



Chapter 1

Primary Energy Data

The Oil and Gas Planning Department of the Ministry of Electricity and Energy (OGPD, MOEE) collects coal, oil, gas, electricity, and renewable energy data from various agencies, and compiles the energy statistics of Myanmar.

Coal

Coal data is maintained by the Ministry of Natural Resources and Environmental Conservation (MONREC) in Myanmar. It contains the supply and consumption of sub-bituminous coal and lignite.

Coal Production

Coal production has been disaggregated by sub-bituminous coal and lignite since 2012. Before 2011, all data was reported under sub-bituminous coal.

Table 1.1. Sub-bituminous Coal and Lignite Production

Unit: 1,000 metric tons

	Sub-bituminous Coal				Lignite			
	Production		Imports	Exports	Production		Imports	Exports
	Of which: Underground	Of which: Surface			Of which: Underground	Of which: Surface		
2000	-	534.59	-	401.88	-	-	-	-
2001	-	632.92	-	531.25	-	-	-	-
2002	-	560.27	-	439.87	-	-	-	-
2003	-	925.42	-	737.26	-	-	-	-
2004	-	992.00	-	799.88	-	-	-	-
2005	-	1,182.50	-	623.30	-	-	-	-

2006	-	1,313.62	-	515.21	-	-	-	-
2007	-	1,117.29	-	228.59	-	-	-	-
2008	-	607.57	-	43.09	-	-	-	-
2009	-	462.93	-	30.00	-	-	-	-
2010	-	692.90	-	-	-	-	-	-
2011	-	685.42	47.10	24.50	-	-	-	-
2012	2.47	643.13	3.50	-	-	47.30	-	-
2013	56.43	391.28	35.09	53.41	-	117.61	-	-
2014	5.62	173.59	331.35	-	61.50	291.87	-	20.00
2015	55.11	185.29	238.16	-	14.52	164.95	23.82	20.00
2016	36.66	280.16	437.88	-	20.92	212.11	37.68	12.50

- = no production and consumption.

Source: MONREC (2018).

Coal consumption

The 73.15 KT coal consumption in 2012 was reported under FeNi factory. This data needs to be disaggregated by sub-bituminous coal and lignite. Besides, coal consumption data is reported by multiplying the coal production with a fixed percentage, which is the same for sub-bituminous coal and lignite in 2014 and 2016. As a result, the reported coal consumption of electricity plants was not consistent with coal-fired electricity generation and needed to be estimated.

Crude Oil and Petroleum Products

The OGPD collects data on crude oil production, condensate production, refined petroleum products, and import of petroleum products from the Myanmar Oil and Gas Enterprise (MOGE), Myanmar Petrochemical Enterprise (MPE), and Myanmar Customs.

Crude oil supply and consumption

Crude oil production consists of oil from the oil wells owned by MOGE and some small wells. Lack of detailed data on the transformation of input to output in small wells assumes that small well oil production is equal to direct use. In addition to oil production, the imports, exports, stock, and refinery intake are also reported by MOGE. However, stock data is not always consistent and needs to be adjusted.

Table 1.2. Sub-bituminous Coal Consumption

Unit: 1,000 metric tons

	Total Transformation Sector		Total Industry Sector		
	BKB/PB Plants	Main Activity Producer - Electricity Plants	Iron and Steel	Non-metallic Minerals	Not Elsewhere Specified
2000	-	-	63.48	64.83	4.40
2001	-	-	34.66	64.83	2.18
2002	-	-	38.04	76.12	6.24
2003	-	-	49.08	133.78	5.30
2004	-	88.64	49.71	51.34	2.43
2005	-	340.26	50.90	136.87	31.17
2006	-	507.19	65.31	140.52	85.39
2007	-	472.76	63.48	202.16	150.30
2008	-	245.06	49.08	227.25	43.09
2009	-	206.55	46.81	128.30	51.27
2010	-	290.09	-	362.34	40.47
2011	-	338.12	69.30	237.65	62.95
2012	-	290.09	73.15	315.34	3.50
2013	-	131.41	-	199.09	99.09
2014	1.79	8.96	51.97	53.76	394.07
2015	2.40	12.02	43.27	144.24	276.62
2016	3.17	15.84	57.03	190.09	488.57

BKB/PB = brown coal briquette/peat briquette.

Source: MONREC (2018).

Table 1.3. Lignite Consumption

Unit: 1,000 metric tons

	Total Transformation Sector		Total Industry Sector		
	BKB/PB Plants	Main Activity Producer - Electricity Plants	Iron and Steel	Non-metallic Minerals	Not Elsewhere Specified
2000	-	-	-	-	-
2001	-	-	-	-	-
2002	-	-	-	-	-
2003	-	-	-	-	-
2004	-	-	-	-	-
2005	-	-	-	-	-
2006	-	-	-	-	-

2007	-	-	-	-	-
2008	-	-	-	-	-
2009	-	-	-	-	-
2010	-	-	-	-	-
2011	-	-	-	-	-
2012	-	-	-	-	-
2013	-	-	88.94	-	29.00
2014	3.53	16.67	96.68	100.01	116.67
2015	1.59	7.97	28.70	95.68	25.52
2016	2.21	11.03	39.70	132.32	35.28

BKB/PB = brown coal briquette/peat briquette.

Source: MONREC (2018).

Table 1.4. Crude Oil Supply and Consumption

Unit: 1,000 MT

	Indigenous Production	Imports	Exports	Direct Use	Stock at Opening	Stock at Closing	Refinery Intake
2000	415.96	647.11	-	-	-	-	1,057.18
2001	591.03	538.22	167.24	-	75.68	41.23	986.26
2002	820.06	470.27	167.81	-	41.23	59.95	1,056.14
2003	931.26	-	-	-	59.95	44.63	965.36
2004	994.24	-	57.47	35.18	44.63	57.05	909.14
2005	1,061.47	-	163.27	8.99	57.05	52.47	866.99
2006	996.80	-	111.48	13.40	52.47	91.81	852.14
2007	1,012.75	-	141.74	18.33	91.81	85.27	857.31
2008	906.83	-	-	28.37	85.27	100.18	825.07
2009	870.26	-	94.03	23.34	100.18	62.83	797.71
2010	927.93	-	-	21.53	62.83	56.00	882.46
2011	840.39	-	-	41.26	62.94	87.97	827.04
2012	821.08	-	139.52	25.22	54.23	26.63	689.58
2013	837.73	-	235.64	36.97	26.99	23.58	551.79
2014	801.46	-	240.59	80.30	39.52	53.89	555.46
2015	652.77	-	148.58	75.66	50.44	82.24	427.83
2016	600.89	-	144.06	76.67	83.94	82.56	414.16

MT = metric ton.

Source: MOEE (2018).

LPG supply and consumption

LPG is produced by the MPE-owned refinery and LPG plants in Myanmar. The LPG plants use natural gas to produce LPG and naphtha. The MPE reports their production, stock, and sales of LPG. However, stock data is not always consistent and needs to be adjusted. Moreover, sales data is aggregated and, since 2015, only the amount sold to government agencies can be divided. The disaggregated LPG consumption in 2013 and 2014 is estimated by the OGPD with the type of LPG consumed, and needs to be reclassified. As for LPG imports, the data is gathered from the customs office.

Table 1.5. Liquefied Petroleum Gas Supply and Consumption

Unit: 1,000 MT

	Supply					Final Consumption		
	Primary Products Receipts	Gross Refinery Output	Imports	Stock at Opening	Stock at Closing	Other Sectors		
						C&PS	Residential	NES
2000	-	14.47	-	-	-	-	-	14.47
2001	-	15.63	-	2.30	3.06	-	-	14.87
2002	-	15.43	-	3.06	3.41	-	-	15.08
2003	-	12.76	-	3.41	1.48	-	-	14.69
2004	-	11.95	-	1.48	2.04	-	-	11.39
2005	-	15.63	-	2.30	3.06	-	-	14.87
2006	-	10.39	-	1.69	0.70	-	-	11.35
2007	-	8.96	-	0.70	1.49	-	-	8.17
2008	-	8.96	-	0.70	1.49	-	-	8.17
2009	-	7.54	-	3.85	4.73	-	-	6.66
2010	-	7.54	3.62	0.33	1.10	-	-	10.38
2011	-	7.24	7.05	4.73	2.99	-	-	16.03
2012	7.18	7.85	0.60	2.99	3.16	-	-	7.27
2013	4.31	6.07	15.54	3.16	1.45	14.43	5.02	-
2014	5.74	3.73	22.53	1.45	4.51	23.12	4.12	-
2015	8.11	5.55	22.25	4.51	6.37	10.49	20.53	-
2016	6.42	4.19	31.41	6.37	3.56	12.79	31.41	-

C&PS = commercial and public service, MT = metric ton, NES = not elsewhere specified.

Source: MOEE (2018).

Naphtha supply and consumption

Naphtha is the by-product of LPG plants in Myanmar and is blended to produce motor gasoline in Myanmar. The production and stock data are reported by the MPE. However, the closing stock is missing in 2012.

Table 1.6. Naphtha Supply and Consumption

Unit: 1,000 MT

	Primary Products Receipts	Inter-product Transfers	Stock at Opening	Stock at Closing
2012	3.96	- 3.71	-	-
2013	2.73	- 2.90	0.25	0.08
2014	3.62	- 3.52	0.08	0.17
2015	4.11	- 4.12	0.17	0.16
2016	3.54	- 3.73	0.16	0.11

MT = metric ton.

Source: MOEE (2018).

Motor gasoline supply and consumption

The MPE reports the motor gasoline production, stock, and sales data. However, the stock data has not been consistent for some years and needs to be adjusted. The classification of sales data is also inconsistent and needs to be reclassified into road sector only. As for motor gasoline imports, the data is gathered from the customs office.

Table 1.7. Motor Gasoline Supply and Consumption

Unit: 1,000 MT

	Supply					Final Consumption	
	Gross Refinery Output	Imports	Inter-product Transfers	Stock at Opening	Stock at Closing	Transport Sector	
						Road	NES
2000	262.95	73.11	-	-	-	-	334.50
2001	232.24	72.32	-	7.89	12.91	269.47	-
2002	277.01	40.32	-	12.91	14.87	284.16	-
2003	357.85	5.64	-	14.87	10.62	359.50	-
2004	359.15	21.51	-	10.62	20.02	324.83	-
2005	350.30	19.20	-	20.02	23.66	305.51	-
2006	358.68	10.49	-	23.66	26.64	321.26	-

2007	360.54	5.59	-	26.64	41.50	308.13	-
2008	340.65	5.96	-	41.50	36.23	-	315.60
2009	369.50	13.97	-	36.23	15.17	-	360.01
2010	360.54	84.31	-	26.64	41.50	349.56	-
2011	428.47	90.87	-	54.96	80.14	-	441.94
2012	329.88	216.23	-	69.88	58.03	-	468.55
2013	230.04	323.25	2.90	58.03	55.81	-	451.34
2014	234.18	893.78	3.52	63.84	272.46	-	740.73
2015	142.74	1,276.38	4.12	272.46	284.41	-	1,063.08
2016	144.49	1,091.28	4.12	40.58	34.19	1,258.31	-

MT = metric ton, NES = not elsewhere specified.

Source: MOEE (2018).

Aviation gasoline supply and consumption

The MPE reports the aviation gasoline production, stock, and sales data. However, stock data has been missing for most years and needs to be adjusted. Moreover, the classification of sales data is inconsistent and needs to be reclassified.

Kerosene-type jet fuel supply and consumption

The MPE reports the data on kerosene-type jet fuel production, stock, and sales. However, the stock data has been inconsistent for some years and needs to be adjusted. As for the sales data, the MOEE keeps a clear account of kerosene-type jet fuel consumed by international civil aviation and domestic air transport, which can be used for sales data disaggregation. As for kerosene-type jet fuel imports, the data is gathered from the customs office.

Other kerosene supply and consumption

The MPE reports other kerosene production, stock, and sales data. However, the stock data has been missing for most years and needs to be adjusted. As for the sales data, the classification is not always consistent, and needs to be reclassified.

Table 1.8. Aviation Gasoline Supply and Consumption

Unit: 1,000 MT

	Supply			Final Consumption		
	Gross Refinery Output	Stock at Opening	Stock at Closing	Transport Sector		
				International Civil Aviation	Domestic Air Transport	NES
2000	-	-	-	-	-	-
2001	0.18	-	-	-	0.18	-
2002	0.02	-	-	-	0.02	-
2003	0.01	-	-	-	0.01	-
2004	0.01	-	-	0.01	-	-
2005	0.01	-	-	-	0.01	-
2006	0.01	-	-	-	-	-
2007	0.02	-	-	-	-	-
2008	0.02	-	-	-	0.02	-
2009	0.07	-	-	0.07	-	-
2010	0.06	-	-	0.06	-	-
2011	0.03	-	-	-	0.03	0.02
2012	0.03	-	-	-	-	-
2013	0.02	-	-	-	0.02	-
2014	0.02	0.07	0.05	-	0.06	-
2015	0.03	0.05	-	-	0.08	-
2016	0.01	0.05	-	-	0.08	0.01

MT = metric ton, NES = not elsewhere specified.

Source: MOEE (2018).

Table 1.9. Kerosene-Type Jet Fuel Supply and Consumption

Unit: 1,000 MT

	Supply				Final Consumption	
	Gross Refinery Output	Imports	Stock at Opening	Stock at Closing	Transport Sector	
					International Civil Aviation	Domestic Air Transport
2000	64.69	-	-	-	17.07	44.97
2001	67.12	3.28	1.59	3.61	17.02	49.72
2002	71.14	-	3.61	3.63	14.11	57.70
2003	77.69	3.18	1.66	3.63	11.89	66.35
2004	73.96	2.58	3.63	8.87	15.93	53.58
2005	55.11	5.68	8.87	5.58	10.91	52.04
2006	51.81	23.14	5.58	13.62	13.34	54.46
2007	53.85	6.12	13.62	5.29	12.26	53.12

2008	44.79	15.25	5.29	7.12	12.27	47.18
2009	35.92	29.00	7.12	9.57	12.02	49.16
2010	42.10	30.74	9.57	7.52	17.89	56.80
2011	41.94	68.17	11.38	24.15	25.45	70.34
2012	33.26	60.21	19.09	9.89	33.79	69.44
2013	21.23	103.59	9.89	21.03	73.82	44.87
2014	16.72	114.01	25.22	23.96	79.30	52.90
2015	15.73	103.06	23.96	10.45	39.40	92.35
2016	15.36	191.16	7.58	8.51	89.15	120.98

MT = metric ton.

Source: MOEE (2018).

Table 1.10. Other Kerosene Supply and Consumption

Unit: 1,000 MT

	Supply			Final Consumption	
	Gross Refinery Output	Stock at Opening	Stock at Closing	Other Sectors	
				C&PS	NES
2000	0.67	-	-	-	2.44
2001	1.31	-	-	-	1.31
2002	1.40	-	-	-	1.38
2003	1.42	-	-	-	0.86
2004	1.25	-	-	-	0.88
2005	1.53	-	-	-	0.82
2006	1.55	-	-	-	0.72
2007	1.70	-	-	-	-
2008	1.44	-	-	-	1.01
2009	1.17	-	-	-	1.06
2010	1.57	0.20	0.15	-	1.62
2011	0.89	-	-	0.67	-
2012	0.63	-	-	-	-
2013	0.32	-	-	-	0.33
2014	0.34	-	-	-	0.34
2015	0.23	-	-	-	0.23
2016	0.13	-	-	-	0.13

C&PS = commercial and public service, MT = metric ton, NES = not elsewhere specified.

Source: MOEE (2018).

Gas/diesel oil supply and consumption

The MPE reports gas/diesel oil production, stock, and sales data. However, the stock data has been inconsistent for some years and needs to be adjusted. Moreover, the sales data is disaggregated by the OGPD by the structure of governmental agency diesel consumption, which cannot reflect the structure of national diesel consumption. It is suggested to classify them to 'not elsewhere specified' of the industry sector if detailed information is not available. The transformation input of electricity plants is suggested to be estimated with oil-fired electricity generation. As for gas/diesel oil imports, the data is gathered from the customs office.

Table 1.11. Gas/Diesel Oil Supply and Consumption

Unit: 1,000 MT

	Final Consumption									
	Transport Sector			Industry Sector				Other Sectors		
	Road	Rail	NES	Mining	Food	Wood	Construction	Agriculture	Fishing	NES
2000	-	-	1,068.60	-	-	-	-	-	-	-
2001	409.41	-	-	24.04	11.21	33.65	38.81	99.47	10.30	183.79
2002	-	-	472.39	27.73	12.93	38.83	44.78	114.77	11.89	212.06
2003	511.26	-	-	32.58	12.10	34.73	40.93	133.84	16.64	80.66
2004	406.45	-	-	23.86	11.13	33.41	38.53	98.75	10.23	182.46
2005	379.73	-	-	111.74	45.40	33.82	46.82	89.36	49.21	113.38
2006	371.23	32.71	-	188.50	45.66	35.68	67.92	78.94	65.10	188.32
2007	352.41	31.17	-	187.37	112.90	26.53	148.00	72.40	68.18	127.96
2008	-	33.05	313.04	79.21	57.59	25.51	128.94	71.62	44.28	81.09
2009	-	35.07	146.31	36.28	29.34	19.70	141.81	51.50	10.31	126.40
2010	781.21	35.53	-	115.42	168.04	59.48	316.26	180.77	2.68	69.06
2011	-	37.26	593.84	87.74	127.73	45.21	240.41	137.42	2.03	52.50
2012	-	35.13	209.74	106.09	103.51	63.20	134.97	78.43	61.80	348.69
2013	-	35.60	273.36	71.08	23.73	79.05	173.06	265.38	3.49	452.09
2014	-	36.40	311.83	79.66	29.75	97.82	411.14	271.99	5.04	545.13
2015	-	35.68	521.57	136.12	45.56	118.55	517.17	452.55	411.94	738.09
2016	-	34.59	383.26	116.75	23.33	39.61	345.63	285.73	8.37	835.26

MT = metric ton, NES = not elsewhere specified.

Source: MOEE (2018).

Fuel oil supply and consumption

The MPE reports fuel oil production, stock, and sales data. However, stock data has been missing or inconsistent for some years and needs to be adjusted. Moreover, the sales data is disaggregated by the OGPD by the structure of governmental agency diesel consumption, which cannot reflect the structure of national diesel consumption. The sale to governmental agencies should be classified as commerce and public services, while the rest is supposed to be consumed by industry and is suggested to be classified as ‘not elsewhere specified’ of the industry sector if detailed information is not available. As for fuel oil imports, the data is gathered from the customs office.

Table 1.12. Fuel Oil Supply and Consumption

Unit: 1,000 MT

	Supply				Final Consumption			
	Gross Refinery Output	Imports	Stock at Opening	Stock at Closing	Industry Sector		Other Sectors	
					Construction	NES	Agriculture	NES
2000	50.43	-	-	-	-	134.41	-	-
2001	46.06	-	1.55	4.59	0.47	-	5.80	28.98
2002	120.20	5.14	4.59	8.81	0.50	-	6.19	30.93
2003	106.06	34.08	8.99	4.10	0.68	-	6.08	28.43
2004	79.02	45.06	4.10	8.94	0.43	-	5.41	27.01
2005	90.99	22.69	8.94	10.84	0.22	-	4.43	18.61
2006	88.91	16.26	10.84	11.99	0.14	-	4.57	21.48
2007	84.55	2.19	11.99	4.74	0.21	-	4.62	26.80
2008	91.25	-	4.74	4.41	0.01	-	4.57	34.45
2009	76.47	5.47	4.41	11.24	-	-	3.57	34.97
2010	64.43	-	11.24	12.70	0.00	-	2.95	27.51
2011	70.94	-	12.70	15.30	-	16.86	2.06	22.45
2012	65.42	-	15.30	14.86	-	30.51	3.29	30.74
2013	54.61	-	14.86	14.84	-	8.28	8.00	18.41
2014	60.74	-	14.84	25.93	-	2.29	2.43	41.75
2015	67.03	-	25.93	44.36	-	1.29	2.29	45.00
2016	78.21	-	44.36	39.83	-	4.24	4.50	32.89

C&PS = commercial and public service, LPG = liquefied petroleum gas, MT = metric ton, NES = not elsewhere specified.

Source: MOEE (2018).

White spirit supply and consumption

The MPE reports white spirit production, stock, and sales data. However, the stock data has not been consistent for some years and needs to be adjusted. Moreover, the classification of sales data is inconsistent, and needs to be reclassified to 'not elsewhere specified' of industry sector only.

Table 1.13. White Spirit Supply and Consumption

Unit: 1,000 MT

	Supply			Final Consumption	
	Gross Refinery Output	Stock at Opening	Stock at Closing	Industry Sector	Others Sector
				NES	Agriculture
2000	2.60	-	-	2.37	-
2001	3.45	0.03	0.08	3.40	-
2002	3.47	0.08	0.15	3.40	-
2003	3.53	0.15	0.09	3.59	-
2004	1.78	0.09	0.05	1.82	-
2005	2.38	0.05	0.10	2.33	-
2006	3.09	0.10	0.06	3.13	-
2007	2.89	0.06	0.09	2.86	-
2008	2.76	0.09	0.08	2.77	-
2009	2.33	0.08	0.05	2.33	-
2010	2.89	0.06	0.09	2.86	-
2011	1.77	0.04	0.07	1.60	-
2012	0.55	0.07	0.03	0.59	-
2013	0.34	0.03	0.01	-	0.26
2014	0.28	0.01	0.05	-	0.24
2015	0.39	0.05	0.02	-	0.24
2016	0.22	0.02	-	0.24	-

MT = metric ton, NES = not elsewhere specified.

Source: MOEE (2018).

Lubricants supply and consumption

The MPE reports lubricants stock and sales data. However, stock data has been missing for most years and needs to be adjusted. Moreover, the classification of sales data is inconsistent and is suggested to be reclassified to road sector only. As for lubricant imports, the data is gathered from the customs office.

Table 1.14. Lubricants Supply and Consumption

Unit: 1,000 MT

	Supply			Final Consumption	
	Imports	Stock at Opening	Stock at Closing	Transport Sector	Industry Sector
				NES	NES
2000	3.08	-	-	-	3.08
2001	3.62	-	-	3.62	-
2002	1.44	-	-	1.44	-
2003	-	-	-	-	-
2004	-	-	-	-	-
2005	-	-	-	-	-
2006	-	-	-	-	-
2007	-	-	-	-	-
2008	-	-	-	-	-
2009	-	-	-	-	-
2010	-	-	-	-	-
2011	23.40	0.72	0.72	23.40	-
2012	28.27	-	-	28.27	-
2013	40.98	0.37	0.39	40.96	-
2014	59.80	0.30	0.31	59.79	-
2015	101.28	0.31	0.07	101.52	-
2016	184.78	-	-	184.78	-

MT = metric ton, NES = not elsewhere specified.

Source: MOEE (2018).

Bitumen supply and consumption

Data on bitumen imports is gathered from the customs office. However, the classification of consumption data is inconsistent and needs to be reclassified to the construction industry only.

Supply and consumption of paraffin waxes

The MPE reports paraffin waxes production, stock, and sales data. However, stock data has been missing or inconsistent for some years and needs to be adjusted. Data on paraffin waxes imports is gathered from the customs office.

Table 1.15. Bitumen Supply and Consumption

Unit: 1,000 MT

	Supply		Final Consumption		
	Imports	Industry Sector	Transport Sector		NES
		Construction	Road		
2000	-			-	-
2001	-			-	-
2002	-			-	-
2003	-			-	-
2004	-			-	-
2005	-			-	-
2006	-			-	-
2007	-			-	-
2008	-			-	-
2009	-			-	-
2010	-			-	-
2011	54.11			-	54.11
2012	80.99			-	80.99
2013	114.34			114.34	-
2014	223.73			223.73	-
2015	160.40			160.40	-
2016	223.73	223.73		-	-

MT = metric ton, NES = not elsewhere specified.

Source: MOEE (2018).

Table 1.16. Supply and Consumption of Paraffin Waxes

Unit: 1,000 MT

	Supply				Final Consumption
	Gross Refinery Output	Imports	Stock at Opening	Stock at Closing	Others Sectors
					NES
2000	10.37	-	-	-	10.37
2001	1.94	-	0.27	0.46	1.75
2002	2.33	-	0.46	1.02	1.77
2003	1.87	-	1.02	0.82	2.07
2004	1.23	-	0.82	0.29	-
2005	1.06	-	0.29	0.24	1.11
2006	1.05	-	0.24	0.06	1.23

2007	0.87	-	0.06	0.03	0.90
2008	1.16	-	0.03	0.05	1.14
2009	0.82	-	0.05	0.01	-
2010	0.85	-	0.01	0.06	0.80
2011	0.91	-	0.06	0.09	0.88
2012	0.53	-	0.09	-	0.61
2013	0.71	37.49	-	0.08	-
2014	1.05	30.46	0.08	0.25	-
2015	0.77	31.63	0.25	0.19	-
2016	0.22	32.97	0.14	0.05	33.27

MT = metric ton, NES = not elsewhere specified.

Source: MOEE (2018).

Supply and consumption of petroleum coke

The MPE reports petroleum coke production, stock, and sales data. However, stock data has been missing for some years and needs to be adjusted. Moreover, the classification of sales data is inconsistent and is suggested to be reclassified to 'not elsewhere specified' of the industry sector only.

Supply and consumption of other products

The MPE reports the production data of other products, and it is used as refinery fuel directly.

Table 1.17. Supply and Consumption of Petroleum Coke

Unit: 1,000 MT

	Supply			Final Consumption	
	Gross Refinery Output	Stock at Opening	Stock at Closing	Industry Sector	Others Sectors
				NES	NES
2000	32.95	-	-	36.98	-
2001	33.46	3.54	0.65	36.35	-
2002	34.51	0.65	1.13	34.03	-
2003	25.16	1.13	1.19	25.10	-
2004	21.69	1.19	5.18	17.70	-
2005	19.52	5.18	7.53	17.17	-
2006	22.29	7.53	13.19	-	16.63
2007	19.52	13.19	13.75	-	18.96
2008	20.76	-	-	20.76	-

2009	17.56	16.90	19.26	15.20	-
2010	16.62	19.26	17.36	18.52	-
2011	12.69	17.36	11.19	-	-
2012	13.21	11.19	2.29	21.50	-
2013	13.52	2.89	4.89	11.35	-
2014	12.39	4.89	8.84	8.29	-
2015	12.99	8.84	12.07	9.75	-
2016	12.17	12.07	14.35	9.90	-

MT = metric ton, NES = not elsewhere specified.

Source: MOEE (2018).

Table 1.18. Other Products Supply and Consumption

Unit: 1,000 MT

	Gross Refinery Output	Refinery Fuel
2000	7.36	7.36
2001	11.65	11.65
2002	11.72	11.72
2003	6.37	6.37
2004	6.66	6.66
2005	6.27	6.27
2006	6.76	6.76
2007	6.00	6.00
2008	6.72	6.72
2009	6.35	6.35
2010	6.20	6.20
2011	5.18	5.18
2012	5.18	5.18
2013	5.06	5.06
2014	4.73	4.73
2015	5.35	5.35
2016	4.80	4.80

MT = metric ton.

Source: MOEE (2018).

Gas

The MOEE collects data on natural gas production by onshore and offshore gas field. The data collected includes the amount of production, export, sale, own use, flaring and venting, and loss in gas fields. Gas sales amount by clients has also been collected since 2012.

Gas production

Most of Myanmar gas is non-associated gas, whose production started in 2012. The stock data is available only after 2014, and venting and flaring data is available after 2011.

Table 1.19. Gas Production

Unit: million cubic metres

	Indigenous Production		Exports	Opening Stock	Closing Stock	Gas Vented/ Gas Flared
	Of which: Associated Gas	Of which: Non- associated Gas				
2000	-	5,190.83	3,637.39	-	-	-
2001	-	8,268.52	6,870.87	-	-	-
2002	-	10,081.82	8,365.42	-	-	-
2003	-	10,522.26	8,620.17	-	-	-
2004	-	12,060.63	10,001.44	-	-	-
2005	-	12,387.74	10,440.24	-	-	-
2006	-	13,030.51	11,032.10	-	-	-
2007	-	13,494.26	11,307.60	-	-	-
2008	-	11,476.24	9,276.80	-	-	-
2009	-	12,441.10	10,580.61	-	-	-
2010	-	12,575.10	10,349.56	-	-	-
2011	-	13,157.77	10,329.08	-	-	17.55
2012	27.75	13,188.48	10,249.01	-	-	69.09
2013	13.65	13,635.77	10,547.13	-	-	112.27
2014	13.46	18,985.32	15,244.42	39.52	47.15	33.95
2015	19.94	19,683.40	15,790.16	47.15	42.72	27.81
2016	19.24	18,941.99	14,778.53	42.72	44.15	93.95

Source: MOEE (2018).

Gas consumption in transformation and energy sector

Natural gas is used to generate electricity and produce LPG in Myanmar. It is also used in gas fields and refineries. However, data on the natural gas input in LPG plants and consumption in refinery is available only after 2012. The gas fields' own use and loss data can be traced back to 2011.

Table 1.20. Gas Consumption in Transformation and Energy Sector

Unit: million cubic metres

	Transformation Sector		Energy Sector		
	Main Activity Producer–Electricity Plants	Gas to Liquid	Oil and Gas Extraction	Oil Refineries	Distribution Losses
2000	928.98	-	-	-	-
2001	822.56	-	-	-	-
2002	953.40	-	-	-	-
2003	1,095.01	-	-	-	-
2004	1,244.01	-	-	-	-
2005	1,152.26	-	-	-	-
2006	1,047.36	-	-	-	-
2007	1,168.25	-	-	-	-
2008	1,124.84	-	-	-	-
2009	652.23	-	-	-	-
2010	1,166.70	-	-	-	-
2011	1,477.15	-	216.38	-	10.42
2012	1,622.52	24.37	217.51	56.03	0.82
2013	1,713.94	13.64	255.40	53.22	0.24
2014	2,437.08	15.06	408.67	37.16	-
2015	2,746.06	19.94	438.80	22.86	79.93
2016	3,144.26	19.24	470.96	25.42	0.49

Source: MOEE (2018).

Gas consumption by sector

Natural gas is used in the industry, transport, and other sectors. Sector consumption data can be disaggregated after 2012. Moreover, the natural gas consumption of the construction industry is found to be by the cement and the brick production industries; it needs to be reclassified.

Table 1.21. Gas Consumption by Sector

Unit: million cubic metres

	Indigenous Production					
	Iron and Steel	Chemical and Petrochemical	Non-ferrous Metals	Non-metallic Minerals	Transport Equipment	Machinery
2000	-	-	-	-	-	-
2001	-	-	-	-	-	-
2002	-	-	-	-	-	-
2003	-	-	-	-	-	-
2004	-	-	-	-	-	-
2005	-	-	-	-	-	-
2006	-	-	-	-	-	-
2007	-	-	-	-	-	-
2008	-	-	-	-	-	-
2009	-	-	-	-	-	-
2010	-	-	-	-	-	-
2011	-	-	-	-	-	-
2012	17.06	226.92	1.77	8.14	2.03	5.12
2013	10.32	176.68	1.81	13.43	1.70	5.23
2014	11.18	161.68	2.17	7.95	1.28	5.28
2015	6.14	184.11	2.04	7.25	0.02	5.99
2016	7.49	134.57	1.98	6.45	0.07	5.88

Source: MOEE (2018).

Electricity

The MOEE collects the data on electricity generation, export, and final consumption.

Electricity generation by source

The MOEE also collects electricity generation data from all stakeholders.

Table 1.23 shows hydro, coal-fired, oil-fired, gas-fired (steam and gas) power generation. However, the electricity generation data provided by the MOEE does not include micro hydro, photovoltaic (PV), and wind reported in the renewable sector. Moreover, the export of electricity is not reported under production and should be added to hydro power generation.

Table 1.23. Electricity Generation by Source

Unit: GWh

	Hydro	Steam	Diesel	Gas	Coal	RE	Total
2000	1,891.93	661.59	36.20	2,527.92			5,117.64
2001	2,008.25	549.74	30.64	2,100.35			4,688.98
2002	2,111.02	641.48	28.50	2,286.95			5,067.95
2003	2,074.81	634.31	31.45	2,685.31			5,425.88
2004	2,407.75	123.53	33.23	2,983.35	60.38		5,608.24
2005	3,000.80	387.45	33.37	2,398.08	244.46		6,064.16
2006	3,324.63	385.05	28.08	2,025.02	401.37		6,164.15
2007	3,618.51	418.35	33.59	1,891.22	436.36		6,398.03
2008	4,071.08	394.38	39.84	1,896.50	219.85		6,621.65
2009	5,256.36	223.39	29.57	1,204.98	249.97		6,964.27
2010	6,188.53	278.18	32.66	1,733.84	391.47		8,624.68
2011	7,544.07	438.11	38.33	2,118.02	311.66		10,450.19
2012	7,766.24	505.59	50.63	2,377.39	265.05		10,964.90
2013	8,778.11	433.25	60.76	2,794.30	135.66		12,202.08
2014	8,828.85	216.01	64.89	4,977.03	69.53		14,156.30
2015	9,398.98	284.98	55.23	6,232.77	-		15,971.96
2016	9,743.85	514.64	61.12	7,537.79	9.59		17,866.99

GWh = gigawatt-hour, RE = renewable energy.

Source: MOEE (2018).

Electricity export

Since 2013, Myanmar has exported electricity to neighbouring countries such as Thailand and China. The exported electricity all comes from hydroelectric plants.

Table 1.24. Electricity Export

Unit: gigawatt-hour

	Export
2013	2,532.27
2014	1,463.37
2015	1,238.82
2016	2,381.34

Source: MOEE (2018).

Electricity consumption by final users

MOEE data covers electricity sales to final users in Myanmar. The final users consist of the residential, commercial, industry, and other sectors.

Table 1.25. Electricity Consumption by Final Users

Unit: gigawatt-hour

	Own Use	Residential	Industrial	Commercial and Public Services	Others	Loss
2000	101.86	1,361.02	1,295.43	526.51	84.98	1,747.84
2001	98.51	1,244.72	1,147.86	563.51	84.81	1,549.57
2002	92.19	1,430.88	1,417.01	552.22	83.98	1,491.67
2003	78.04	1,611.90	1,576.82	578.31	82.63	1,498.18
2004	80.38	1,662.30	1,549.09	613.08	84.71	1,618.68
2005	81.21	1,811.97	1,756.42	695.41	88.86	1,630.29
2006	82.00	1,613.94	1,853.57	826.64	60.64	1,727.16
2007	138.18	1,646.92	1,871.83	863.96	55.38	1,821.75
2008	153.36	1,798.51	1,904.44	944.98	53.33	1,767.14
2009	114.98	2,015.13	1,849.74	1,071.07	57.42	1,855.93
2010	120.00	2,653.34	2,286.76	1,306.38	65.60	2,192.60
2011	132.54	3,377.84	2,710.92	1,531.05	80.74	2,776.62
2012	196.43	2,680.91	3,848.42	1,642.58	86.28	2,514.60
2013	174.00	3,763.78	4,060.97	1,692.36	99.77	2,415.52
2014	151.81	4,112.84	5,275.78	1,754.58	131.42	2,749.54
2015	154.26	6,674.66	4,120.77	2,506.08	106.78	2,421.69
2016	127.00	7,572.60	4,650.90	3,023.27	117.81	2,384.89

Source: MOEE (2018).

Renewable Energy

The MOEE collects renewable energy data from the Ministry of Education; Ministry of Agriculture, Livestock and Irrigation; Ministry of Natural Resources and Environmental Conservation; Myanmar Engineering Society; and Renewable Energy Association Myanmar. It consists of bagasse, fuelwood, charcoal, biomass, biogas, wood waste, PV, wind, and micro hydro (Table 1.26). Consumption data is unavailable and needs to be estimated.

Table 1.26. Renewable Energy Supply

	Bagasse	Fuelwood	Charcoal	Biomass	Biogas	Wood Waste (Gasifier)	Photovoltaic (Electricity)	Wind Turbine	Micro Hydro
	1000t	Cubic Ton	Cubic Ton	1000t	(10 ⁹ KCal)	1000t	GWh	GWh	GWh
2000	-	18,761.00	181.88	2,262.34	-	-	-	-	-
2001	-	19,196.00	223.30	2,325.11	-	-	-	-	-
2002	-	19,644.00	259.66	2,313.42	-	-	-	-	-
2003	-	20,240.00	408.71	2,454.58	-	-	-	-	-
2004	-	20,389.00	224.80	2,626.02	-	-	-	-	-
2005	-	20,776.00	232.58	2,937.04	-	-	-	-	-
2006	-	21,513.00	296.88	3,280.83	-	-	-	-	-
2007	-	22,145.00	268.56	3,336.74	-	-	-	-	-
2008	-	22,808.00	265.91	3,455.79	-	-	-	-	-
2009	-	23,377.00	210.33	3,467.35	-	-	-	-	-
2010	-	23,954.56	211.75	3,456.50	0.50	-	0.00	0.02	0.02
2011	417.00	22,264.66	200.96	3,077.81	0.52	0.56	4.32	0.00	0.00
2012	604.00	22,529.47	217.00	2,939.23	0.55	0.56	4.32	0.00	0.00
2013	775.00	21,673.38	228.58	3,004.85	0.52	0.56	4.32	0.00	0.00
2014	912.00	23,319.05	231.17	2,991.15	0.52	0.56	13.91	0.00	5.75
2015	737.00	20,911.51	233.27	3,061.49	0.52	0.56	10.94	0.01	1.25
2016	652.00	21,001.26	179.68	2,938.10	0.52	0.56	9.47	0.02	1.25

GWh = gigawatt-hour, Kcal = kilocalorie, t = ton.

Source: Ministry of Education; Ministry of Agriculture, Livestock and Irrigation; Ministry of Electricity and Energy; Ministry of Natural Resources and Environmental Conservation; Myanmar Engineering Society; Renewable Energy Association Myanmar.

Estimation of Missing Data

Lots of energy data clearly exists and is useful for making Myanmar energy balance tables from 2000 to 2016. But some energy data is still missing, making estimation of missing data indispensable. The following items are estimated under this project.

- Coal: transformation input of sub-bituminous coal and lignite in electricity plants from 2014 to 2016, production of brown coal briquettes, and FeNi Factory sub-bituminous coal and lignite consumption in 2012
- Crude oil and petroleum products
 - Missing data: missing opening and closing stock; petroleum coke consumption in 2011; paraffin waxes consumption in 2004, 2009, and 2013—2016

- Unreasonable data: transformation input of diesel in electricity plants from 2000 to 2006 and 2009 to 2016
- Data disaggregation: fuel oil, LPG consumption before 2014
- Data reclassification: motor gasoline, diesel oil, aviation gasoline
- Gas: missing oil and gas extraction consumption from 2000 to 2010, reclassification of construction industry gas consumption to non-metallic minerals industry
- Biomass: transformation input and output of charcoal, and consumption of all biomass
- Electricity: disaggregation of the own use of electricity plants

References

Ministry of Natural Resource and Environmental Conservation (MONREC) (2018). Nay Pyi Taw: Myanmar.

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