Suruhanjaya Tenaga
Energy Commission

MALAYSIA
ENERGY STATISTICS HANDBOOK 2023

Be Energy smart

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PREFACE

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

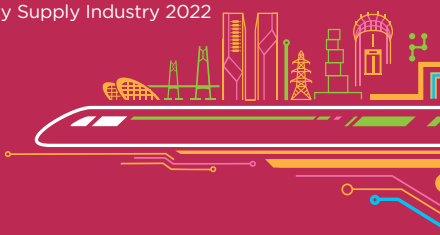
The Malaysia Energy Statistics Handbook is a pocket sized guide that displays the national key energy data. Our database is updated annually, and this handbook is published and distributed annually. The information in this handbook is also available in the 'MyEnergyStats' website (https://myenergystats.st.gov.my) 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 and provides an overview of national energy supply and demand. This handbook displays data on Energy Supply, Energy Transformation, Energy Consumption, Energy Prices, Energy Indicators and Electricity and Piped Gas Performance.

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

I. National Energy Balance 2021, and

ii. Performance and Statistical Information on the Malaysia Electricity Supply Industry 2022



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ENERGY RESOURCES

Unit: Billion Barrels

	Resources of Crude Oil and Condensates By Region			
	PENINSULAR MALAYSIA	SABAH	SARAWAK	TOTAL
1990	2.943	0.000	0.000	2.943
1991	3.045	0.000	0.000	3.045
1992	3.743	0.604	1.267	5.614
1993	4.279	0.631	1.205	6.115
1994	2.500	0.600	1.200	4.300
1995	2.455	0.590	1.067	4.112
1996	2.500	0.600	0.900	4.000
1997	2.700	0.470	0.680	3.850
1998	2.440	0.580	0.860	3.880
1999	2.080	0.510	0.830	3.420
2000	1.920	0.620	0.850	3.390
2001	1.920	0.620	0.850	3.390
2002	2.110	0.780	1.340	4.230
2003	2.040	1.210	1.300	4.550
2004	1.980	1.430	1.420	4.830
2005	1.770	1.970	1.560	5.300
2006	1.791	2.129	1.334	5.254
2007	1.452	1.975	0.889	4.316
2008	1.719	2.424	1.315	5.458
2009	1.781	2.348	1.388	5.517
2010	2.061	2.376	1.362	5.799
2011	2.374	1.992	1.492	5.858
2012	2.413	1.941	1.600	5.954
2013	2.335	1.923	1.592	5.850
2014	2.341	1.855	1.566	5.762
2015	2.205	2.009	1.693	5.907
2016	1.735	1.925	1.370	5.030
2017	1.669	1.767	1.290	4.726
2018	1.612	1.637	1.304	4.553
2019	1.476	1.497	1.702	4.675
2020	1.306	1.451	1.770	4.527
2021	1.292	1.342	1.796	4.430

Source: PETRONAS

Unit : Trillion Standard Cubic Feet (TSCF)

	Resources of Natural Gas by Region									
	PENINSULAR			SABAH			SARAWAK			Grand Total
	Associated	Non Associated	Total	Associated	Non Associated	Total	Associated	Non Associated	Total	
1990	6.080	21.350	**27.430**	1.030	1.320	**2.350**	3.310	23.840	**27.150**	56.930
1991	6.200	21.320	**27.520**	0.980	1.380	**2.360**	3.400	25.770	**29.170**	59.050
1992	6.700	22.500	**29.200**	1.100	1.800	**2.900**	3.800	31.900	**35.700**	67.800
1993	7.800	23.900	**31.700**	1.700	3.000	**4.700**	3.800	36.600	**40.400**	76.800
1994	7.900	26.600	**34.500**	1.200	2.900	**4.100**	4.200	37.900	**42.100**	80.700
1995	8.200	28.000	**36.200**	1.300	6.000	**7.300**	4.200	37.000	**41.200**	84.700
1996	8.300	28.300	**36.600**	1.200	4.900	**6.100**	4.300	33.200	**37.500**	80.200
1997	8.900	29.400	**38.300**	1.200	4.800	**6.000**	3.000	32.500	**35.500**	79.800
1998	8.900	27.700	**36.600**	1.200	4.900	**6.100**	3.700	40.600	**44.300**	87.000
1999	8.500	25.900	**34.400**	1.100	6.600	**7.700**	3.800	39.900	**43.700**	85.800
2000	8.400	25.300	**33.700**	1.300	6.700	**8.000**	3.400	37.400	**40.800**	82.500
2001	8.400	25.300	**33.700**	1.300	6.700	**8.000**	3.400	37.400	**40.800**	82.500
2002	8.400	24.900	**33.300**	1.200	6.800	**8.000**	3.400	42.600	**46.000**	87.300
2003	8.500	23.900	**32.400**	1.800	8.100	**9.900**	4.000	42.700	**46.700**	89.000
2004	9.520	21.740	**31.260**	1.880	7.750	**9.630**	3.380	42.750	**46.130**	87.020
2005	9.200	21.590	**30.790**	2.500	8.230	**10.730**	3.130	40.540	**43.670**	85.190
2006	9.650	23.170	**32.820**	2.750	8.210	**10.960**	2.930	41.240	**44.170**	87.950
2007	9.440	24.030	**33.470**	3.137	8.461	**11.598**	3.008	40.850	**43.858**	88.926
2008	9.269	24.190	**33.459**	3.584	9.132	**12.716**	2.861	38.974	**41.835**	88.010
2009	9.153	24.079	**33.232**	3.523	8.578	**12.101**	2.908	39.727	**42.635**	87.968
2010	9.280	25.139	**34.419**	3.787	8.681	**12.468**	2.513	39.187	**41.700**	88.587
2011	9.797	25.337	**35.134**	3.327	8.638	**11.965**	3.033	39.856	**42.889**	89.988
2012	9.594	26.144	**35.738**	3.502	9.801	**13.303**	3.180	39.901	**43.081**	92.122
2013	9.325	25.649	**34.974**	3.764	9.454	**13.218**	3.330	46.798	**50.128**	98.320
2014	9.688	25.242	**34.930**	3.724	10.029	**13.753**	3.024	48.955	**51.979**	100.662
2015	8.471	24.022	**32.493**	3.149	11.884	**15.033**	2.853	50.034	**52.887**	100.413
2016	6.793	20.428	**27.221**	2.521	10.915	**13.436**	1.770	45.336	**47.106**	87.763
2017	6.333	19.327	**25.660**	1.487	11.060	**12.547**	1.508	43.184	**44.692**	82.899
2018	6.422	17.266	**23.688**	2.078	10.504	**12.582**	1.507	41.754	**43.261**	79.531
2019	6.428	15.219	**21.647**	2.054	9.611	**11.665**	1.419	44.436	**45.855**	79.167
2020	5.701	14.612	**20.313**	1.605	8.945	**10.550**	1.151	43.248	**44.399**	75.262
2021	5.885	14.362	**20.247**	1.518	8.157	**9.675**	1.971	44.139	**46.110**	76.032

Source: PETRONAS

Unit : Million Tonnes

Resources of Coal as of 31st December 2021		
Location	**Resources**	**Coal Type**
	Measured	
SARAWAK		
1. Abok & Silantek, Sri Aman	7.25	Coking Coal, Semi-Anthracite and Anthracite
2. Merit-Pila, Kapit	168.89	Sub-Bituminous
3. Bintulu	6.00	Bituminous (partly coking coal)
4. Mukah - Balingian	84.15	Lignite, Hydrous Lignite and Sub-Bituminous
5. Tutoh Area	5.58	Sub-Bituminous
Subtotal	**271.87**	

Source: Department of Mineral and Geosciences Malaysia

Unit: MW

Installed Capacity as of 31st December 2021

		Major Hydro	Mini Hydro	Natural Gas	Coal	Diesel / MFO	Biomass	Solar	Biogas	Others	Total
PENINSULAR MALAYSIA	TNB	2,536.1	20.2	1,973.0	0.0	0.0	0.0	0.0	0.0	0.0	4,529.3
	IPPs	0.0	20.0	9,666.8	12,180.0	0.0	0.0	0.0	0.0	0.0	21,866.8
	Co-Generation	0.0	0.0	757.5	0.0	0.0	12.4	0.0	0.0	233.9	1,003.8
	Self-Generation	0.0	2.1	9.1	0.0	54.5	131.9	10.7	0.0	0.0	208.3
	FiT	0.0	67.8	0.0	0.0	0.0	44.9	288.1	114.7	0.0	515.5
	RE Non-FiT	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
	LSS	0.0	0.0	0.0	0.0	0.0	0.0	859.4	0.0	0.0	859.4
	NEM	0.0	0.0	0.0	0.0	0.0	0.0	426.8	0.0	0.0	426.8
	Subtotal	**2,536.1**	**110.1**	**12,406.4**	**12,180.0**	**54.5**	**189.2**	**1,585.1**	**114.7**	**233.9**	**29,410.0**
SABAH	SESB	72.0	7.6	112.0	0.0	152.4	0.0	29.9	0.0	0.0	373.9
	IPPs	0.0	0.0	1,012.6	0.0	0.0	0.0	0.0	0.0	0.0	1,012.6
	Co-Generation	0.0	0.0	65.0	0.0	0.0	37.0	0.0	0.0	0.0	102.0
	Self-Generation	0.0	0.0	4.4	0.0	126.2	113.9	0.0	4.6	0.0	249.2
	FiT	0.0	20.0	0.0	0.0	0.0	13.8	34.4	9.6	0.0	77.8
	LSS	0.0	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	0.0
	Subtotal	**72.0**	**27.6**	**1,194.0**	**0.0**	**278.6**	**164.7**	**114.3**	**14.2**	**0.0**	**1,865.5**
SARAWAK	SEB	3,452.0	18.9	1,005.0	1,104.0	102.1	0.0	0.1	0.0	0.0	5,682.1
	Co-Generation	0.0	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	0.0	12.5	57.6	0.0	0.5	5.1	75.7
	Subtotal	**3,452.0**	**18.9**	**1,394.0**	**1,104.0**	**114.6**	**57.6**	**0.1**	**0.5**	**5.1**	**6,146.8**
	Total	**6,060.1**	**156.6**	**14,994.5**	**13,284.0**	**447.7**	**411.5**	**1,699.5**	**129.4**	**238.9**	**37,422.3**
	Share (%)	**16.2%**	**0.4%**	**40.1%**	**35.5%**	**1.2%**	**1.1%**	**4.5%**	**0.3%**	**0.6%**	**100%**

Notes: Data exclude plants that are not in operation
Source: Energy Commission, Power Utilities and IPPs, SEDA Malaysia and Ministry Of Utility and Telecommunication Sarawak

Unit: MW

	Available Capacity as of 31st December 2021						
	Hydro	Natural Gas	Coal	Diesel / MFO	Biomass / Biogas	Solar	Total
Peninsular Malaysia	2,532	11,403	11,947	0	0	609	**26,491**
Sabah	98	969	0	129	35	84	**1,314**
Sarawak	3,457	883	1,001	98	0	0	**5,439**
Total	**6,087**	**13,255**	**12,948**	**227**	**35**	**693**	**33,244**

Note: 1. Available Capacity for Peninsular Malaysia is based on Tested Annual Available Capacity (TAAC),
2. Available Capacity for Sabah is based on Dependable Capacity
Source: Power Utilities and IPPs

KEY ECONOMIC AND ENERGY DATA

Key Economic and Energy Data	2021				
	Q1	Q2	Q3	Q4	Total
GDP at current prices (RM million)*	371,510	374,464	378,178	424,747	**1,548,898**
GDP at 2015 prices (RM million)*	344,005	337,770	337,286	371,583	**1,390,644**
GNI at current prices (RM million)*	364,869	363,119	374,005	404,752	**1,506,745**
Population ('000 people)**	32,552	32,576	32,579	32,592	**32,576**
Primary Energy Supply (ktoe)	23,612	23,541	22,473	24,773	**94,399**
Final Energy Consumption (ktoe)	14,610	13,359	13,620	15,660	**57,250**
Electricity Consumption (ktoe)	3,252	3,439	3,164	3,457	**13,311**
Electricity Consumption (GWh)	37,792	39,963	36,769	40,181	**154,705**
Per Capita					
GDP at Current Prices (RM)*	45,652	45,980	46,432	52,128	**47,547**
Primary Energy Supply (toe)	0.725	0.723	0.69	0.76	**2.898**
Final Energy Consumption (toe)	0.449	0.41	0.418	0.48	**1.757**
Electricity Consumption (kWh)	1,161	1,227	1,129	1,233	**4,749**
Energy Intensity					
Primary Energy Intensity (toe/GDP at 2015 prices (RM million))	68.64	69.7	66.63	66.67	**67.88**
Final Energy Intensity (toe/GDP at 2015 prices (RM million))	42.5	39.6	40.4	42.1	**41.2**
Electricity Intensity (toe/GDP at 2015 prices (RM million))	9.5	10.2	9.4	9.3	**9.6**
Electricity Intensity (GWh/GDP at 2015 prices (RM million))	0.11	0.118	0.109	0.108	**0.111**

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

Key Economic and Energy Data by Region

PENINSULAR MALAYSIA	2015	2016	2017	2018	2019	2020	2021
GDP at Current Prices (RM million)*	975,581	1,038,585	1,131,602	1,193,460	1,255,700	1,188,837	1,275,565
GDP at 2015 Prices (RM million)*	975,581	1,020,869	1,080,017	1,138,500	1,193,928	1,132,257	1,172,556
Population ('000 people)**	24,669	24,995	25,303	25,593	25,713	26,480	26,602
Final Energy Consumption (ktoe)	43,011	45,872	46,520	47,446	48,085	41,313	41,364
Electricity Consumption (ktoe)	9,531	10,026	10,004	10,378	10,776	10,172	10,184
Electricity Consumption (GWh)	110,770	116,529	116,272	120,617	125,241	118,221	118,365
Per Capita							
GDP at Current Prices (RM) per Capita*	39,547	41,551	44,722	46,632	48,835	44,896	47,950
Final Energy Consumption (toe) per Capita	1.744	1.835	1.839	1.854	1.870	1.560	1.555
Electricity Consumption (kWh) per Capita	4,490	4,662	4,595	4,713	4,871	4,465	4,449
Energy Intensity							
Final Energy Intensity (toe/GDP at 2015 prices (RM million))	44.1	44.9	43.1	41.7	40.3	36.5	35.3
Electricity Intensity (toe/GDP at 2015 prices (RM million))	9.8	9.8	9.3	9.1	9.0	9.0	8.7
Electricity Intensity (GWh/GDP at 2015 prices (RM million))	0.114	0.114	0.108	0.106	0.105	0.104	0.101

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

SABAH	2015	2016	2017	2018	2019	2020	2021
GDP at Current Prices (RM million)*	79,775	86,924	101,904	108,053	106,773	91,928	110,305
GDP at 2015 prices (RM million)*	79,775	83,930	90,583	92,257	93,265	85,378	86,542
Population ('000 people)**	3,816	3,900	3,954	3,997	4,004	3,514	3,509
Final Energy Consumption (ktoe)	3,845	5,015	9,512	6,598	6,561	5,655	5,578
Electricity Consumption (ktoe)	499	487	477	484	514	505	507
Electricity Consumption (GWh)	5,805	5,665	5,545	5,630	5,974	5,869	5,894
Per Capita							
GDP at Current Prices (RM) per Capita*	20,908	22,291	25,776	27,031	26,669	26,161	31,438
Final Energy Consumption (toe) per Capita	1.008	1.286	2.406	1.651	1.639	1.609	1.590
Electricity Consumption (kWh) per Capita	1,521	1,453	1,402	1,408	1,492	1,670	1,680
Energy Intensity							
Final Energy Intensity (toe/GDP at 2015 prices (RM million))	48.19	59.75	105.01	71.52	70.35	66.24	64.50
Electricity Intensity (toe/ GDP at 2015 prices (RM million))	6.26	5.81	5.27	5.25	5.51	5.91	5.90
Electricity Intensity (GWh/GDP at 2015 prices (RM million))	0.073	0.067	0.061	0.061	0.064	0.069	0.068

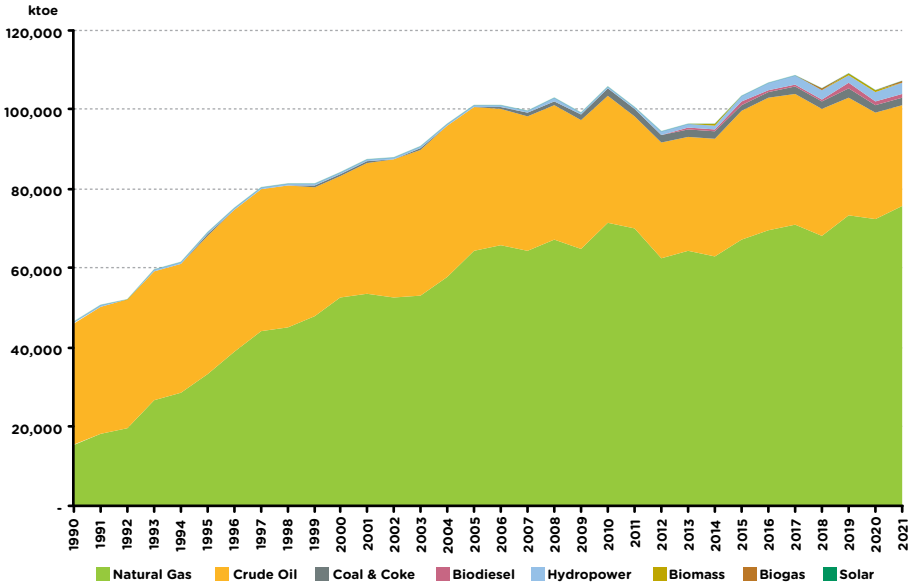
Notes (*): 1. GDP data by State is from the Department of Statistics Malaysia
2. GDP and population for Sabah includes WP Labuan
(**): Mid-year population is from the Department of Statistics Malaysia

SARAWAK	2015	2016	2017	2018	2019	2020	2021
GDP at Current Prices (RM million)*	121,585	124,189	138,804	146,246	150,265	137,235	163,028
GDP at 2015 prices (RM million)*	121,585	124,513	130,169	133,010	136,759	127,509	131,545
Population ('000 people)**	2,702	2,739	2,766	2,792	2,806	2,454	2,466
Final Energy Consumption (ktoe)	4,951	6,331	6,458	10,614	11,838	10,201	10,307
Electricity Consumption (ktoe)	1,344	1,878	2,126	2,290	2,356	2,423	2,620
Electricity Consumption (GWh)	15,624	21,831	24,703	26,618	27,382	28,161	30,446
Per Capita							
GDP at Current Prices (RM) per Capita*	45,007	45,464	47,055	47,645	48,738	51,966	53,352
Final Energy Consumption (toe) per Capita	1.833	2.312	2.335	3.802	4.219	4.157	4.181
Electricity Consumption (kWh) per Capita	5,784	7,971	8,930	9,535	9,758	11,477	12,348
Energy Intensity							
Final Energy Intensity (toe/GDP at 2015 prices (RM million))	40.72	50.85	49.61	79.80	86.56	80.00	78.40
Electricity Intensity (toe/GDP at 2015 prices (RM million))	11.06	15.09	16.33	17.22	17.23	19.00	19.90
Electricity Intensity (GWh/GDP at 2015 prices (RM million))	0.129	0.175	0.190	0.200	0.200	0.221	0.231

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

ENERGY SUPPLY

Primary Production by Fuel Type



SOURCE: NATIONAL ENERGY BALANCE 2021

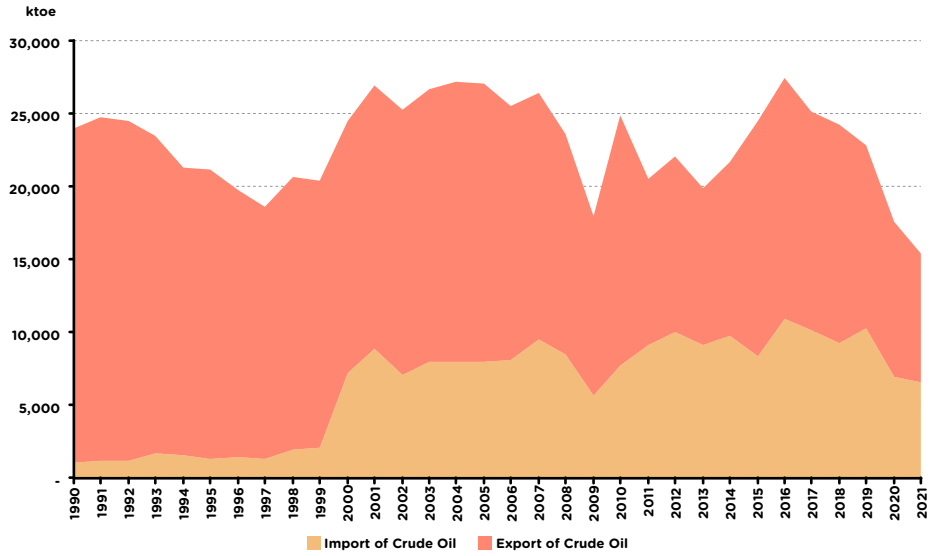
61.4%	NATURAL GAS	0.0%	BIODIESEL
37.6%	CRUDE OIL	0.0%	SOLAR
0.7%	HYDROPOWER	0.0%	BIOMASS
0.4%	COAL & COKE	0.0%	BIOGAS

70.7%	NATURAL GAS	0.9%	BIODIESEL
23.7%	CRUDE OIL	0.2%	SOLAR
2.5%	HYDROPOWER	0.1%	BIOMASS
1.8%	COAL & COKE	0.1%	BIOGAS

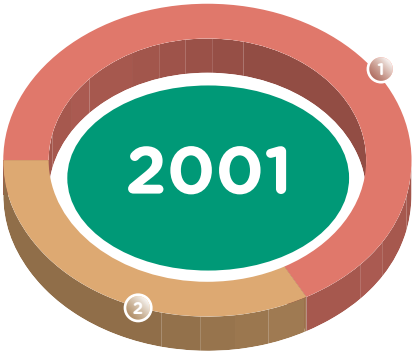
Unit: ktoe

	Primary Production by Fuel Type								
	Natural Gas	Crude Oil	Coal & Coke	Biodiesel	Hydropower	Biomass	Biogas	Solar	Total
1990	15,487	30,629	70	-	343	-	-	-	46,529
1991	18,390	31,843	126	-	379	-	-	-	50,738
1992	19,644	32,264	53	-	375	-	-	-	52,336
1993	26,898	32,218	264	-	419	-	-	-	59,799
1994	28,335	32,798	89	-	561	-	-	-	61,783
1995	33,268	35,090	85	-	535	-	-	-	68,978
1996	39,031	35,744	153	-	446	-	-	-	75,374
1997	44,318	35,600	153	-	333	-	-	-	80,404
1998	45,054	35,784	221	-	417	-	-	-	81,476
1999	47,746	32,835	174	-	647	-	-	-	81,402
2000	52,432	30,839	242	-	599	-	-	-	84,112
2001	53,659	32,851	344	-	607	-	-	-	87,461
2002	52,465	34,838	223	-	456	-	-	-	87,982
2003	53,010	37,026	107	-	435	-	-	-	90,578
2004	57,768	38,041	241	-	501	-	-	-	96,551
2005	64,337	36,127	430	-	446	-	-	-	101,340
2006	65,752	34,386	569	-	554	-	-	-	101,261
2007	64,559	33,967	576	-	558	-	-	-	99,660
2008	67,191	34,195	791	-	642	-	-	-	102,819
2009	64,661	32,747	1,348	-	574	-	-	-	99,330
2010	71,543	32,163	1,511	-	540	-	-	-	105,757
2011	69,849	28,325	1,838	176	656	-	-	-	100,844
2012	62,580	29,115	1,860	253	779	183	4	11	94,785
2013	64,406	28,576	1,824	480	1,003	297	6	38	96,630
2014	63,091	29,545	1,694	612	1,152	181	12	63	96,350
2015	67,209	32,440	1,614	684	1,346	189	18	75	103,575
2016	69,673	33,234	1,522	509	1,723	198	21	90	106,970
2017	71,140	32,807	1,884	467	2,287	194	41	93	108,913
2018	68,253	31,996	1,672	703	2,265	241	147	172	105,449
2019	73,230	29,878	2,181	1,351	2,251	204	118	128	109,341
2020	72,579	26,783	1,878	912	2,348	232	142	181	105,054
2021	75,819	25,389	1,961	1,001	2,676	150	99	186	107,281

Import and Export of Crude Oil



SOURCE: NATIONAL ENERGY BALANCE 2021



67.0% EXPORT OF CRUDE OIL

33.0% IMPORT OF CRUDE OIL

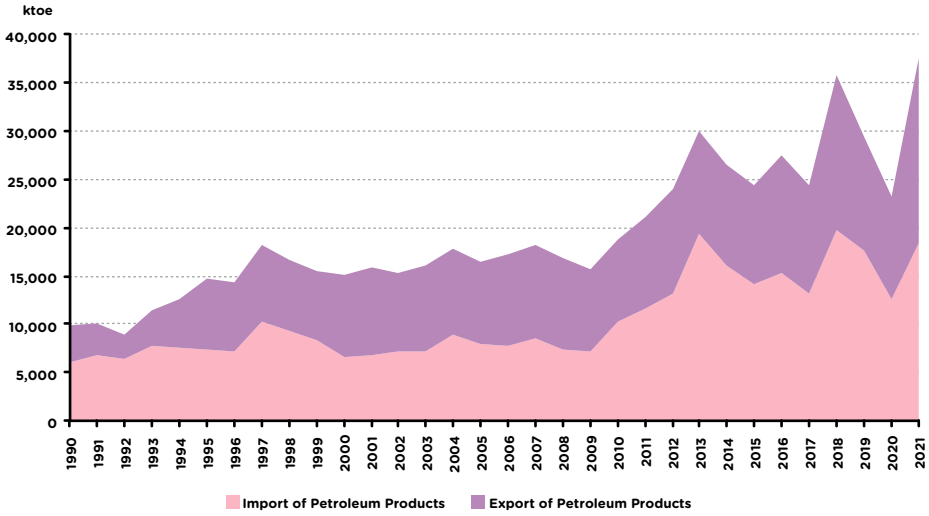
57.5% EXPORT OF CRUDE OIL

42.5% IMPORT OF CRUDE OIL

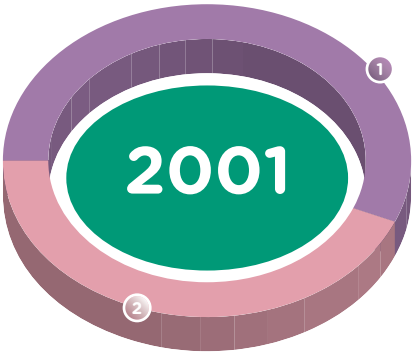
Unit: ktoe

	Import and Export of Crude Oil	
	Import of Crude Oil	Export of Crude Oil
1990	1,047	22,949
1991	1,244	23,444
1992	1,159	23,374
1993	1,703	21,766
1994	1,566	19,726
1995	1,315	19,833
1996	1,446	18,315
1997	1,300	17,322
1998	2,014	18,640
1999	2,081	18,355
2000	7,218	17,254
2001	8,890	18,018
2002	7,083	18,100
2003	7,921	18,747
2004	7,953	19,245
2005	8,031	18,994
2006	8,048	17,389
2007	9,453	16,962
2008	8,519	15,001
2009	5,718	12,235
2010	7,760	17,125
2011	9,104	11,404
2012	9,995	11,988
2013	9,101	10,785
2014	9,780	11,831
2015	8,379	16,075
2016	10,854	16,605
2017	10,135	14,958
2018	9,239	15,012
2019	10,306	12,483
2020	6,969	10,604
2021	6,557	8,885

Import and Export of Petroleum Products



SOURCE: NATIONAL ENERGY BALANCE 2021



56.4% EXPORT OF PETROLEUM PRODUCTS

43.6% IMPORT OF PETROLEUM PRODUCTS

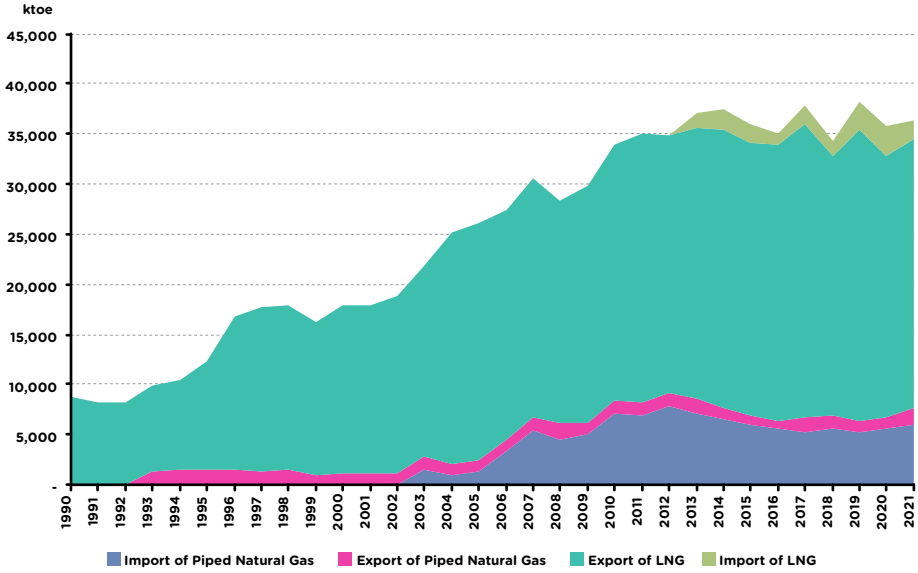
51.2% EXPORT OF PETROLEUM PRODUCTS

48.8% IMPORT OF PETROLEUM PRODUCTS

Unit: ktoe

	Import and Export of Petroleum Products	
	Import of Petroleum Products	Export of Petroleum Products
1990	6,031	3,913
1991	6,728	3,272
1992	6,499	2,513
1993	7,835	3,507
1994	7,492	5,094
1995	7,411	7,261
1996	7,095	7,317
1997	10,331	7,840
1998	9,360	7,194
1999	8,357	7,161
2000	6,619	8,533
2001	6,881	8,900
2002	7,220	8,158
2003	7,116	8,972
2004	8,980	8,912
2005	7,961	8,435
2006	7,734	9,535
2007	8,452	9,780
2008	7,376	9,527
2009	7,243	8,419
2010	10,359	8,431
2011	11,579	9,421
2012	13,243	10,785
2013	19,383	10,679
2014	16,009	10,399
2015	14,219	10,219
2016	15,342	12,214
2017	13,252	11,063
2018	19,763	16,028
2019	17,662	11,779
2020	12,586	10,590
2021	18,329	19,260

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



SOURCE: NATIONAL ENERGY BALANCE 2021

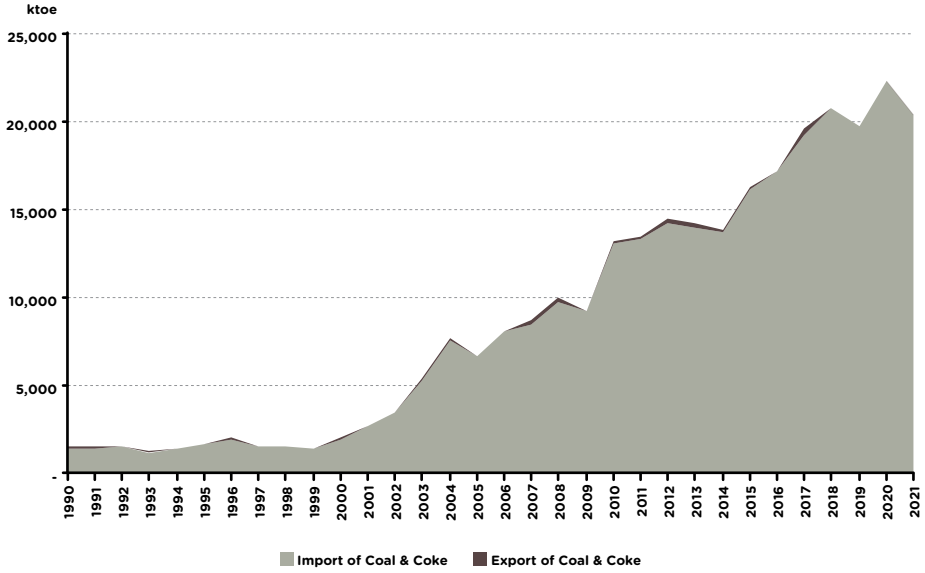
- 76.8% EXPORT OF LNG
- 20.0% IMPORT OF PIPED NATURAL GAS
- 3.3% EXPORT OF PIPED NATURAL GAS
- 0.0% IMPORT OF LNG

- 73.6% EXPORT OF LNG
- 16.6% IMPORT OF PIPED NATURAL GAS
- 5.5% IMPORT OF LNG
- 4.3% EXPORT OF PIPED NATURAL GAS

Unit: ktoe

	Import and Export of Piped Natural Gas and Liquefied Natural Gas (LNG)			
	Import of Piped Natural Gas	Export of Piped Natural Gas	Export of LNG	Import of LNG
1990	-	-	8,686	-
1991	-	-	8,278	-
1992	-	1	8,262	-
1993	-	1,258	8,654	-
1994	-	1,589	8,938	-
1995	-	1,474	10,790	-
1996	-	1,474	15,251	-
1997	-	1,340	16,396	-
1998	-	1,444	16,429	-
1999	-	860	15,445	-
2000	-	1,198	16,633	-
2001	-	1,178	16,636	-
2002	-	1,098	17,803	-
2003	1,501	1,402	18,965	-
2004	999	1,143	22,944	-
2005	1,340	1,134	23,707	-
2006	3,313	1,257	22,874	-
2007	5,435	1,295	23,777	-
2008	4,565	1,524	22,277	-
2009	5,055	1,166	23,606	-
2010	7,013	1,340	25,487	-
2011	6,979	1,147	26,856	-
2012	7,866	1,368	25,547	-
2013	7,098	1,497	27,089	1,450
2014	6,472	1,129	27,835	2,019
2015	5,941	1,062	27,057	1,873
2016	5,557	841	27,457	1,275
2017	5,183	1,452	29,428	1,815
2018	5,573	1,407	25,920	1,383
2019	5,325	1,114	29,044	2,663
2020	5,519	1,179	26,155	2,939
2021	6,049	1,569	26,798	1,996

Import and Export of Coal and Coke



SOURCE: NATIONAL ENERGY BALANCE 2021

98.7% IMPORT OF COAL & COKE

1.3% EXPORT OF COAL & COKE

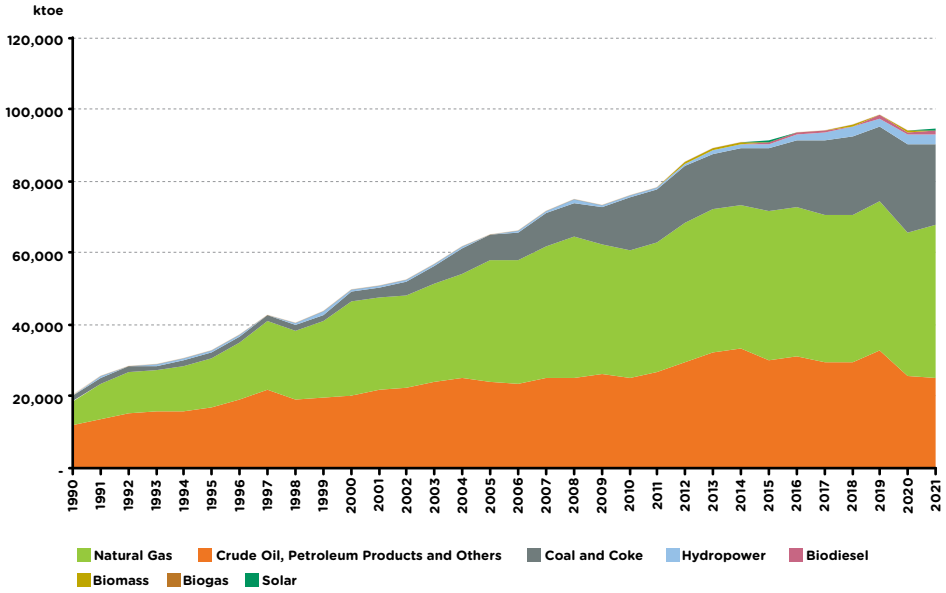
100.0% IMPORT OF COAL & COKE

0.0% EXPORT OF COAL & COKE

Unit: ktoe

	Import and Export of Coal and Coke	
	Import of Coal & Coke	Export of Coal & Coke
1990	1,424	28
1991	1,407	66
1992	1,485	60
1993	1,158	70
1994	1,351	40
1995	1,588	50
1996	1,938	15
1997	1,446	9
1998	1,529	7
1999	1,321	8
2000	1,943	19
2001	2,665	34
2002	3,442	37
2003	5,268	36
2004	7,498	85
2005	6,612	44
2006	7,988	71
2007	8,425	273
2008	9,725	206
2009	9,126	119
2010	13,073	62
2011	13,330	141
2012	14,221	233
2013	13,909	326
2014	13,704	114
2015	16,051	156
2016	17,171	15
2017	19,181	382
2018	20,743	0
2019	19,624	3
2020	22,235	0
2021	20,355	0

Total Primary Energy Supply by Fuel Type



SOURCE: NATIONAL ENERGY BALANCE 2021

50.4%	NATURAL GAS	0.0%	BIODIESEL
42.6%	CRUDE OIL, PETROLEUM PRODUCTS AND OTHERS	0.0%	SOLAR
5.8%	COAL & COKE	0.0%	BIOMASS
1.2%	HYDROPOWER	0.0%	BIOGAS

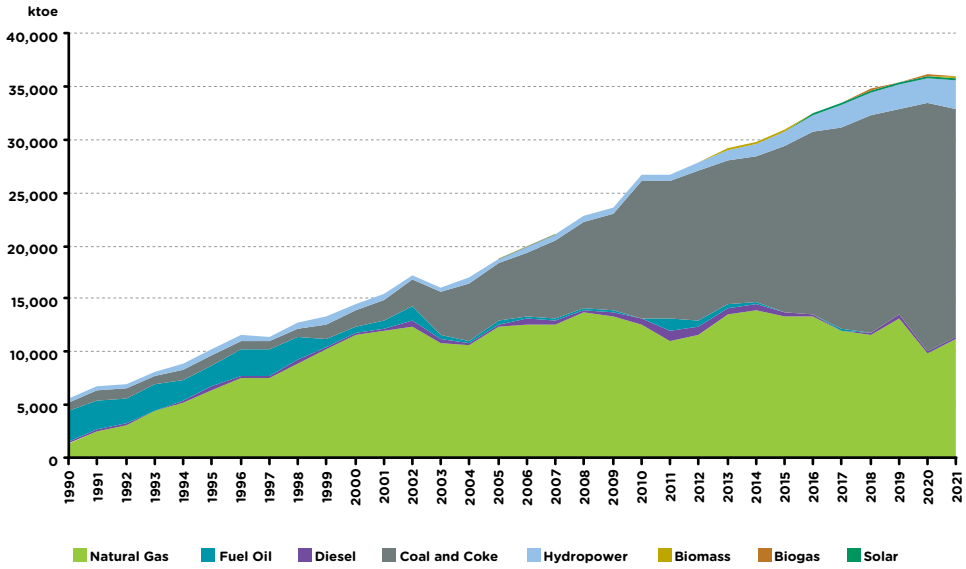
44.8%	NATURAL GAS	0.9%	BIODIESEL
26.7%	CRUDE OIL, PETROLEUM PRODUCTS AND OTHERS	0.2%	SOLAR
24.3%	COAL & COKE	0.2%	BIOMASS
2.8%	HYDROPOWER	0.1%	BIOGAS

Unit: ktoe

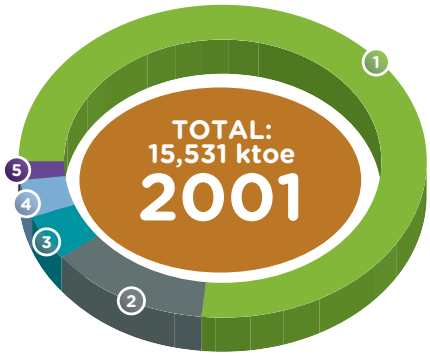
Total Primary Energy Supply by Fuel Type									
	Crude Oil, Petroleum Products and Others	Natural Gas	Coal and Coke	Hydropower	Biodiesel	Biomass	Biogas	Solar	Total
1990	11,928	6,801	1,326	343	-	-	-	-	20,398
1991	13,606	10,112	1,564	379	-	-	-	-	25,661
1992	15,273	11,381	1,640	375	-	-	-	-	28,669
1993	15,951	11,360	1,352	419	-	-	-	-	29,082
1994	16,055	12,392	1,563	561	-	-	-	-	30,571
1995	16,767	13,960	1,612	535	-	-	-	-	32,874
1996	19,353	15,567	1,677	446	-	-	-	-	37,043
1997	21,720	19,041	1,622	333	-	-	-	-	42,716
1998	19,051	19,101	1,731	417	-	-	-	-	40,300
1999	19,450	21,476	1,940	647	-	-	-	-	43,513
2000	20,242	26,370	2,486	599	-	-	-	-	49,697
2001	21,673	25,649	2,970	607	-	-	-	-	50,899
2002	22,124	26,101	3,642	456	-	-	-	-	52,323
2003	23,936	27,257	5,316	435	-	-	-	-	56,944
2004	25,253	29,145	7,109	501	-	-	-	-	62,008
2005	24,096	33,913	6,889	446	-	-	-	-	65,344
2006	23,239	34,917	7,299	554	-	-	-	-	66,009
2007	25,381	36,639	8,848	558	-	-	-	-	71,426
2008	24,996	39,289	9,782	642	-	-	-	-	74,709
2009	26,482	35,851	10,623	574	-	-	-	-	73,530
2010	25,008	35,447	14,777	540	-	-	-	-	75,772
2011	26,903	35,740	14,772	656	24	-	-	-	78,095
2012	29,502	38,647	15,882	779	115	183	4	11	85,123
2013	32,474	39,973	15,067	1,003	188	297	6	38	89,046
2014	33,423	40,113	15,357	1,152	300	181	12	63	90,601
2015	29,836	41,853	17,406	1,346	389	189	18	75	91,112
2016	31,327	41,257	18,744	1,723	389	198	21	90	93,748
2017	29,380	41,200	20,771	2,287	379	194	41	93	94,345
2018	29,429	40,939	22,280	2,265	436	241	147	172	95,909
2019	32,813	41,461	21,057	2,251	648	204	118	128	98,681
2020	25,773	39,939	24,788	2,348	791	232	142	181	94,194
2021	25,251	42,296	22,917	2,676	827	150	99	186	94,401

ENERGY TRANSFORMATION

Fuel Input to Power Stations By Fuel Type



SOURCE: NATIONAL ENERGY BALANCE 2021



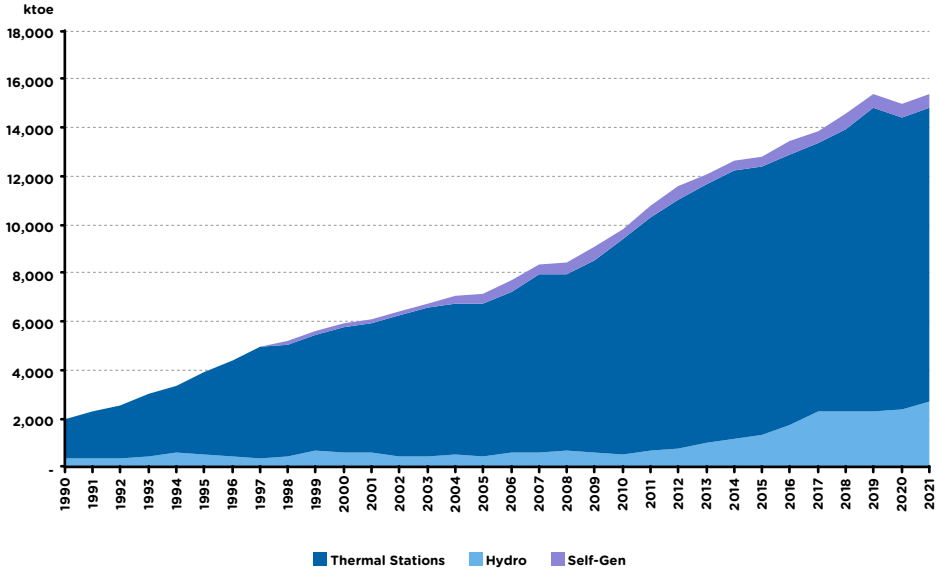
76.8%	NATURAL GAS	1.8%	DIESEL
12.8%	COAL & COKE	0.0%	SOLAR
4.7%	FUEL OIL	0.0%	BIOMASS
3.9%	HYDROPOWER	0.0%	BIOGAS

59.7%	COAL & COKE	0.5%	SOLAR
30.9%	NATURAL GAS	0.4%	BIOMASS
7.4%	HYDROPOWER	0.3%	BIOGAS
0.8%	DIESEL	0.0%	FUEL OIL

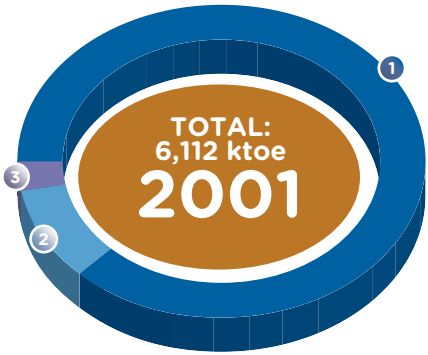
Unit: ktoe

Fuel Input to Power Stations By Fuel Type									
	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	34,759
2019	13,072	517	19	19,351	2,251	125	68	95	35,497
2020	9,841	154	12	23,451	2,348	176	54	137	36,173
2021	11,122	273	8	21,525	2,676	186	150	99	36,039

Electricity Generation by Plant Type



SOURCE: NATIONAL ENERGY BALANCE 2021



87.3% THERMAL STATIONS

9.9% HYDRO

2.8% SELF-GEN

79.1% THERMAL STATIONS

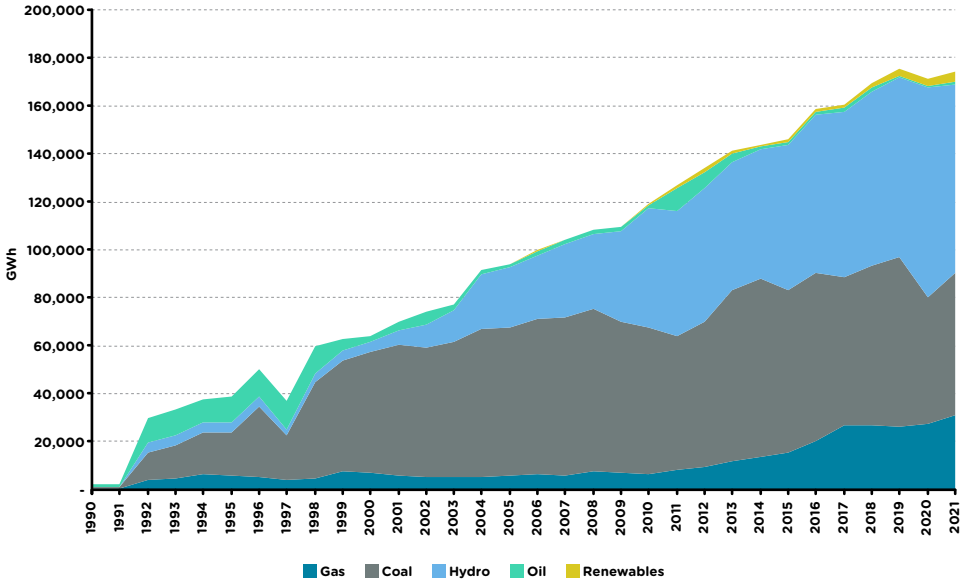
17.4% HYDRO

3.5% SELF-GEN

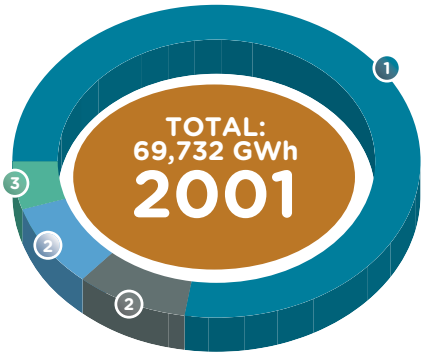
Unit: ktoe

	Electricity Generation by Plant Type			
	Hydro	Thermal Stations	Co-Gen & Self-Gen	Total
1990	343	1,636	-	1,979
1991	379	1,904	-	2,283
1992	375	2,146	-	2,521
1993	419	2,568	-	2,987
1994	561	2,801	-	3,362
1995	535	3,374	-	3,909
1996	446	3,975	-	4,421
1997	333	4,644	-	4,977
1998	417	4,596	207	5,220
1999	647	4,762	200	5,609
2000	599	5,132	224	5,955
2001	607	5,333	172	6,112
2002	456	5,771	157	6,384
2003	435	6,134	179	6,748
2004	501	6,215	359	7,075
2005	446	6,259	403	7,108
2006	554	6,687	499	7,740
2007	558	7,366	461	8,385
2008	642	7,321	460	8,423
2009	574	7,957	560	9,091
2010	540	8,864	387	9,791
2011	656	9,648	442	10,746
2012	779	10,253	530	11,562
2013	1,003	10,627	424	12,054
2014	1,152	11,075	402	12,629
2015	1,346	11,047	430	12,823
2016	1,723	11,170	535	13,428
2017	2,309	11,066	445	13,820
2018	2,265	11,674	616	14,555
2019	2,251	12,540	587	15,377
2020	2,348	12,085	539	14,972
2021	2,676	12,152	537	15,365

Electricity Generation Mix



SOURCE: NATIONAL ENERGY BALANCE 2021



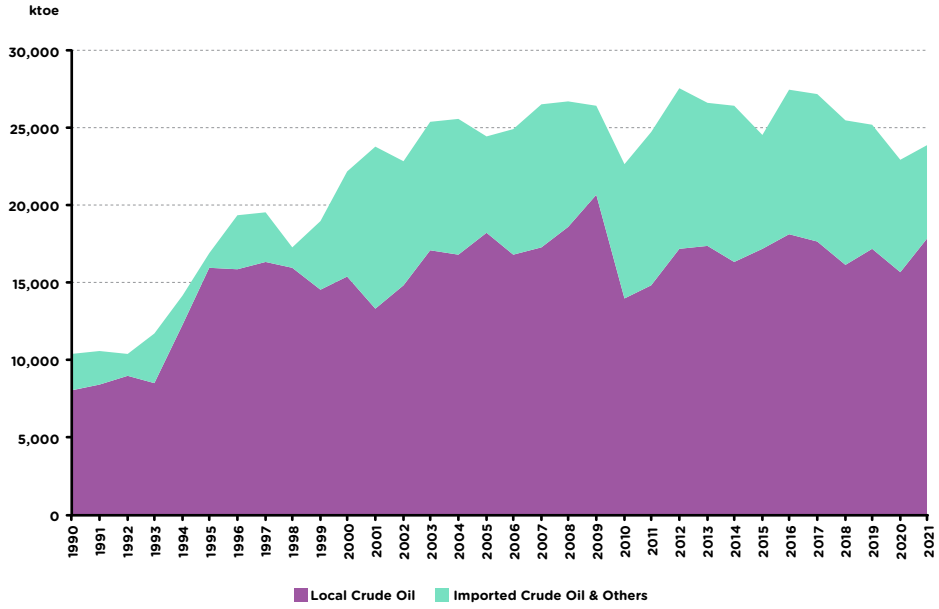
77.5% GAS
8.9% COAL
8.7% HYDRO
4.8% OIL
0.0% RENEWABLES

45.0% COAL
34.2% GAS
17.8% HYDRO
2.4% RENEWABLES
0.6% OIL

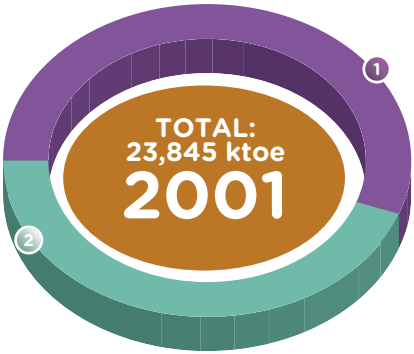
Unit: GWh

	Electricity Generation Mix					
	Hydro	Gas	Coal	Oil	Renewables	Total
1990	518	623	-	952	-	2,093
1991	762	525	-	991	-	2,278
1992	4,286	11,398	3,837	10,586	-	30,107
1993	4,853	13,905	3,880	10,685	-	33,323
1994	6,483	17,491	4,081	9,744	-	37,799
1995	6,184	17,726	3,974	10,936	-	38,820
1996	5,184	29,641	4,177	11,094	189	50,285
1997	4,134	18,387	2,460	12,084	-	37,065
1998	4,457	40,223	3,655	11,310	-	59,645
1999	7,552	45,988	4,522	4,967	-	63,029
2000	6,994	50,314	4,038	2,935	-	64,281
2001	6,066	54,066	6,238	3,362	-	69,732
2002	5,415	53,979	9,559	5,211	-	74,164
2003	5,090	56,478	13,435	2,197	-	77,200
2004	5,573	61,363	22,627	1,859	-	91,422
2005	6,007	61,396	25,231	1,396	-	94,030
2006	6,323	64,768	26,626	1,908	50	99,675
2007	5,957	65,568	30,856	1,768	63	104,212
2008	7,807	67,779	31,029	1,649	66	108,330
2009	6,890	63,370	37,644	1,726	132	109,762
2010	6,361	61,342	49,401	1,659	170	118,933
2011	8,056	55,732	52,302	9,403	1,576	127,069
2012	9,251	60,992	55,615	6,623	1,596	134,077
2013	11,799	71,174	53,663	3,312	1,318	141,266
2014	13,540	74,466	53,693	1,132	995	143,826
2015	15,524	67,900	60,129	1,472	1,196	146,221
2016	20,357	69,871	66,246	1,142	1,056	158,672
2017	26,716	62,131	68,866	1,695	1,316	160,724
2018	27,125	66,116	72,897	1,695	1,695	169,528
2019	26,280	70,410	74,955	949	2,569	175,163
2020	27,301	52,850	87,282	738	3,313	171,484
2021	30,986	59,568	78,384	1,066	4,227	174,231

Input of Crude Oil in Refineries

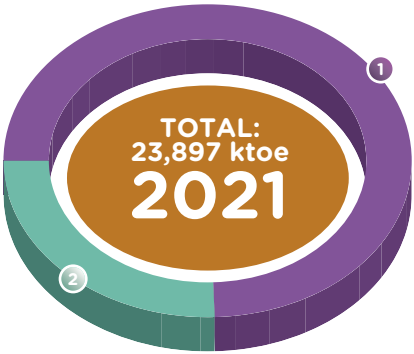


SOURCE: NATIONAL ENERGY BALANCE 2021



55.8% LOCAL CRUDE OIL

44.2% IMPORTED CRUDE OIL & OTHERS



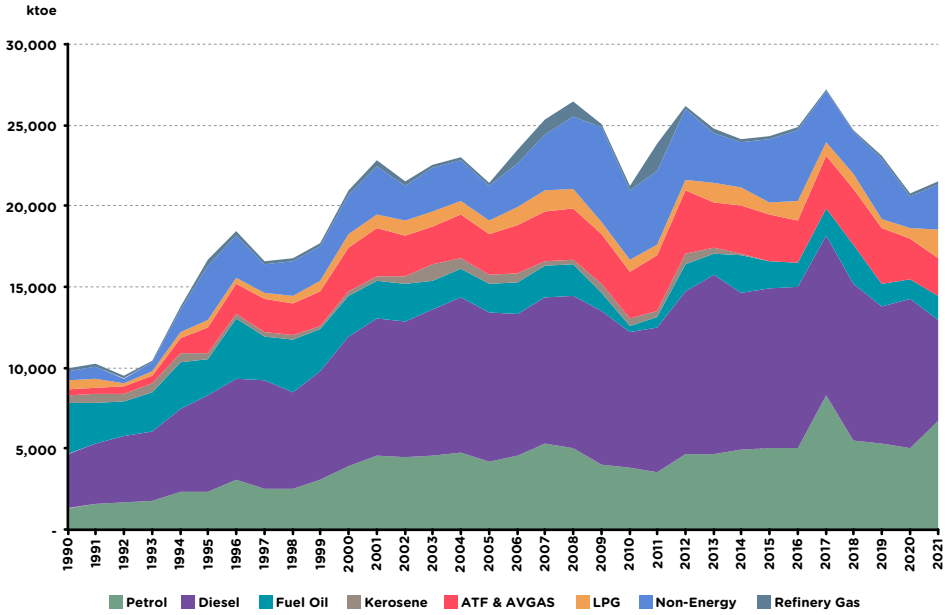
74.6% LOCAL CRUDE OIL

25.4% IMPORTED CRUDE OIL & OTHERS

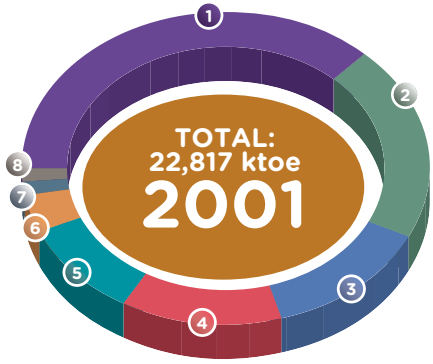
Unit: ktoe

	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
2020	15,739	7,235	22,974
2021	17,828	6,069	23,897

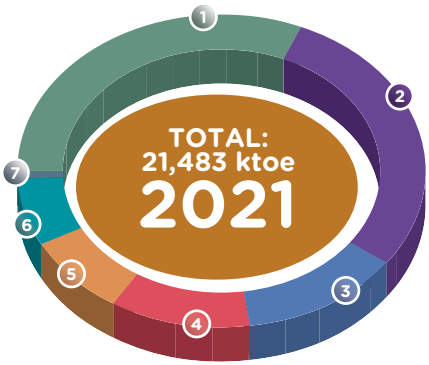
Production of Petroleum Products from Refineries



SOURCE: NATIONAL ENERGY BALANCE 2021



37.1%	DIESEL	9.9%	FUEL OIL
20.3%	PETROL	3.8%	LPG
13.2%	NON-ENERGY	1.5%	REFINERY GAS
12.9%	ATF & AVGAS	1.2%	KEROSENE



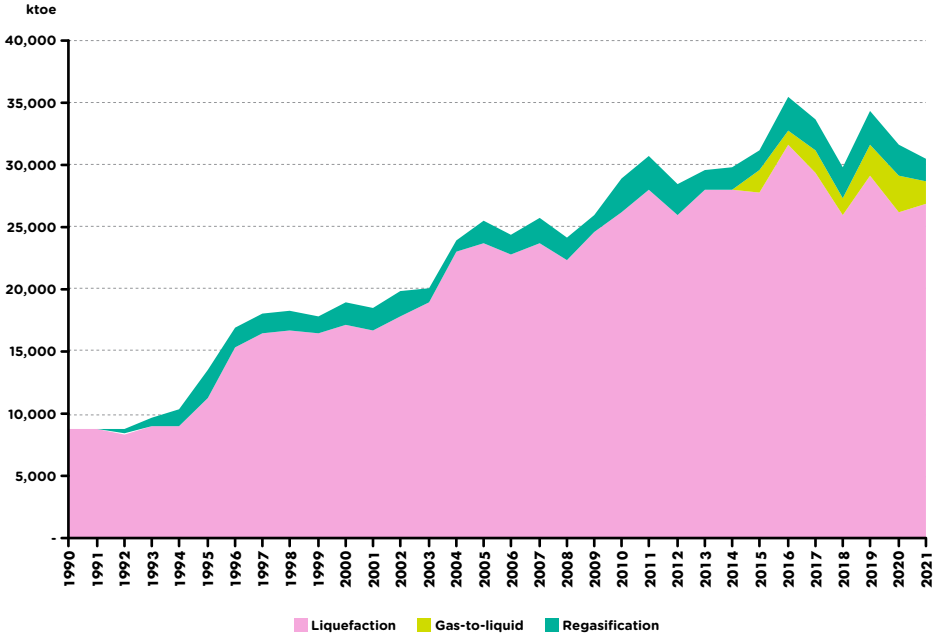
31.5%	PETROL	8.2%	LPG
28.7%	DIESEL	7.0%	FUEL OIL
12.9%	NON-ENERGY	0.7%	REFINERY GAS
11.1%	ATF & AVGAS	0.0%	KEROSENE

Unit: ktoe

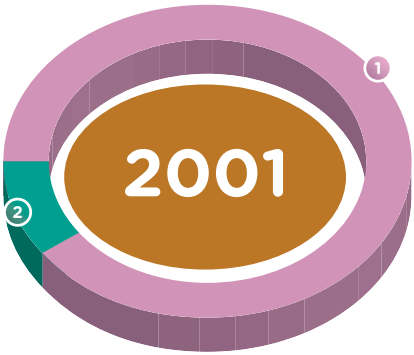
	Production of Petroleum Products from Refineries								
	Petrol	Diesel	Fuel Oil	Kerosene	ATF & AVGAS	LPG	Non-Energy	Refinery Gas	Total
1990	1,347	3,350	3,106	491	360	613	561	151	9,979
1991	1,611	3,681	2,547	526	390	548	772	168	10,243
1992	1,724	4,048	2,110	541	412	200	324	143	9,502
1993	1,816	4,249	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
2020	5,089	9,199	1,204	12	2,459	672	1,954	156	20,745
2021	6,760	6,157	1,497	10	2,386	1,755	2,762	155	21,483

Source: Oil companies

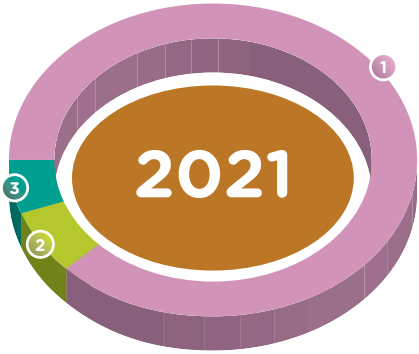
Conversion in Gas Plants



SOURCE: NATIONAL ENERGY BALANCE 2021



90.1% LIQUEFACTION
9.9% GAS-TO-LIQUID
0.0% REGASIFICATION



87.9% LIQUEFACTION
6.5% REGASIFICATION
5.5% GAS-TO-LIQUID

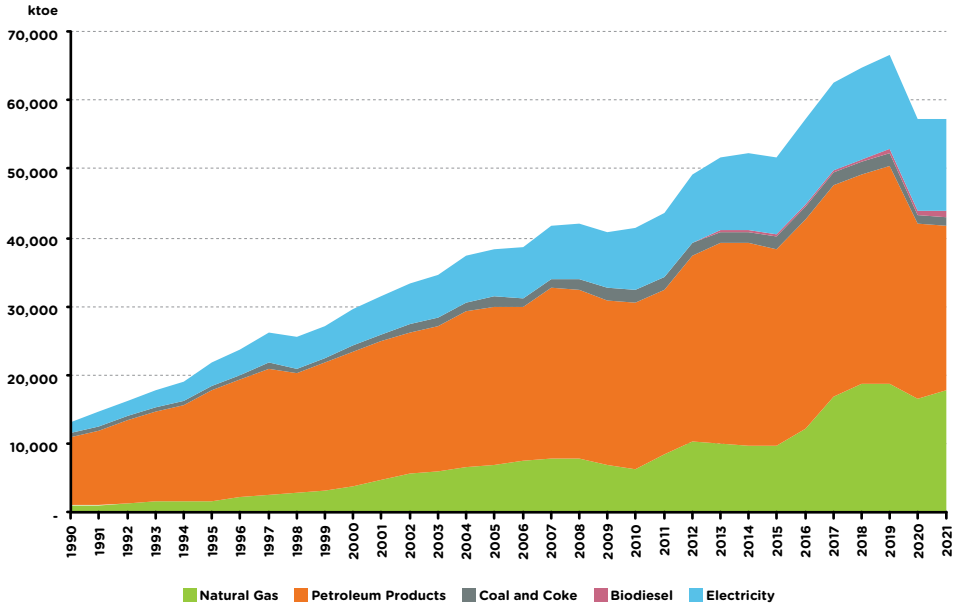
Unit: ktoe

	Conversion in Gas Plants			
	Liquefaction	Regasification	Gas-to-Liquid	Total
1990	8,761	-	-	8,761
1991	8,749	-	-	8,749
1992	8,425	-	392	8,817
1993	9,019	-	568	9,587
1994	9,087	-	1,186	10,273
1995	11,244	-	2,321	13,565
1996	15,251	-	1,556	16,807
1997	16,396	-	1,647	18,043
1998	16,688	-	1,526	18,214
1999	16,417	-	1,472	17,889
2000	17,231	-	1,646	18,877
2001	16,636	-	1,823	18,459
2002	17,803	-	1,950	19,752
2003	18,965	-	1,234	20,198
2004	22,944	-	1,033	23,977
2005	23,707	-	1,779	25,486
2006	22,873	-	1,500	24,373
2007	23,777	-	1,900	25,678
2008	22,277	-	1,843	24,120
2009	24,538	-	1,438	25,977
2010	26,150	-	2,752	28,902
2011	27,916	-	2,794	30,710
2012	26,004	-	2,522	28,525
2013	28,037	-	1,653	29,689
2014	28,117	-	1,670	29,787
2015	27,673	1,873	1,578	31,124
2016	31,594	1,277	2,570	35,440
2017	29,428	1,815	2,470	33,713
2018	25,920	1,383	2,523	29,825
2019	29,045	2,663	2,533	34,241
2020	26,155	2,939	2,439	31,533
2021	26,798	1,996	1,681	30,475

Source: Oil and gas companies

ENERGY CONSUMPTION

Final Energy Consumption by Fuel Type



SOURCE: NATIONAL ENERGY BALANCE 2021

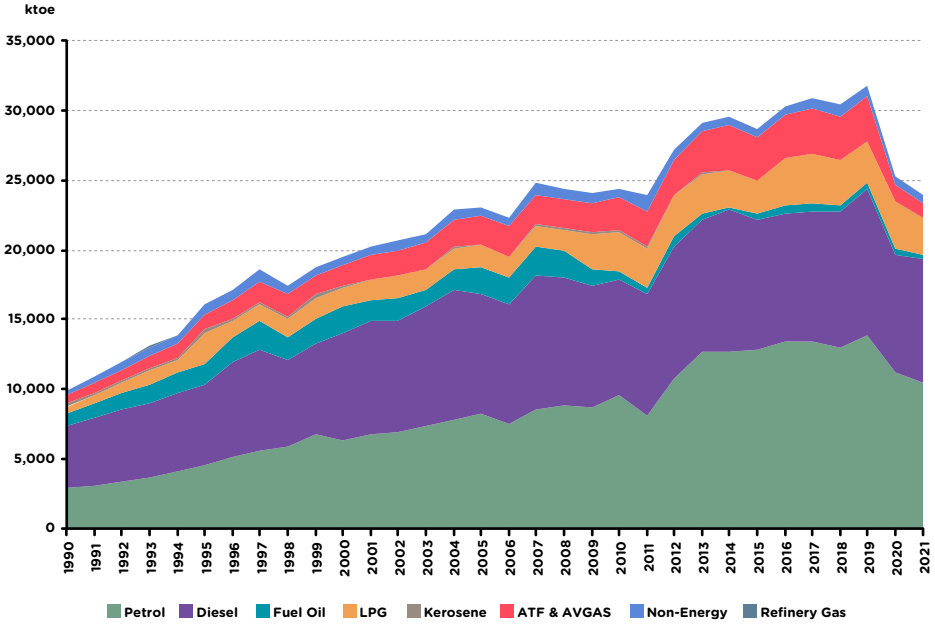
64.5% PETROLEUM PRODUCTS
17.8% ELECTRICITY
14.7% NATURAL GAS
3.1% COAL & COKE
0.0% BIODIESEL

41.8% PETROLEUM PRODUCTS
31.1% NATURAL GAS
23.3% ELECTRICITY
2.4% COAL & COKE
1.4% BIODIESEL

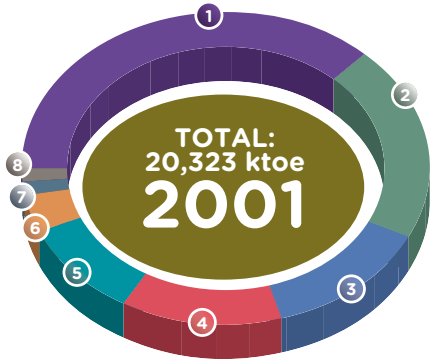
Unit: ktoe

	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
2020	16,631	25,309	1,338	791	13,100	57,169
2021	17,815	23,905	1,392	827	13,311	57,250

Final Energy Consumption for Petroleum Products



SOURCE: NATIONAL ENERGY BALANCE 2021



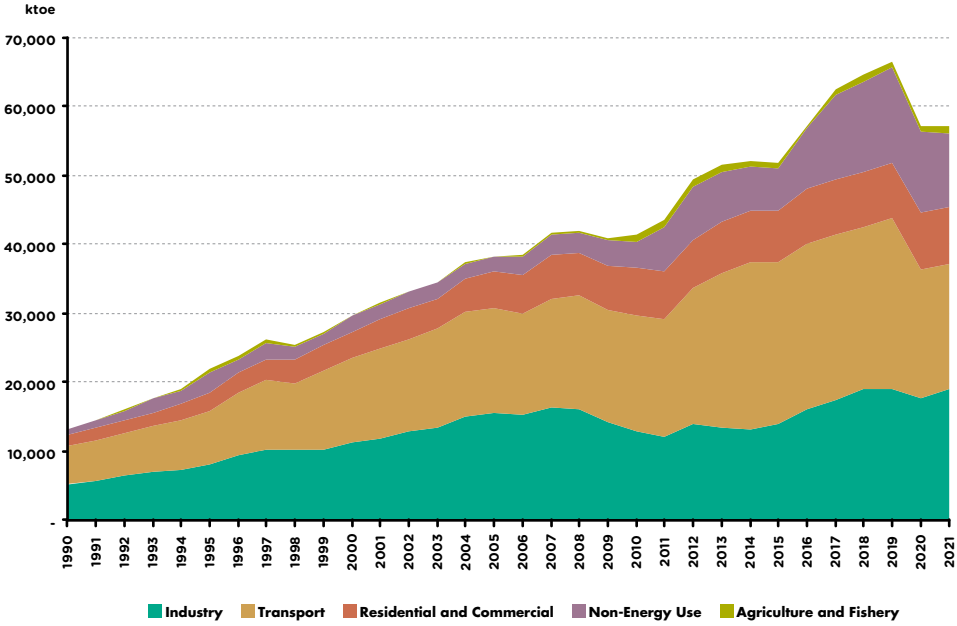
39.9%	DIESEL	6.8%	LPG
33.6%	PETROL	3.1%	NON-ENERGY
8.7%	ATF & AVGAS	0.5%	KEROSENE
7.4%	FUEL OIL	0.0%	REFINERY GAS

44.0%	PETROL	2.3%	NON-ENERGY
36.8%	DIESEL	1.4%	FUEL OIL
11.0%	LPG	0.2%	KEROSENE
4.1%	ATF & AVGAS	0.0%	REFINERY GAS

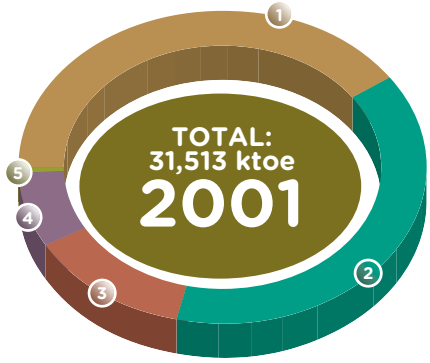
Unit: ktoe

	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	0	**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	0	**24,452**
2009	8,766	8,634	1,291	2,506	30	2,120	799	0	**24,146**
2010	9,560	8,388	478	2,920	19	2,380	657	0	**24,402**
2011	8,155	8,712	414	2,892	19	2,553	1,178	0	**23,923**
2012	10,843	9,410	768	2,892	38	2,521	743	0	**27,215**
2013	12,656	9,568	329	2,946	31	2,998	662	0	**29,190**
2014	12,705	10,161	246	2,632	23	3,158	592	0	**29,517**
2015	12,804	9,377	498	2,261	4	3,134	621	0	**28,699**
2016	13,411	9,254	513	3,497	5	3,019	650	0	**30,349**
2017	13,437	9,388	579	3,514	5	3,220	719	0	**30,862**
2018	13,041	9,756	387	3,309	6	3,121	789	0	**30,409**
2019	13,811	10,583	446	3,017	12	3,261	705	0	**31,835**
2020	11,188	8,516	338	3,423	32	1,199	613	0	**25,309**
2021	10,529	8,800	342	2,637	59	985	552	0	**23,905**

Final Energy Consumption by Sector



SOURCE: NATIONAL ENERGY BALANCE 2021



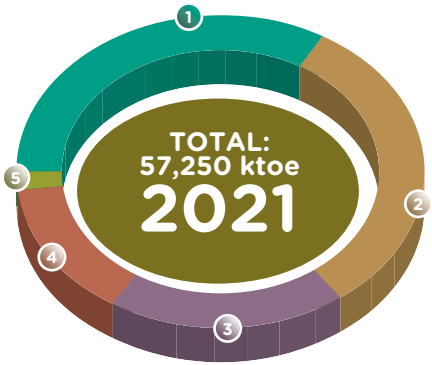
41.7% TRANSPORT

37.6% INDUSTRY

12.9% RESIDENTIAL AND COMMERCIAL

7.6% NON-ENERGY USE

0.3% AGRICULTURE AND FISHERY



33.5% INDUSTRY

31.6% TRANSPORT

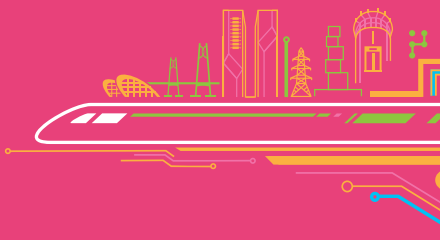
19.0% NON-ENERGY USE

14.1% RESIDENTIAL AND COMMERCIAL

1.8% AGRICULTURE AND FISHERY

Unit: ktoe

	Final Energy Consumption by Sector					
	Residential and Commercial	Industry	Transport	Agriculture and Fishery	Non-Energy Use	Total
1990	1,622	5,276	5,386	-	838	13,122
1991	1,721	5,809	5,806	130	1,071	14,537
1992	1,867	6,455	6,226	391	1,222	16,161
1993	2,055	7,012	6,558	62	2,027	17,714
1994	2,300	7,283	7,262	422	1,817	19,084
1995	2,556	8,060	7,827	446	2,994	21,883
1996	3,162	9,443	8,951	486	1,744	23,786
1997	3,073	10,106	10,201	490	2,298	26,168
1998	3,314	10,121	9,793	307	2,023	25,558
1999	3,653	10,277	11,393	106	1,799	27,228
2000	3,868	11,406	12,071	104	2,250	29,699
2001	4,048	11,852	13,137	98	2,378	31,513
2002	4,387	12,854	13,442	96	2,511	33,290
2003	4,399	13,472	14,271	98	2,345	34,585
2004	4,754	14,914	15,385	87	2,183	37,323
2005	5,134	15,583	15,293	101	2,173	38,284
2006	5,424	15,248	14,819	258	2,819	38,568
2007	6,197	16,454	15,717	281	2,957	41,606
2008	6,205	16,205	16,395	287	2,876	41,968
2009	6,336	14,312	16,119	211	3,868	40,846
2010	6,951	12,928	16,828	1,074	3,696	41,477
2011	6,993	12,100	17,070	916	6,377	43,456
2012	7,065	13,919	19,757	1,053	7,497	49,291
2013	7,403	13,496	22,357	1,051	7,277	51,584
2014	7,459	13,162	24,327	1,045	6,217	52,210
2015	7,600	13,971	23,435	895	5,928	51,829
2016	8,051	16,019	24,004	415	8,729	57,219
2017	7,796	17,463	24,039	674	12,517	62,489
2018	7,773	19,046	23,555	1,021	13,262	64,658
2019	8,000	18,921	25,004	927	13,631	66,483
2020	8,123	17,714	18,660	867	11,805	57,169
2021	8,084	19,157	18,095	1,045	10,869	57,250



ENERGY BALANCE

Energy Balance Table for 2021

Energy Balance for Malaysia 2021 (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	75,819	0	25,389	0	**0**	0	0	0	0
2. Gas Flaring, Reinjection & Use	-13,202	0	0	0	**0**	0	0	0	0
3. Imports	6,049	1,996	6,557	92	**18,329**	11,133	5,704	26	354
4. Exports	-1,569	-26,798	-8,885	-58	**-19,260**	-7,802	-5,330	-588	-798
5. Bunkers	0	0	0	0	**-654**	0	-106	-549	0
6. Stock Change	0	0	784	0	**2,969**	464	2,425	19	96
7. Statistical Discrepancy	0	0	68	0	**0**	0	0	0	0
8. Primary Supply	**67,098**	**-24,802**	**23,913**	**34**	**1,385**	**3,795**	**2,693**	**-1,092**	**-349**
TRANSFORMATION									
9. Gas Plants									
9.1 Liquefaction (3/)	-36,283	26,798	0	0	**101**	0	0	0	101
9.2 Regasification (4/)	1,996	-1,996	0	0	**0**	0	0	0	0
9.3 Gas-to-Liquid (5/)	-2,715	0	0	0	**1,681**	0	118	0	1,212
Subtotal	**-37,002**	**24,802**	**0**	**0**	**1,782**	**0**	**118**	**0**	**1,313**
10. Refineries	0	0	-23,897	-34	**21,483**	6,760	6,157	1,497	1,755
11. Power Stations & Self-Generation									
11.1 Hydro Stations	0	0	0	0	**0**	0	0	0	0
11.2 Thermal Stations	-9,936	0	0	0	**-244**	0	-236	-8	0
11.3 Self-Generation (6/)	-1,185	0	0	0	**-37**	0	-37	0	0
Subtotal	**-11,122**	**0**	**0**	**0**	**-281**	**0**	**-273**	**-8**	**0**
12. Losses & Own Use	-1,159	0	-16	0	**-475**	0	0	-18	0
13. Statistical Discrepancy	0	0	0	0	**10**	-26	104	-36	-83
14. Secondary Supply	**-49,283**	**24,802**	**-23,913**	**-34**	**22,520**	**6,734**	**6,107**	**1,435**	**2,986**
FINAL USE									
15. Residential	1	0	0	0	**993**	0	0	0	990
16. Commercial	11	0	0	0	**461**	0	149	33	279
17. Industry	8,663	0	0	0	**2,498**	93	1,883	309	156
18. Transport	35	0	0	0	**17,203**	10,379	5,839	0	0
19. Agriculture	0	0	0	0	**371**	0	371	0	0
20. Fishery	0	0	0	0	**615**	57	558	0	0
21. Non-Energy Use	9,105	0	0	0	**1,764**	0	0	0	1,212
22. Total Final Use	**17,815**	**0**	**0**	**0**	**23,905**	**10,529**	**8,800**	**342**	**2,637**
ELECTRICITY OUTPUT									
Main Activity Producer									
Gross Electricity Generation - GWh	52,976	0	0	0	**807**	0	807	0	0
Autoproducer									
Gross Electricity Generation - GWh	5,443	0	0	0	**168**	0	168	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	1,961	2,676	186	150	99	1,001	0	**107,281**
0	0	0	0	0	0	0	0	0	0	0	**-13,202**
3	434	676	0	20,355	0	0	0	0	0	3	**53,381**
-42	-1,536	-3,163	0	-0	0	0	0	0	-246	-84	**-56,899**
0	0	0	0	0	0	0	0	0	0	0	**-654**
8	-222	180	0	566	0	0	0	0	71	0	**4,390**
0	0	0	0	35	0	0	0	0	0	0	**103**
-30	**-1,325**	**-2,307**	**0**	**22,917**	**2,676**	**186**	**150**	**99**	**827**	**-81**	**94,401**
0	0	0	0	0	0	0	0	0	0	0	**-9,384**
0	0	0	0	0	0	0	0	0	0	0	**0**
42	0	308	0	0	0	0	0	0	0	0	**-1,034**
42	**0**	**308**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**-10,418**
10	2,386	2,762	155	0	0	0	0	0	0	0	**-2,448**
0	0	0	0	0	-2,676	0	0	0	0	2,676	**0**
0	0	0	0	-21,525	0	-183	-35	-96	0	12,152	**-19,867**
0	0	0	0	0	0	-3	-115	-3	0	537	**-806**
0	**0**	**0**	**0**	**-21,525**	**-2,676**	**-186**	**-150**	**-99**	**0**	**15,365**	**-20,673**
0	0	-301	-155	0	0	0	0	0	0	-1,567	**-3,217**
37	-75	90	0	0	0	0	0	0	0	-406	**-396**
89	**2,311**	**2,859**	**0**	**-21,525**	**-2,676**	**-186**	**-150**	**-99**	**0**	**13,392**	**-37,151**
3	0	0	0	0	0	0	0	0	0	3,174	**4,168**
0	0	0	0	0	0	0	0	0	0	3,443	**3,916**
56	0	0	0	1,392	0	0	0	0	0	6,604	**19,157**
0	985	0	0	0	0	0	0	0	827	30	**18,095**
0	0	0	0	0	0	0	0	0	0	59	**430**
0	0	0	0	0	0	0	0	0	0	0	**615**
0	0	552	0	0	0	0	0	0	0	0	**10,869**
59	**985**	**552**	**0**	**1,392**	**0**	**0**	**0**	**0**	**827**	**13,311**	**57,250**
0	0	0	0	84,730	31,101	2,126	160	440	0	0	**172,341**
0	0	0	0	0	4	13	596	14	0	0	**6,239**

Energy Flow Chart 2021

PRIMARY SUPPLY

PRIMARY SUPPLY*

- 44.8% NATURAL GAS 42,296
- 25.3% CRUDE OIL 23,913
- 24.3% COAL AND COKE 22,917
- 2.8% HYDROPOWER 2,676
- 1.4% PETROLEUM PRODUCTS & OTHERS 1,338
- 1.3% RENEWABLES 1,261

TOTAL: 94,401

PRIMARY PRODUCTION

- 70.7% NATURAL GAS 75,819
- 23.7% CRUDE OIL 25,389
- 2.5% HYDROPOWER 2,676
- 1.8% COAL AND COKE 1,961
- 1.3% RENEWABLES 1,436

TOTAL: 107,281

IMPORTS

- 38.1% COAL AND COKE 20,355
- 34.3% PETROLEUM PRODUCTS 18,329
- 15.1% NATURAL GAS & LNG 8,045
- 12.5% CRUDE OIL & OTHERS 6,652

TOTAL: 53,381

EXPORTS

- 47.1% LNG 26,798
- 33.8% PETROLEUM PRODUCTS 19,260
- 15.9% CRUDE OIL & OTHERS 9,027
- 2.8% NATURAL GAS 1,569
- 0.4% RENEWABLES 246
- 0.0% COAL AND COKE 0

TOTAL: 56,899

TRANSFORMATION

GAS PLANT INPUT

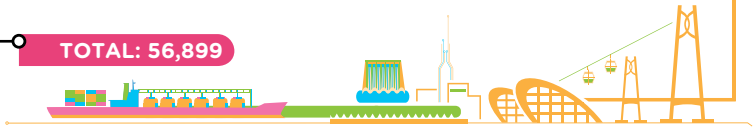
- LIQUEFACTION 36,283
- GAS-TO-LIQUID 2,715
- REGASIFICATION 1,996

OIL REFINERIES INPUT

- LOCAL 17,828
- IMPORT 6,069

POWER STATIONS & SELF GENERATION INPUT

- COAL AND COKE 21,525
- NATURAL GAS 11,122
- HYDRO 2,676
- RENEWABLES 435
- DIESEL 273
- FUEL OIL 8



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

Unit: ktoe

FINAL USE

GAS PLANT OUTPUT

- LNG **26,798**
- NATURAL GAS **1,996**
- LPG **1,313**
- NON-ENERGY **308**
- DIESEL **118**
- KEROSENE **42**

OIL REFINERIES OUTPUT

- PETROL **6,760**
- DIESEL **6,157**
- NON-ENERGY **2,762**
- ATF & AV GAS **2,386**
- LPG **1,755**
- REFINERY GAS **155**
- FUEL OIL **1,497**
- KEROSENE **10**

POWER STATIONS & SELF GENERATION OUTPUT

- THERMAL **12,152**
- HYDRO **2,676**
- SELF-GENERATION **537**

FINAL USE BY SECTOR

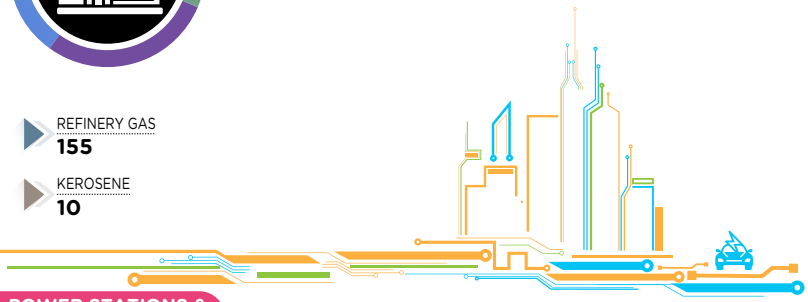
- 33.5% INDUSTRY **19,157**
- 6.8% COMMERCIAL **3,916**
- 31.6% TRANSPORT **18,095**
- 1.1% FISHERY **615**
- 19.0% NON-ENERGY USE **10,869**
- 0.8% AGRICULTURE **430**
- 7.3% RESIDENTIAL **4,168**

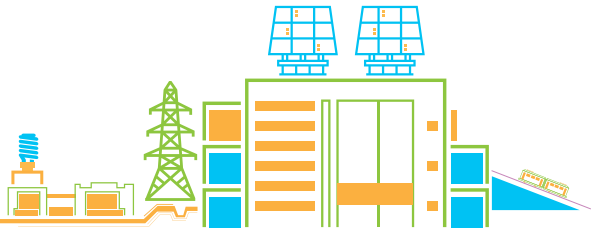
TOTAL: 57,250

FINAL USE BY FUEL

- 43.2% PETROLEUM PRODUCTS **24,731**
- 23.3% ELECTRICITY **13,311**
- 31.1% NATURAL GAS **17,815**
- 2.4% COAL AND COKE **1,392**

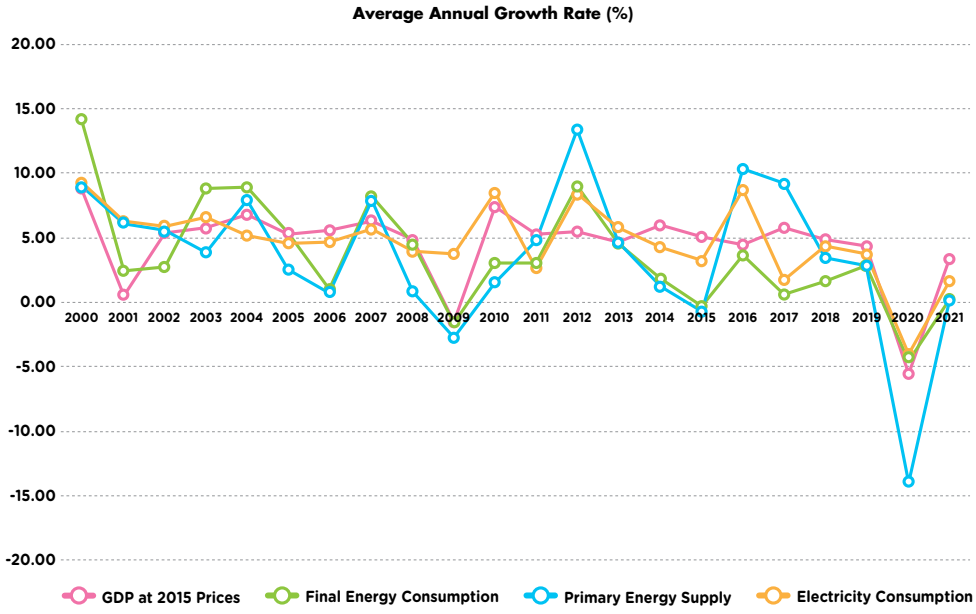
TOTAL: 57,250





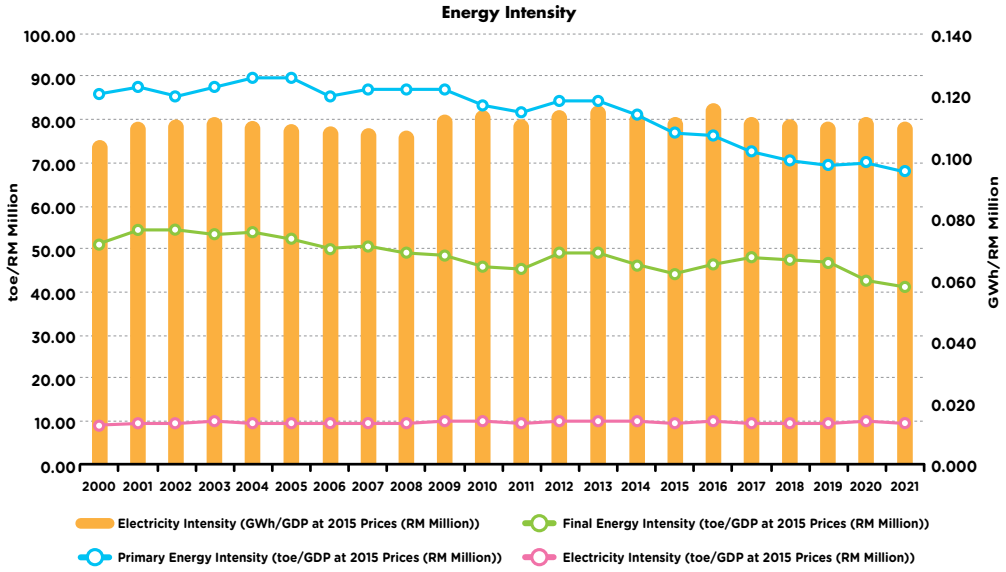
ENERGY INDICATORS

	Average Annual Growth Rate (%)			
	GDP at 2015 Prices	Primary Energy Supply	Final Energy Consumption	Electricity Consumption
2000	8.86	14.21	9.08	9.30
2001	0.52	2.42	6.11	6.29
2002	5.39	2.80	5.63	5.86
2003	5.79	8.83	3.90	6.60
2004	6.78	8.89	7.91	5.21
2005	5.33	5.38	2.58	4.55
2006	5.58	1.02	0.74	4.72
2007	6.30	8.21	7.88	5.65
2008	4.83	4.60	0.87	3.94
2009	-1.51	-1.58	-2.68	3.76
2010	7.42	3.05	1.54	8.53
2011	5.29	3.07	4.77	2.69
2012	5.47	9.00	13.43	8.40
2013	4.69	4.61	4.65	5.78
2014	6.01	1.85	1.21	4.27
2015	5.09	-0.28	-0.73	3.22
2016	4.45	3.66	10.40	8.74
2017	5.81	0.64	9.21	1.72
2018	4.84	1.66	3.47	4.33
2019	4.41	2.89	2.82	3.76
2020	-5.53	-4.55	-14.01	-4.01
2021	3.38	0.22	0.14	1.61

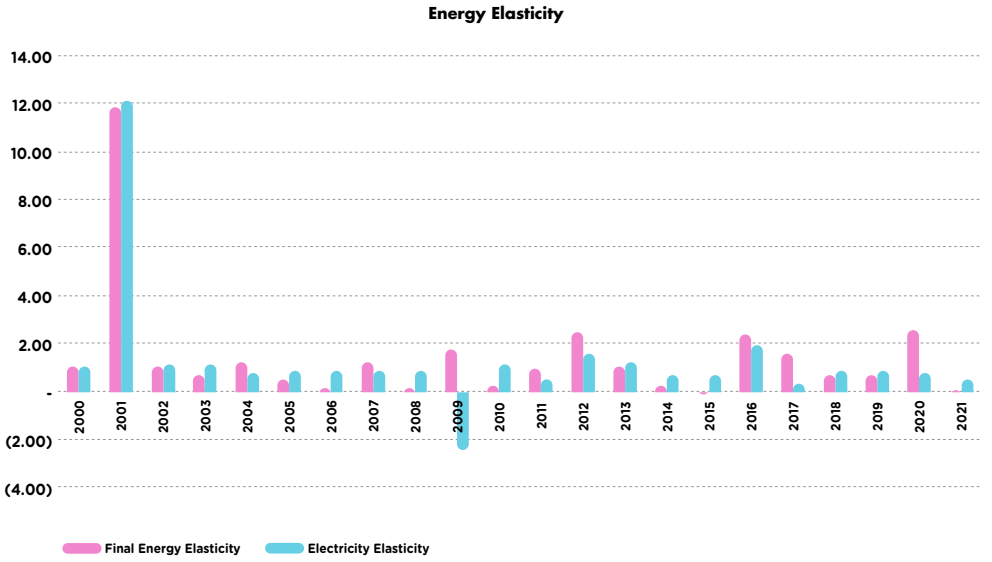


	Per Capita			
	GDP at Current Prices (RM)	Primary Energy Supply (toe)	Final Energy Consumption (toe)	Electricity Consumption (kWh)
2000	15,783	2.12	1.26	2,603
2001	15,265	2.12	1.31	2,705
2002	16,246	2.13	1.36	2,804
2003	17,402	2.27	1.38	2,930
2004	19,310	2.43	1.46	3,022
2005	20,870	2.51	1.47	3,099
2006	22,478	2.49	1.45	3,183
2007	24,589	2.64	1.54	3,300
2008	27,929	2.71	1.52	3,367
2009	25,385	2.62	1.45	3,429
2010	28,733	2.65	1.45	3,656
2011	31,372	2.69	1.50	3,693
2012	32,913	2.88	1.67	3,943
2013	33,713	2.95	1.71	4,074
2014	36,031	2.95	1.70	4,179
2015	37,739	2.90	1.66	4,248
2016	39,505	2.96	1.81	4,553
2017	42,854	2.95	1.95	4,576
2018	44,708	2.96	2.00	4,721
2019	46,526	3.03	2.04	4,877
2020	43,518	2.89	1.75	4,673
2021	47,547	2.90	1.76	4,749

	Energy Intensity			
	Primary Energy Intensity (toe/GDP at 2015 Prices (RM Million))	Final Energy Intensity (toe/GDP at 2015 Prices (RM Million))	Electricity Intensity (toe/GDP at 2015 Prices (RM Million))	Electricity Intensity (GWh/GDP at 2015 Prices (RM Million))
2000	85.82	51.29	9.089	0.106
2001	87.44	54.14	9.611	0.112
2002	85.29	54.27	9.654	0.112
2003	87.75	53.29	9.728	0.113
2004	89.48	53.86	9.585	0.111
2005	89.52	52.45	9.513	0.111
2006	85.65	50.04	9.436	0.110
2007	87.19	50.79	9.378	0.109
2008	86.99	48.87	9.299	0.108
2009	86.93	48.29	9.796	0.114
2010	83.39	45.65	9.897	0.115
2011	81.63	45.42	9.653	0.112
2012	84.36	48.85	9.921	0.115
2013	84.29	48.83	10.024	0.117
2014	80.98	46.62	9.860	0.115
2015	76.84	44.04	9.684	0.113
2016	76.26	46.55	10.082	0.117
2017	72.53	48.04	9.692	0.113
2018	70.33	47.41	9.645	0.112
2019	69.30	46.69	9.584	0.111
2020	70.02	42.50	9.739	0.113
2021	69.64	41.17	9.572	0.111



	Final Energy and Electricity Elasticity	
	Final Energy Elasticity	Electricity Elasticity
2000	1.02	1.05
2001	11.81	12.15
2002	1.04	1.09
2003	0.67	1.14
2004	1.17	0.77
2005	0.48	0.85
2006	0.13	0.85
2007	1.25	0.90
2008	0.18	0.82
2009	1.77	(2.48)
2010	0.21	1.15
2011	0.90	0.51
2012	2.45	1.54
2013	0.99	1.23
2014	0.20	0.71
2015	(0.14)	0.63
2016	2.34	1.96
2017	1.58	0.30
2018	0.72	0.89
2019	0.64	0.85
2020	2.53	0.72
2021	0.04	0.48



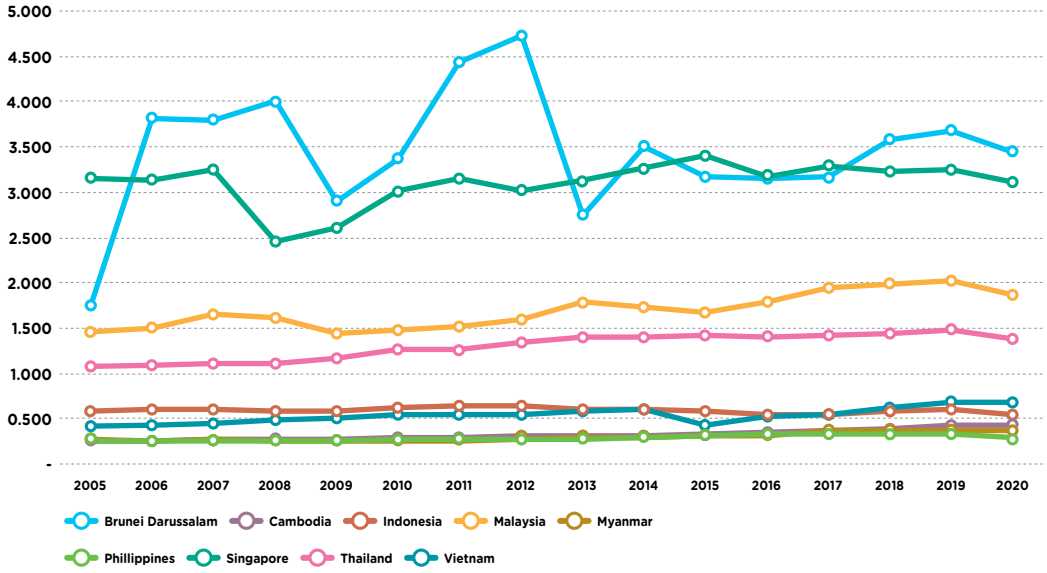
Unit: Mtoe/Millions

Final Energy Consumption per Capita in ASEAN

	Brunei Darussalam	Cambodia	Indonesia	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam
2005	1.75	0.25	0.58	1.45	0.27	0.26	3.15	1.08	0.42
2006	3.82	0.25	0.60	1.50	0.26	0.25	3.14	1.10	0.42
2007	3.79	0.26	0.60	1.65	0.26	0.26	3.25	1.10	0.45
2008	4.01	0.26	0.57	1.62	0.25	0.26	2.46	1.11	0.48
2009	2.89	0.28	0.58	1.44	0.25	0.26	2.61	1.17	0.51
2010	3.36	0.29	0.61	1.48	0.25	0.27	3.01	1.26	0.55
2011	4.44	0.29	0.64	1.53	0.26	0.26	3.16	1.26	0.55
2012	4.73	0.30	0.65	1.60	0.28	0.26	3.01	1.34	0.55
2013	2.74	0.31	0.60	1.79	0.29	0.28	3.13	1.40	0.58
2014	3.50	0.32	0.60	1.74	0.30	0.28	3.27	1.40	0.61
2015	3.16	0.34	0.58	1.67	0.31	0.30	3.40	1.43	0.43
2016	3.16	0.36	0.54	1.80	0.32	0.32	3.18	1.41	0.53
2017	3.16	0.37	0.55	1.94	0.37	0.34	3.30	1.43	0.55
2018	3.58	0.38	0.58	1.98	0.37	0.33	3.23	1.45	0.63
2019	3.67	0.42	0.60	2.02	0.38	0.34	3.24	1.47	0.67
2020	3.44	0.43	0.55	1.87	0.37	0.30	3.11	1.39	0.68

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

Energy Intensity

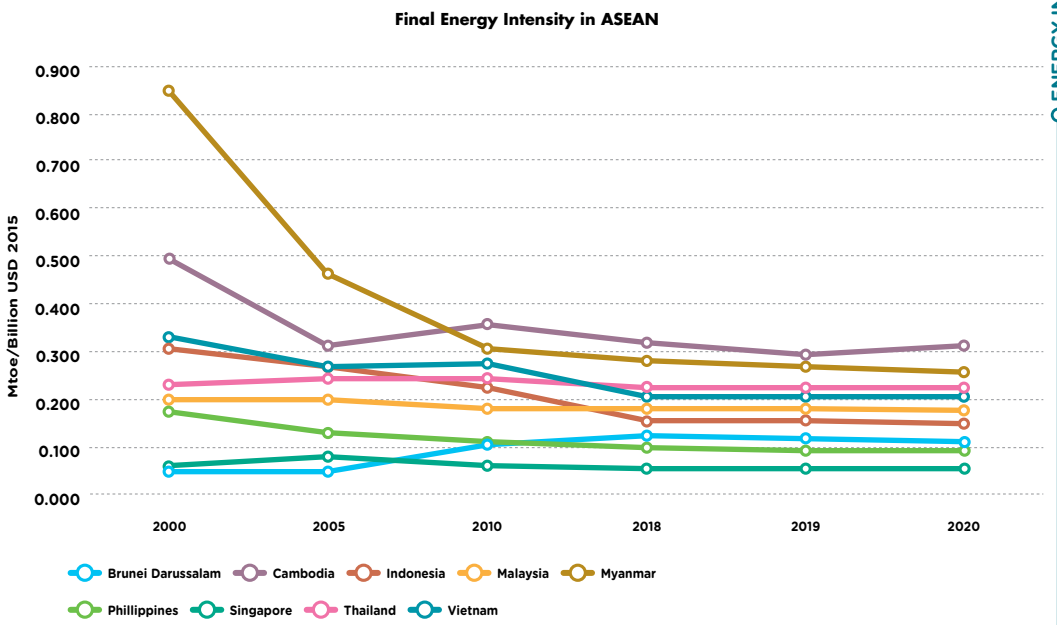


Unit : Mtoe/Billion USD 2015

Final Energy Intensity in ASEAN

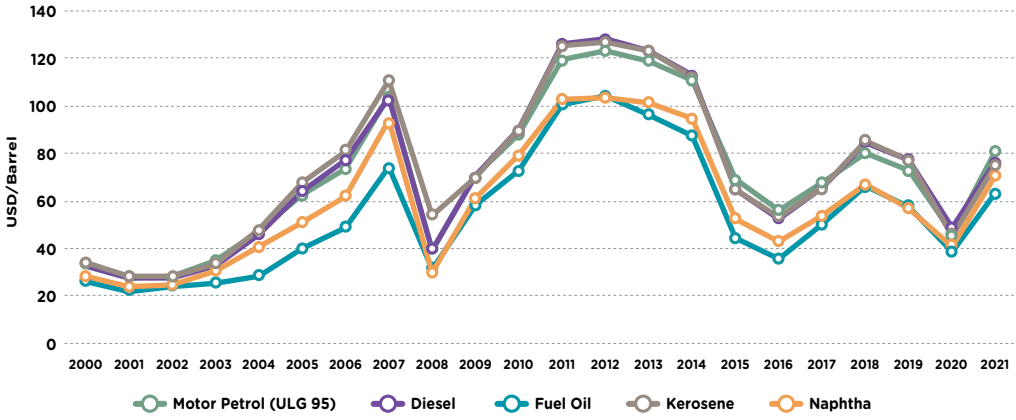
	Brunei Darussalam	Cambodia	Indonesia	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam
2000	0.05	0.50	0.30	0.20	0.85	0.17	0.06	0.23	0.33
2005	0.05	0.31	0.27	0.20	0.46	0.13	0.08	0.24	0.27
2010	0.10	0.36	0.23	0.18	0.30	0.11	0.06	0.24	0.27
2018	0.12	0.32	0.16	0.18	0.28	0.10	0.05	0.22	0.20
2019	0.12	0.29	0.15	0.18	0.27	0.09	0.05	0.22	0.21
2020	0.11	0.31	0.15	0.18	0.26	0.09	0.05	0.22	0.21

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



ENERGY PRICES

Ex-Singapore Prices of Major Petroleum Products

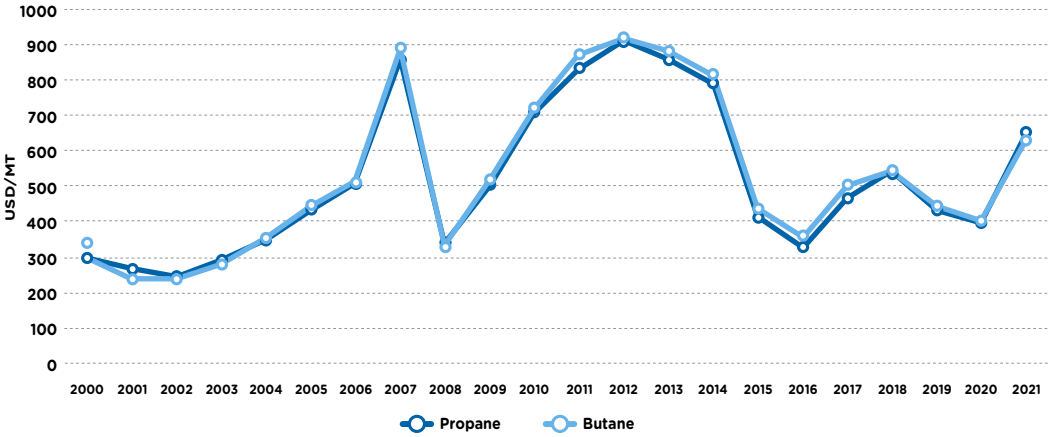


Unit: USD/Barrels

	Motor Petrol (ULG 95)	Diesel	Fuel Oil	Kerosene	Naphtha
2000	32.64	32.48	25.82	34.27	28.32
2001	27.43	27.32	21.78	28.32	23.75
2002	28.04	27.55	23.63	28.08	24.93
2003	34.69	32.46	25.72	33.25	30.14
2004	47.23	45.92	28.15	47.69	40.82
2005	62.38	64.35	40.32	67.99	51.04
2006	73.20	76.93	48.84	80.72	62.13
2007	104.05	103.74	74.60	110.50	93.98
2008	39.25	39.32	31.40	53.90	29.90
2009	70.38	70.42	58.12	70.14	60.96
2010	88.41	90.35	72.85	90.18	79.24
2011	119.79	126.28	100.68	125.71	102.49
2012	123.42	128.10	103.92	126.79	103.57
2013	119.00	123.27	96.35	122.85	100.99
2014	110.97	112.69	87.31	112.50	94.40
2015	69.17	64.47	44.52	64.69	52.62
2016	56.26	52.24	35.62	53.00	42.65
2017	67.99	65.65	49.99	65.27	53.79
2018	80.23	84.33	65.98	85.04	67.29
2019	72.49	77.23	57.63	77.24	56.90
2020	46.7	48.42	38.21	44.82	40.55
2021	80.50	76.12	63.21	75.25	70.77

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

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

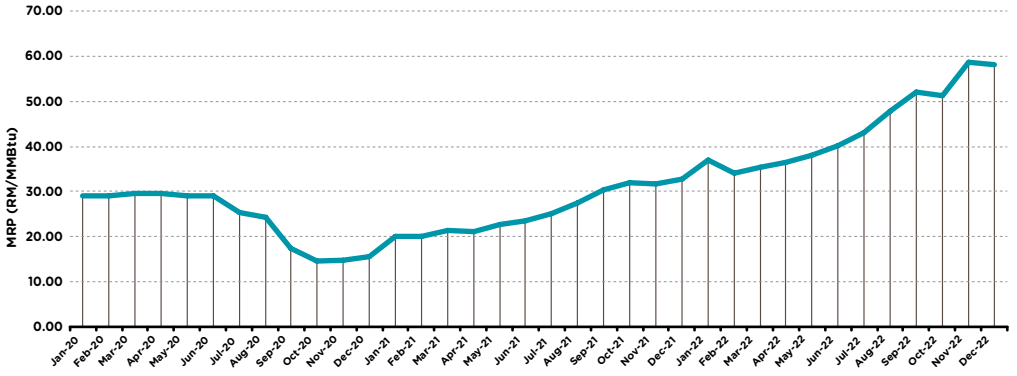


Unit: USD/MT

	Propane	Butane
2000	299.29	299.46
2001	269.29	239.43
2002	244.58	238.48
2003	288.84	278.46
2004	348.61	355.33
2005	430.79	442.89
2006	510.27	514.00
2007	858.00	887.50
2008	340.00	335.00
2009	504.37	521.43
2010	708.01	716.81
2011	828.03	871.12
2012	914.12	917.45
2013	856.79	884.14
2014	790.70	810.58
2015	416.75	436.57
2016	323.67	356.17
2017	467.56	502.06
2018	544.24	541.65
2019	434.58	441.67
2020	397.40	404.13
2021	649.80	631.40

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

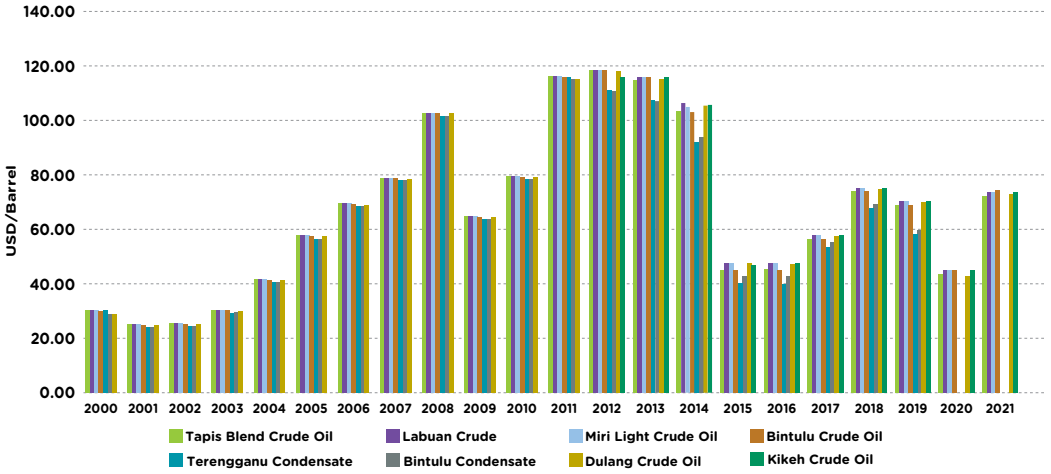
Malaysia Reference Price (MRP) of Natural Gas



	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sept-22	Oct-22	Nov-22	Dec-22
MRP (RM/MMBtu)	29.0	29.1	29.6	29.6	29.1	25.4	25.4	24.3	17.4	14.5	14.7	15.6	19.9	20.1	21.4	21.1	22.5	23.5	25.0	27.5	30.3	31.9	31.5	32.7	36.9	34.0	35.4	36.4	35.4	40.1	42.9	47.6	52.1	51.3	58.5	58.1

Month	MRP (RM/MMBtu)	Month	MRP (RM/MMBtu)	Month	MRP (RM/MMBtu)
Jan 2020	26.97	Jan 2021	26.97	Jan 2022	36.97
Feb 2020	28.55	Feb 2021	28.55	Feb 2022	34.07
Mar 2020	28.48	Mar 2021	28.48	Mar 2022	35.45
Apr 2020	28.95	Apr 2021	28.95	Apr 2022	36.42
May 2020	31.17	May 2021	31.17	May 2022	37.94
Jun 2020	28.76	Jun 2021	28.76	Jun 2022	40.10
Jul 2020	28.43	Jul 2021	28.43	Jul 2022	42.92
Aug 2020	29.79	Aug 2021	29.79	Aug 2022	47.67
Sep 2020	30.33	Sep 2021	30.33	Sep 2022	52.13
Oct 2020	33.45	Oct 2021	33.45	Oct 2022	51.35
Nov 2020	35.42	Nov 2021	35.42	Nov 2022	58.57
Dec 2020	36.00	Dec 2021	36.00	Dec 2022	58.10

Official Selling Prices of Malaysian Crude Oil



Unit: USD/Barrel

	Tapis Blend Crude Oil	Labuan Crude	Miri Light Crude Oil	Bintulu Crude Oil	Terengganu Condensate	Bintulu Condensate	Dulang Crude Oil	Kikeh Crude Oil
2000	30.25	30.25	30.25	29.95	30.29	29.09	29.18	-
2001	25.06	25.06	25.06	24.78	23.86	23.96	24.68	-
2002	25.52	25.52	25.52	25.22	24.32	24.42	25.23	-
2003	30.60	30.60	30.60	30.33	29.40	29.50	29.99	-
2004	41.84	41.84	41.84	41.54	40.64	40.74	41.17	-
2005	57.71	57.71	57.71	57.43	56.51	56.61	57.41	-
2006	69.56	69.56	69.56	69.28	68.66	68.45	68.96	-
2007	78.96	78.96	78.96	78.66	77.91	77.92	78.59	-
2008	102.79	102.79	102.79	102.49	101.59	101.69	102.49	-
2009	64.97	64.97	64.97	64.67	63.77	63.87	64.67	-
2010	79.51	79.51	79.51	79.21	78.31	78.41	79.21	-
2011	116.25	116.25	116.25	115.95	115.95	115.05	115.15	-
2012	118.22	118.66	118.56	118.36	110.92	110.62	118.16	115.94
2013	114.70	116.00	115.70	115.70	107.40	107.10	115.10	116.00
2014	103.26	106.41	104.89	103.13	91.82	93.99	105.46	105.66
2015	45.12	47.73	47.63	44.94	40.28	42.98	47.35	46.96
2016	45.43	47.63	47.63	45.13	39.76	42.56	47.23	47.63
2017	56.30	57.90	57.90	56.30	53.57	54.97	57.50	57.90
2018	73.84	75.24	75.24	73.84	67.71	69.41	74.84	75.24
2019	68.93	70.33	70.33	68.93	58.08	59.58	69.93	70.33
2020	43.65	45.05	45.05	44.85	-	-	42.85	45.05
2021	72.30	73.43	73.43	74.14	-	-	72.88	73.43

Source: PETRONAS

Average Selling Prices of TNB

Unit: sen/kWh

	Domestic	Commercial	Industrial	Mining	Public Lighting	Agriculture	Green Tariff	Average
2015	32.67	47.68	36.56	25.00	25.49	45.86	-	**39.45**
2016	33.21	46.76	37.13	25.34	25.57	45.78	-	**39.55**
2017	32.87	47.16	36.97	25.07	25.53	45.54	-	**39.53**
2018	33.09	47.28	37.30	24.61	25.57	45.69	-	**39.68**
2019	33.74	47.20	37.62	24.07	25.13	45.98	8.00	**39.89**
2020	34.91	47.48	38.01	25.55	25.37	45.77	8.00	**40.07**
2021	35.29	47.42	37.91	26.26	25.37	45.90	-	**39.94**
2022	34.72	47.27	37.93	24.63	25.38	45.91	-	**40.06**

Source: TNB

Average Selling Prices of SESB

Unit: sen/kWh

	Domestic	Commercial	Industrial	Public Lighting	Average
2015	29.14	37.63	30.8	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**
2021	30.26	38.41	31.63	25.30	**34.43**
2022	29.82	39.63	31.48	25.47	**34.34**

Source: SESB

Average Selling Prices of SEB

Unit: sen/kWh

	Domestic	Commercial	Industrial	Public Lighting	Average
2015	28.25	31.72	24.48	na	**28.50**
2016	28.30	30.53	24.15	47.12	**28.20**
2017	28.21	30.54	23.86	47.18	**28.04**
2018	28.27	30.50	23.69	47.17	**27.96**
2019	28.47	30.65	24.16	47.20	**28.22**
2020	30.20	39.61	31.87	25.47	**34.29**
2021	28.96	30.59	23.96	47.28	**28.30**
2022	28.80	30.50	24.00	47.70	**21.40**

Source: SEB

ELECTRICITY SUPPLY PERFORMANCE

Number of Customers of TNB, SESB and SEB

		Domestic	Commercial	Industry	Public Lighting	Mining	Others (Including Agriculture)	TOTAL
2015	TNB	6,920,122	1,475,306	27,672	65,888	28	1,627	**8,490,643**
	SESB	460,321	85,581	2,756	5,596	-	-	**554,254**
	SEB	516,084	88,297	1,004	8,939	-	-	**614,324**
	TOTAL	**7,896,527**	**1,649,184**	**31,432**	**80,423**	**28**	**1,627**	**9,659,221**
2016	TNB	6,989,968	1,464,815	27,556	67,808	34	1,808	**8,551,989**
	SESB	478,049	90,510	1,545	5,906	-	-	**576,010**
	SEB	536,466	91,359	1,013	9,457	-	4	**638,299**
	TOTAL	**8,004,483**	**1,646,684**	**30,114**	**83,171**	**34**	**1,812**	**9,766,298**
2017	TNB	7,181,846	1,510,341	28,867	70,402	38	2,112	**8,793,606**
	SESB	491,809	93,738	1,550	6,061	-	-	**593,158**
	SEB	554,467	93,627	1,051	10,040	-	4	**659,189**
	TOTAL	**8,228,122**	**1,697,706**	**31,468**	**86,503**	**38**	**2,116**	**10,045,953**
2018	TNB	7,378,425	1,553,607	29,749	72,554	45	2,228	**9,036,608**
	SESB	505,239	96,167	1,589	6,129			**609,124**
	SEB	568,712	96,416	1,066	10,491		4	**676,689**
	TOTAL	**8,452,376**	**1,746,190**	**32,404**	**89,174**	**45**	**2,232**	**10,322,421**
2019	TNB	7,553,229	1,575,198	30,520	75,463	53	2,326	**9,236,789**
	SESB	519,308	98,479	15,987	6,335	-	-	**640,109**
	SEB	583,613	99,774	1,059	11,146	-	4	**695,596**
	TOTAL	**8,656,150**	**1,773,451**	**47,566**	**92,944**	**53**	**2,330**	**10,572,494**
2020	TNB	7,728,383	1,590,434	31,637	77,982	53	2,431	**9,430,920**
	SESB	529,185	99,974	1,603	6,535	-	-	**637,297**
	SEB	598,106	101,453	1,067	11,484	-	-	**712,110**
	TOTAL	**8,855,674**	**1,791,861**	**34,307**	**96,001**	**53**	**2,431**	**10,780,327**
2021	TNB	7,916,379	1,618,366	32,846	80,866	60	2,548	**9,651,065**
	SESB	544,186	103,352	1,614	6,585	-	-	**655,737**
	SEB	617,255	104,537	1,072	12,071	-	1	**734,936**
	TOTAL	**9,077,820**	**1,826,255**	**35,532**	**99,522**	**60**	**2,549**	**11,041,738**
2022	TNB	8,113,221	1,660,313	33,542	83,488	59	2,663	**9,893,286**
	SESB	559,312	104,995	1,645	6,672	-	-	**672,624**
	SEB	634,880	108,224	1,102	12,423	-	1	**756,630**
	TOTAL	**9,307,413**	**1,873,532**	**36,289**	**102,583**	**59**	**2,664**	**11,322,540**

Transmission System Capacity of TNB, SESB and SEB

System	2019			2020			2021			2022		
	TNB	SESB	SEB	TNB	SESB	SEB	TNB	SESB	SEB	TNB	SESB	SEB
TRANSMISSION SYSTEM LINES/CABLES (km)												
500 kV	1,886	-	753	2,176	-	377	2,567	-	753	3,045	-	892
275 kV	9,597	598	3,068	9,406	598	1,560	9,526	807	3,100	9,588	807	3,634
132 kV	12,482	2,217	916	12,697	2,240	454	12,761	2,244	1,200	12,877	2,244	1,153
66 kV	-	103	-	-	103	-	-	103	-	-	103	-
TRANSMISSION SUBSTATIONS												
Number	457	46	42	462	48	43	472	49	46	480	49	47
Capacity (MVA)	121,590	5,489	10,726	125,490	5,399	11,936	130,710	6,349	13,586	137,610	6,454	1,067

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

Distribution System Capacity of TNB, SESB and SEB

System	2019			2020			2021			2022		
	TNB	SESB	SEB	TNB	SESB	SEB	TNB	SESB	SEB	TNB	SESB	SEB
DISTRIBUTION SYSTEM LINES/CABLES (km)												
Overhead Lines [a,b]	366,568	10,048	26,850	379,468	9,840	27,634	392,894	12,820	28,427	405,610	11,326	29,492
Underground Cables [a,b]	316,439	316,439	9,098	323,844	1,612	9,540	330,241	1,710	10,320	336,154	1,710	12,181
DISTRIBUTION SUBSTATIONS												
Number	83,467	8,597	13,544	85,127	8,610	14,395	86,468	8,592	12,264	87,947	134	14,085
Capacity (MVA)	117,436	6,091	5,940	120,301	6,114	9,845	123,084	6,289	10,126	125,171	1,910	7,926

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

Performance Highlights of TNB, SESB and SEB

	2019			2020			2021			2022		
	TNB	SESB	SEB	TNB	SESB	SEB	TNB	SESB	SEB	TNB	SESB	SEB
Maximum Demand (MW)	18,566	1,001	3,777	18,808	987	3,664	18,585	1,003	4,107	19,183	1,029	4,365
Total Units Generated (GWh)	16,735	1,125	29,456	16,642	1,178	28,088	17,041	1,250	31,025	14,853	1,125	32,594
Total Units Sold (GWh)	116,525	5,576	25,492	110,879	5,331	26,211	111,858	5,356	28,590	118,882	5,735	31,231
Sales Revenue of Electricity (RM million)	46,487	1,913	5,585	44,435	1,828	5,460	44,654	1,843	5,880	47623	1,967	6,940
Installed Capacity (MW)	4,766	328 [a]	5,204	4,509	329	5,242	4,529	311	5,682	4,529	350	6,057
Total Number of Employees	28,825	3,180	5,207	27,957	3,134	5,380	27,243	3,197	5,442	26,990	3,313	5,537
Sales Revenue Per Employee (RM million)	1.61	0.60	1.07	1.59	0.58	1.02	1.64	0.58	1.08	1.76	0.59	1.25
Unit Sold Per Employee (GWh)	4.0	1.8	5.2	4.0	1.7	4.9	4.1	1.7	5.3	4.4	1.7	5.6
Installed Capacity Per Employee (MW)	0.17	0.10	1.00	0.16	0.10	0.97	0.17	0.11	1.04	0.00	0.11	1.09
Total Purchased Units (GWh)	112,899	5,597	-	110,059	5,072	-	116,356	5,263	-	123,035	5,696	-
Total Units Exported (GWh)	0.3	-	1,697.0	3.0	-	1,568.0	1.0	-	973.3	1.0	-	815.1
Total Units Imported (GWh)	40.6	-	-	18.0	-	-	34.0	-	-	3.0	-	-

Notes: 1. [a] = Dependable Capacity

Revenue, Asset Size, Employment and Annual Investment of TNB and SESB

		Revenue (RM Billion)	Asset Size (RM Billion)	Employment	Annual Investment (RM Billion)
TNB	2010	28.4	60.0	25,571	3.8
	2011	30.2	60.5	26,732	4.6
	2012	33.3	62.5	28,105	4.9
	2013	34.8	69.1	29,269	5.6
	2014	39.8	71.0	30,065	6.5
	2015	40.3	73.1	29,602	7.7
	2016	41.3	74.9	28,807	6.6
	2017	44.2	75.8	27,990	6.1
	2018	47.1	83.9	28,371	7.5
	2019	47.2	71.3	28,825	7.6
	2020	44.4	181.4	27,957	7.8
	2021	44.7	181.4	27,243	7.9
	2022	47.6	205.9	26,990	8.9
SESB	2010	1.1	3.0	2,617	0.3
	2011	1.1	4.0	2,614	0.3
	2012	1.4	4.0	2,675	0.3
	2013	1.5	3.9	2,759	0.3
	2014	1.7	5.7	2,975	0.2
	2015	1.9	6.3	3,092	0.3
	2016	2.1	6.4	3,282	0.4
	2017	2.2	6.9	3,264	0.4
	2018	2.1	7.1	3,179	0.3
	2019	2.3	5.0	3,180	0.4
	2020	2.2	10.3	3,134	0.3
	2021	2.3	5.0	3,197	0.2
	2022	2.6	5.0	3,313	0.3

Source: TNB, SESB

Number of Electricity Supply Interruptions

	Peninsular Malaysia	Sabah	Sarawak
2010	101,126	24,173	8,003
2011	83,347	25,334	7,759
2012	75,271	26,841	7,881
2013	79,372	24,849	7,994
2014	70,629	22,739	9,496
2015	63,920	19,585	6,158
2016	58,175	20,105	7,550
2017	60,058	18,611	6,089
2018	64,198	17,017	5,772
2019	69,621	20,534	6,728
2020	64,512	22,863	5,425
2021	70,004	23,193	5,215
2022	79,188	21,850	5,798

Performance of Distribution System in Peninsular Malaysia

	2015	2016	2017	2018	2019	2020	2021	2022
Electricity Supply Interruptions per 1,000 Customers								
Scheduled Interruptions	0.17	0.16	0.06	0.05	0.04	0.08	0.05	0.05
Unscheduled Interruptions	7.25	6.68	7.01	7.51	7.73	7.06	7.39	8.18
SAIDI, SAIFI & CAIDI								
SAIDI (Minutes/ Customer/Year) by Voltage Level	51.49	49.29	54.49	48.22	48.13	44.95	45.25	45.06
SAIFI (Number of Interruptions/ Customer/Year) by Voltage Level	0.83	0.90	0.93	0.86	0.83	0.8	0.78	0.71
CAIDI (Minutes/ Interrupted Customer/Year) by Voltage Level	62.04	54.77	58.59	56.07	57.99	56.05	58.31	50.72

System Average Interruption Duration Index (SAIDI) by State in Peninsular Malaysia

Unit: Minutes/Customer/Year

State	2015	2016	2017	2018	2019	2020	2021	2022
Johor	58.98	49.39	56.04	41.73	41.91	42.98	46.86	50.68
Kedah	57.42	60.82	82.51	73.30	65.76	64.98	57.94	55.83
Kelantan	56.18	67.9	59.34	49.91	39.33	42.69	37.94	49.34
WP Kuala Lumpur	32.36	32.39	41.01	28.59	26.68	28.19	30.04	26.36
Melaka	42.48	38.04	42.62	18.59	21.99	27.28	23.51	26.12
Negeri Sembilan	56.86	51.03	35.56	57.37	37.58	43.96	35.98	30.34
Pahang	62.61	57.22	51.30	46.01	60.84	45.80	40.63	40.06
Perak	51.64	46.23	52.83	43.89	43.26	43.20	54.60	56.48
Perlis	34.09	35.98	144.10	56.67	61.72	41.45	38.42	47.26
Pulau Pinang	54.49	51.05	58.12	78.66	89.34	51.74	49.22	42.23
WP Putrajaya (including Cyberjaya)	0.63	0.13	0.55	0.73	0.04	0.08	1.22	1.34
Selangor	50.74	54.67	52.34	64.77	61.55	58.52	61.46	52.51
Terengganu	41.46	39.65	42.82	36.67	30.70	33.62	35.84	53.30
PENINSULAR MALAYSIA	**51.49**	**49.29**	**54.49**	**48.22**	**48.13**	**44.95**	**45.25**	**45.06**

System Average Interruption Frequency Index (SAIFI) by State in Peninsular Malaysia

Unit: Number of Interruptions/Customer/Year

State	2015	2016	2017	2018	2019	2020	2021	2022
Johor	0.70	0.70	0.55	0.63	0.75	0.90	0.75	0.83
Kedah	1.20	1.40	1.19	1.26	1.22	1.24	1.11	1.21
Kelantan	1.25	1.45	1.53	1.47	1.02	1.12	1.19	1.75
WP Kuala Lumpur	0.48	0.57	0.61	0.46	0.43	0.50	0.46	0.44
Melaka	0.58	0.64	0.55	0.28	0.44	0.48	0.44	0.54
Negeri Sembilan	0.77	0.78	0.44	0.77	0.51	0.70	0.71	0.77
Pahang	1.44	1.56	1.39	0.65	0.82	0.66	0.61	0.62
Perak	0.80	0.94	0.71	1.41	1.48	1.37	1.45	1.57
Perlis	0.46	0.57	2.32	0.79	1.02	0.60	0.67	0.73
Pulau Pinang	0.83	0.82	0.69	1.68	1.37	1.64	1.56	1.23
WP Putrajaya (including Cyberjaya)	0.01	0.15	0.00	0.09	0.00	0.02	0.10	0.03
Selangor	0.74	0.84	0.60	0.94	0.76	0.75	0.73	0.65
Terengganu	0.87	1.01	1.10	1.00	0.93	0.76	0.82	1.25
PENINSULAR MALAYSIA	**0.83**	**0.90**	**0.93**	**0.86**	**0.83**	**0.80**	**0.78**	**0.84**

Customer Average Interruption Duration Index (CAIDI) by State in Peninsular Malaysia

Unit: Minutes/Interrupted Customer/Year

State	2015	2016	2017	2018	2019	2020	2021	2022
Johor	84.26	70.56	101.89	66.24	55.88	48.02	62.90	61.05
Kedah	47.85	43.44	69.33	58.17	53.90	52.57	52.10	46.10
Kelantan	44.94	46.83	38.78	33.95	38.56	38.04	31.85	28.16
WP Kuala Lumpur	67.42	56.82	67.23	62.15	62.05	56.05	65.68	60.18
Melaka	73.24	59.44	77.50	66.39	49.98	57.07	53.91	48.28
Negeri Sembilan	73.84	65.42	80.81	74.51	73.69	62.80	50.89	39.40
Pahang	65.65	62.26	84.23	31.13	74.20	69.08	66.83	64.51
Perak	43.48	36.68	36.91	71.73	29.23	31.53	37.60	36.02
Perlis	64.55	49.18	74.41	46.82	60.51	68.73	57.78	64.74
Pulau Pinang	74.11	63.12	62.11	70.78	65.21	31.53	31.51	34.27
WP Putrajaya (including Cyberjaya)	63.00	0.87	0.00	8.11	0.00	3.71	12.05	51.69
Selangor	68.57	65.08	87.23	68.90	80.99	78.45	84.08	81.16
Terengganu	47.66	39.26	42.39	36.67	33.01	44.24	43.81	42.51
PENINSULAR MALAYSIA	**62.04**	**54.77**	**58.99**	**56.07**	**57.99**	**56.05**	**58.31**	**53.95**

Performance of Distribution System in Sabah

	2015	2016	2017	2018	2019	2020	2021	2022
Electricity Supply Interruptions per 1,000 Customers								
Scheduled Interruptions	1.81	2.34	3.46	3.01	3.19	4.19	4.13	5.15
Unscheduled Interruptions	33.32	32.15	28.85	15.04	17.35	18.67	19.06	27.86
SAIDI, SAIFI & CAIDI								
SAIDI (Minutes/ Customer/Year)	379.26	311.01	240.9	267.87	205.31	189.43	332.14	286.22
SAIFI (Number of Interruption/ Customer/Year)	9.63	8.60	6.61	8.61	10.83	12.41	12.1	11.07
CAIDI (Minutes/ Interrupted Customer/Year)	39.38	36.16	36.44	31.11	29.26	15.26	29.27	25.86

Performance of Distribution System in Sarawak

	2014	2015	2016	2017	2018	2019	2020	2019
SAIDI (Minutes/Customer/ Year)	143.00	119.00	110.60	95.81	83.42	77.68	84.78	75.32
SAIFI (Number of Interruptions/Customer/ Year)	1.69	1.46	1.28	1.20	1.07	1.02	1.01	0.93
CAIDI (Minutes/ Interrupted Customer/ Year)	84.62	81.51	86.72	79.63	78.29	76.00	84.00	81.33

PIPED GAS SUPPLY PERFORMANCE

Number of Natural Gas Customers by Sector

	Licensee	Domestic	Commercial	Industrial	Total
2015	GMB	12,571	862	795	14,228
	SEC	-	-	22	22
2016	GMB	12,339	935	819	14,093
	SEC	-	-	23	23
2017	GMB	12,818	1017	853	14,688
	SEC	-	2	21	23
2018	GMB	12,683	1014	879	14,576
	SEC	0	0	24	24
2019	GMB	12,620	1056	933	14,609
	SEC	0	2	23	25
2020	GMES	11,348	946	961	13,255
	SEC	0	2	24	26
	PEGT	0	1	2	3
2021	GMES	10,335	879	989	12,203
	PEGT	0	1	2	3
	SHELL	0	0	1	1
	SEC	0	2	27	29
2022	GMES	9,502	770	1021	11,293
	PEGT	0	1	8	9
	SHELL	0	0	5	5
	PETROLIFE	0	0	2	2
	SEC	0	2	28	30
2023	GMES	9,753	879	1042	11,674
	PEGT	0	1	9	10
	SHELL	0	0	5	5
	PETROLIFE	0	0	2	2
	SEC	0	0	1	1

Natural Gas Consumption by Sector

Unit: mmBtu

	Licensee	Residential	Commercial	Industrial	Total
2015	GMB	28,710	1,021,607	157,720,218	158,770,535
	SEC	-	-	294,387	294,387
2016	GMB	24,738	1,007,563	162,451,003	163,483,304
	SEC	-	-	284,156	284,156
2017	GMB	25,850	1,045,193	182,502,651	183,573,694
	SEC	-	41,557	274,759	316,316
2018	GMB	26,100	1,017,938	192,474,505	193,518,543
	SEC	0	0	322,911	322,911
2019	GMB	26,488	996,089	199,848,019	200,870,596
	SEC	0	27,041	426,637	453,678
2020	GMES	30,204	606,643	199,216,710	199,853,557
	SEC	0	24,489	648,362	672,851
	PEGT	0	1,882,358	2,053,341	3,935,699
2021	GMES	27,114	469,909	202,682,539	203,179,562
	PEGT	0	1,399,889	1,676,448	3,076,337
	SHELL	0	0	1,800,709	1,800,709
	SEC	0	33,071	823,130	856,202
2022	GMES	23,624	761,984	155,402,960	156,188,568
	PEGT	0	1,440,250	28,255,640	29,695,890
	SHELL	0	0	4,436,091	4,436,091
	PETROLIFE	0	0	1,707,820	1,707,820
	SEC	0	44,729	655,660	700,389
2023	GMES	20,745	929,412	147,714,782	148,664,940
	PEGT	N/A	1,160,385	168,301,223	169,461,608
	SHELL	0	0	4,254,298	4,254,298
	PETROLIFE	0	0	1,868,589	1,868,589
	SEC (Labuan only)	0	0	3,042	3,042

Natural Gas Pipe Length

Unit : km

	Peninsular (GMD)		Sabah	
	Polyethylene Pipe	Stainless Steel Pipe	Polyethylene Pipe	Stainless Steel Pipe
2015	567.04	1,472.70	6.78	1.30
2016	571.00	1,543.00	6.78	1.30
2017	577.00	1,594.00	6.78	1.30
2018	426.00	1,680.00	6.78	1.30
2019	586.00	1,810.00	6.81	4.00
2020	420.43	1,939.71	9.81	4.00
2021	582.86	2,038.32	11.00	4.00
2022	586.54	2,111.33	12.16	4.00
2023	584.32	2,163.95	0.0	0.8

Sabah (SEC) for 2023 is for Labuan only

Performance Highlights

	Licensee	Demand (mmBtu)	*Sales of Gas (RM '000)	Total Number of Employees	Revenue per Employee (RM '000)	Unit Sold Per Employee (mmBtu)
2015	GMB	158,770,535	3,594,520	451	7,970	352,041
	SEC	294,387	9,789	74	132	3,978
2016	GMB	163,483,304	3,973,843	430	9,241	380,194
	SEC	284,124	9,872	80	123	3,552
2017	GMB	183,573,694	5,260,870	487	10,803	376,948
	SEC	274,759	11,424	83	138	3,310
2018	GMB	191,791,567	6,178,724,795	504	12,367,545	380,539
	SEC	322,911	1,437,160	79	32,482	4,077
2019	GMB	200,870,594	6,838,254	530	12,902	379,001
	SEC	455,797	12,371	83	149	5,492
2020	GMES	199,853,557	6,738,208	60	112,303	3,330,893
	PEGT	3,935,699	117,108	22	5,323	178,895
	SEC	672,851	15,503,910	80	193,799	8,410
2021	GMES	203,179,560	5,868,426	60	97,807	3,386,326
	PEGT	3,076,337	81,284	35	2,322	87,895
	SHELL	N/A	N/A	N/A	N/A	N/A
	SEC	856,202	20,875,711	83	251,515	10,316
2022	GMES	156,188,580	7,598,947	60	126,649	2,603,143
	PEGT	29,695,890	1,356,263	45	30,139	659,909
	SHELL	N/A	N/A	N/A	N/A	N/A
	PETROLIFE	1,707,820	84,280	35	2,408	48,795
	SEC	700,389	19,851,921	107	185,532	6,546
2023	GMES	148,664,940	7,546,663	62	121,720	2,397,822
	PEGT	169,461,608	8,850,992	48	184,396	3,530,450
	SHELL	4,254,919	225,724	18	12,540	236,384
	PETROLIFE	1,868,589	82,217,916	35	2,349,083	53,388
	SEC (Labuan only)	N/A	98,773	28	3,528	108

Number of Supply Interruptions in Peninsular Malaysia and Sabah

	GMD	SEC
2015	22	0
2016	14	0
2017	16	0
2018	29	0
2019	13	0
2020	4	0
2021	2	2
2022	3	4
2023	1	1

SAIDI, SAIFI & CAIDI

	SAIDI (Minutes / Customer / Year)	SAIFI (Disruptions / Customer / Year)	CAIDI (Minute / Disruption)
	Peninsular	Peninsular	Peninsular
2015	0.0874	0.0016	54.05
2016	0.5812	0.0010	575.23
2017	0.1067	0.0025	42.51
2018	0.3060	0.0008	404.82
2019	0.1780	0.0010	259.56
2020	5.7780	0.0040	1381.63

SAIDI, Network Integrity and Customer Service

	SAIDI (Minutes / Exit Point)	Network Integrity (No. of leaks / 1000km pipeline)	Customer Service (Minutes)
	Peninsular	Peninsular	Peninsular
2021	1.4393	2	47
2022	0	1.2	35
2023	0	1.84	38.4

Industrial Sales Volume by Industry Grouping

	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
2023	GMES	10,061,724	9,102,063	31,070,230	40,466,660	15,928,870	1,456,098	214,333	3,508,251	9,989,078	25,917,475	0	0
	PEGT	0	N/A	6,132,750	4,013,301	3,932,570	0	0	0	11,391,957	143,991,030	0	0
	SHELL	601,827	0	1,109,964	0	2,466,188	0	0	0	0	76,940	0	0
	PETROLIFE	0	0	0	0	1,119,327	0	0	0	749,262	0	0	0
	SEC	0	0	0	0	0	0	0	0	0	3,042	0	0

NOTES ON ENERGY BALANCE

NOTES ON ENERGY BALANCE

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

ENERGY BALANCE FORMAT

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

Primary Supply	Refers to supply of energy that has not undergone the transformations / conversion process within the country.
Primary Production (1)	Refers to the quantity of fuels extracted. Data for natural gas excludes the amount of reinjected and flared gas. Gross production of hydro is shown in conventional fuel equivalent input.
Gas Flaring, Reinjection & Use (2)	Refers to the quantity of gas flared, re-injected into the gas fields and use for production purpose.
Imports (3) and exports (4)	Refer to the amount of primary and secondary energy obtained from, or supplied to other countries. In the energy balance format, imports always carry a positive and export a negative sign.
Bunkers (5)	Refer to the amount of fuels delivered to ocean-going ships of all flags engaged in international traffic.
Stock Change (6)	Refers to the difference between the amounts of fuel in stocks at the beginning and end of year and should ideally cover producers, importers and industrial consumers. At this stage, however, only oil companies' stocks are taken into account. A negative sign indicates net increases while a positive sign indicates net decreases in stocks.
Total	Under primary supply, 'total' is the addition of columns to obtain total availability. Under transformation, 'total' is the addition of columns to obtain transformation and conversion losses.
Gas Plants (9)	Shows the input of natural gas into the LNG, MDS, GPP-LPG and RGT plants and their respective outputs.
Refineries (10), power stations and Co-generation & Private licensees (11)	Shows the input of any energy product (negative sign) for the purpose of converting it to one or more secondary products (positive sign).
Losses and Own Use (12)	Refers to losses of electrical energy and natural gas which occur outside the utilities and plants (i.e. distribution losses) and the consumption of energy by utilities and plants for operating their installation (i.e. electricity for operating auxiliary equipment and petroleum products used in the crude distillation process respectively). It does not, however, include conversion loss that is accounted for in the 'total' column.
Secondary Supply (14)	Refers to the supply of energy from the transformation process and after deducting the energy sector's own use and losses, including power station use.
Residential and Commercial (15 & 16)	Not only refers to energy used within households and commercial establishments but includes government buildings and institutions.
Industry (17)	Is a very broad-based sector ranging from manufacturing to mining and construction. Diesel sales through distributors are assumed to be to industrial consumers.

Transport (18)	Basically refers to all sales of motor gasoline and diesel from service stations and sales of aviation fuel. It also includes diesel and motor gasoline sold directly to government and military.
Agriculture (19) and Fishing (20)	Covers agriculture, forestry and fishing.
Non-energy use (21)	Use of products resulting from the transformation process for non-energy purpose (i.e. bitumen / lubricants, asphalt / greases) and use of energy products (such as natural gas) as industrial feed stocks
Final Use (22)	Refer to the quantity of energy of all kinds delivered to the final user.

Notes:

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

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

NOTES ON ELECTRICITY

Reserve Margin	Total capacity margin is defined as the amount of installed generation available over and above system peak load $\textbf{Reserve Margin} = \frac{\textbf{Installed Capacity – Peak Demand}}{\textbf{Peak Demand}}$
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-hours (kWh) or megawatt hours (MWh)
Unit Sent Out From Station(s) (Net Generation)	The amount of gross generation less the electrical energy consumed at the generating station(s) for station service or auxiliaries.
Average Selling Price	FFormula 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 from 150°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 Electricity and Gas Supply Department of Energy Commission. Figures for 'fuel input' into power stations & co-generation plants were only available for Tenaga Nasional Berhad, SEB, SESB, IPPs as well as GDC Sdn. Bhd. Estimates were made using average conversion efficiency to obtain the fuel input into private installations.

ENERGY COMMISION CONTACT INFORMATION

HEADQUARTERS

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Pahang	Tingkat 7, Menara Zenith Jalan Putra Square 6 25000 Kuantan PAHANG	T: 09 514 2803
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Negeri Sembilan & Melaka	Tingkat 3, Wisma Perkeso Jalan Persekutuan, MITC 75450 Ayer Keroh MELAKA	T: 06 231 9594
Labuan	Operating from below Regional Office starting 1 January 2024 until further notice: Tingkat 3, Wisma PERKESO Jalan Persekutuan, MITC 75450 Ayer Keroh MELAKA	T: 06 231 9594

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