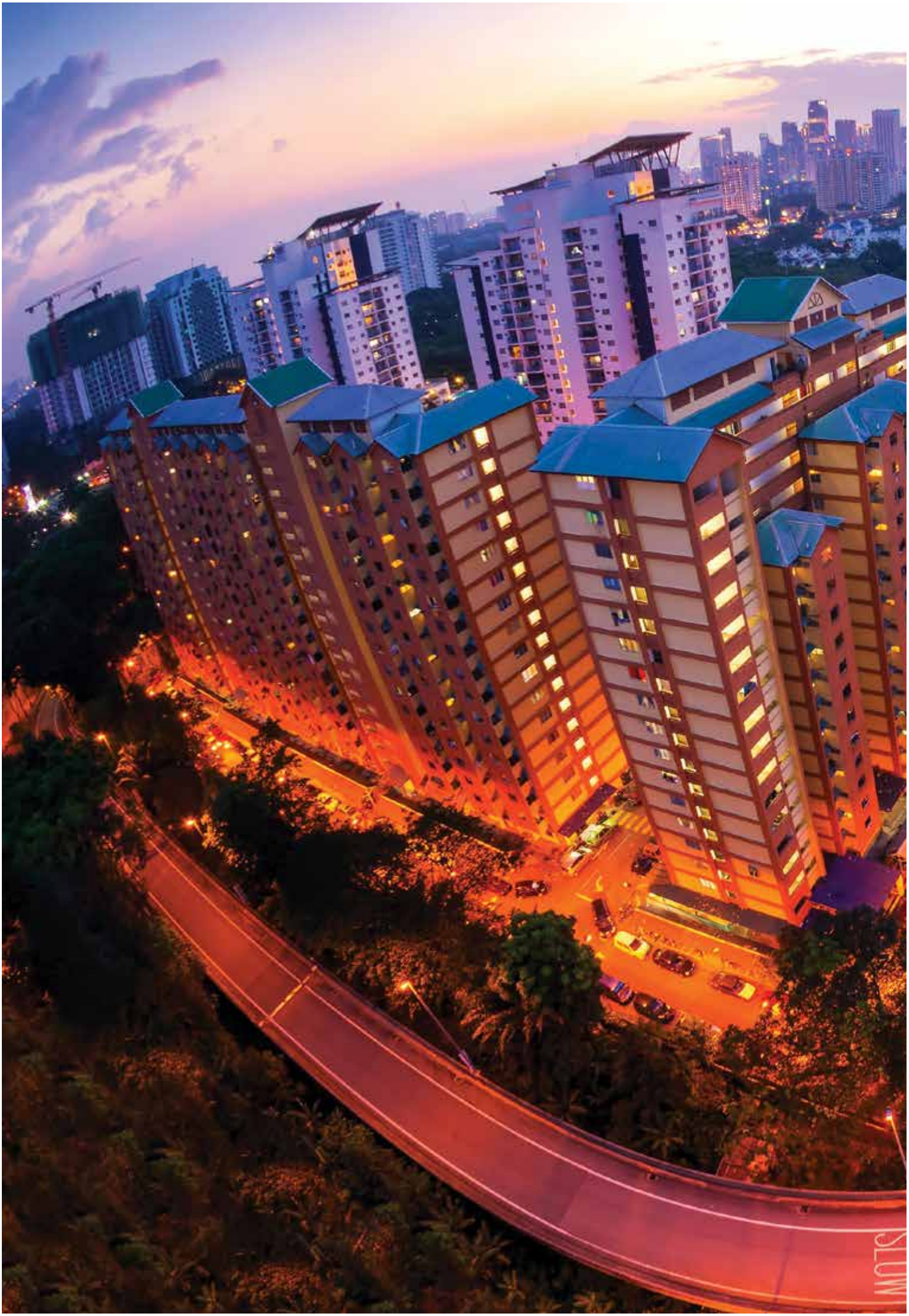


TABLE 38: FINAL ENERGY CONSUMPTION BY SUB-SECTORS IN MANUFACTURING SECTOR, 2014

YEAR: 2014 / UNIT: KTOE	NATURAL GAS	PETROL	DIESEL	FUEL OIL	LPG	KEROSENE	COAL & COKE	ELECTRICITY	TOTAL
Iron and Steel	1,849	-	174	25	78	-	-	619	**2,744**
Chemical	617	65	68	73	4	-	-	542	**1,368**
Non Ferrous Metals	80	-	-	-	-	-	-	306	**386**
Non Metallic Mineral Products	126	-	25	57	-	-	1,541	566	**2,315**
Transportation Equipment	60	-	229	-	-	10	-	274	**574**
Machinery	3	69	16	-	-	-	-	152	**239**
Food, Beverages and Tobacco	1,552	60	16	12	1	-	-	222	**1,863**
Pulp, Paper and Printing	139	21	39	-	-	-	-	448	**647**
Wood and Wood Products	18	7	21	31	-	-	-	283	**361**
Textile and Leather	156	12	18	7	1	-	-	273	**465**
Not Elsewhere Specified	66	8	6	20	22	-	-	339	**461**
TOTAL	**4,665**	**241**	**614**	**225**	**106**	**10**	**1,541**	**4,023**	**11,424**

- Iron and Steel **24%**
- Non Metallic Mineral Products **20%**
- Food, Beverages and Tobacco **16%**
- Chemical **12%**
- Pulp, Paper and Printing **6%**
- Transportation Equipment **5%**
- Textiles and Leather **4%**
- Non Ferrous Metals **4%**
- Not Elsewhere Specified **4%**
- Wood and Wood Products **3%**
- Machinery **2%**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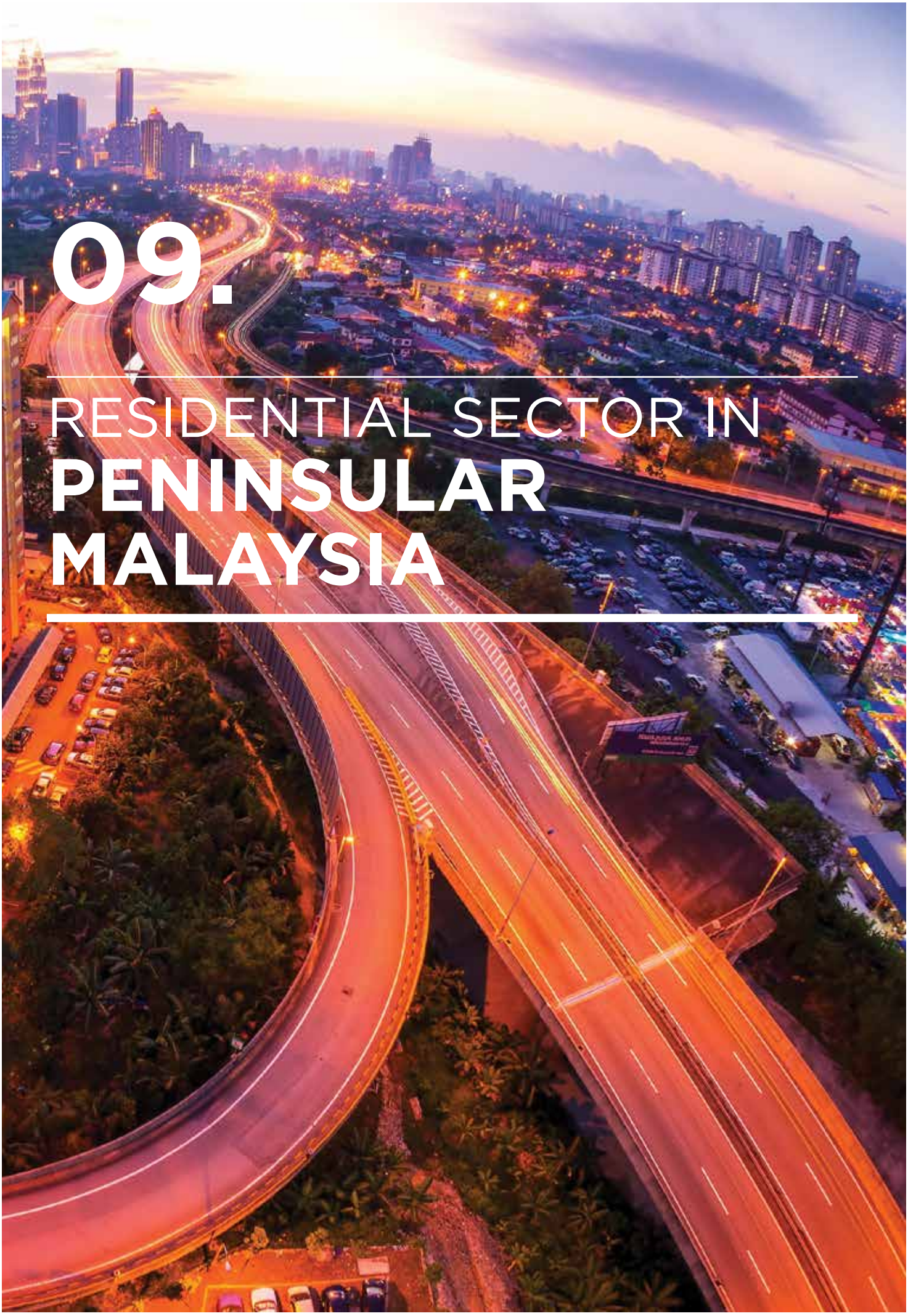

09.

RESIDENTIAL SECTOR IN **PENINSULAR MALAYSIA**

INTRODUCTION

Energy Commission has successfully conducted a survey with 2,000 households in Peninsular Malaysia with the aim to have an in-depth understanding of energy consumption pattern within households. There are many variables and factors that affect a household's energy consumption of which were not properly identified before. This survey enabled us to have a better view of where, when and how the energy is consumed within households.

The number of samples is calculated based on the actual number of households in Malaysia. Hence, 2,000 households were selected across Peninsular Malaysia for this survey. The samples were broken down to four (4) main regions, namely Central, South, East Coast, and North, and then further broken down to ten (10) types of houses. The energy consumption for each household is categorised into fuel types (natural gas, LPG, kerosene and electricity) and five (5) end-uses as described by the IEA (International Energy Agency).

Overall, electricity, LPG and natural gas are the major form of energy used in households in Peninsular Malaysia, where electricity accounted for more than 80% of energy consumption. Electricity consumption is distributed evenly among the four regions of Peninsular Malaysia, whereas LPG showed a slightly bigger contribution from the central region. In terms of end-uses, appliances have the biggest share in energy consumption, followed by air-conditioning system, cooking, lighting, and water heating. Appliances category covers a wide range of items which explains the high percentage of appliances in household's energy consumption.

LOCATIONS

2,000 households

10 types of house

5 categories

53 electrical appliances

Historical trend from **2011 to 2014**

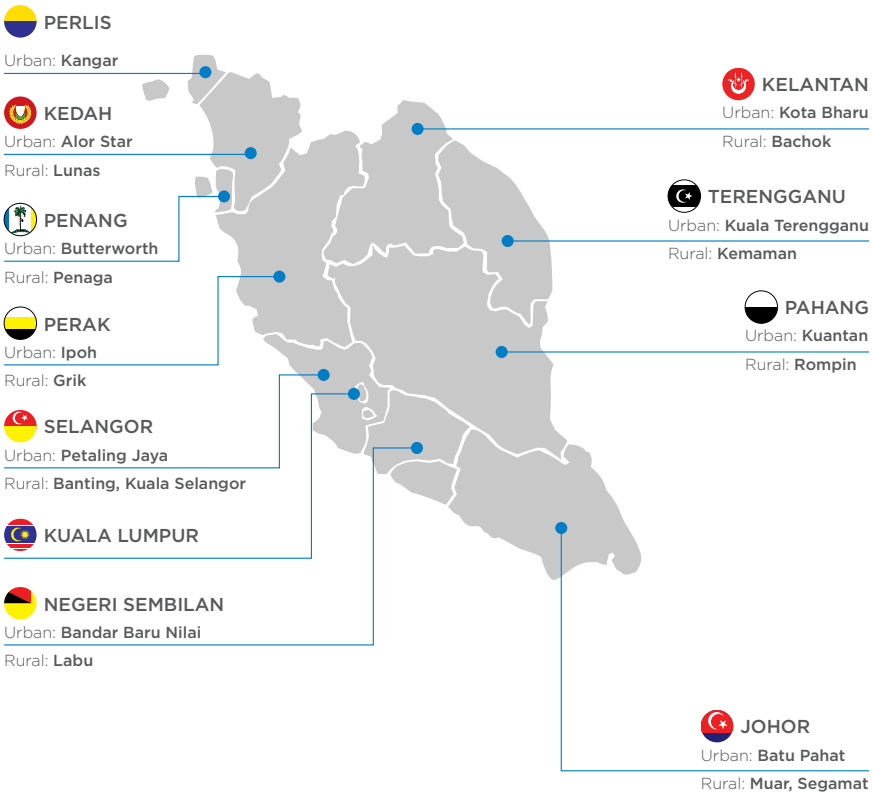

TABLE 39: FINAL ENERGY CONSUMPTION BY AGGREGATED CATEGORIES IN RESIDENTIAL SECTOR, 2011

YEAR: 2011 / UNIT: KTOE	NATURAL GAS	LPG	KEROSENE	ELECTRICITY	TOTAL
Space Cooling	-	-	-	242	**242**
Water Heating	-	-	-	52	**52**
Lighting	-	-	9	173	**181**
Cooking	-	693	-	86	**779**
Appliances	-	-	-	1,173	**1,173**
TOTAL	**-**	**693**	**9**	**1,726**	**2,427**

Appliances	**48%**
Cooking	**32%**
Space Cooling	**10%**
Lighting	**8%**
Water Heating	**2%**

TABLE 40: FINAL ENERGY CONSUMPTION BY AGGREGATED CATEGORIES IN RESIDENTIAL SECTOR, 2012

YEAR: 2012 / UNIT: KTOE	NATURAL GAS	LPG	KEROSENE	ELECTRICITY	TOTAL
Space Cooling	-	-	-	259	**259**
Water Heating	-	-	-	56	**56**
Lighting	-	-	5	185	**190**
Cooking	1	593	-	93	**686**
Appliances	-	-	-	1,260	**1,260**
TOTAL	**1**	**593**	**5**	**1,853**	**2,451**

Appliances	**51%**
Cooking	**28%**
Space Cooling	**11%**
Lighting	**8%**
Water Heating	**2%**

TABLE 41: FINAL ENERGY CONSUMPTION BY AGGREGATED CATEGORIES IN RESIDENTIAL SECTOR, 2013

YEAR: 2013 / UNIT: KTOE	NATURAL GAS	LPG	KEROSENE	ELECTRICITY	TOTAL
Space Cooling	-	-	-	276	**276**
Water Heating	-	-	-	59	**59**
Lighting	-	-	1	197	**198**
Cooking	1	596	-	99	**695**
Appliances	-	-	-	1,340	**1,340**
TOTAL	**1**	**596**	**1**	**1,971**	**2,568**

Appliances	**52%**
Cooking	**27%**
Space Cooling	**11%**
Lighting	**8%**
Water Heating	**2%**

TABLE 42: FINAL ENERGY CONSUMPTION BY AGGREGATED CATEGORIES IN RESIDENTIAL SECTOR, 2014

YEAR: 2014 / UNIT: KTOE	NATURAL GAS	LPG	KEROSENE	ELECTRICITY	TOTAL
Space Cooling	-	-	-	286	**286**
Water Heating	-	-	-	61	**61**
Lighting	-	-	4	204	**209**
Cooking	1	571	-	102	**674**
Appliances	-	-	-	1,388	**1,388**
TOTAL	**1**	**571**	**4**	**2,041**	**2,617**

Appliances	**53%**
Cooking	**26%**
Space Cooling	**11%**
Lighting	**8%**
Water Heating	**2%**

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 "tonnes of oil equivalent" (1 toe= 41.84 Gigajoules) was chosen as the final unit for presentation in the Energy Balance.

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, reinjected into the gas fields and use for production purpose.
IMPORTS (3) AND EXPORTS (4)	Refers 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)	Refers 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' stock are taken into account. A negative sign indicates net increase while a positive sign indicates net decrease 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 and GPP-LPG 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 feedstocks.
FINAL USE (22)	Refers to the quantity of energy of all kinds delivered to the final user.

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 $\textbf{RESERVE MARGIN} = \frac{\textbf{Installed Capacity – Peak Consumption}}{\textbf{Peak Consumption}}$
PEAK DEMAND	The maximum power consumption 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.

NOTES ON GDP

DEFINITION	GDP is a measure of the total value of production of all resident producing units of a country in a specified period, before deducting allowances for consumption of fixed capital. A producing unit is considered as resident in a country if it maintains a centre of economic interest in the economic territory of that country. The economic territory of a country consists of the geographic territory administered by a government within which persons, goods and capital circulate freely. GDP can be measured in three ways, namely, the sum of value added, the sum of final expenditures and the sum of incomes. In Malaysia, Department of Statistics Malaysia (DOSM) compiles annual GDP estimates by using three approaches namely Production, Expenditure and Income Approach.
MEASURING GDP	The sum of value added (or production) based GDP is the sum of the differences between the values of the gross output of resident producing units measured in producers' values and the values of their intermediate consumption measured in purchasers' values plus import duties. The difference between gross output and intermediate consumption is value added. This approach shows the contribution of individual economic activities to the total GDP.
	Income based estimates – summing up the incomes generated (i.e salaries and wages, gross operating surplus of enterprises and mixed income generated by households that engage in production).
	The sum of final expenditures (expenditure) approach is to sum up the expenditure values of the final users of goods and services measured in purchasers' values, less the c.i.f. values of the import of goods and services. It is calculated by estimating the values of private consumption expenditure, government consumption expenditure, gross fixed capital formation, change in stocks and exports of goods and services, less imports of goods and services. These are termed `final Consumption' or 'final expenditure' categories.

NOTES ON GNI

DEFINITION	The Gross national income (GNI) consists of: the personal consumption expenditure, the gross private investment, the government consumption expenditures, the net income from assets abroad (net income receipts), and the gross exports of goods and services, after deducting two components: the gross imports of goods and services, and the indirect business taxes. The GNI is similar to the gross national product (GNP), except that in measuring the GNP one does not deduct the indirect business taxes.
MEASURING GNI	As GNI is an add up of Net Income from abroad and the GDP, one can calculate the GNI by the following formula: **GNI = GDP + (FL – DL) + NCI** Where FL and DL are respectively the foreign and domestic income from labor, and NCI the net capital inflow. For example, if a country A's nominal GDP is $20,000, the domestic income from labor $3,000 and the foreign income from labor $5,000, and the country received a $10,000 donation from another country's charity organization, the GNI of country A would be $32,000.

CONVERSION COEFFICIENTS AND EQUIVALENCE

COAL AND COKE (TJ/1000 TONNES)[1]

Hard coal	29.3076	Lignite/brown coal	11.2834
Coke/oven coke	26.3768	Peat	9.525
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 0.9479 mmbtu/GJ
Butane	50.393	Ethane	1,067.82 GJ/mscf
Propane	49.473	Methane	1,131.31 GJ/mscf

ELECTRICITY

Electricity	3.6 TJ/GWh

PETROLEUM PRODUCTS (TJ/1000 TONNES)

Crude Petroleum (imported)	42.6133	Gas Oil/Diesel	42.4960
Crude Petroleum (domestic)	43.3000	Residual Fuel Oil	41.4996
Plant Condensate	44.3131	Naphtha	44.1289
Aviation Gasoline (AV GAS)	43.9614	White/Industrial Spirit	43.2078
Liquefied Petroleum Gas (LPG)	45.5440	Lubricants	42.1401
Petrol	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 of Oil Equivalent (toe) = 41.84 TJ

Note: [1] Unless otherwise indicated [2] Assuming 9.7 TJ/1000 cu m

CRUDE OIL AND PETROLEUM PRODUCTS (BARRELS TO TONNES)

PRODUCT	BARRELS/TONNE
Crude Oil - Import	7.33
- Local	7.60
Petrol	8.55
Diesel	7.50
Fuel Oil	6.60
Kerosene	7.90
Liquefied Petroleum Gas (LPG)	11.76
Aviation Turbine Fuel (ATF)	7.91
Aviation Gasoline (AV GAS)	9.05
Non-Energy	6.50

SOLID FUELS

FROM METRIC TONNE / INTO	GIGAJOULES	MILLION BTUS	GIGACALORIES	MEGAWATT HOURS	BARRELS OIL	TONNE OF COAL EQUIVALENT	TONNE OF OIL EQUIVALENT
	MULTIPLY BY						
Hard Coal	29.310	27.780	7.000	8.140	4.900	1.000	0.700
Lignite	*11.280*	10.700	2.700	3.130	2.500	0.385	0.270
Peat	9.530	9.030	2.280	2.650	2.300	0.325	0.228
Gas Coke	26.380	25.000	6.300	7.330	4.400	0.900	0.630
Oven Coke	26.380	25.000	6.300	7.330	4.400	0.900	0.630
Petroleum Coke	35.170	33.330	8.400	9.770	5.900	1.200	0.840
Charcoal	28.890	27.380	6.900	8.020	4.800	0.985	0.690
Fuelwood	12.600	11.940	3.010	3.500	2.100	0.430	0.301

LIQUID FUELS

FROM METRIC TONNE / INTO	GIGAJOULES	MILLION BTUS	GIGACALORIES	MEGAWATT HOURS	BARRELS OIL	TONNE OF COAL EQUIVALENT	TONNE OF OIL EQUIVALENT	LITRES
	MULTIPLY BY							
Crude Oil	42.620	40.390	10.180	11.840	7.320	1.454	1.018	1,164
Natural Gas Liquids	45.190	42.830	10.790	12.550	10.400	1.542	1.079	1,653
Liquefied Petroleum Gas (LPG)	45.550	43.170	10.880	12.650	11.650	1.554	1.088	1,852
Propane	45.590	43.210	10.890	12.670	12.340	1.556	1.089	1,962
Butane	44.800	42.460	10.700	12.440	10.850	1.529	1.070	1,726
Petrol	43.970	41.670	10.500	12.210	8.500	1.500	1.050	1,590
Aviation Gasoline (AV GAS)	43.970	41.670	10.500	12.210	8.620	1.500	1.050	1,370
Aviation Turbine Fuel (ATF)	43.210	40.950	10.320	12.000	7.770	1.474	1.032	1,235
Kerosene	43.210	40.950	10.320	12.000	7.770	1.474	1.032	1,235
Diesel	42.500	40.280	10.150	11.810	7.230	1.450	1.015	1,149
Residual Fuel Oil	41.510	39.340	9.910	11.530	6.620	1.416	0.991	1,053
Lubricants	42.140	39.940	10.070	11.700	6.990	1.438	1.007	1,111
Bitumen / Asphalt	41.800	39.620	9.980	11.610	6.050	1.426	0.998	962
Naphtha	44.130	41.830	10.540	12.260	8.740	1.506	1.054	1,389
Other Petroleum Products	42.500	40.280	10.150	11.800	6.910	1.450	1.015	1,099

GASEOUS FUELS

FROM METRIC TONNE / INTO	GIGAJOULES	MILLION BTUS	GIGACALORIES	MEGAWATT HOURS	BARRELS OIL	TONNE OF COAL EQUIVALENT	TONNE OF OIL EQUIVALENT
	MULTIPLY BY						
Natural Gas	39.020	36.980	9.320	10.840	6.500	1.331	0.932
Refinery Gas	*46.100*	43.700	11.000	12.800	7.690	1.571	1.100
Biogas	20.000	19.000	4.800	5.600	3.360	0.686	0.480
Methane	33.500	31.700	8.000	9.300	5.590	1.143	0.800
Ethane	59.500	56.300	14.200	16.500	9.920	2.029	1.420
Propane	85.800	81.300	20.500	23.800	14.330	2.929	2.050
Butane	111.800	106.000	26.700	31.000	18.600	3.814	2.670
Pentane	134.000	127.000	32.000	37.200	22.360	4.571	3.200

Note: 1 cubic metre = 35.31467 cubic feet

DEFINITION

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

NATURAL GAS	Is a mixture of gaseous hydrocarbons (mainly methane), which occur in either gas fields or in association with crude oil in oil fields.
LNG	Is natural gas that is liquefied for ocean transportation and export
CRUDE OIL	Is natural product that is extracted from mineral deposits and consists essentially of many different non-aromatic hydrocarbons (paraffinic, cyclonic, etc.)
AVIATION GASOLINE (AV GAS)	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.
PETROL	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 within 150°C and 250°C.
KEROSENE	Is a straight-run fraction from crude oil, with boiling range from 150°C to 250°C. Its main uses are for domestic lighting and cooking.
DIESEL (OR GAS OIL)	Distillation falls within 200°C to 340°C. Diesel fuels for high-speed diesel engines (i.e. automotive) are more critical of fuel quality than diesel for stationary and marine diesel engines. Marine oil usually consists of a blend of diesel oil and some residual (asphaltic) material.
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 feed-stock in the chemical industry. Bitumen is a viscous liquid or solid, non-volatile and possesses waterproofing and adhesive properties. Lubricating oil is used for lubricating purposes and has distillation range within 380°C to 500°C.
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 sulphur. Coal in the energy balances 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 Supply and Market Regulation Department. Figures for 'fuel input' into power stations & co-generation plants were only available for TNB, SEB, SESB, IPPs as well as GDC Sdn Bhd. Estimates were made using average conversion efficiency to obtain the fuel input into private installations.

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