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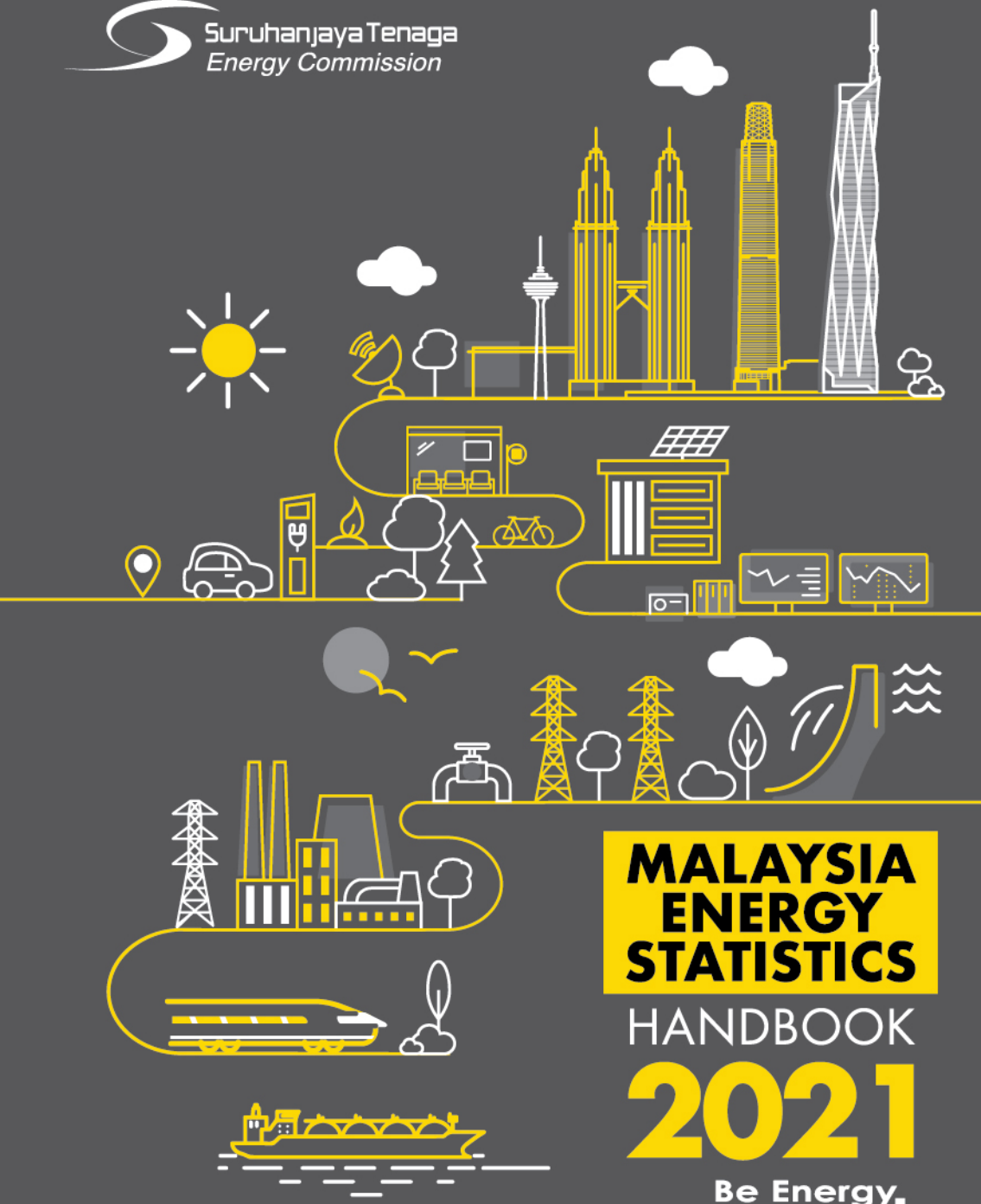

MALAYSIA ENERGY STATISTICS HANDBOOK 2021

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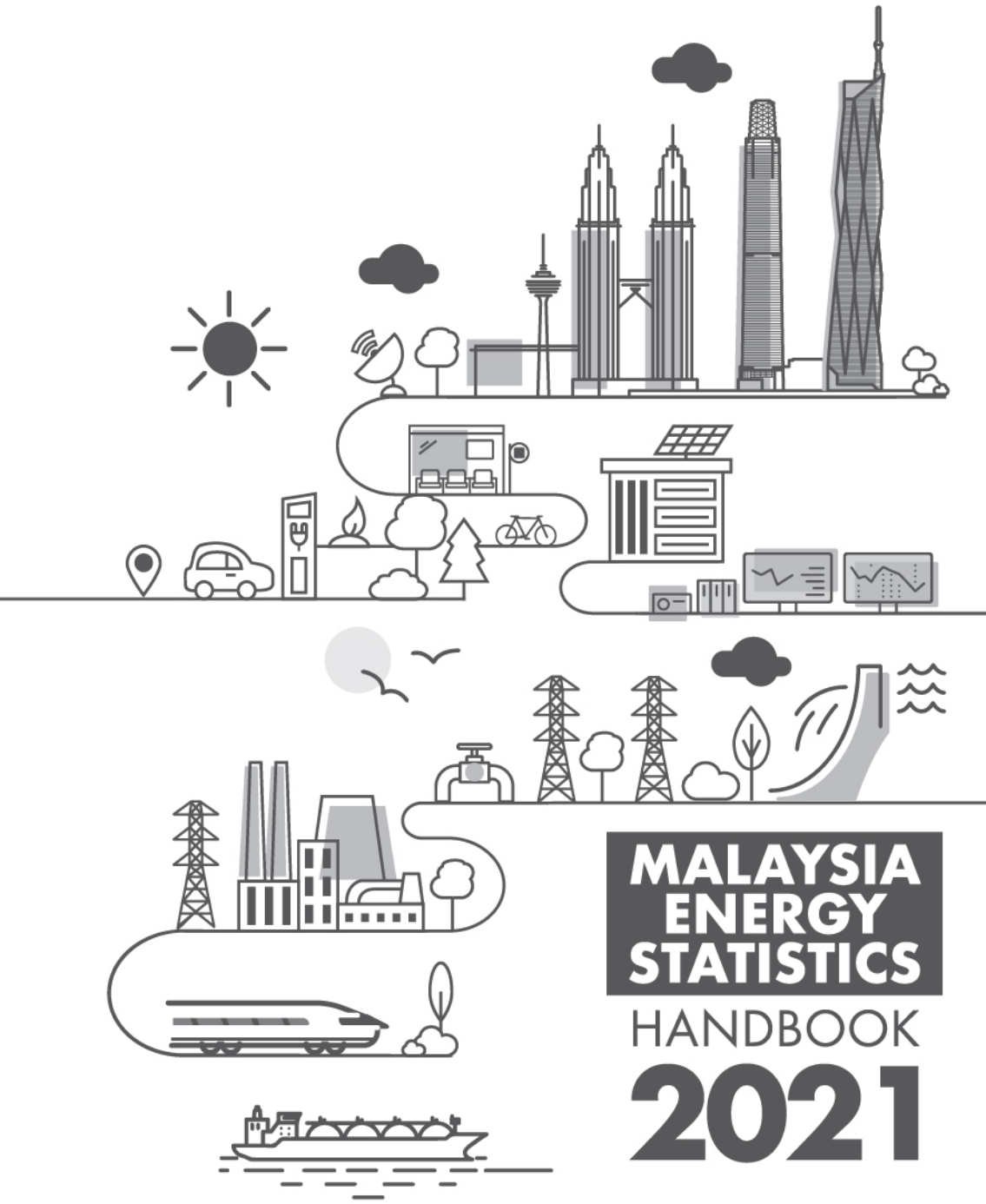

MALAYSIA ENERGY STATISTICS HANDBOOK 2021

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PREFACE

The Energy Commission was established on 1st May 2001, under the Energy Commission Act 2001 and became fully operational in January 2002. Our core function is to regulate electricity and piped gas supply in Peninsular Malaysia, establishing a balance between the priorities of energy providers and the needs of consumers. Our commitment is to ensure reliable, safe and cost effective supply of electricity and piped gas to all consumers. On top of that, we are also the hub for energy data and the focal point for matters related to energy data in Malaysia.

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

This handbook comprises of 10 main sections, whereby each section contains graphs and charts for users to visualise the energy trend while providing an overview of the national energy supply and demand. This handbook displays data on the energy supply, transformation, consumption, prices, indicators and electricity and piped gas performance.

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

I. National Energy Balance 2019
II. Performance & Statistical Information on The Malaysian Electricity Supply Industry 2020
III. Piped Gas Distribution Industry Statistics Malaysia 2020

Inquiries about figures and graphs in this handbook could be addressed to:

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Reserves of Crude Oil and Condensates

Unit: Billion Barrels

Year	Reserves of Crude Oil and Condensates by Region			
	PENINSULAR MALAYSIA	SARAWAK	SABAH	TOTAL
1990	2.943	-	-	**2.943**
1991	3.045	-	-	**3.045**
1992	3.743	1.267	0.604	**5.614**
1993	4.279	1.205	0.631	**6.115**
1994	2.500	1.200	0.600	**4.300**
1995	2.455	1.067	0.590	**4.112**
1996	2.500	0.900	0.600	**4.000**
1997	2.700	0.680	0.470	**3.850**
1998	2.440	0.860	0.580	**3.880**
1999	2.080	0.830	0.510	**3.420**
2000	1.920	0.850	0.620	**3.390**
2001	1.920	0.850	0.620	**3.390**
2002	2.110	1.340	0.780	**4.230**
2003	2.040	1.300	1.210	**4.550**
2004	1.980	1.420	1.430	**4.830**
2005	1.770	1.560	1.970	**5.300**
2006	1.791	1.334	2.129	**5.254**
2007	1.452	0.889	1.975	**4.316**
2008	1.719	1.315	2.424	**5.458**
2009	1.781	1.388	2.348	**5.517**
2010	2.061	1.362	2.376	**5.799**
2011	2.374	1.492	1.992	**5.858**
2012	2.413	1.600	1.941	**5.954**
2013	2.335	1.592	1.923	**5.850**
2014	2.341	1.566	1.885	**5.792**
2015	2.205	1.693	2.009	**5.907**
2016	1.735	1.370	1.925	**5.030**
2017	1.669	1.290	1.767	**4.727**
2018	1.612	1.304	1.637	**4.553**
2019	1.476	1.702	1.497	**4.675**

Source: PETRONAS

Reserves of Natural Gas

Unit: Trillion Standard Cubic Feet (TSCF)

Reserves of Natural Gas by Region

Year	PENINSULAR MALAYSIA			SABAH			SARAWAK			Grand Total
	Non-Associated	Associated	Total	Non-Associated	Associated	Total	Non-Associated	Associated	Total	
1990	21.350	6.080	**27.430**	1.320	1.030	**2.350**	23.840	3.310	**27.150**	**56.930**
1991	21.320	6.200	**27.520**	1.380	0.980	**2.360**	25.770	3.400	**29.170**	**59.050**
1992	22.500	6.700	**29.200**	1.800	1.100	**2.900**	31.900	3.800	**35.700**	**67.800**
1993	23.900	7.800	**31.700**	3.000	1.700	**4.700**	36.600	3.800	**40.400**	**76.800**
1994	26.600	7.900	**34.500**	2.900	1.200	**4.100**	37.900	4.200	**42.100**	**80.700**
1995	28.000	8.200	**36.200**	6.000	1.300	**7.300**	37.000	4.200	**41.200**	**84.700**
1996	28.300	8.300	**36.600**	4.900	1.200	**6.100**	33.200	4.300	**37.500**	**80.200**
1997	29.400	8.900	**38.300**	4.800	1.200	**6.000**	32.500	3.000	**35.500**	**79.800**
1998	27.700	8.900	**36.600**	4.900	1.200	**6.100**	40.600	3.700	**44.300**	**87.000**
1999	25.900	8.500	**34.400**	6.600	1.100	**7.700**	39.900	3.800	**43.700**	**85.800**
2000	25.300	8.400	**33.700**	6.700	1.300	**8.000**	37.400	3.400	**40.800**	**82.500**
2001	25.300	8.400	**33.700**	6.700	1.300	**8.000**	37.400	3.400	**40.800**	**82.500**
2002	24.900	8.400	**33.300**	6.800	1.200	**8.000**	42.600	3.400	**46.000**	**87.300**
2003	23.900	8.500	**32.400**	8.100	1.800	**9.900**	42.700	4.000	**46.700**	**89.000**
2004	21.740	9.520	**31.260**	7.750	1.880	**9.630**	42.750	3.380	**46.130**	**87.020**
2005	21.590	9.200	**30.790**	8.230	2.500	**10.730**	40.540	3.130	**43.670**	**85.190**
2006	23.170	9.650	**32.820**	8.210	2.750	**10.960**	41.240	2.930	**44.170**	**87.950**
2007	24.030	9.440	**33.469**	8.461	3.137	**11.598**	40.850	3.008	**43.858**	**88.925**
2008	24.190	9.269	**33.459**	9.132	3.584	**12.716**	38.974	2.861	**41.835**	**88.010**
2009	24.079	9.153	**33.232**	8.578	3.523	**12.101**	39.727	2.908	**42.635**	**87.968**
2010	25.139	9.280	**34.419**	8.681	3.787	**12.468**	39.187	2.513	**41.700**	**88.587**
2011	25.337	9.797	**35.134**	8.638	3.327	**11.965**	39.856	3.033	**42.889**	**89.988**
2012	26.144	9.594	**35.738**	9.801	3.502	**13.303**	39.901	3.180	**43.081**	**92.122**
2013	25.649	9.325	**34.974**	9.454	3.764	**13.218**	46.798	3.330	**50.128**	**98.320**
2014	25.242	9.688	**34.930**	10.029	3.724	**13.753**	48.955	3.024	**51.979**	**100.662**
2015	24.022	8.471	**32.493**	11.884	3.149	**15.032**	50.034	2.853	**52.888**	**100.413**
2016	20.428	6.793	**27.221**	10.915	2.521	**13.436**	45.336	1.770	**47.105**	**87.762**
2017	19.327	6.333	**25.659**	11.060	1.487	**12.547**	43.184	1.508	**44.692**	**82.897**
2018	17.266	6.422	**23.688**	10.504	2.078	**12.582**	41.754	1.507	**43.261**	**79.531**
2019	15.219	6.428	**21.648**	9.611	2.054	**11.665**	44.436	1.419	**45.855**	**79.168**

Source: PETRONAS

Reserves of Coal as of 31st December 2019

Unit : Million Tonnes

Location	Reserves			Coal Type
	Measured	Indicated	Inferred	
SARAWAK				
1. Abok & Silantek, Sri Aman	7.25	10.60	32.40	Coking Coal, Semi-Anthracite and Anthracite
2. Merit-Pila, Kapit	168.89	107.02	91.65	Sub-Bituminous
3. Bintulu	6.00	0.00	14.00	Bituminous (partly coking coal)
4. Mukah - Balingian	84.15	170.73	646.53	Lignite, Hydrous Lignite and Sub-Bituminous
5. Tutoh Area	5.58	34.66	162.33	Sub-Bituminous
Subtotal	**271.87**	**323.01**	**946.91**	
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	**276.67**	**378.23**	**1,263.11**	
Grand Total		**1,918.01**		

Source: Department of Mineral and Geosciences Malaysia

Installed Capacity as of 31st December 2020

Unit: MW

		Hydro	Natural Gas	Coal	Diesel / MFO	Biomass	Solar	Biogas	Others	Total
PENINSULAR MALAYSIA	TNB	2,556.5	2,230.0	0.0	0.0	0.0	0.0	0.0	0.0	**4,786.5**
	IPPs	20.0	9040.4	12,180.0	0.0	0.0	0.0	0.0	0.0	**21,240.4**
	Co-Generation	0.0	945.9	0.0	0.0	12.4	0.0	0.0	79.0	**1,037.3**
	Self-Generation	2.1	20.9	0.0	39.4	100.6	8.1	0.4	0.0	**171.5**
	FiT	63.8	0.0	0.0	0.0	44.9	240.1	93.2	0.0	**441.9**
	LSS	0.0	0.0	0.0	0.0	0.0	614.9	0.0	0.0	**614.9**
	NEM	0.0	0.0	0.0	0.0	0.0	31.3	0.0	0.0	**31.3**
	Subtotal	**2,642.4**	**12,237.3**	**12,180.0**	**39.4**	**157.9**	**894.5**	**93.6**	**79.0**	**28,323.9**
SABAH	SESB	83.1	112.0	0.0	220.9	0.0	23.2	0.0	0.0	**439.2**
	IPPs	0.0	1,012.6	0.0	64.4	0.0	0.0	0.0	0.0	**1,077.0**
	Co-Generation	0.0	65.0	0.0	0.0	116.2	0.0	0.0	0.0	**181.2**
	Self-Generation	0.0	3.9	0.0	137.3	79.0	0.0	42.5	0.0	**262.7**
	FiT	6.5	0.0	0.0	0.0	25.8	28.7	9.6	0.0	**70.6**
	LSS	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	**50.0**
	NEM**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Subtotal	**89.6**	**1,193.5**	**0.0**	**422.6**	**221.0**	**101.9**	**52.1**	**0.0**	**2,080.7**
SARAWAK	SEB	3,458.1	583.6	1,103.9	97.5	0.0	0.1	0.0	0.0	**5,243.3**
	Co-Generation	0.0	389.0	0.0	0.0	0.0	0.0	0.0	0.0	**389.0**
	Self-Generation	0.0	0.0	0.0	17.0	61.7	0.0	0.5	5.1	**84.3**
	Subtotal	**3,458.1**	**972.6**	**1,103.9**	**114.5**	**61.7**	**0.1**	**0.5**	**5.1**	**5,716.6**
	Total	**6,190.1**	**14,403.3**	**13,283.9**	**576.5**	**440.5**	**996.4**	**146.2**	**84.1**	**36,121.2**
	Share (%)	**17.1%**	**39.9%**	**36.8%**	**1.6%**	**1.2%**	**2.8%**	**0.4%**	**0.2%**	**100.0%**

Source: Energy Commission, Power Utilities, IPPs, SEDA Malaysia and Ministry of Utilities Sarawak
Notes (**): Exclude plants that are not in operation

Available Capacity as of 31st December 2020

Unit: MW

		Hydro	Natural Gas	Coal	Diesel/ MFO	Biomass/ Biogas	Solar	Total
PENINSULAR MALAYSIA	TNB	2,536.1	2,231.0	0.0	0.0	0.0	0.0	**4,767.1**
	IPPs	0.0	8,769.0	12,066.0	0.0	0.0	0.0	**20,835.0**
	LSS	0.0	0.0	0.0	0.0	0.0	72.9	**72.9**
	Subtotal	**2,536.1**	**11,000.0**	**12,066.0**	**0.0**	**0.0**	**72.9**	**25,675.0**
SABAH	SESB	74.9	103.4	0.0	149.7	0.0	0.0	**328.0**
	IPPs	0.0	865.0	0.0	0.0	0.0	0.0	**865.0**
	FiT	6.5	0.0	0.0	0.0	28.2	0.0	**34.7**
	Subtotal	**81.4**	**968.4**	**0.0**	**149.7**	**28.2**	**7.5**	**1,235.2**
SARAWAK	SEB	3,444.1	571.5	1,001.0	91.8	0.0	0.1	**5,108.5**
	Subtotal	**3,444.1**	**571.5**	**1,001.0**	**91.8**	**0.0**	**0.1**	**5,108.5**
Total		**6,061.6**	**12,539.9**	**13,067.0**	**241.5**	**28.2**	**80.5**	**32,018.7**

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

Source: Power Utilities and IPPs

Key Economic and Energy Data

	2019				
	Q1	Q2	Q3	Q4	Total
GDP at Current Prices (RM million)*	362,556	371,803	382,470	396,329	**1,513,157**
GDP at 2015 Prices (RM million)*	342,398	350,017	361,257	370,638	**1,424,310**
GNI at Current Prices (RM million)*	353,560	366,551	372,907	380,644	**1,473,662**
Population ('000 people)**	32,488	32,523	32,557	32,590	**32,523**
Primary Energy Supply (ktoe)	24,214	25,037	24,247	25,182	**98,681**
Final Energy Consumption (ktoe)	16,786	16,522	16,031	17,145	**66,483**
Electricity Consumption (ktoe)	3,328	3,501	3,429	3,389	**13,647**
Electricity Consumption (GWh)	38,677	40,690	39,850	39,386	**158,603**
Per Capita					
GDP at Current Prices (RM)*	44,639	45,728	46,991	48,644	**46,526**
Primary Energy Supply (toe)	0.745	0.770	0.745	0.773	**3.034**
Final Energy Consumption (toe)	0.517	0.508	0.492	0.526	**2.044**
Electricity Consumption (kWh)	1,190	1,251	1,224	1,209	**4,877**
Energy Intensity					
Primary Energy Supply (toe/GDP at 2015 prices (RM million))	70.72	71.53	67.12	67.94	**69.28**
Final Energy Consumption (toe/GDP at 2015 prices (RM million))	49.0	47.2	44.4	46.3	**46.7**
Electricity Consumption (toe/GDP at 2015 prices (RM million))	9.7	10.0	9.5	9.1	**9.6**
Electricity Consumption (GWh/GDP at 2015 prices (RM million))	0.113	0.116	0.110	0.106	**0.111**

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

Key Economic and Energy Data by Region

PENINSULAR MALAYSIA	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
GDP at Current Prices (RM million)*	684,057	751,734	806,569	849,891	925,232	975,581	1,038,585	1,131,602	1,193,129	**1,254,361**
GDP at 2015 Prices (RM million)*	744,624	784,737	833,245	873,486	928,517	975,581	1,020,869	1,080,017	1,137,581	**1,192,112**
Population ('000 people)**	22,753	23,099	23,417	23,868	24,281	24,669	24,995	25,303	25,593	**25,713**
Final Energy Consumption (ktoe)	35,593	35,968	36,683	41,859	42,470	43,011	45,872	46,520	47,446	**48,085**
Electricity Consumption (ktoe)	8,145	8,427	8,791	9,108	9,315	9,531	10,026	10,004	10,378	**10,776**
Electricity Consumption (GWh)	94,666	97,939	102,174	105,861	108,259	110,770	116,529	116,272	120,617	**125,238**
Per Capita										
GDP at Current Prices (RM)*	30,064	32,544	34,444	35,608	38,105	39,547	41,551	44,722	46,619	**48,783**
Final Energy Consumption (toe)	1.564	1.557	1.567	1.754	1.749	1.744	1.835	1.839	1.854	**1.870**
Electricity Consumption (kWh)	4,161	4,240	4,363	4,435	4,459	4,490	4,662	4,595	4,713	**4,871**
Energy Intensity										
Final Energy Consumption (toe/GDP at 2015 prices (RM million))	47.8	45.8	44.0	47.9	45.7	44.1	44.9	43.1	41.71	**40.3**
Electricity Consumption (toe/GDP at 2015 prices (RM million))	10.9	10.7	10.6	10.4	10.0	9.8	9.8	9.3	9.1	**9.0**
Electricity Consumption (GWh/GDP at 2015 prices (RM million))	0.127	0.125	0.123	0.121	0.117	0.114	0.114	0.108	0.106	**0.105**

Notes (*): 1. GDP data by States from the Department of Statistics Malaysia
2. GDP for Peninsular Malaysia includes Supra State (Supra State covers production activities that beyond the centre of predominant economic interest for any state)
3. GDP data by States from 2010 until 2014 were estimated by the Energy Commission
(**): Mid-year population from the Department of Statistics Malaysia

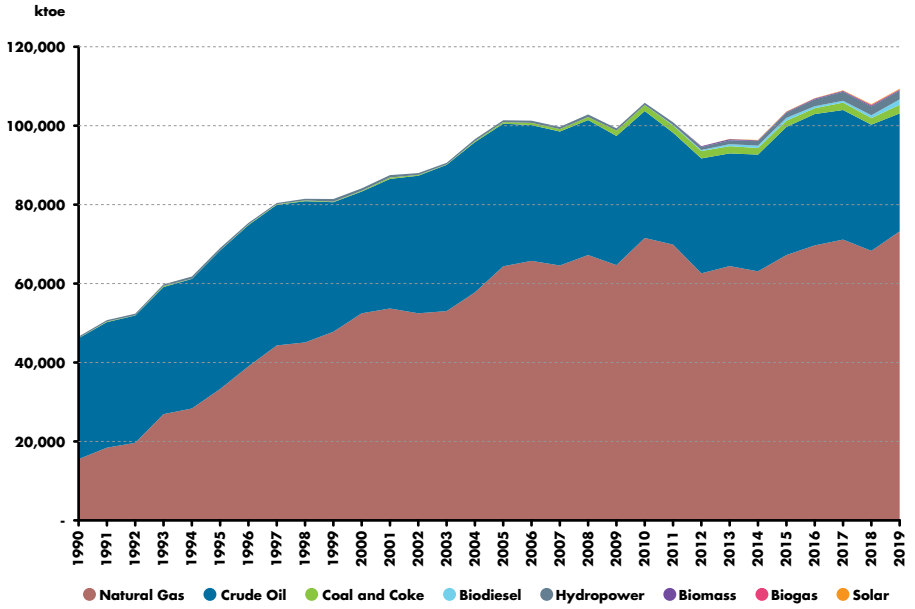
SABAH	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
GDP at Current Prices (RM million)*	62,043	70,269	71,958	72,981	78,258	79,775	86,924	101,904	108,058	106,607
GDP at 2015 Prices (RM million)*	64,926	66,693	69,014	71,531	75,093	79,775	83,930	90,583	92,253	93,063
Population ('000 people)**	3,348	3,435	3,523	3,703	3,764	3,816	3,900	3,954	3,997	4,004
Final Energy Consumption (ktoe)	2,758	3,466	4,671	4,097	4,128	3,845	5,015	9,512	6,598	6,561
Electricity Consumption (ktoe)	355	368	425	439	423	499	487	477	484	514
Electricity Consumption (GWh)	4,127	4,275	4,943	5,097	4,919	5,805	5,665	5,545	5,630	5,979
Per Capita										
GDP at Current Prices (RM)*	18,530	20,457	20,424	19,709	20,793	20,908	22,291	25,776	27,032	26,627
Final Energy Consumption (toe)	0.824	1.009	1.326	1.106	1.097	1.008	1.286	2.406	1.651	1.639
Electricity Consumption (kWh)	1,233	1,245	1,403	1,377	1,307	1,521	1,453	1,402	1,408	1,493
Energy Intensity										
Final Energy Consumption (toe/GDP at 2015 prices (RM million))	42.5	52.0	67.7	57.3	55.0	48.2	59.8	105.0	71.5	70.5
Electricity Consumption (toe/GDP at 2015 prices (RM million))	5.5	5.5	6.2	6.1	5.6	6.3	5.8	5.3	5.3	5.5
Electricity Consumption (GWh/GDP at 2015 prices (RM million))	0.064	0.064	0.072	0.071	0.066	0.073	0.067	0.061	0.061	0.064

Notes (*): 1. GDP data by States from the Department of Statistics Malaysia
2. GDP and population for Sabah includes WP Labuan
3. GDP data by States from 2010- 2014 were estimated by the Energy Commission
(**): Mid-year population from the Department of Statistics Malaysia

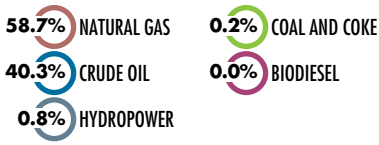
SARAWAK	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
GDP at Current Prices (RM million)*	88,935	104,840	108,833	112,650	121,323	121,585	124,189	138,804	146,264	149,724
GDP at 2015 Prices (RM million)*	99,653	106,023	107,524	112,186	117,070	121,585	124,513	130,169	132,981	136,279
Population ('000 people)**	2,487	2,528	2,570	2,643	2,664	2,702	2,739	2,766	2,792	2,806
Final Energy Consumption (ktoe)	3,125	4,086	5,358	5,628	5,612	4,951	6,331	6,458	10,614	11,838
Electricity Consumption (ktoe)	493	445	795	1,043	1,304	1,344	1,878	2,126	2,290	2,356
Electricity Consumption (GWh)	5,730	5,172	9,237	12,118	15,152	15,624	21,831	24,703	26,618	27,386
Per Capita										
GDP at Current Prices (RM)*	40,068	41,941	41,843	42,455	43,945	45,007	45,464	47,055	47,634	48,567
Final Energy Consumption (toe)	1.256	1.616	2.085	2.130	2.106	1.833	2.312	2.335	3.802	4.219
Electricity Consumption (kWh)	2,304	2,046	3,594	4,586	5,688	5,784	7,971	8,930	9,535	9,760
Energy Intensity										
Final Energy Intensity (toe/ GDP at 2015 prices (RM million))	31.4	38.5	49.8	50.2	47.9	40.7	50.8	49.6	79.9	86.9
Electricity Intensity (toe/ GDP at 2015 prices (RM million))	4.9	4.2	7.4	9.3	11.14	11.1	15.1	16.3	17.2	17.3
Electricity Intensity (GWh/GDP at 2015 prices (RM million))	0.057	0.049	0.086	0.108	0.129	0.129	0.175	0.190	0.200	0.201

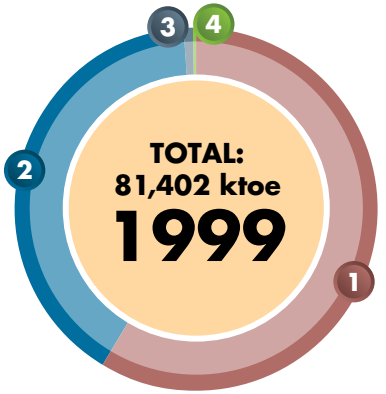
Notes (*): 1. GDP data by States from the Department of Statistics Malaysia
2. GDP data by States from 2010 until 2014 were estimated by the Energy Commission
(**): Mid-year population data from the Department of Statistics Malaysia

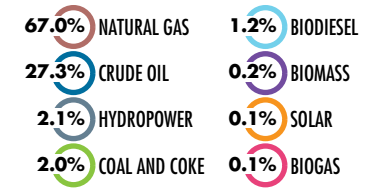
Primary Production by Fuel Type

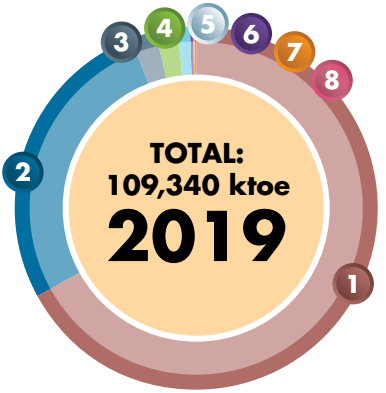


SOURCE: NATIONAL ENERGY BALANCE 2019





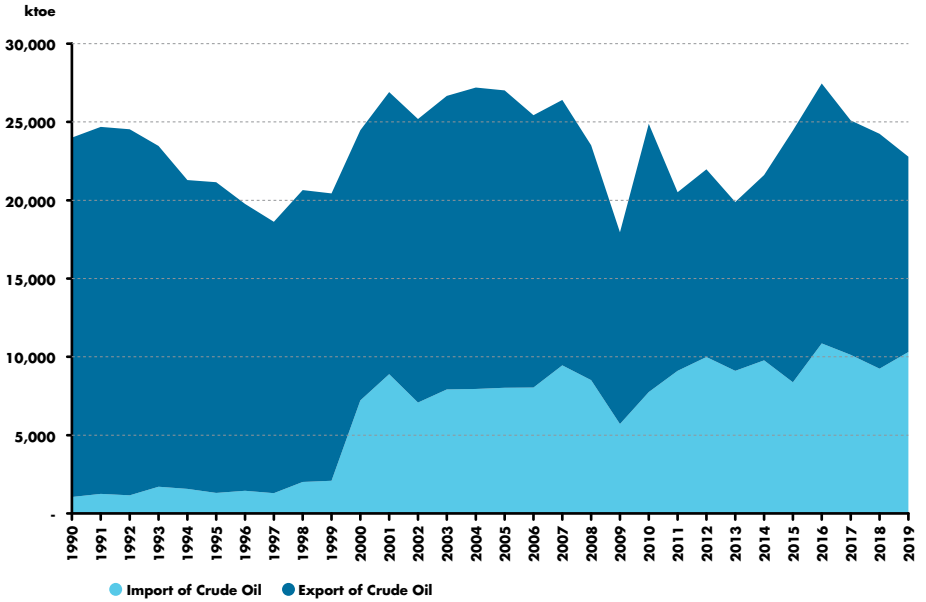




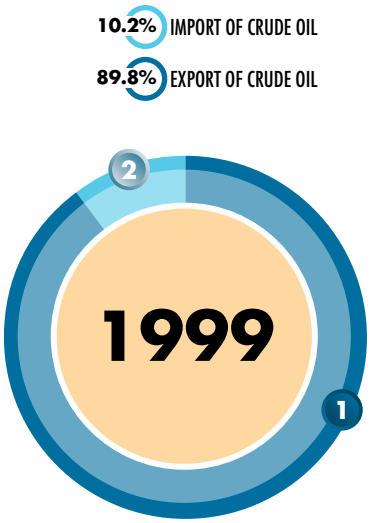
Unit: ktoe

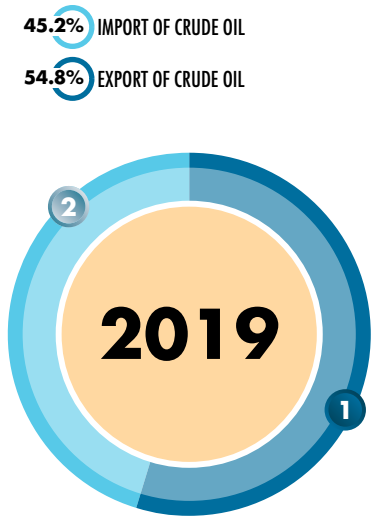
Year	Primary Production by Fuel Type								
	Natural Gas	Crude Oil	Coal & Coke	Biodiesel	Hydropower	Biomass	Biogas	Solar	Total
1990	15,487	30,629	70	-	343	-	-	-	46,529
1991	18,390	31,843	126	-	379	-	-	-	50,738
1992	19,644	32,264	53	-	375	-	-	-	52,336
1993	26,898	32,218	264	-	419	-	-	-	59,799
1994	28,335	32,798	89	-	561	-	-	-	61,783
1995	33,268	35,090	85	-	535	-	-	-	68,978
1996	39,031	35,744	153	-	446	-	-	-	75,374
1997	44,318	35,600	153	-	333	-	-	-	80,404
1998	45,054	35,784	221	-	417	-	-	-	81,476
1999	47,746	32,835	174	-	647	-	-	-	81,402
2000	52,432	30,839	242	-	599	-	-	-	84,112
2001	53,659	32,851	344	-	607	-	-	-	87,461
2002	52,465	34,838	223	-	456	-	-	-	87,982
2003	53,010	37,026	107	-	435	-	-	-	90,578
2004	57,768	38,041	241	-	501	-	-	-	96,552
2005	64,337	36,127	430	-	446	-	-	-	101,340
2006	65,752	34,386	569	-	554	-	-	-	101,261
2007	64,559	33,967	576	-	558	-	-	-	99,660
2008	67,191	34,195	791	-	642	-	-	-	102,819
2009	64,661	32,747	1,348	-	574	-	-	-	99,330
2010	71,543	32,163	1,511	-	540	-	-	-	105,757
2011	69,849	28,325	1,838	176	656	-	-	-	100,845
2012	62,580	29,115	1,860	253	779	183	4	11	94,785
2013	64,406	28,576	1,824	480	1,003	297	6	38	96,630
2014	63,091	29,545	1,694	612	1,152	181	12	63	96,350
2015	67,209	32,440	1,614	684	1,346	189	18	75	103,575
2016	69,673	33,234	1,522	509	1,723	198	21	90	106,969
2017	71,140	32,807	1,884	467	2,287	194	41	93	108,914
2018	68,253	31,996	1,672	703	2,265	241	147	172	105,449
2019	73,230	29,878	2,181	1,351	2,251	204	118	128	109,340

Import and Export of Crude Oil



SOURCE: NATIONAL ENERGY BALANCE 2019

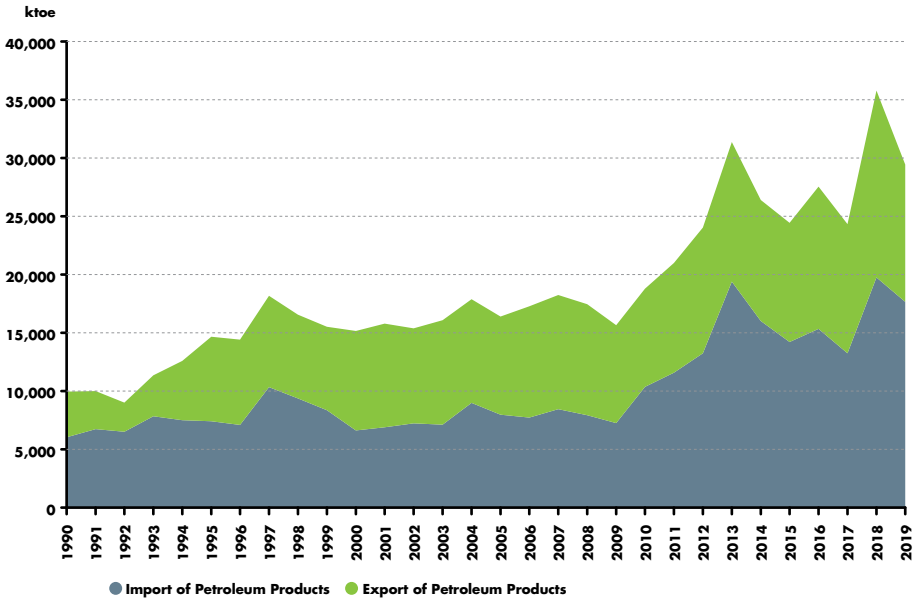




Unit: ktoe

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

Import and Export of Petroleum Products



SOURCE: NATIONAL ENERGY BALANCE 2019

53.9% IMPORT OF PETROLEUM PRODUCTS

46.1% EXPORT OF PETROLEUM PRODUCTS

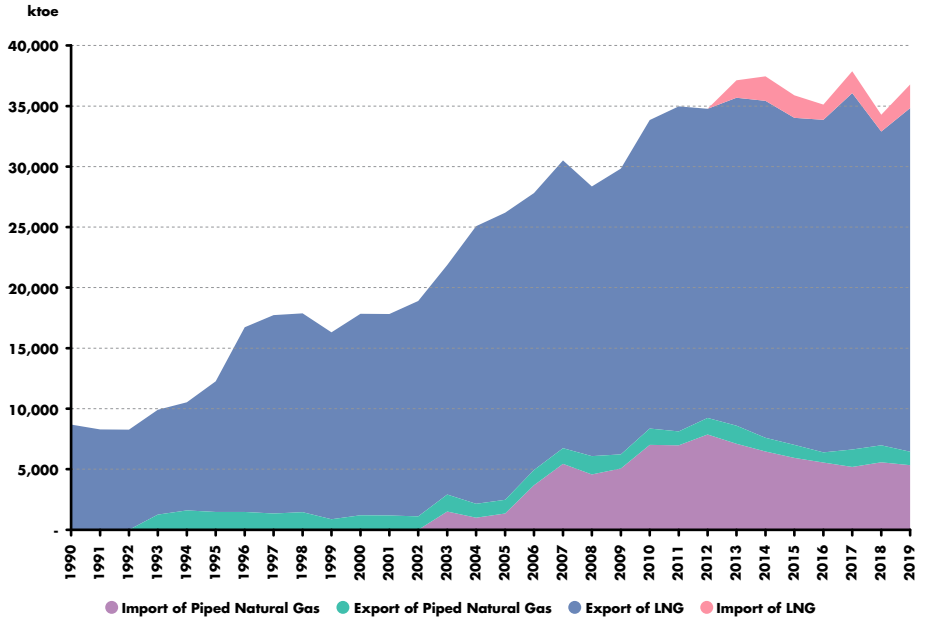
60.0% IMPORT OF PETROLEUM PRODUCTS

40.0% EXPORT OF PETROLEUM PRODUCTS

Unit: ktoe

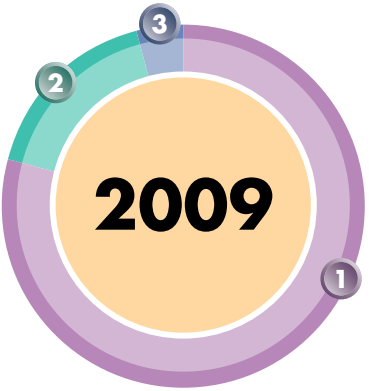
Year	Import and Export of Petroleum Products	
	Import of Petroleum Products	Export of Petroleum Products
1990	6,031	3,913
1991	6,728	3,272
1992	6,499	2,513
1993	7,835	3,507
1994	7,492	5,094
1995	7,411	7,261
1996	7,095	7,317
1997	10,331	7,840
1998	9,360	7,194
1999	8,357	7,161
2000	6,619	8,533
2001	6,881	8,900
2002	7,220	8,158
2003	7,116	8,972
2004	8,980	8,912
2005	7,961	8,435
2006	7,734	9,535
2007	8,452	9,780
2008	7,918	9,527
2009	7,243	8,419
2010	10,359	8,431
2011	11,579	9,421
2012	13,243	10,785
2013	19,383	11,983
2014	16,009	10,399
2015	14,219	10,219
2016	15,342	12,214
2017	13,252	11,063
2018	19,763	16,028
2019	17,662	11,779

Import and Export of Piped Natural Gas and Liquefied Natural Gas (LNG)

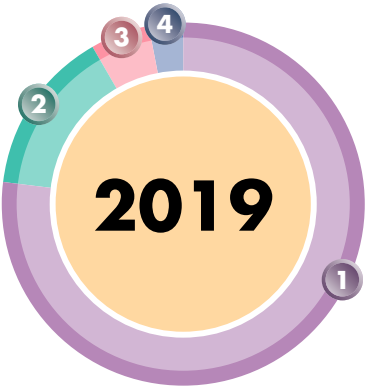


SOURCE: NATIONAL ENERGY BALANCE 2019

79.1% EXPORT OF LNG
16.9% IMPORT OF PIPED NATURAL GAS
3.9% EXPORT OF PIPED NATURAL GAS



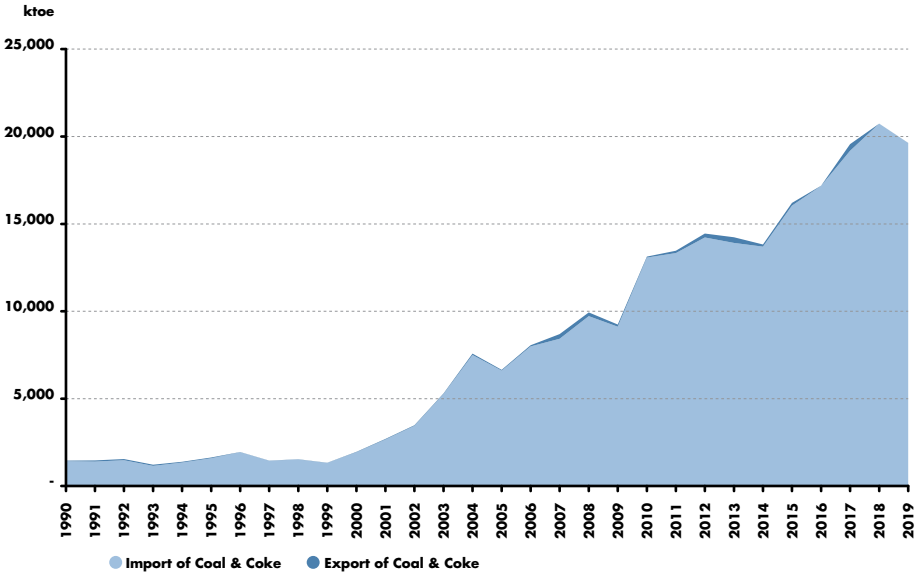
77.2% EXPORT OF LNG
14.5% IMPORT OF PIPED NATURAL GAS
5.3% IMPORT OF LNG
3.0% EXPORT OF PIPED NATURAL GAS



Unit: ktoe

Year	Import and Export of Piped Natural Gas and Liquefied Natural Gas (LNG)			
	Import of Piped Natural Gas	Export of Piped Natural Gas	Export of LNG	Import of LNG
1990	-	-	8,686	-
1991	-	-	8,278	-
1992	-	1	8,262	-
1993	-	1,258	8,654	-
1994	-	1,589	8,938	-
1995	-	1,474	10,790	-
1996	-	1,474	15,251	-
1997	-	1,340	16,396	-
1998	-	1,444	16,429	-
1999	-	860	15,445	-
2000	-	1,198	16,633	-
2001	-	1,178	16,636	-
2002	-	1,098	17,803	-
2003	1,501	1,402	18,965	-
2004	999	1,143	22,944	-
2005	1,340	1,134	23,707	-
2006	3,676	1,257	22,874	-
2007	5,435	1,295	23,777	-
2008	4,565	1,524	22,277	-
2009	5,055	1,166	23,606	-
2010	7,013	1,340	25,487	-
2011	6,979	1,147	26,856	-
2012	7,866	1,368	25,547	-
2013	7,098	1,497	27,089	1,450
2014	6,472	1,129	27,835	2,019
2015	5,941	1,062	27,018	1,873
2016	5,557	841	27,457	1,275
2017	5,183	1,452	29,428	1,815
2018	5,573	1,407	25,920	1,383
2019	5,325	1,114	28,386	1,954

Import and Export of Coal and Coke



SOURCE: NATIONAL ENERGY BALANCE 2019

99.4% IMPORT OF COAL & COKE

0.6% EXPORT OF COAL & COKE

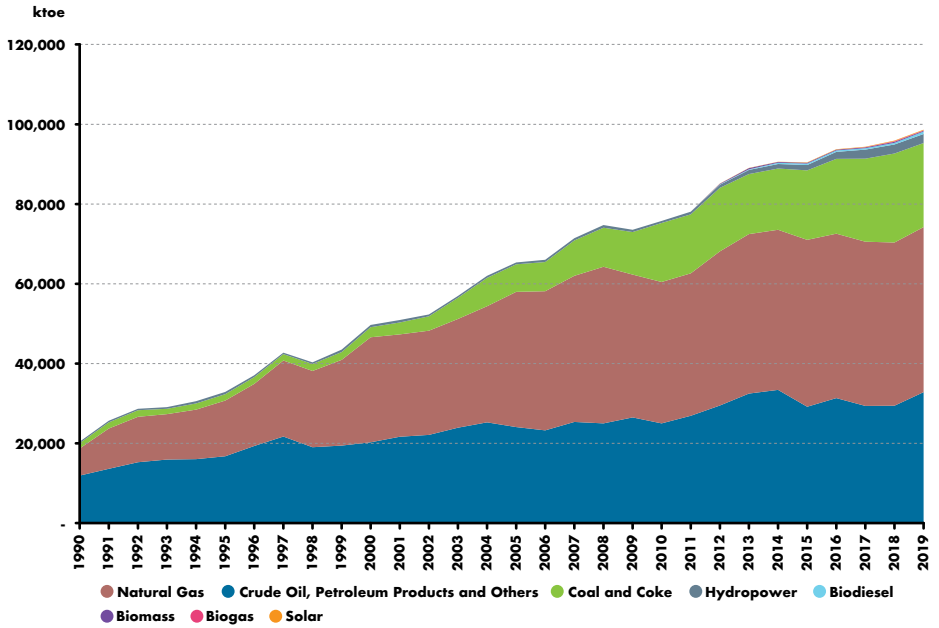
100.0% IMPORT OF COAL & COKE

0.0% EXPORT OF COAL & COKE

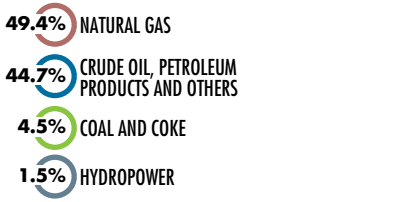
Unit: ktoe

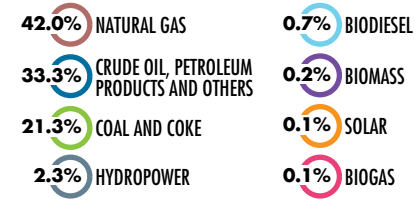
Year	Import and Export of Coal & Coke	
	Import of Coal & Coke	Export of Coal & Coke
1990	1,424	28
1991	1,407	66
1992	1,485	60
1993	1,158	70
1994	1,351	40
1995	1,588	50
1996	1,938	15
1997	1,446	9
1998	1,529	7
1999	1,321	8
2000	1,943	19
2001	2,665	34
2002	3,442	37
2003	5,268	36
2004	7,498	85
2005	6,612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

Total Primary Energy Supply by Fuel Type



SOURCE: NATIONAL ENERGY BALANCE 2019

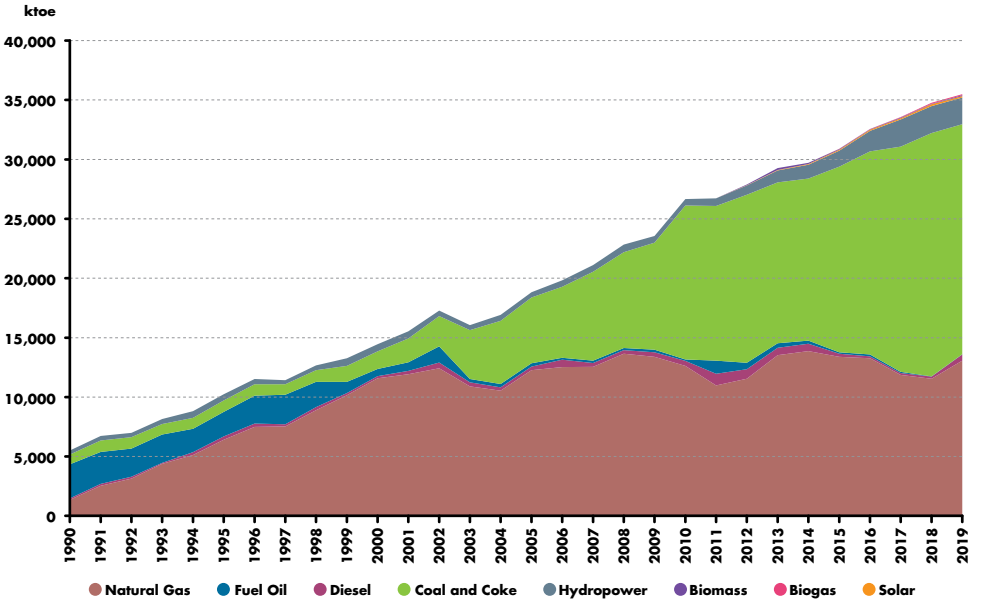




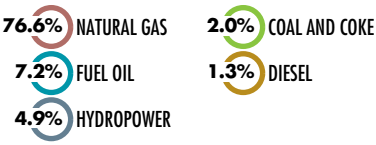
Unit: ktoe

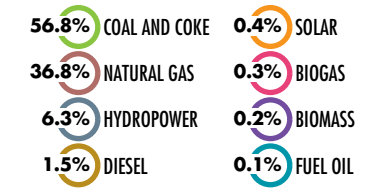
Year	Total Primary Energy Supply by Fuel Type								
	Crude Oil, Petroleum Products and Others	Natural Gas	Coal and Coke	Hydropower	Biodiesel	Biomass	Biogas	Solar	Total
1990	11,928	6,801	1,326	343	-	-	-	-	20,398
1991	13,606	10,112	1,564	379	-	-	-	-	25,661
1992	15,273	11,381	1,640	375	-	-	-	-	28,669
1993	15,951	11,360	1,352	419	-	-	-	-	29,082
1994	16,055	12,392	1,563	561	-	-	-	-	30,571
1995	16,767	13,960	1,612	535	-	-	-	-	32,874
1996	19,353	15,567	1,677	446	-	-	-	-	37,043
1997	21,720	19,041	1,622	333	-	-	-	-	42,716
1998	19,051	19,101	1,731	417	-	-	-	-	40,300
1999	19,450	21,476	1,940	647	-	-	-	-	43,513
2000	20,242	26,370	2,486	599	-	-	-	-	49,697
2001	21,673	25,649	2,970	607	-	-	-	-	50,899
2002	22,124	26,101	3,642	456	-	-	-	-	52,323
2003	23,936	27,257	5,316	435	-	-	-	-	56,944
2004	25,253	29,145	7,109	501	-	-	-	-	62,008
2005	24,096	33,913	6,889	446	-	-	-	-	65,344
2006	23,240	34,917	7,299	554	-	-	-	-	66,009
2007	25,381	36,639	8,848	558	-	-	-	-	71,426
2008	24,996	39,289	9,782	642	-	-	-	-	74,709
2009	26,482	35,851	10,623	574	-	-	-	-	73,530
2010	25,008	35,447	14,777	540	-	-	-	-	75,772
2011	26,903	35,740	14,772	656	24	-	-	-	78,095
2012	29,502	38,647	15,882	779	115	183	4	11	85,123
2013	32,474	39,973	15,067	1,003	188	297	6	38	89,046
2014	33,422	40,113	15,357	1,152	300	181	12	63	90,601
2015	29,165	41,853	17,406	1,346	389	189	18	75	91,112
2016	31,327	41,257	18,744	1,723	389	198	21	90	93,748
2017	29,379	41,201	20,771	2,287	379	194	41	93	94,345
2018	29,429	40,939	22,280	2,265	436	241	147	172	95,909
2019	32,813	41,461	21,057	2,251	648	204	118	128	98,681

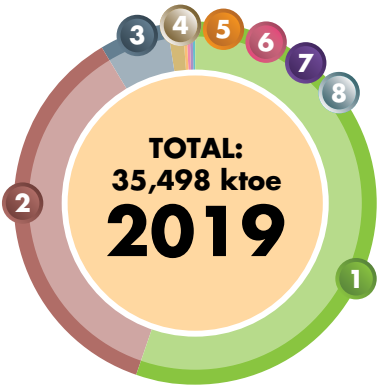
Fuel Input to Power Stations



SOURCE: NATIONAL ENERGY BALANCE 2019



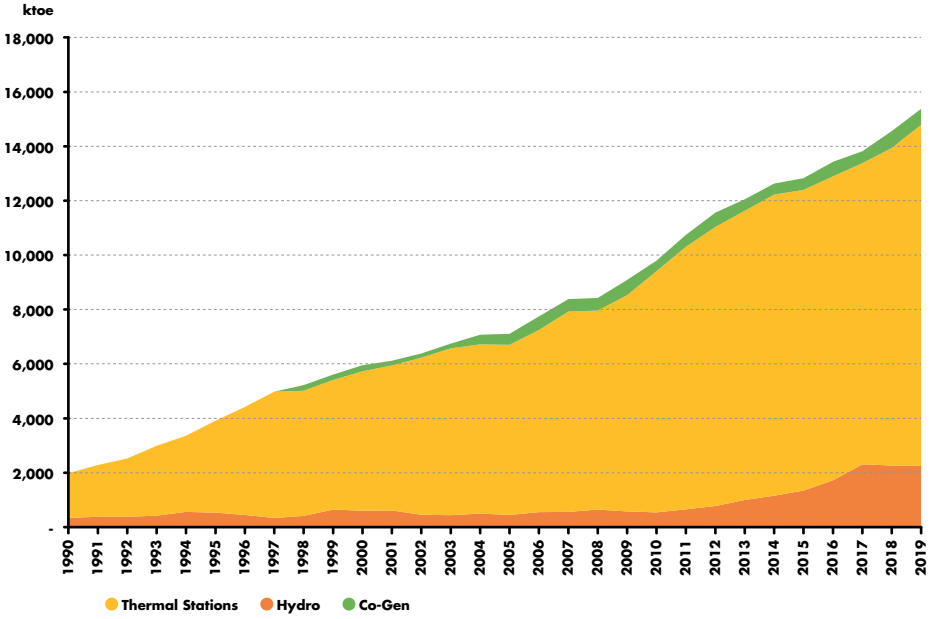




Unit: ktoe

Year	Fuel Input to Power Stations								
	Natural Gas	Diesel	Fuel Oil	Coal and Coke	Hydropower	Solar	Biomass	Biogas	Total
1990	1,361	116	2,873	813	343	0	0	0	5,506
1991	2,533	164	2,687	963	379	0	0	0	6,726
1992	3,144	160	2,352	968	375	0	0	0	6,999
1993	4,374	87	2,388	884	419	0	0	0	8,152
1994	5,119	249	1,957	925	561	0	0	0	8,811
1995	6,414	265	2,073	957	535	0	0	0	10,244
1996	7,489	284	2,354	950	446	0	0	0	11,523
1997	7,531	185	2,482	882	333	0	0	0	11,413
1998	8,886	275	2,130	964	417	0	0	0	12,672
1999	10,162	172	950	1,332	647	0	0	0	13,263
2000	11,580	191	592	1,495	599	0	0	0	14,457
2001	11,922	278	730	1,994	607	0	0	0	15,531
2002	12,424	476	1,363	2,556	456	0	0	0	17,275
2003	10,893	340	289	4,104	435	0	0	0	16,061
2004	10,545	272	274	5,327	501	0	0	0	16,919
2005	12,271	298	275	5,541	446	0	0	0	18,831
2006	12,524	617	171	5,964	554	0	0	0	19,830
2007	12,549	314	199	7,486	558	0	0	0	21,106
2008	13,651	299	181	8,069	642	0	0	0	22,842
2009	13,390	384	205	9,010	574	0	0	0	23,563
2010	12,628	415	125	12,951	540	0	0	0	26,659
2011	10,977	981	1,103	13,013	656	0	0	0	26,730
2012	11,533	811	550	14,138	779	11	65	4	27,891
2013	13,520	623	392	13,527	1,003	38	164	6	29,273
2014	13,860	622	269	13,648	1,152	63	96	12	29,722
2015	13,378	279	101	15,627	1,346	75	74	17	30,898
2016	13,260	165	155	17,101	1,723	90	57	18	32,569
2017	11,872	147	99	18,967	2,287	93	52	40	33,557
2018	11,542	187	17	20,472	2,265	155	57	64	34,758
2019	13,072	517	19	19,351	2,251	125	68	95	35,498

Electricity Generation by Plant Type



SOURCE: NATIONAL ENERGY BALANCE 2019

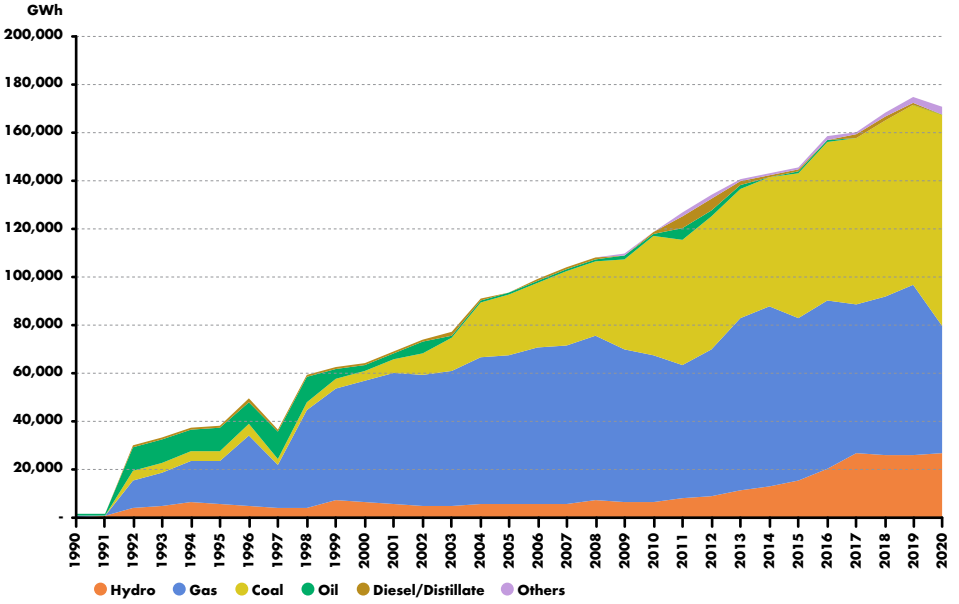
84.9% THERMAL STATIONS
11.5% HYDRO
3.6% CO-GEN

81.5% THERMAL STATIONS
14.6% HYDRO
3.8% CO-GEN

Unit: ktoe

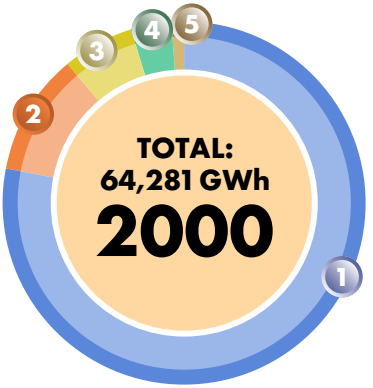
Year	Electricity Generation by Plant Type (ktoe)			
	Hydro	Thermal Stations	Co-Gen	Total
1990	343	1,636	-	1,979
1991	379	1,904	-	2,283
1992	375	2,146	-	2,521
1993	419	2,568	-	2,987
1994	561	2,801	-	3,362
1995	535	3,374	-	3,909
1996	446	3,975	-	4,421
1997	333	4,644	-	4,977
1998	417	4,596	207	5,220
1999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

Electricity Generation Mix

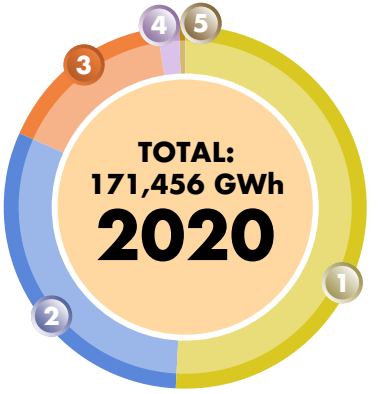


SOURCE: NATIONAL ENERGY BALANCE 2020

78.3%	GAS	3.7%	OIL
10.9%	HDYRO	0.9%	DIESEL/DISTILLATE
6.3%	COAL	0.0%	OTHERS



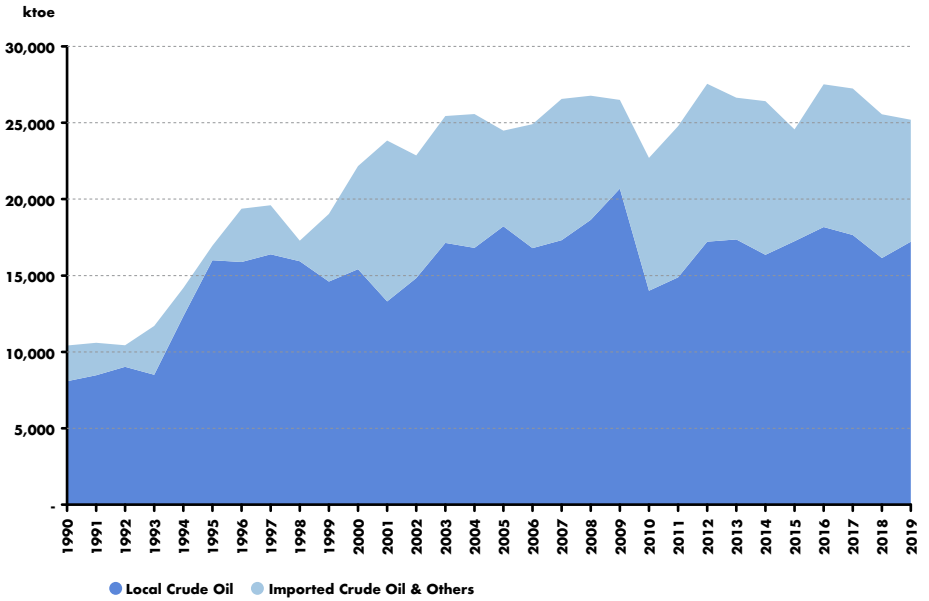
50.9%	COAL	1.9%	OTHERS
30.8%	GAS	0.4%	DIESEL/DISTILLATE
15.9%	HYDRO	0.0%	OIL



Unit: GWh

Year	Electricity Generation Mix						
	Hydro	Gas	Coal	Oil	Diesel / Distillate	Others	Total
1990	518	623	-	367	585	-	2,093
1991	762	525	-	379	612	-	2,278
1992	4,286	11,398	3,837	9,724	862	-	30,107
1993	4,853	13,905	3,880	9,820	865	-	33,323
1994	6,483	17,491	4,081	8,756	988	-	37,799
1995	6,184	17,726	3,974	9,687	1,249	-	38,820
1996	5,184	29,641	4,177	9,510	1,584	189	50,285
1997	4,134	18,387	2,460	10,784	1,300	-	37,065
1998	4,457	40,223	3,655	10,339	971	-	59,645
1999	7,552	45,988	4,522	4,220	747	-	63,029
2000	6,994	50,314	4,038	2,383	552	-	64,281
2001	6,066	54,066	6,238	2,531	831	-	69,732
2002	5,415	53,979	9,559	4,465	746	-	74,164
2003	5,090	56,478	13,435	1,221	976	-	77,200
2004	5,573	61,363	22,627	1,130	729	-	91,422
2005	6,007	61,396	25,231	1,048	348	-	94,030
2006	6,323	64,768	26,626	1,265	643	50	99,675
2007	5,957	65,568	30,856	1,091	677	63	104,212
2008	7,807	67,779	31,029	1,048	601	66	108,330
2009	6,890	63,370	37,644	1,041	685	132	109,762
2010	6,361	61,342	49,401	933	726	170	118,933
2011	8,056	55,732	52,302	4,295	5,108	1,576	127,069
2012	9,251	60,992	55,615	2,279	4,344	1,596	134,077
2013	11,799	71,174	53,663	1,571	1,741	1,318	141,266
2014	13,540	74,466	53,693	376	756	995	143,826
2015	15,524	67,900	60,129	595	877	1,196	146,221
2016	20,357	69,871	66,246	423	719	1,056	158,672
2017	26,716	62,131	68,866	-	1,695	1,316	160,724
2018	26,295	65,990	73,362	-	1,062	2,187	168,897
2019	26,280	70,410	74,955	-	949	2,569	175,164
2020	27,301	52,850	87,282	-	738	3,285	171,456

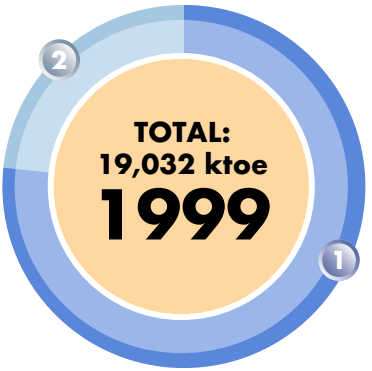
Input of Crude Oil in Refineries



SOURCE: NATIONAL ENERGY BALANCE 2019

76.7% LOCAL CRUDE OIL

23.3% IMPORTED CRUDE OIL & OTHERS



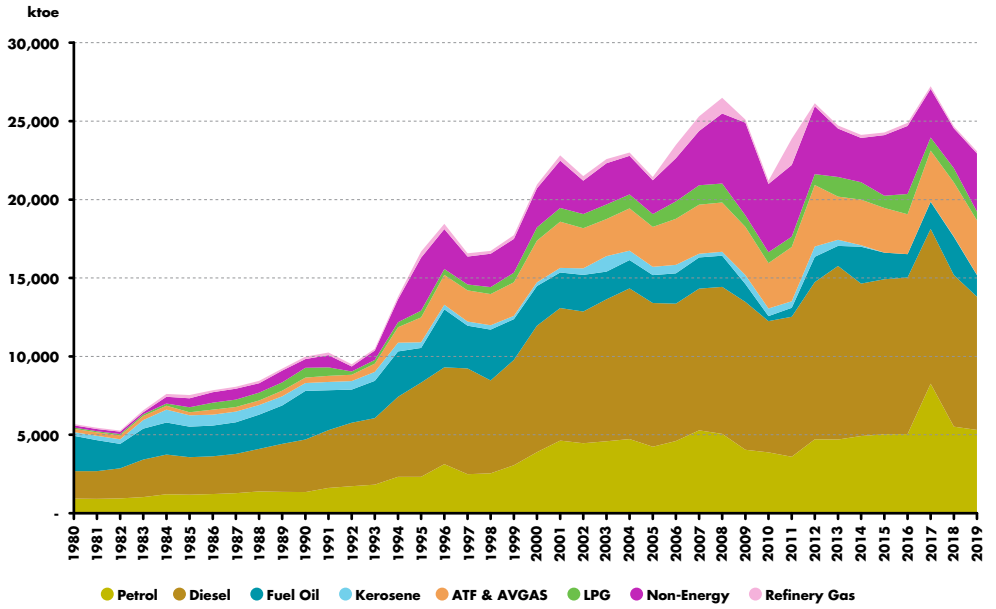
68.3% LOCAL CRUDE OIL

31.7% IMPORTED CRUDE OIL & OTHERS

Unit: ktoe

Year	Input of Crude Oil in Refineries		
	Local Crude Oil	Imported Crude Oil & Others	Total
1990	8,072	2,342	10,414
1991	8,476	2,113	10,589
1992	9,016	1,409	10,425
1993	8,502	3,195	11,697
1994	12,326	1,853	14,179
1995	15,991	969	16,960
1996	15,879	3,501	19,380
1997	16,382	3,224	19,606
1998	15,942	1,347	17,289
1999	14,595	4,437	19,032
2000	15,421	6,743	22,164
2001	13,299	10,546	23,845
2002	14,838	8,032	22,870
2003	17,127	8,322	25,449
2004	16,810	8,764	25,574
2005	18,216	6,271	24,487
2006	16,797	8,113	24,910
2007	17,320	9,251	26,571
2008	18,638	8,138	26,776
2009	20,685	5,812	26,497
2010	14,003	8,706	22,709
2011	14,874	9,904	24,777
2012	17,213	10,347	27,560
2013	17,365	9,289	26,654
2014	16,351	10,066	26,417
2015	17,249	7,327	24,575
2016	18,170	9,353	27,524
2017	17,647	9,605	27,252
2018	16,144	9,409	25,553
2019	17,209	7,999	25,207

Production of Petroleum Products from Refineries



SOURCE: NATIONAL ENERGY BALANCE 2019

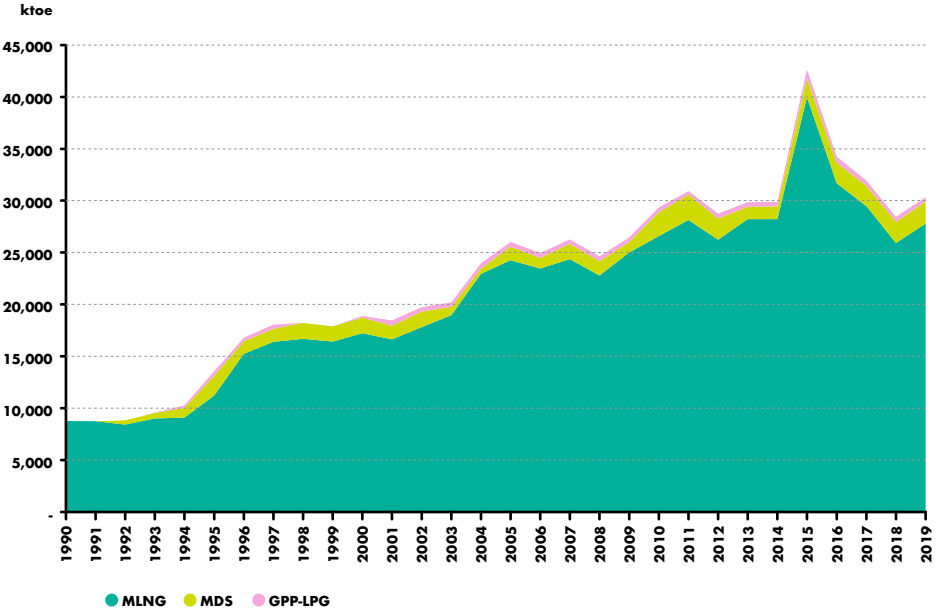
37.9% DIESEL	12.1% ATF & AVGAS
17.2% PETROL	3.5% LPG
14.7% FUEL OIL	1.3% REFINERY GAS
12.2% NON-ENERGY	1.2% KEROSENE

36.8% DIESEL	6.0% FUEL OIL
23.0% PETROL	2.4% LPG
16.1% NON-ENERGY	0.6% REFINERY GAS
15.0% ATF & AVGAS	0.0% KEROSENE

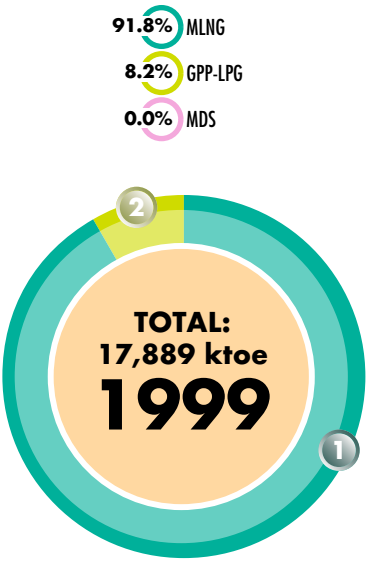
Unit: ktoe

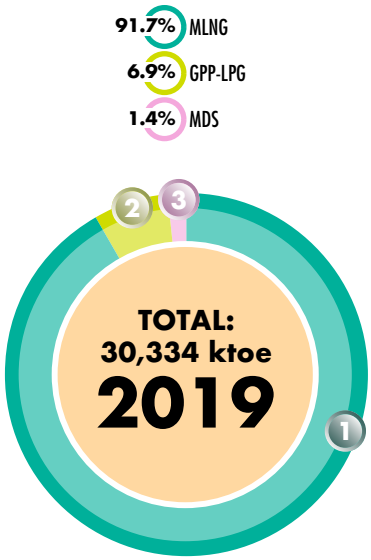
Year	Production of Petroleum Products from Refineries								
	Petrol	Diesel	Fuel Oil	Kerosene	ATF & AVGAS	LPG	Non-Energy	Refinery Gas	Total
1980	933	1,748	2,257	232	214	83	136	90	5,693
1981	916	1,765	1,979	275	218	75	139	86	5,453
1982	949	1,921	1,554	286	256	86	144	79	5,275
1983	1,031	2,384	1,986	542	259	111	124	119	6,556
1984	1,205	2,539	2,044	812	258	142	430	178	7,608
1985	1,187	2,387	1,952	712	201	315	567	209	7,530
1986	1,220	2,410	1,962	694	314	447	676	122	7,845
1987	1,283	2,495	2,013	682	293	477	700	117	8,060
1988	1,384	2,722	2,172	612	294	504	598	151	8,437
1989	1,357	3,062	2,446	591	357	531	749	126	9,219
1990	1,347	3,350	3,106	491	360	613	561	151	9,979
1991	1,611	3,681	2,547	526	390	548	772	168	10,243
1992	1,724	4,048	2,110	541	412	200	324	143	9,502
1993	1,816	4,249	2,375	576	517	244	600	106	10,483
1994	2,316	5,108	2,887	563	980	319	1,468	162	13,803
1995	2,320	6,011	2,212	360	1,587	431	3,380	385	16,686
1996	3,134	6,174	3,696	292	1,899	371	2,554	331	18,451
1997	2,491	6,744	2,716	265	2,000	371	1,783	203	16,573
1998	2,545	5,926	3,233	285	1,985	449	2,117	192	16,732
1999	3,056	6,712	2,603	210	2,140	617	2,159	230	17,727
2000	3,893	8,059	2,532	239	2,660	838	2,492	241	20,954
2001	4,623	8,462	2,269	283	2,954	875	3,020	331	22,817
2002	4,460	8,401	2,332	414	2,570	897	2,127	294	21,495
2003	4,584	9,062	1,763	983	2,367	932	2,623	262	22,576
2004	4,724	9,611	1,813	591	2,693	897	2,455	215	22,999
2005	4,245	9,161	1,777	521	2,553	822	2,157	202	21,438
2006	4,607	8,752	1,933	537	2,938	1,118	2,750	849	23,484
2007	5,285	9,033	1,990	234	3,138	1,228	3,461	938	25,307
2008	5,066	9,364	1,994	245	3,139	1,208	4,475	991	26,482
2009	4,052	9,415	1,144	565	3,085	732	5,905	195	25,093
2010	3,873	8,369	327	483	2,891	697	4,357	209	21,206
2011	3,599	8,925	571	419	3,457	665	4,572	1,659	23,867
2012	4,708	10,033	1,608	654	3,918	702	4,318	197	26,138
2013	4,702	11,063	1,286	387	2,750	1,252	3,089	195	24,724
2014	4,918	9,725	2,340	100	2,916	1,102	2,826	192	24,119
2015	5,031	9,890	1,692	6	2,841	780	3,869	172	24,281
2016	5,044	9,988	1,479	4	2,548	1,285	4,339	201	24,888
2017	8,253	9,877	1,725	10	3,255	832	3,100	174	27,226
2018	5,524	9,665	2,432	18	3,451	900	2,550	130	24,669
2019	5,317	8,484	1,388	8	3,470	560	3,708	147	23,082

Conversion in Gas Plants



SOURCE: NATIONAL ENERGY BALANCE 2019



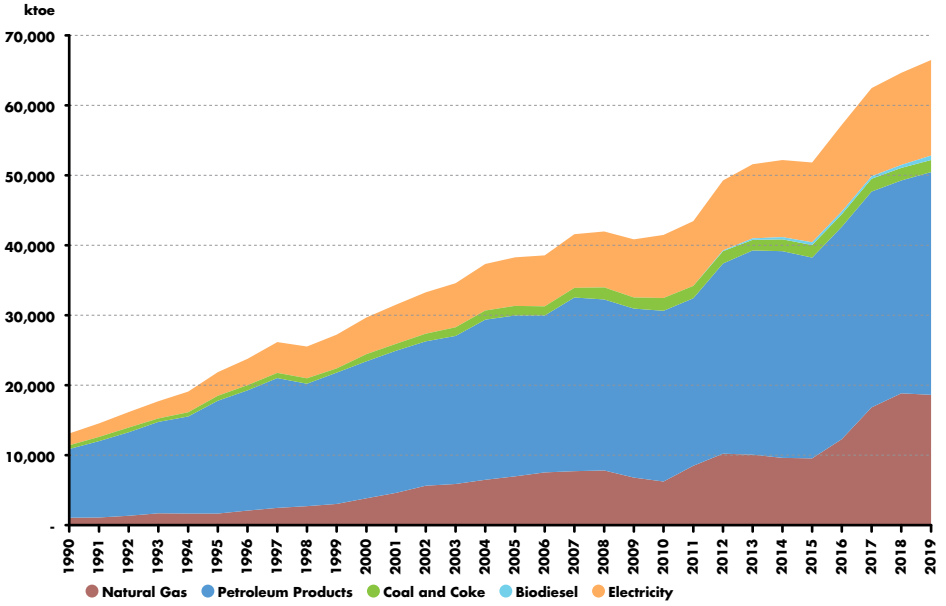


Unit: ktoe

Year	Input:	Conversion in Gas Plants			
	Natural Gas	MLNG	MDS	GPP-LPG	TOTAL
1990	9,797	8,761	N.A.	N.A.	8,761
1991	11,715	8,749	N.A.	N.A.	8,749
1992	11,681	8,425	392	N.A.	8,425
1993	13,005	9,019	529	39	9,587
1994	14,634	9,087	948	238	10,273
1995	17,088	11,244	1,900	421	13,565
1996	20,822	15,251	1,212	344	16,807
1997	24,945	16,396	1,258	389	18,043
1998	23,138	16,688	1,526	N.A.	18,214
1999	24,116	16,417	1,472	N.A.	17,889
2000	26,093	17,231	1,482	164	18,877
2001	25,703	16,636	1,310	513	18,459
2002	25,571	17,803	1,504	445	19,752
2003	27,940	18,965	790	443	20,198
2004	33,176	22,944	520	513	23,977
2005	36,447	24,254	1,319	460	26,033
2006	35,378	23,450	1,036	464	24,950
2007	38,141	24,355	1,483	417	26,255
2008	38,193	22,793	1,362	481	24,636
2009	37,098	25,004	1,012	426	26,442
2010	40,246	26,601	2,299	454	29,354
2011	40,737	28,130	2,434	359	30,923
2012	40,042	26,231	2,035	486	28,752
2013	39,678	28,209	1,174	478	29,861
2014	39,193	28,213	1,250	420	29,883
2015	40,773	39,957	1,826	862	42,645
2016	39,665	31,658	1,997	573	34,227
2017	38,296	29,468	1,961	509	31,938
2018	32,980	25,920	2,022	501	28,443
2019	33,968	27,802	2,107	425	30,335

Notes: 1. NA: not applicable
2. Middle Distillate Synthesis (MDS) commenced pre-commercialisation operation in year 2000
3. MLNG plant produced LPG in 2003

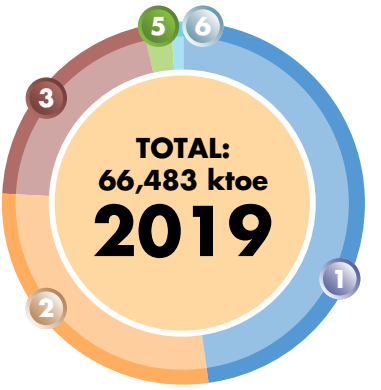
Final Energy Consumption by Fuel Type



SOURCE: NATIONAL ENERGY BALANCE 2019

69.0% PETROLEUM PRODUCTS
17.7% ELECTRICITY
2.2% COAL AND COKE
11.1% NATURAL GAS

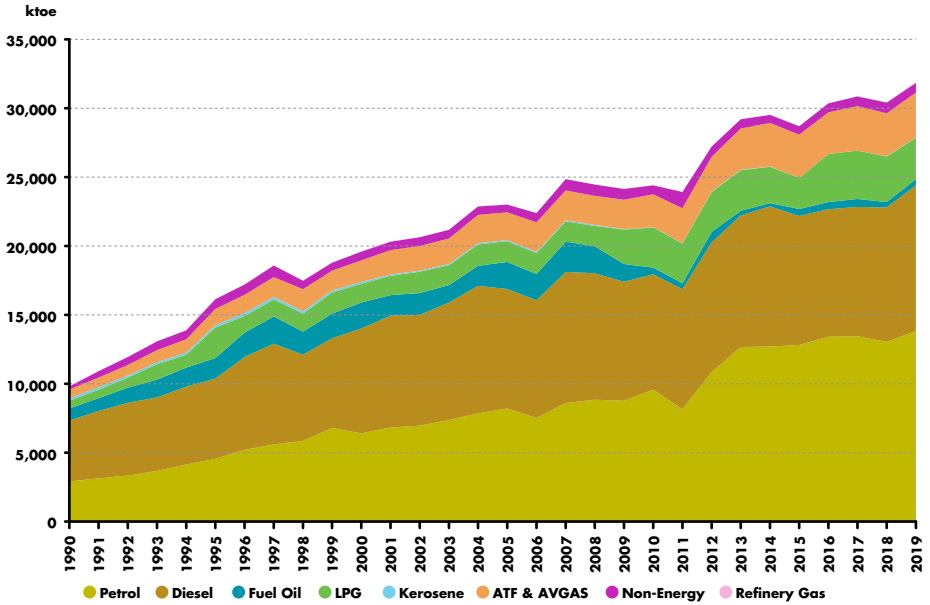
47.9% PETROLEUM PRODUCTS
28.0% ELECTRICITY
2.6% COAL AND COKE
20.5% NATURAL GAS
1.0% BIODIESEL



Unit: ktoe

Year	Final Energy Consumption by Fuel Type					
	Natural Gas	Petroleum Products	Coal & Coke	Biodiesel	Electricity	Total
1990	1,069	9,825	513	-	1,715	13,122
1991	1,099	10,914	599	-	1,925	14,537
1992	1,344	11,927	672	-	2,218	16,161
1993	1,701	13,076	487	-	2,450	17,713
1994	1,660	13,894	598	-	2,932	19,084
1995	1,654	16,142	712	-	3,375	21,883
1996	2,079	17,203	727	-	3,777	23,786
1997	2,465	18,578	740	-	4,384	26,167
1998	2,726	17,488	767	-	4,577	25,558
1999	3,023	18,782	608	-	4,815	27,228
2000	3,862	19,582	991	-	5,263	29,698
2001	4,620	20,323	977	-	5,594	31,514
2002	5,643	20,638	1,086	-	5,922	33,289
2003	5,886	21,175	1,212	-	6,313	34,586
2004	6,490	22,886	1,305	-	6,642	37,323
2005	6,981	23,012	1,348	-	6,944	38,285
2006	7,562	22,398	1,335	-	7,272	38,567
2007	7,709	24,852	1,362	-	7,683	41,606
2008	7,818	24,451	1,713	-	7,986	41,968
2009	6,802	24,145	1,613	-	8,286	40,846
2010	6,254	24,403	1,826	-	8,993	41,476
2011	8,515	23,922	1,759	24	9,236	43,456
2012	10,206	27,215	1,744	115	10,011	49,290
2013	10,076	29,190	1,539	188	10,590	51,584
2014	9,641	29,517	1,709	300	11,042	52,209
2015	9,566	28,699	1,778	389	11,397	51,829
2016	12,304	30,348	1,785	389	12,394	57,219
2017	16,838	30,862	1,804	379	12,607	62,490
2018	18,851	30,409	1,808	436	13,153	64,658
2019	18,647	31,835	1,706	648	13,647	66,483

Final Energy Consumption for Petroleum Products



SOURCE: NATIONAL ENERGY BALANCE 2019

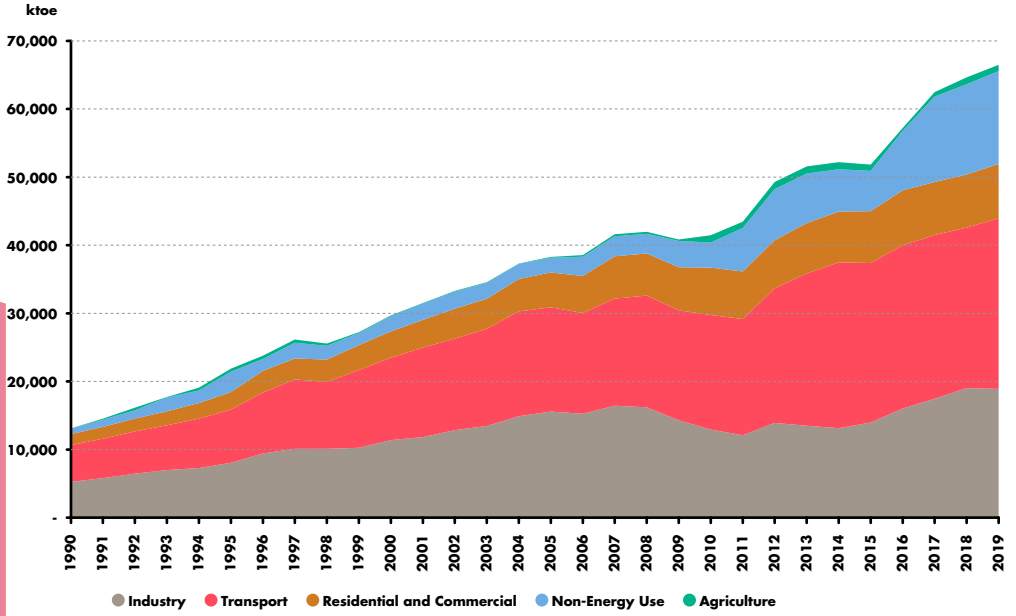
36.2% PETROL	7.6% ATF & AVGAS
34.6% DIESEL	3.1% NON-ENERGY
9.5% FUEL OIL	0.9% KEROSENE
8.1% LPG	0.0% REFINERY GAS

43.4% PETROL	2.2% NON-ENERGY
33.2% DIESEL	1.4% FUEL OIL
10.2% ATF & AVGAS	0.0% KEROSENE
9.5% LPG	

Unit: ktoe

Year	Final Energy Consumption for Petroleum Products								
	Petrol	Diesel	Fuel Oil	LPG	Kerosene	ATF & AVGAS	Non-Energy	Refinery Gas	Total
1990	2,901	4,421	883	548	203	628	229	10	9,823
1991	3,135	4,873	945	612	180	690	467	12	10,914
1992	3,326	5,291	1,088	733	160	764	565	-	11,927
1993	3,666	5,339	1,293	1,119	149	875	625	10	13,076
1994	4,139	5,643	1,392	926	152	978	654	10	13,894
1995	4,548	5,810	1,506	2,215	177	1,160	718	8	16,142
1996	5,205	6,735	1,770	1,215	197	1,335	742	4	17,203
1997	5,586	7,314	1,978	1,245	169	1,439	843	4	18,578
1998	5,854	6,252	1,678	1,301	165	1,619	615	4	17,488
1999	6,793	6,506	1,792	1,523	162	1,424	579	3	18,782
2000	6,387	7,627	1,875	1,362	131	1,574	622	3	19,581
2001	6,827	8,116	1,497	1,392	99	1,762	626	4	20,323
2002	6,948	8,042	1,589	1,542	92	1,785	633	6	20,637
2003	7,360	8,539	1,256	1,437	93	1,852	632	7	21,176
2004	7,839	9,262	1,463	1,542	86	2,056	626	11	22,885
2005	8,211	8,672	1,953	1,510	81	2,010	564	10	23,011
2006	7,517	8,540	1,901	1,520	79	2,152	672	12	22,393
2007	8,600	9,512	2,202	1,474	76	2,155	823	9	24,851
2008	8,842	9,167	1,963	1,475	75	2,112	818	-	24,452
2009	8,766	8,634	1,291	2,506	30	2,120	799	-	24,146
2010	9,560	8,388	478	2,920	19	2,380	657	-	24,402
2011	8,155	8,712	414	2,892	19	2,553	1,178	-	23,923
2012	10,843	9,410	768	2,892	38	2,521	743	-	27,215
2013	12,656	9,568	329	2,946	31	2,998	662	-	29,190
2014	12,705	10,161	246	2,632	23	3,158	592	-	29,517
2015	12,804	9,377	498	2,261	4	3,134	621	-	28,699
2016	13,411	9,254	513	3,497	5	3,019	650	-	30,349
2017	13,437	9,388	579	3,514	5	3,220	719	-	30,862
2018	13,041	9,756	387	3,309	6	3,121	789	-	30,409
2019	13,811	10,583	446	3,017	12	3,261	705	-	31,835

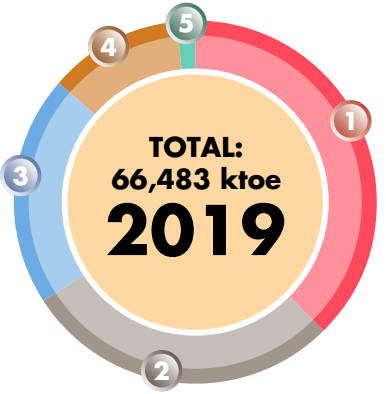
Final Energy Consumption by Sector



SOURCE: NATIONAL ENERGY BALANCE 2019

41.8% TRANSPORT
37.7% INDUSTRY
13.4% RESIDENTIAL AND COMMERCIAL
6.6% NON-ENERGY USE
0.4% AGRICULTURE

37.6% TRANSPORT
28.5% INDUSTRY
20.5% NON-ENERGY USE
12.0% RESIDENTIAL AND COMMERCIAL
1.4% AGRICULTURE



Unit: ktoe

Year	Final Energy Consumption by Sector					
	Industry	Transport	Residential and Commercial	Non-Energy Use	Agriculture	Total
1990	5,276	5,386	1,622	838	-	13,122
1991	5,809	5,806	1,721	1,071	130	14,537
1992	6,455	6,226	1,867	1,222	391	16,161
1993	7,012	6,558	2,055	2,027	62	17,714
1994	7,283	7,262	2,300	1,817	422	19,084
1995	8,060	7,827	2,556	2,994	446	21,883
1996	9,443	8,951	3,162	1,744	486	23,786
1997	10,106	10,201	3,073	2,298	490	26,168
1998	10,121	9,793	3,314	2,023	307	25,558
1999	10,277	11,393	3,653	1,799	106	27,228
2000	11,406	12,071	3,868	2,250	104	29,699
2001	11,852	13,137	4,048	2,378	98	31,513
2002	12,854	13,442	4,387	2,511	96	33,290
2003	13,472	14,271	4,399	2,345	98	34,585
2004	14,914	15,385	4,754	2,183	87	37,323
2005	15,583	15,293	5,134	2,173	101	38,284
2006	15,248	14,819	5,424	2,819	258	38,568
2007	16,454	15,717	6,197	2,957	281	41,606
2008	16,205	16,395	6,205	2,876	287	41,968
2009	14,312	16,119	6,336	3,868	211	40,846
2010	12,928	16,828	6,951	3,696	1,074	41,477
2011	12,100	17,070	6,993	6,377	916	43,456
2012	13,919	19,757	7,065	7,497	1,053	49,291
2013	13,496	22,357	7,403	7,277	1,051	51,584
2014	13,162	24,327	7,459	6,217	1,045	52,210
2015	13,971	23,435	7,600	5,928	895	51,829
2016	16,019	24,004	8,051	8,729	415	57,219
2017	17,463	24,039	7,796	12,517	674	62,489
2018	19,046	23,555	7,773	13,262	1,021	64,658
2019	18,921	25,004	8,000	13,631	927	66,483

Energy Balance Table in 2019

Commercial Energy Balance for Malaysia 2019 (Kilo Tonnes of Oil Equivalent)

ENERGY SOURCE	NATURAL GAS	LNG	CRUDE OIL (1/)	OTHERS (2/)	TOTAL PETROLEUM PRODUCTS	PETROLEUM			
						PETROL	DIESEL	FUEL OIL	LPG
PRIMARY SUPPLY									
1. Primary Production	73,230	0	29,878	0	**0**	0	0	0	0
2. Gas Flaring, Reinjection & Use	-9,599	0	0	0	**0**	0	0	0	0
3. Imports	5,325	2,663	10,306	84	**17,662**	8,782	6,216	79	443
4. Exports	-1,114	-29,044	-12,483	-11	**-11,779**	-348	-5,167	-403	-591
5. Bunkers	0	0	0	0	**-404**	0	-135	-269	0
6. Stock Change	0	0	-2,064	0	**1,881**	203	1,417	-213	545
7. Statistical Discrepancy	0	0	-115	0	**0**	0	0	0	0
8. Primary Supply	**67,842**	**-26,381**	**25,523**	**73**	**7,359**	**8,637**	**2,331**	**-806**	**397**
TRANSFORMATION									
9. Gas Plants									
9.1 LNG	-33,554	29,044	0	0	**30**	0	0	0	30
9.2 MDS	-892	0	0	0	**425**	0	98	0	0
9.3 GPP-LPG (3&4/)	-2,186	0	0	0	**2,107**	0	0	0	2,107
9.4 RGT	2,663	-2,663	0	0	**0**	0	0	0	0
Subtotal	**-33,968**	**26,381**	**0**	**0**	**2,562**	**0**	**98**	**0**	**2,137**
10. Refineries	0	0	-25,207	-73	**23,082**	5,317	8,484	1,388	560
11. Power Stations & Self-Generation									
11.1 Hydro Stations	0	0	0	0	**0**	0	0	0	0
11.2 Thermal Stations	-13,072	0	0	0	**-536**	0	-517	-19	0
11.3 Self-Generation (5/)	-1,333	0	0	0	**-71**	0	-71	0	0
Subtotal	**-14,406**	**0**	**0**	**0**	**-606**	**0**	**-588**	**-19**	**0**
12. Losses & Own Use	-822	0	-315	0	**-605**	0	0	-13	0
13. Statistical Discrepancy	0	0	0	0	**43**	-142	258	-104	-76
14. Secondary Supply	**-49,195**	**26,381**	**-25,523**	**-73**	**24,476**	**5,174**	**8,252**	**1,252**	**2,621**
FINAL USE									
15. Residential	1	0	0	0	**623**	0	0	0	615
16. Commercial	24	0	0	0	**553**	0	340	50	163
17. Industry	7,706	0	0	0	**2,761**	90	2,145	391	131
18. Transport	98	0	0	0	**24,216**	13,664	7,290	0	0
19. Agriculture	0	0	0	0	**212**	0	207	5	0
20. Fishery	0	0	0	0	**658**	57	601	0	0
21. Non-Energy Use	10,819	0	0	0	**2,812**	0	0	0	2,107
22. Total Final Use	**18,647**	**0**	**0**	**0**	**31,835**	**13,811**	**10,583**	**446**	**3,017**
ELECTRICITY OUTPUT									
Main Activity Producer									
Gross Electricity Generation - GWh	66,306	0	0	0	**776**	0	686	90	0
Autoproducer									
Gross Electricity Generation - GWh	5,974	0	0	0	**234**	0	234	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 Refinery 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 on Energy Commission, Performance and Statistical Information on Electricity Supply Industry in Malaysia

Notes : Total may not necessarily add up due to rounding

Unit: ktoe

PRODUCTS											
KEROSENE	ATF & AV GAS	NON-ENERGY	REFINERY GAS	COAL & COKE	HYDRO POWER	SOLAR	BIOMASS	BIOGAS	BIODIESEL	ELECTRICITY	TOTAL
0	0	0	0	2,181	2,251	128	204	118	1,351	0	**109,340**
0	0	0	0	0	0	0	0	0	0	0	**-9,599**
0	577	1,564	0	19,624	0	0	0	0	0	3	**55,668**
-48	-665	-4,557	0	-3	0	0	0	0	-624	-146	**-55,205**
0	0	0	0	0	0	0	0	0	0	0	**-404**
6	-139	62	0	-658	0	0	0	0	-78	0	**-919**
0	0	0	0	-87	0	0	0	0	0	0	**-202**
-42	**-226**	**-2,931**	**0**	**21,057**	**2,251**	**128**	**204**	**118**	**648**	**-143**	**98,681**
0	0	0	0	0	0	0	0	0	0	0	**-4,480**
48	0	279	0	0	0	0	0	0	0	0	**-467**
0	0	0	0	0	0	0	0	0	0	0	**-79**
0	0	0	0	0	0	0	0	0	0	0	**0**
48	**0**	**279**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**-5,025**
8	3,470	3,708	147	0	0	0	0	0	0	0	**-2,199**
0	0	0	0	0	-2,251	0	0	0	0	2,251	**0**
0	0	0	0	-19,351	0	-125	-68	-95	0	12,540	**-20,707**
0	0	0	0	0	0	-3	-136	-23	0	587	**-980**
0	**0**	**0**	**0**	**-19,351**	**-2,251**	**-128**	**-204**	**-118**	**0**	**15,377**	**-21,687**
0	0	-444	-147	0	0	0	0	0	0	-1,311	**-3,053**
-2	17	92	0	0	0	0	0	0	0	-277	**-233**
53	**3,487**	**3,636**	**0**	**-19,351**	**-2,251**	**-128**	**-204**	**-118**	**0**	**13,789**	**-32,197**
8	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2,715	**3,339**
0	0	0	0	0	0	0	0	0	0	4,086	**4,662**
4	0	0	0	1,706	0	0	0	0	0	6,748	**18,921**
0	3,261	0	0	0	0	0	0	0	648	41	**25,004**
0	0	0	0	0	0	0	0	0	0	57	**269**
0	0	0	0	0	0	0	0	0	0	0	**658**
0	0	705	0	0	0	0	0	0	0	0	**13,631**
12	**3,261**	**705**	**0**	**1,706**	**0**	**0**	**0**	**0**	**648**	**13,647**	**66,483**
0	0	0	0	76,411	26,196	1,448	223	312	0	0	**171,672**
0	0	0	0	0	0	11	525	76	0	0	**6,821**

Energy Flow Chart 2019

Unit: ktoe

PRIMARY SUPPLY

PRIMARY SUPPLY*

- 42.0% NATURAL GAS 41,461
- 25.9% CRUDE OIL 25,523
- 21.3% COAL AND COKE 21,057
- 7.4% PETROLEUM PRODUCTS & OTHERS 7,290
- 2.3% HYDROPOWER 2,251
- 1.1% RENEWABLES 1,098

TOTAL : 98,681

PRIMARY PRODUCTION

- 67.0% NATURAL GAS 73,230
- 27.3% CRUDE OIL 29,878
- 2.1% HYDROPOWER 2,251
- 2.0% COAL AND COKE 2,181
- 1.6% RENEWABLES 1,801

TOTAL : 109,340

IMPORTS

- 35.3% COAL AND COKE 19,624
- 31.7% PETROLEUM PRODUCTS 17,662
- 18.7% CRUDE OIL & OTHERS 10,394
- 14.4% NATURAL GAS & LNG 7,989

TOTAL : 55,668

EXPORTS

- 52.6% LNG 29,044
- 22.9% CRUDE OIL & OTHERS 12,640
- 21.3% PETROLEUM PRODUCTS 11,779
- 2.0% NATURAL GAS 1,114
- 1.1% RENEWABLES 624
- 0.0% COAL AND COKE 3

TOTAL : 55,205

TRANSFORMATION

GAS PLANT INPUT

- 33,554 LNG
- 2,186 GPP-LPG
- 892 MDS

OIL REFINERIES INPUT

- 17,209 LOCAL
- 7,999 IMPORT

POWER STATIONS & SELF GENERATION INPUT

- 19,351 COAL AND COKE
- 14,406 NATURAL GAS
- 2,251 HYDRO
- 588 DIESEL
- 450 RENEWABLES
- 19 FUEL OIL

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

GAS PLANT INPUT

- 29,044 LNG
- 2,107 LPG
- 279 NON-ENERGY
- 98 DIESEL
- 48 KEROSENE
- 30 LPG (FROM LNG)

OIL REFINERIES OUTPUT

- 8,484 DIESEL
- 5,317 PETROL
- 3,708 NON-ENERGY
- 3,470 ATF & AVGAS
- 147 REFINERY GAS
- 1,388 FUEL OIL
- 8 KEROSENE
- 560 LPG

POWER STATIONS & SELF GENERATION OUTPUT

- 12,540 THERMAL
- 2,251 HYDRO
- 587 SELF-GENERATION

FINAL USE

FINAL USE BY SECTOR

- 37.6% TRANSPORT 25,004
- 28.5% INDUSTRY 18,921
- 20.5% NON-ENERGY USE 13,631
- 7.0% COMMERCIAL 4,662
- 5.0% RESIDENTIAL 3,339
- 1.0% FISHERY 658
- 0.4% AGRICULTURE 269

TOTAL : 66,483

FINAL UE BY FUEL

- 48.9% PETROLEUM PRODUCTS 32,483
- 28.0% NATURAL GAS 18,647
- 20.5% ELECTRICITY 13,647
- 2.6% COAL AND COKE 1,706

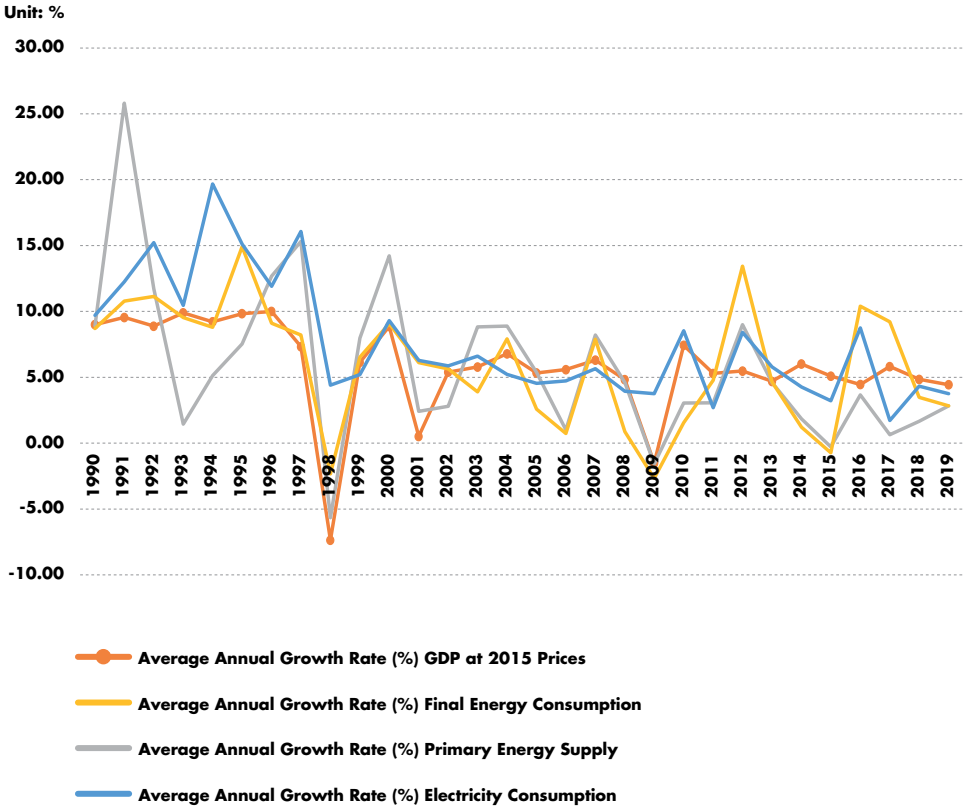
TOTAL : 66,483

Average Annual Growth Rate (%)

Unit: Percentage (%)

Year	Average Annual Growth Rate (%)			
	GDP at 2015 Prices	Primary Energy Supply	Final Energy Consumption	Electricity Consumption
1990	9.00	8.90	8.70	9.70
1991	9.55	25.80	10.78	12.24
1992	8.89	11.72	11.14	15.22
1993	9.89	1.44	9.53	10.46
1994	9.21	5.12	8.79	19.67
1995	9.83	7.53	14.92	15.11
1996	10.00	12.68	9.10	11.91
1997	7.32	15.31	8.21	16.07
1998	-7.36	-5.66	-2.33	4.40
1999	6.14	7.97	6.53	5.20
2000	8.86	14.21	9.08	9.30
2001	0.52	2.42	6.11	6.29
2002	5.39	2.80	5.63	5.86
2003	5.79	8.83	3.90	6.60
2004	6.78	8.89	7.91	5.21
2005	5.33	5.38	2.58	4.55
2006	5.58	1.02	0.74	4.72
2007	6.30	8.21	7.88	5.65
2008	4.83	4.60	0.87	3.94
2009	-1.51	-1.58	-2.68	3.76
2010	7.42	3.05	1.54	8.53
2011	5.29	3.07	4.77	2.69
2012	5.47	9.00	13.43	8.40
2013	4.69	4.61	4.65	5.78
2014	6.01	1.85	1.21	4.27
2015	5.09	-0.28	-0.73	3.22
2016	4.45	3.66	10.40	8.74
2017	5.81	0.64	9.21	1.72
2018	4.84	1.66	3.47	4.33
2019	4.44	2.84	2.82	3.75

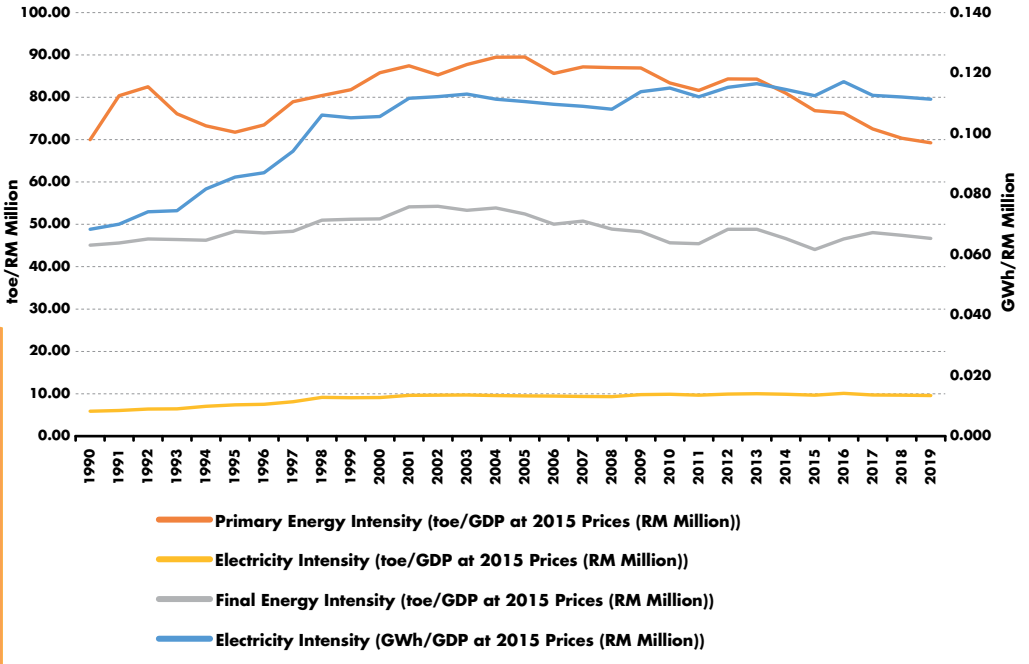
Average Annual Growth Rate (%)



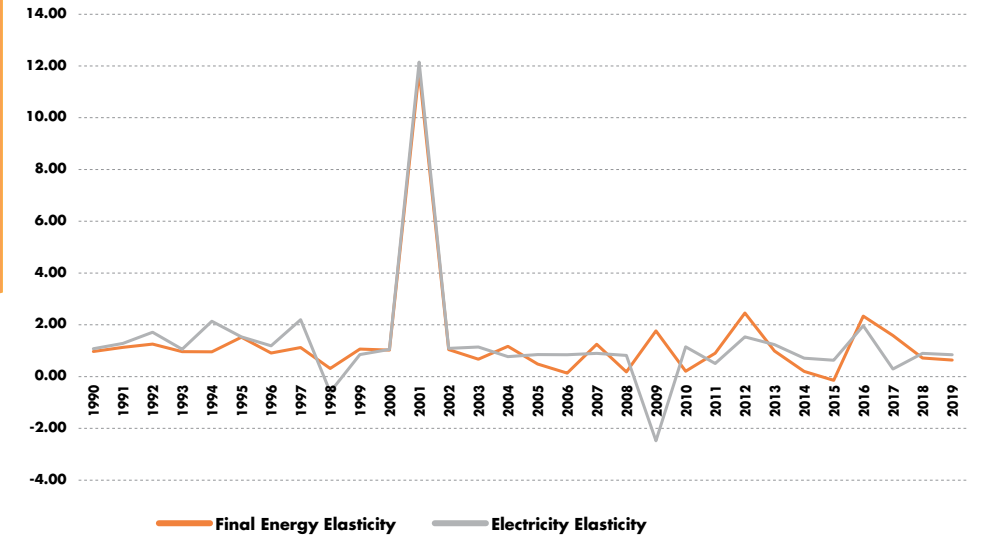
Year	Per Capita			
	GDP at Current Prices (RM)	Primary Energy Supply (toe)	Final Energy Consumption (toe)	Electricity Consumption (kWh)
1990	7,107	1.13	0.73	1,101
1991	7,871	1.38	0.79	1,206
1992	8,538	1.50	0.85	1,352
1993	9,491	1.48	0.90	1,453
1994	10,485	1.52	0.96	1,692
1995	11,622	1.59	1.07	1,897
1996	12,917	1.75	1.14	2,068
1997	13,986	1.96	1.20	2,341
1998	13,702	1.80	1.14	2,382
1999	14,184	1.90	1.19	2,443
2000	15,783	2.12	1.26	2,603
2001	15,265	2.12	1.31	2,705
2002	16,246	2.13	1.36	2,804
2003	17,402	2.27	1.38	2,930
2004	19,310	2.43	1.46	3,022
2005	20,870	2.51	1.47	3,099
2006	22,478	2.49	1.45	3,183
2007	24,589	2.64	1.54	3,300
2008	27,929	2.71	1.52	3,367
2009	25,385	2.62	1.45	3,429
2010	28,733	2.65	1.45	3,656
2011	31,372	2.69	1.50	3,693
2012	32,913	2.88	1.67	3,943
2013	33,713	2.95	1.71	4,074
2014	36,031	2.95	1.70	4,179
2015	37,739	2.90	1.66	4,248
2016	39,505	2.96	1.81	4,553
2017	42,854	2.95	1.95	4,576
2018	44,708	2.96	2.00	4,721
2019	46,526	3.03	2.04	4,877

Year	Energy Intensity			
	Primary Energy Supply (toe/GDP at 2015 Prices (RM Million))	Final Energy Intensity (toe/GDP at 2015 Prices (RM Million))	Electricity Intensity (toe/GDP at 2015 Prices (RM Million))	Electricity Intensity (GWh/GDP at 2015 Prices (RM Million))
1990	69.99	45.10	5.884	0.068
1991	80.37	45.61	6.029	0.070
1992	82.47	46.56	6.380	0.074
1993	76.12	46.40	6.413	0.075
1994	73.27	46.23	7.027	0.082
1995	71.74	48.37	7.365	0.086
1996	73.49	47.97	7.493	0.087
1997	78.96	48.37	8.103	0.094
1998	80.41	50.99	9.132	0.106
1999	81.80	51.19	9.052	0.105
2000	85.82	51.29	9.089	0.106
2001	87.44	54.14	9.611	0.112
2002	85.29	54.27	9.654	0.112
2003	87.75	53.29	9.728	0.113
2004	89.48	53.86	9.585	0.111
2005	89.52	52.45	9.513	0.111
2006	85.65	50.04	9.436	0.110
2007	87.19	50.79	9.378	0.109
2008	86.99	48.87	9.299	0.108
2009	86.93	48.29	9.796	0.114
2010	83.39	45.65	9.897	0.115
2011	81.63	45.42	9.653	0.112
2012	84.36	48.85	9.921	0.115
2013	84.29	48.83	10.024	0.117
2014	80.98	46.62	9.860	0.115
2015	76.84	44.04	9.684	0.113
2016	76.26	46.55	10.082	0.117
2017	72.53	48.04	9.692	0.113
2018	70.33	47.41	9.645	0.112
2019	69.25	46.68	9.581	0.111

Energy Intensity



Energy Elasticity



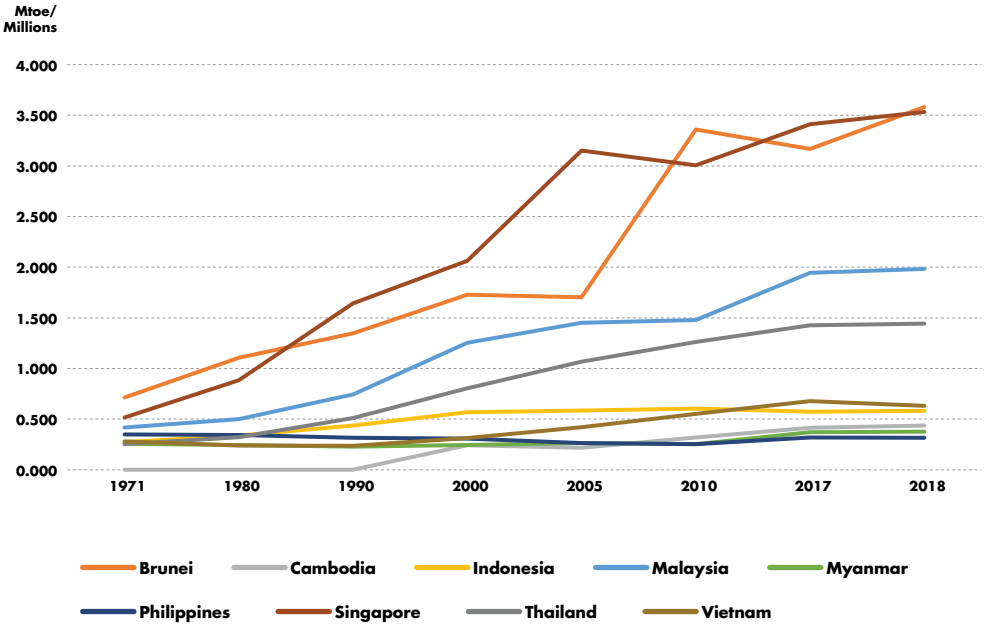
Year	Energy and Electricity Elasticity	
	Final Energy Elasticity	Electricity Elasticity
1990	0.97	1.08
1991	1.13	1.28
1992	1.25	1.71
1993	0.96	1.06
1994	0.95	2.14
1995	1.52	1.54
1996	0.91	1.19
1997	1.12	2.19
1998	0.32	-0.60
1999	1.06	0.85
2000	1.02	1.05
2001	11.81	12.15
2002	1.04	1.09
2003	0.67	1.14
2004	1.17	0.77
2005	0.48	0.85
2006	0.13	0.85
2007	1.25	0.90
2008	0.18	0.82
2009	1.77	-2.48
2010	0.21	1.15
2011	0.90	0.51
2012	2.45	1.54
2013	0.99	1.23
2014	0.20	0.71
2015	-0.14	0.63
2016	2.34	1.96
2017	1.58	0.30
2018	0.72	0.89
2019	0.64	0.85

Final Energy Consumption per Capita in ASEAN

Unit: Mtoe/Millions

	1971	1980	1990	2000	2005	2010	2017	2018
Brunei	0.714	1.105	1.346	1.727	1.703	3.359	3.167	**3.581**
Cambodia	N/A	N/A	N/A	0.243	0.216	0.319	0.414	**0.436**
Indonesia	0.272	0.337	0.437	0.568	0.585	0.604	0.575	**0.583**
Malaysia	0.418	0.501	0.743	1.255	1.452	1.480	1.945	**1.983**
Myanmar	0.257	0.244	0.227	0.246	0.263	0.254	0.371	**0.375**
Philippines	0.350	0.344	0.317	0.307	0.264	0.252	0.318	**0.317**
Singapore	0.517	0.884	1.643	2.062	3.152	3.006	3.412	**3.534**
Thailand	0.252	0.320	0.511	0.803	1.068	1.263	1.428	**1.443**
Vietnam	0.280	0.241	0.236	0.314	0.420	0.551	0.677	**0.631**

Source: Energy Balances of Non-OECD Countries, 2020 Edition, International Energy Agency (IEA)

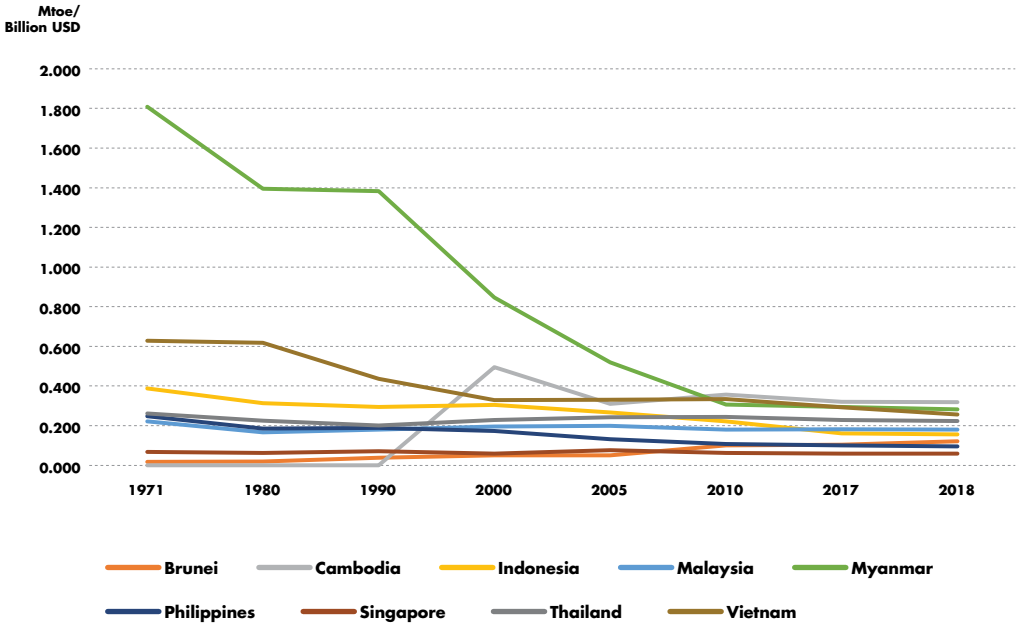


Final Energy Intensity in ASEAN

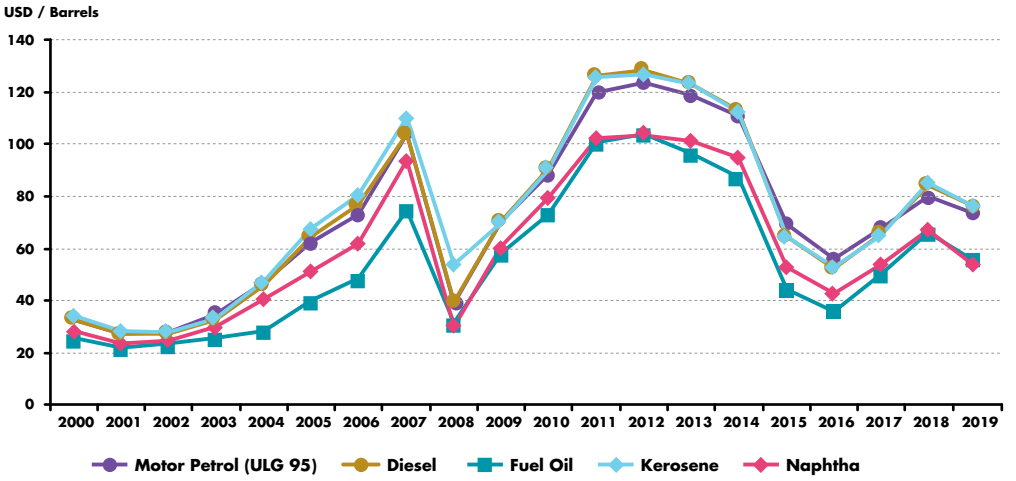
Unit: Mtoe/Billion USD 2015

	1971	1980	1990	2000	2005	2010	2017	2018
Brunei	0.018	0.019	0.038	0.050	0.050	0.101	0.104	**0.120**
Cambodia	N/A	N/A	N/A	0.496	0.311	0.357	0.321	**0.319**
Indonesia	0.388	0.314	0.293	0.304	0.266	0.222	0.160	**0.156**
Malaysia	0.222	0.165	0.180	0.196	0.200	0.179	0.182	**0.179**
Myanmar	1.808	1.396	1.382	0.846	0.519	0.306	0.293	**0.281**
Philippines	0.247	0.185	0.189	0.173	0.132	0.108	0.100	**0.095**
Singapore	0.067	0.063	0.071	0.059	0.075	0.062	0.058	**0.059**
Thailand	0.262	0.224	0.201	0.228	0.242	0.245	0.229	**0.223**
Vietnam	0.629	0.617	0.436	0.328	0.330	0.335	0.292	**0.257**

Source: Energy Balances of Non-OECD Countries, 2021 Edition, International Energy Agency (IEA)



Ex-Singapore Prices of Major Petroleum Products

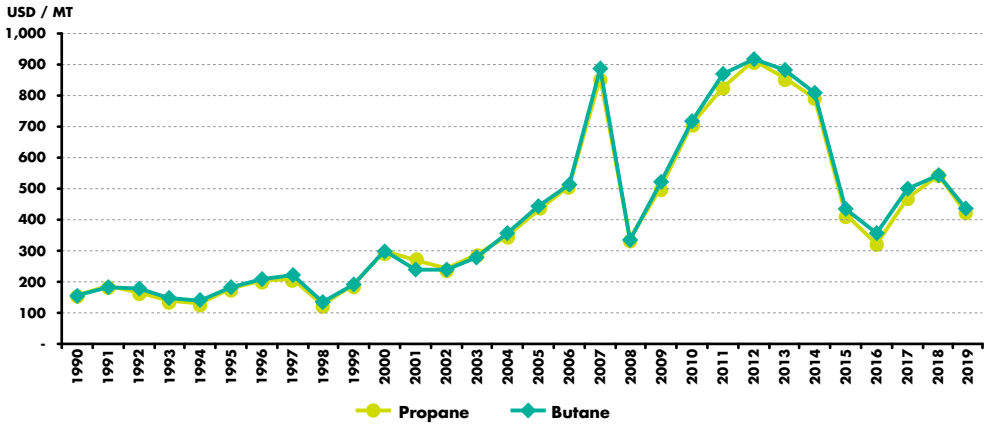


Unit: USD/Barrels

Year	Motor Petrol (ULG 95)	Diesel	Fuel Oil	Kerosene	Naphtha
2000	32.64	32.48	25.82	34.27	28.32
2001	27.43	27.32	21.78	28.32	23.75
2002	28.04	27.55	23.63	28.08	24.93
2003	34.69	32.46	25.72	33.25	30.14
2004	47.23	45.92	28.15	47.69	40.82
2005	62.38	64.35	40.32	67.99	51.04
2006	73.20	76.93	48.84	80.72	62.13
2007	104.05	103.74	74.60	110.50	93.98
2008	39.25	39.32	31.40	53.90	29.90
2009	70.38	70.42	58.12	70.14	60.96
2010	88.41	90.35	72.85	90.18	79.24
2011	119.79	126.28	100.68	125.71	102.49
2012	123.42	128.10	103.92	126.79	103.57
2013	119.00	123.27	96.35	122.85	100.99
2014	110.97	112.69	87.31	112.50	94.90
2015	69.17	64.47	44.52	64.69	52.62
2016	56.26	52.24	35.62	53.00	42.65
2017	67.99	65.65	49.99	65.27	53.79
2018	80.23	84.33	65.98	85.04	67.29
2019	72.49	77.23	57.63	77.24	56.90

Source: Platts

Annual Liquefied Petroleum Gas (LPG) Contract Prices – Arab Gulf

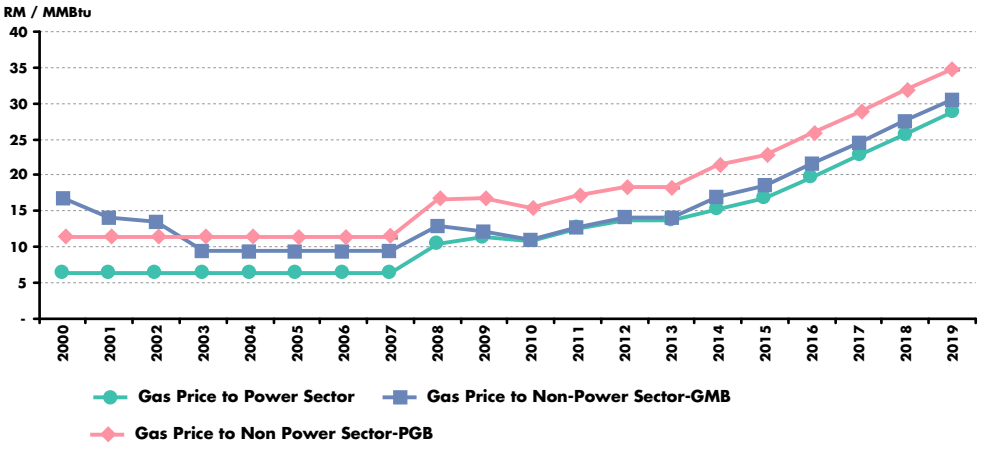


Unit: USD/MT

Year	Propane	Butane
1990	155.96	156.13
1991	186.89	182.19
1992	167.13	179.95
1993	140.02	147.67
1994	129.13	140.90
1995	178.62	183.82
1996	204.42	207.21
1997	210.35	222.21
1998	126.50	134.55
1999	191.07	190.84
2000	299.29	299.46
2001	269.29	239.43
2002	244.58	238.48
2003	288.84	278.46
2004	348.61	355.33
2005	430.79	442.89
2006	510.27	514.00
2007	858.00	887.50
2008	340.00	335.00
2009	504.37	521.43
2010	708.01	716.81
2011	828.03	871.12
2012	914.12	917.45
2013	856.79	884.14
2014	790.70	810.58
2015	416.75	436.57
2016	323.67	356.17
2017	467.56	502.06
2018	544.24	541.65
2019	434.50	441.60

Source: Platts

Natural Gas Prices in Malaysia

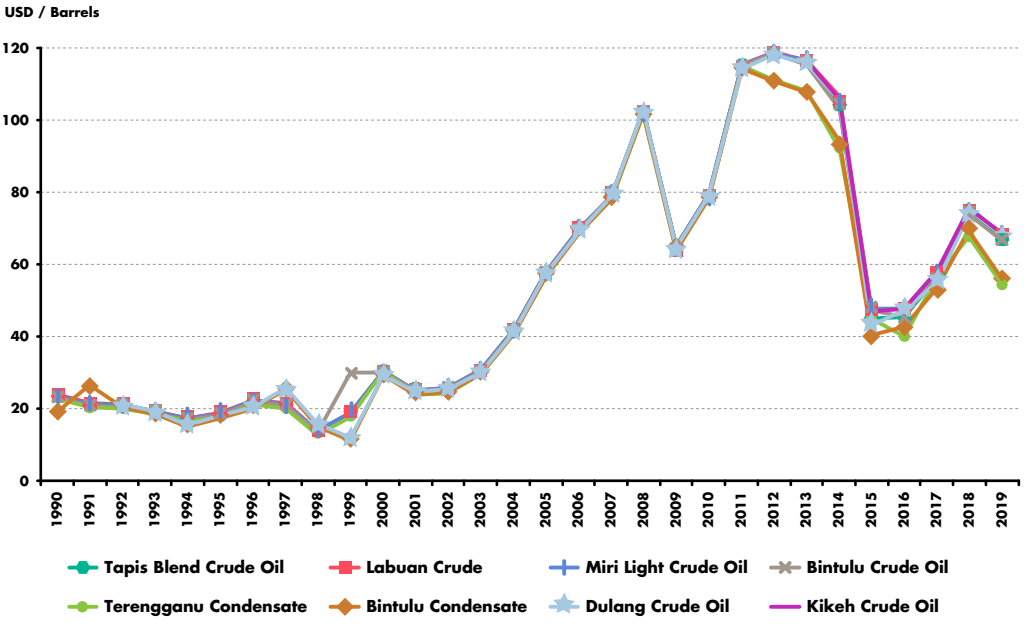


Unit: RM/MMBtu

Year	Gas Price to Power Sector	Gas Price to Non-Power Sector-GMB	Gas Price to Non Power Sector-PGB
2000	6.40	16.72	11.32
2001	6.40	14.10	11.32
2002	6.40	13.40	11.32
2003	6.40	9.40	11.32
2004	6.40	9.40	11.32
2005	6.40	9.40	11.32
2006	6.40	9.40	11.32
2007	6.40	9.40	11.32
2008	10.36	12.98	16.55
2009	11.30	12.21	16.77
2010	10.70	11.05	15.35
2011	12.45	12.80	17.10
2012	13.70	14.05	18.35
2013	13.70	14.05	18.35
2014	15.20	Jan-Apr 14.05 May-Oct 15.55 Nov-Dec 17.05	Jan-Apr 18.35 May-Oct 19.85 Nov-Dec 21.35
2015	Jan-Jun 15.20 Jul-Dec 16.70	Jan-Jun 17.05 Jul-Dec 18.55	Jan-Jun 21.35 Jul-Dec 22.85
2016	Jan-Jun 18.20 Jul-Dec 19.70	Jan-Jun 20.55 Jul-Dec 21.55	Jan-Jun 24.35 Jul-Dec 25.85
2017	Jan-Jun 21.20 Jul-Dec 22.70	Jan-Jun 23.05 Jul-Dec 24.55	Jan-Jun 27.35 Jul-Dec 28.85
2018	Jan-Jun 24.20 Jul-Dec 25.70	Jan-Jun 26.05 Jul-Dec 27.55	Jan-Jun 30.35 Jul-Dec 31.85
2019	Jan-Jun 27.20 Jul-Dec 28.70	Jan-Jun 29.05 Jul-Dec 30.55	Jan-Jun 33.35 Jul-Dec 34.85

Source: Energy Commission

Official Selling Prices of Malaysian Crude Oil



Official Selling Prices of Malaysian Crude Oil

Unit: USD/Barrel

Year	Tapis Blend Crude Oil	Labuan Crude	Miri Light Crude Oil	Bintulu Crude Oil	Terengganu Condensate	Bintulu Condensate	Dulang Crude Oil	Kikeh Crude Oil
1990	23.86	23.76	23.56	23.06	22.76	19.10	0.00	-
1991	21.47	21.37	21.17	20.67	20.37	26.35	0.00	-
1992	20.98	20.88	20.68	20.18	19.88	20.20	21.15	-
1993	19.11	19.11	18.91	18.46	18.26	18.25	19.20	-
1994	17.30	17.40	17.20	16.90	16.45	15.00	15.40	-
1995	18.53	18.63	18.43	18.06	17.33	17.36	18.16	-
1996	22.28	22.38	22.18	21.89	21.08	19.79	20.30	-
1997	21.18	21.33	21.28	20.78	19.98	25.13	25.66	-
1998	13.81	13.84	13.83	13.48	12.61	14.80	15.57	-
1999	18.95	18.95	18.95	29.95	17.76	11.14	11.84	-
2000	30.25	30.25	30.25	29.95	30.29	29.09	29.18	-
2001	25.06	25.06	25.06	24.78	23.86	23.96	24.68	-
2002	25.52	25.52	25.52	25.22	24.32	24.42	25.23	-
2003	30.60	30.60	30.60	30.33	29.40	29.50	29.99	-
2004	41.84	41.84	41.84	41.54	40.64	40.74	41.17	-
2005	57.71	57.71	57.71	57.43	56.51	56.61	57.41	-
2006	69.56	69.56	69.56	69.28	68.66	68.45	68.96	-
2007	78.96	78.96	78.96	78.66	77.91	77.92	78.59	-
2008	102.79	102.79	102.79	102.49	101.59	101.69	102.49	-
2009	64.97	64.97	64.97	64.67	63.77	63.87	64.67	-
2010	79.51	79.51	79.51	79.21	78.31	78.41	79.21	-
2011	115.33	115.33	115.33	115.03	115.03	114.13	114.23	-
2012	118.22	118.66	118.56	118.36	110.92	110.62	118.16	-
2013	115.30	116.60	116.30	115.40	108.00	107.70	115.70	116.60
2014	103.26	106.41	104.89	103.13	91.82	93.99	105.46	105.66
2015	45.12	47.73	47.63	47.35	44.94	40.28	42.98	46.96
2016	45.43	47.63	47.63	45.13	39.76	42.56	47.23	47.63
2017	56.30	57.90	57.90	57.50	56.30	53.57	54.97	57.90
2018	73.84	75.24	75.24	73.84	67.71	69.41	73.84	75.24
2019	68.93	70.33	70.33	68.93	58.08	59.58	69.93	70.33

Source: Petronas

Average Selling Prices of TNB

Unit: sen/kWh

Year	Domestic	Commercial	Industry	Mining	Public Lighting	Agriculture	Green Tariff	Average
2011	27.97	39.10	29.77	20.21	20.87	38.48	-	32.48
2012	28.93	40.98	30.89	20.81	21.53	39.64	-	33.83
2013	29.15	40.76	31.00	20.55	21.55	39.35	-	33.87
2014	32.28	47.10	35.88	23.99	25.06	45.29	-	38.86
2015	32.67	47.68	36.56	25.00	25.49	45.86	-	39.45
2016	33.21	46.76	37.13	25.34	25.57	45.78	-	39.55
2017	32.87	47.16	36.97	25.07	25.53	45.54	-	39.53
2018	33.09	47.28	37.30	24.61	25.57	45.69	-	39.68
2019	33.74	47.20	37.62	24.07	25.13	45.98	8.00	39.89
2020	34.91	47.48	38.01	25.55	25.37	45.77	8.00	40.07

Source: TNB

Average Selling Prices of SESB

Unit: sen/kWh

Year	Domestic	Commercial	Industry	Public Lighting	Average
2011	23.83	29.27	22.43	24.99	26.20
2012	25.10	31.41	24.68	18.66	29.10
2013	25.30	33.59	28.81	18.75	29.60
2014	29.32	39.25	32.90	23.31	34.31
2015	29.14	37.63	30.80	25.54	33.13
2016	28.86	38.21	31.36	23.09	33.41
2017	28.39	38.26	31.09	23.27	33.30
2018	29.11	39.19	31.36	24.61	34.00
2019	29.60	39.38	31.58	25.14	34.31
2020	30.20	39.61	31.87	25.47	34.29

Source: SESB

Average Selling Prices of SEB

Unit: sen/kWh

Year	Domestic	Commercial	Industry	Public Lighting	Average
2011	31.20	31.20	24.70	47.10	29.40
2012	31.20	32.00	24.90	47.00	29.70
2013	31.30	32.00	25.10	47.10	29.90
2014	31.30	32.00	25.10	47.10	29.80
2015	28.25	31.72	24.48	n/a	28.50
2016	28.30	30.53	24.15	47.12	28.20
2017	28.21	30.54	23.86	47.18	28.04
2018	28.27	30.50	23.69	47.17	27.96
2019	28.47	30.65	24.16	47.20	28.22
2020	30.20	39.61	31.87	25.47	34.29

Source: SEB

Number of Customers of TNB, SESB and SEB, 2014 – 2020

		Domestic	Commercial	Industry	Public Lighting	Mining	Others (Including Agriculture)	Free Units	TOTAL
2014	TNB	6,710,032	1,404,501	24,852	63,340	29		-	**8,204,328**
	SESB	442,516	82,472	2,906	5,349	-	-	-	**533,243**
	SEB	498,601	85,188	984	8,152	-	-	-	**592,925**
	TOTAL	**7,651,149**	**1,572,161**	**28,742**	**76,841**	**29**	**1,574**	**0**	**9,330,496**
2015	TNB	6,920,122	1,475,306	27,672	65,888	28	1,627	-	**8,490,643**
	SESB	460,321	85,581	2,756	5,596	-	-	-	**554,254**
	SEB	516,084	88,297	1,004	8,939	-	-	-	**614,324**
	TOTAL	**7,896,527**	**1,649,184**	**31,432**	**80,423**	**28**	**1627**	**0**	**9,659,221**
2016	TNB	6,989,968	1,464,815	27,556	67,808	34	1,808	2,529	**8,554,518**
	SESB	478,049	90,510	1,545	5,906	-	-	-	**576,010**
	SEB	536,466	91,359	1,013	9,457	-	4	-	**638,299**
	TOTAL	**8,004,483**	**1,646,684**	**30,114**	**83,171**	**34**	**1,812**	**2,529**	**9,768,827**
2017	TNB	7,181,846	1,510,341	28,867	70,402	38	2,112	2,559	**8,796,165**
	SESB	491,809	93,738	1,550	6,061	-	-	-	**593,158**
	SEB	554,467	93,627	1,051	10,040	-	4	-	**659,189**
	TOTAL	**8,228,122**	**1,697,706**	**31,468**	**86,503**	**38**	**2,116**	**2,559**	**10,048,512**
2018	TNB	7,378,425	1,553,607	29,749	72,554	45	2,228	2,589	**9,039,197**
	SESB	505,239	96,167	1,589	6,129	-			**609,124**
	SEB	568,712	96,416	1,066	10,491	-	4		**676,689**
	TOTAL	**8,452,376**	**1,746,190**	**32,404**	**89,174**	**45**	**2,232**	**2,589**	**10,325,010**
2019	TNB	7,553,229	1,575,198	30,520	75,463	53	2,326	2,622	**9,239,411**
	SESB	519,308	98,479	15,987	6,335	-	-	-	**640,109**
	SEB	583,613	99,774	1,059	11,146	-	4	-	**695,596**
	TOTAL	**8,656,150**	**1,773,451**	**47,566**	**92,944**	**53**	**2,330**	**2,622**	**10,575,116**
2020	TNB	7,728,383	1,590,434	31,637	77,982	53	2,431	2,641	**9,433,561**
	SESB	529,185	99,974	1,603	6,535	-	-	-	**637297**
	SEB	598,106	101,453	1,067	11,484	-	-	-	**712,110**
	TOTAL	**8,855,674**	**1,791,861**	**34,307**	**96,001**	**53**	**2,431**	**2,641**	**10,782,968**

Source: TNB, SESB and SEB

Transmission System Capacity of TNB, SESB and SEB, 2017– 2020

	2017			2018			2019			2020		
	TNB	SESB	SEB	TNB	SESB	SEB	TNB	SESB	SEB	TNB	SESB	SEB
TRANSMISSION SYSTEM LINES/CABLES (km)												
500 kV	784	-	754	1,628	-	753	1,886	-	753	2,176	-	377
275 kV	9,637	598	2,761	9,047	598	2,810	9,597	598	3,068	9,406	275,598	1,560
132 kV	12,175	2,075	826	12,407	2,180	840	12,482	2,217	916	12,697	2240	454
66 kV	-	119	-	-	110	-	-	103	-	-	103	-
TRANSMISSION SUBSTATIONS												
Number	439	44	33	443	45	37	457	46	42	462	48	43
Capacity (MVA)	109,210	4,984	8,809	115,120	5,049	10,246	121,590	5,489	10,726	125,490	5,399	11,936

*Notes : * Including 627.64 cct-km 500 kV lines energised at 275 kV*

Distribution System Capacity of TNB, SESB and SEB, 2017 – 2020

	2017			2018			2019			2020		
	TNB	SESB	SEB	TNB	SESB	SEB	TNB	SESB	SEB	TNB	SESB	SEB
DISTRIBUTION SYSTEM LINES/CABLES (km)												
Overhead Lines [a,b,c]	339,793	9,848	11,998	352,565	9,465	26,236	366,568	10,048	26,850	379,468	9,840	27,634
Underground Cables [a,b,c]	305,464	662	5175	307,474	1,109	8,769	316,439	316,439	9,098	323,844	1,612	9,540
DISTRIBUTIONS SUBSTATIONS												
Number	79,450	7,382	13,076	81,327	7,957	13,824	83,467	8,597	13,544	85,127	8,610	14395
Capacity (MVA)	111,842	5,969	9,061	114,089	5,440	9,600	117,436	6,091	5,940	120,301	6,114	9,845

Notes:
a. Only 11 kV and 33 kV for SESB's overhead lines and underground cables
b. SESB data is financial year data
c. For TNB overhead lines and underground cable, 2014-2016: Route length, 2017: Circuit length
d. Data obtained from TNB Integrated Annual Report 2016

Performance Highlights of TNB, SESB and SEB, 2017 – 2020

	2017			2018			2019			2020		
	TNB	SESB	SEB	TNB	SESB	SEB	TNB	SESB	SEB	TNB	SESB	SEB
Maximum Demand (MW)	17,790	938	3,302	18,338	955	3,504	18,566	1,001	3,777	18,808	987	3,664
Total Units Generated (GWh)	22,239	919	12,448	17,827	1,033	27,177	16,735	1,125	29,456	16,642	1,178	28,088
Total Units Sold (GWh)	110,567	5,173	23,675	113,469	5,345	24,316	116,525	5,576	25,492	110,879	5,331	26,211
Sales Revenue of Electricity (RM million)	43,703	1,723	4,708	45,029	1,830	5,266	46,487	1,913	5,585	44,435	1,828	5,460
Installed Capacity (MW)	5,066	319[a]	2,241	5,066	328 [a]	4,641	4,766	328[a]	5,204	4,509	329[a]	5,242
Total Number of Employees	27,990	3,260	4,713	28,371	3,179	4,841	28,825	3,180	5,207	27,957	3,134	5,380
Sales Revenue Per Employee (RM million)	1.56	0.53	1.00	1.59	0.58	1.09	1.61	0.60	1.07	1.59	0.58	1.02
Unit Sold Per Employee (GWh)	3.95	1.59	5.02	4.00	1.68	5.33	4.04	1.75	5.20	3.96	1.70	4.87
Installed Capacity Per Employee (MW)	0.18	0.10	0.48	0.18	0.10	0.96	0.17	0.10	1.00	0.16	0.10	0.97
Total Purchased Units (GWh)	99,899	5,063	13,077	108,912	5,382	-	112,899	5,597	-	110,059	5,072	-
Total Units Exported (GWh)	4.81	-	1,119	0.08	-	1,509	0.26	-	1,697	3	-	1,568
Total Units Imported (GWh)	7.41[d]	-	-	19.98	-		40.58	-	-	18	-	-

Notes: 1. GWh = Gigawatt Hours
2. MW – Megawatt
3. TNB employees excluding TNB wholly owned subsidiaries and TNB majority owned subsidiaries
4. a = Dependable capacity

Revenue, Asset Size, Employment and Annual Investment of TNB and SESB, 2010 – 2020

		Revenue (RM Billion)	Asset Size (RM Billion)	Employment	Annual Investment (RM Billion)
TNB	2010	28.4	60.0	25,571	3.8
	2011	30.2	60.5	26,732	4.6
	2012	33.3	62.5	28,105	4.9
	2013	34.8	69.1	29,269	5.6
	2014	39.8	71.0	30,065	6.5
	2015	40.3	73.1	29,602	7.7
	2016	41.3	74.9	28,807	6.6
	2017	44.2	75.8	27,990	6.1
	2018	47.1	83.9	28,371	7.5
	2019	47.2	71.3	28,825	7.6
	2020	44.4	181.4	27,957	7.8
SESB	2010	1.1	2.6	2,617	0.3
	2011	1.1	4.0	2,614	0.3
	2012	1.4	4.0	2,675	0.3
	2013	1.5	3.9	2,759	0.3
	2014	1.7	5.7	2,975	0.2
	2015	1.9	6.3	3,092	0.3
	2016	2.1	6.4	3,282	0.4
	2017	2.2	6.9	3,264	0.4
	2018	2.1	7.1	3,179	0.3
	2019	2.3	5.0	3,180	0.4
	2020	2.2	10.3	3,134	0.3

Source: TNB, SESB

Number of Electricity Supply Interruptions, 2010 – 2020

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

Performance of Distribution System in Peninsular Malaysia, 2012 – 2020

Year	2014	2015	2016	2017	2018	2019	2020
Electricity Supply Interruptions per 1,000 Customers							
Scheduled Interruptions	0.17	0.17	0.16	0.06	0.05	0.04	0.08
Unscheduled Interruptions	8.47	7.25	6.68	7.01	7.51	7.73	7.06
SAIDI, SAIFI & CAIDI							
SAIDI (Minutes/ Customer/Year) by Voltage Level	56.65	51.49	49.29	54.49	48.22	48.13	44.95
SAIFI (Number of Interruptions/ Customer/Year) by Voltage Level	0.92	0.83	0.90	0.93	0.86	0.83	0.80
CAIDI (Minutes/ Affected Customer/ Year) by Voltage Level	61.58	62.04	54.77	58.59	56.07	57.99	56.05

System Average Interruption Duration Index (SAIDI) by State in Peninsular Malaysia, 2014 – 2020

Unit: Minutes/Customer/Year

SAIDI by State	2014	2015	2016	2017	2018	2019	2020
Johor	57.98	58.98	49.39	56.04	41.73	41.91	42.98
Kedah	84.34	57.42	60.82	82.51	73.30	65.76	64.98
Kelantan	56.23	56.18	67.90	59.34	49.91	39.33	42.69
Melaka	45.27	42.48	38.04	42.62	18.59	21.99	27.28
Negeri Sembilan	53.79	56.86	51.03	35.56	57.37	37.58	43.96
Pahang	68.94	62.61	57.22	51.30	46.01	60.84	45.8
Perak	69.04	51.64	46.23	52.83	43.89	43.25	43.2
Perlis	38.94	34.09	35.98	144.10	56.67	61.72	41.45
Pulau Pinang	50.40	54.49	51.05	58.12	78.66	89.34	51.74
Selangor	55.84	50.74	54.67	52.34	64.77	61.55	58.52
Terengganu	43.33	41.46	39.65	42.82	36.67	30.70	33.62
WP Kuala Lumpur	32.96	32.36	32.39	41.01	28.59	26.68	28.19
WP Putrajaya/Cyberjaya	0.17	0.63	0.13	0.55	0.73	0.04	0.08
PENINSULAR MALAYSIA	**56.65**	**51.49**	**49.29**	**54.49**	**48.22**	**48.13**	**44.95**

System Average Interruption Frequency Index (SAIFI) by State in Peninsular Malaysia, 2014 – 2020

Unit: Number of Interruptions/Customer/Year

SAIFI by State	2014	2015	2016	2017	2018	2019	2020
Johor	0.83	0.70	0.70	0.55	0.63	0.75	0.90
Kedah	1.65	1.20	1.40	1.19	1.26	1.22	1.24
Kelantan	1.21	1.25	1.45	1.53	1.47	1.02	1.12
Melaka	0.71	0.58	0.64	0.55	0.28	0.44	0.48
Negeri Sembilan	0.78	0.77	0.78	0.44	0.77	0.51	0.70
Pahang	1.49	1.44	1.56	1.39	0.65	0.82	0.66
Perak	1.08	0.80	0.94	0.71	1.41	1.48	1.37
Perlis	0.43	0.46	0.57	2.32	0.79	1.02	0.60
Pulau Pinang	0.81	0.83	0.82	0.69	1.68	1.37	1.64
Selangor	0.74	0.74	0.84	0.60	0.94	0.76	0.75
Terengganu	1.05	0.87	1.01	1.10	1.00	0.93	0.76
WP Kuala Lumpur	0.67	0.48	0.57	0.61	0.46	0.43	0.50
WP Putrajaya/Cyberjaya	0.08	0.01	0.15	0.00	0.09	0.00	0.02
PENINSULAR MALAYSIA	**0.92**	**0.83**	**0.90**	**0.93**	**0.86**	**0.83**	**0.80**

Customer Average Interruption Duration Index (CAIDI) by State in Peninsular Malaysia, 2014 – 2020

Unit: Minutes/Affected Customer/Year

CAIDI by State	2014	2015	2016	2017	2018	2019	2020
Johor	69.86	84.26	70.56	101.89	66.24	55.88	48.02
Kedah	51.12	47.85	43.44	69.33	58.17	53.90	52.57
Kelantan	46.47	44.94	46.83	38.78	33.95	38.56	38.04
Melaka	63.76	73.24	59.44	77.50	66.39	49.98	57.07
Negeri Sembilan	68.96	73.84	65.42	80.81	74.51	73.69	62.8
Pahang	46.27	43.48	36.68	36.91	31.13	74.20	69.08
Perak	63.93	64.55	49.18	74.41	71.73	29.23	31.53
Perlis	90.56	74.11	63.12	62.11	46.82	60.51	68.73
Pulau Pinang	62.22	65.65	62.26	84.23	70.78	65.21	31.53
Selangor	75.46	68.57	65.08	87.23	68.90	80.99	78.45
Terengganu	41.27	47.66	39.26	42.39	36.67	33.01	44.24
WP Kuala Lumpur	49.19	67.42	56.82	67.23	62.15	62.05	56.05
WP Putrajaya/Cyberjaya	2.13	63.00	0.87	0.00	8.11	0.00	3.71
PENINSULAR MALAYSIA	**61.58**	**62.04**	**54.77**	**58.59**	**56.07**	**57.99**	**56.05**

Performance of Distribution System in Sabah, 2014 – 2020

Year	SAIDI SABAH	CAIDI SABAH	SAIFI SABAH
2011	494.64	28.76	17.20
2012	556.86	37.91	14.69
2013	423.99	34.61	12.25
2014	777.26	57.83	13.44
2015	379.26	39.38	9.63
2016	311.01	36.16	8.60
2017	240.90	36.44	6.61
2018	267.87	31.11	8.61
2019	205.31	29.26	10.83
2020	189.43	15.26	12.41

Performance of Distribution System in Sarawak, 2014 – 2020

Year	2014	2015	2016	2017	2018	2019	2020
SAIDI (Minutes/Customer/Year)	189.00	143.00	119.00	111.00	95.81	83.42	77.68
SAIFI (Number of Interruptions/ Customer/Year)	2.00	1.69	1.46	1.28	1.20	1.07	1.02
CAIDI (Minutes/Interrupted Customer/Year)	94.50	84.62	81.51	86.72	79.63	78.29	76.00

Number of Natural Gas Customers by Sector, 2011 – 2022

Year	Licensee	Domestic	Commercial	Industrial	Total
2011	GMB	10,541	536	704	11,781
	SEC	-	-	12	12
2012	GMB	11,932	565	709	13,206
	SEC	-	-	12	12
2013	GMB	12,455	630	740	13,825
	SEC	-	-	18	18
2014	GMB	12,568	799	771	14,138
	SEC	-	-	20	20
2015	GMB	12,571	862	795	14,228
	SEC	-	-	22	22
2016	GMB	12,339	935	819	14,093
	SEC	-	-	23	23
2017	GMB	12,818	1,017	853	14,688
	SEC	-	2	21	23
2018	GMB	12,683	1,014	879	14,576
	SEC	0	2	24	26
2019	GMB	12,620	1,056	933	14,609
	SEC	0	2	23	25
2020	GMES	11,348	946	961	13,255
	SEC	0	2	24	26
	PEGT	0	1	2	3
2021	GMES	10,335	879	989	12,203
	PEGT	0	1	2	3
	SHELL	0	0	1	1
	SEC	0	2	27	29
2022	GMES	9,502	770	1,021	11,293
	PEGT	0	1	8	9
	SHELL	0	0	5	5
	PETROLIFE	0	0	2	2
	SEC	0	2	28	30

** GMES Shipping License starts from 01.01.2020*

** From 2020 there will be an increase in gas supply companies such as: GMES, PEGT, PETROLIFE and SHELL*

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

Natural Gas Consumption by Sector (mmBtu), 2011 – 2022

Year	Licensee	Domestic	Commercial	Industrial	Total
2011	GMB	20,073	1,021,176	123,587,690	**124,628,939**
	SEC	-	-	66,795	**66,795**
2012	GMB	24,546	990,892	126,364,815	**127,380,253**
	SEC	-	-	74,684	**74,684**
2013	GMB	36,627	961,562	137,246,099	**138,244,288**
	SEC	-	-	93,582	**93,582**
2014	GMB	37,616	992,935	146,311,939	**147,342,490**
	SEC	-	-	233,723	**233,723**
2015	GMB	28,710	1,021,607	157,720,218	**158,770,535**
	SEC	-	-	294,387	**294,387**
2016	GMB	24,738	1,007,563	162,451,003	**163,483,304**
	SEC	-	-	284,156	**284,156**
2017	GMB	25,850	1,045,193	182,502,651	**183,573,694**
	SEC	-	41,557	274,759	**316,316**
2018	GMB	26,100	1,017,938	192,474,505	**193,518,543**
	SEC	0	0	322,911	**322,911**
2019	GMB	26,488	996,089	199,848,019	**200,870,596**
	SEC	0	27,041	426,637	**453,678**
2020	GMES	30,204	606,643	199,216,710	**199,853,557**
	SEC	0	24,489	648,362	**672,851**
	PEGT	0	1,882,358	2,053,341	**3,935,699**
2021	GMES	27,114	469,909	202,682,539	**203,179,562**
	PEGT	0	1,399,889	1,676,448	**3,076,337**
	SHELL	0	0	1,800,709	**1,800,709**
	SEC	0	33,071	823,130	**856,202**
2022	GMES	23,624	761,984	155,402,960	**156,188,568**
	PEGT	0	1,440,250	28,255,640	**29,695,890**
	SHELL	0	0	4,436,091	**4,436,091**
	PETROLIFE	0	0	1,707,820	**1,707,820**
	SEC	0	44,729	655,660	**700,389**

** GMES Shipping License starts from 01.01.2020*

Natural Gas Pipe Length, 2011 – 2022

Year	Peninsular (GMD)		Sabah & Labuan (SEC)	
	Polyethylene Pipe	Stainless Steel Pipe	Polyethylene Pipe	Stainless Steel Pipe
2011	551.58	1,239.89	6.56	1.30
2012	556.36	1,261.69	6.72	1.30
2013	558.42	1,330.12	6.72	1.30
2014	563.6	1,429.64	6.72	1.30
2015	567.04	1,472.70	6.78	1.30
2016	571	1,543.00	6.78	1.30
2017	577	1,594.00	6.78	1.30
2018	426	1,680.00	6.78	1.30
2019	586	1,810.00	6.81	4.00
2020	420.43	1,939.71	9.81	4.00
2021	582.86	2,038.32	11.00	4.00
2022	586.54	2,111.33	12.16	4.00

** GMD Distribution License starts from 01.01.2020*

Performance Highlights, 2011 – 2022

		Demand (mmBtu)	*Sales of Gas (RM '000)	Total Number of Employees	Revenue per Employee (RM '000)	Unit Sold Per Employee (mmBtu)
2011	GMB	124,628,939	1,976,553	358	5,521	348,126
	SEC	66,795	1,800	61	30	1,095
2012	GMB	127,380,253	2,099,592	364	5,768	349,946
	SEC	74,684	2,003	62	32	1,205
2013	GMB	138,244,288	2,288,465	385	5,944	359,076
	SEC	93,582	2,702	63	43	1,485
2014	GMB	147,342,490	2,745,024	402	6,828	366,524
	SEC	233,723	7,316	74	99	3,158
2015	GMB	158,770,535	3,594,520	451	7,970	352,041
	SEC	294,387	9,789	74	132	3,978
2016	GMB	163,483,304	3,973,843	430	9,241	380,194
	SEC	284,124	9,872	80	123	3,552
2017	GMB	183,573,694	5,260,870	487	10,803	376,948
	SEC	274,759	11,424	83	138	3,310
2018	GMB	191,791,567	6,178,725	504	12,259	380,539
	SEC	322,911	1,437	79	18	4,077
2019	GMB	200,870,594	6,838,254	530	12,902	379,001
	SEC	455,797	12,371	83	149	5,492
2020	GMES	199,853,557	6,738,208	60	112,303	3,330,893
	PEGT	3,935,699	117,108	22	5,323	178,895
	SEC	672,851	15,503,910	80	193,799	8,410
2021	GMES	203,179,560	5,868,426	60	97,807	3,386,326
	PEGT	3,076,337	81,284	35	2,322	87,895
	SHELL	N/A	N/A	N/A	N/A	N/A
	SEC	856,202	20,875,711	83	251,515	10,316
2022	GMES	156,188,580	7,598,947	60	126,649	2,603,143
	PEGT	29,695,890	1,356,263	45	30,139	659,909
	SHELL	N/A	N/A	N/A	N/A	N/A
	PETROLIFE	1,707,820	84,280	35	2,408	48,795
	SEC	700,389	19,851,921	107	185,532	6,546

GMES Shipping License starts from 01.01.2020

Number of Supply Interruptions in Peninsular Malaysia and Sabah, 2011 – 2022

Year	GMD	SEC
2011	124	0
2012	97	0
2013	79	0
2014	78	0
2015	22	0
2016	14	0
2017	16	0
2018	29	0
2019	13	0
2020	4	0
2021	2	2
2022	3	4

** GMD Distribution License starts from 01.01.2020*

SAIDI, SAIFI, CAIDI

Year	SAIDI (Minutes/Customer/Year)		SAIFI (Disruptions/Customer/Year)		CAIDI (Minute/Disruption)	
	Peninsular	Sabah	Peninsular	Sabah	Peninsular	Sabah
2011	0.3630	0.0000	0.0039	0.0000	90.9600	0.0000
2012	0.7489	0.0000	0.0029	0.0000	260.9000	0.0000
2013	0.1480	0.0000	0.0022	0.0000	66.8300	0.0000
2014	0.1492	0.0000	0.0021	0.0000	70.7100	0.0000
2015	0.0874	0.0000	0.0016	0.0000	54.0500	0.0000
2016	0.5812	0.0000	0.0010	0.0000	575.2300	0.0000
2017	0.1067	0.0000	0.0025	0.0000	42.5100	0.0000
2018	0.3060	0.0000	0.0008	0.0000	404.8200	0.0000
2019	0.1780	0.0000	0.0007	0.0000	259.5600	0.0000
2020	5.7775	0.0000	0.0041	0.0000	1381.6300	0.0000

Year	SAIDI (Minutes/Customer/Year)		Network Integrity (Disruptions/Customer/Year)		Customer Service	
	Peninsular	Sabah	Peninsular	Sabah	Peninsular	Sabah
2021	1.4393	N/A	2	N/A	47	N/A
2022	0	N/A	1.2	N/A	35	N/A

Industrial Sales Volume by Industry Grouping (mmBtu), 2020 – 2022

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

NOTES ON ENERGY BALANCE

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

COMMERCIAL ENERGY BALANCE FORMAT

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

Primary Supply	Refers to supply of energy that has not undergone the transformations/ conversions process within the country.
Primary Production (1)	Refers to the quantity of fuels extracted. Data for natural gas excludes the amount of reinjected and flared gas. Gross production of hydro is shown in conventional fuel equivalent input.
Gas Flaring, Reinjection & Use (2)	Refers to the quantity of gas flared, re-injected into the gas fields and use for production purpose.
Imports (3) and Exports (4)	Refer to the amount of primary and secondary energy obtained from, or supplied to other countries. In the energy balance format, imports always carry a positive and export a negative sign.
Bunkers (5)	Refer to the amount of fuels delivered to ocean-going ships of all flags engaged in international traffic.
Stock Change (6)	Refers to the difference between the amounts of fuel in stocks at the beginning and end of year and should ideally cover producers, importers and industrial consumers. At this stage, however, only oil companies' stocks are taken into account. A negative sign indicates net increases while a positive sign indicates net decreases in stocks.
Total	Under primary supply, 'total' is the addition of columns to obtain total availability. Under transformation, 'total' is the addition of columns to obtain transformation and conversion losses.
Gas Plants (9)	Shows the input of natural gas into the LNG, MDS 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 stations' use.
Residential and Commercial (15 & 16)	Not only refers to energy used within households and commercial establishments but includes government buildings and institutions.
Industrial (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, forestry and fishing.
Non-Energy Use (20)	Use of products resulting from the transformation process for non-energy purpose (i.e. bitumen/ lubricants, asphalt/ greases) and use of energy products (such as natural gas) as industrial feed stocks.
Final Use (21)	Refer to the quantity of energy of all kinds delivered to the final users.

Notes:

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

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

NOTES ON ELECTRICITY

Reserve Margin	Total capacity margin is defined as the amount of installed generation available over and above system peak load $\textbf{Reserve Margin} = \frac{\textbf{Installed Capacity – Peak Demand}}{\textbf{Peak Demand}}$
Peak Demand	The maximum power demand registered by a customer or a group of customers or a system in a stated period of time such as a month or a year. The value may be the maximum instantaneous load or more usually, the average load over a designated interval of time, such as half an hour and is normally stated in kilowatts or megawatts.
Installed Capacity	Installed capacity is defined as the maximum possible capacity (nameplate rating) that can be provided by the plant.
Dependable Capacity	The maximum capacity, modified for ambient limitations for a specified period of time, such as a month or a season.
Available Capacity	Available capacity refers to the Latest Tested Net Capacity. It is the dependable capacity, modified for equipment limitation at any time.
Unit Generated (Gross Generation)	The total amount of electric energy produced by generating units and measured at the generating terminal in kilowatt-hour (kWh) or megawatt-hour (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.
Average Selling Price	Formula to calculate the Average Selling Price is as below; $\textbf{Average Selling Price} = \frac{\textbf{Revenue by Customer Categories}}{\textbf{Unit Sold by Customer Categories}}$

NOTES ON COAL

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

CONVERSION COEFFICIENTS AND EQUIVALENCE

TJ/1000 TONNES[1]			
Hard coal	29.3076	Lignite/brown coal	11.2834
Coke/oven coke	26.3768	Peat	9.5250
Gas coke	26.3768	Charcoal	28.8888
Brown coal coke	19.6361	Fuelwood [2]	13.4734
Pattern fuel briquettes	29.3076	Lignite briquettes	19.6361

NATURAL GAS PRODUCTS (TJ/1000 TONNES)			
Liquefied Natural Gas (LNG)	45.1923	Natural Gas	1TJ/ million scf 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 oil	42.4960
Crude petroleum (domestic)	43.3000	Residual fuel oil	41.4996
Plant condensate	44.3131	Naphtha	44.1289
Aviation gasoline (AVGAS)	43.9614	White/industrial spirit	43.2078
Liquefied petroleum gas (LPG)	45.5440	Lubricants	42.1401
Motor gasoline	43.9614	Bitumen (asphalt)	41.8000
Natural gasoline	44.8992	Petroleum waxes	43.3334
Aviation turbine fuel (ATF)	43.1994	Petroleum coke	36.4000
Kerosene	43.1994	Other petroleum products	42.4960

1,000 Tonnes Oil Equivalent (toe) = 41.84 TJ
Notes: [1] Unless otherwise indicated [2] Assuming 9.7 TJ/1000 cubic metre

CONVERSION COEFFICIENTS FOR CRUDE OIL AND PETROLEUM PRODUCTS

BARRELS TO TONNE

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

DEFINITION

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

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

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

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