Chapter 3
Energy Balance Table

Energy balance is an accounting framework for compiling and reconciling data on all energy products entering, exiting, transformed, and used within the national territory of a country during a reference period. It is usually expressed in a common unit to enable the estimation of total energy supply, forecasting, and the study of substitution and conservation.

This chapter will firstly introduce the layout of Myanmar's energy balance table (EBT), including the scope of energy products and energy flow. Then, it will explain the estimation method for missing data. Lastly, it will present the Myanmar EBT from 2000 through 2016.

Basic Concept of Energy Balance Table

Energy balance is an accounting framework for compiling and reconciling data on the supply and demand of all energy products within the national territory of a given country during a reference period (usually a year). It expresses all forms of energy in a common accounting unit and shows the relationship between the inputs to and the outputs from energy transformation processes. It should be as complete as possible so that all energy flows are accounted for.[1]

The energy balance is a matrix showing the relationship between energy products (represented in columns) and energy flows (represented in rows). A column refers to a group of energy products in its primary or secondary form.

[1] Concept and Definition. http://unstats.un.org/unsd/energy/balance/2013/03.pdf.

Each cell in this column shows a flow of energy involving this group of products as defined by the row name.

A main purpose of an energy balance is to reflect the relationships between the primary production of energy (and other energy flows imported and/or exported by the national territory), its transformation, and final consumption. Therefore, the energy balance contains three main blocks of rows as follows:

- Upper sector (primary energy supply) is intended to show flows representing energy indigenous production in, and importing and exporting through, the national territory, as well as stock changes to provide information on the amount of energy available in the national territory during the reference period. The supply flows consist of production of primary energy products and imports of both primary and secondary energy products. The flows removing energy from the national territory are exports of primary and secondary energy products and international bunkers. The aggregate of the balance, which is the Total Energy Supply, is computed as: [2]

  Total Primary Energy Supply
  = Indigenous Production + Imports + Exports
  + International Marine Bunkers + International Aviation Bunkers + Stock Changes

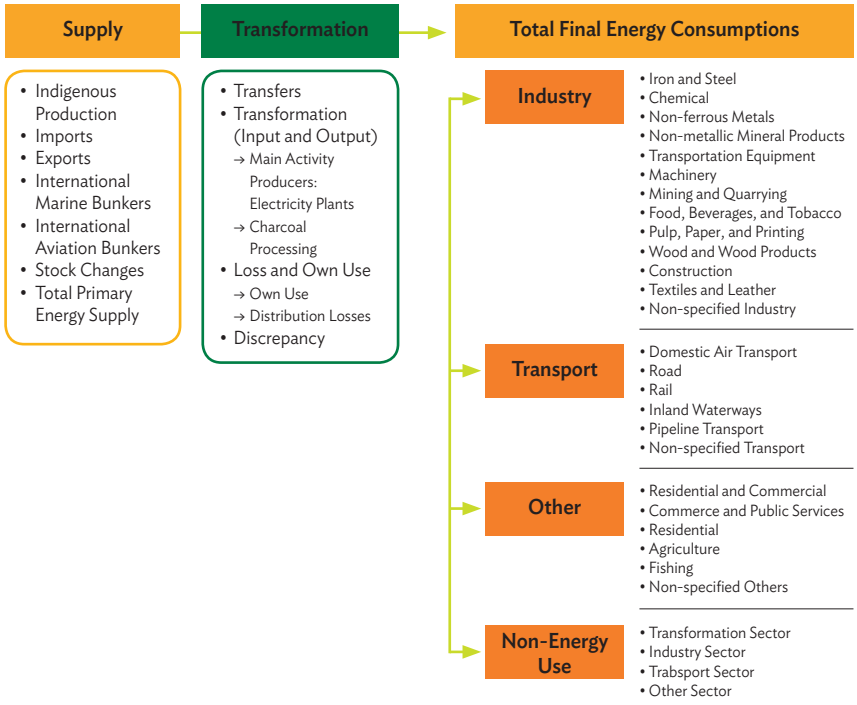
- Middle sector (energy transfer and transformation) is intended to show the flows of how energy is transformed, transferred, and used by energy industries for own use and losses in distribution and transmission. Power generation and petroleum refinery processes are a major activity in this sector.
- Lower sector (final energy consumption) is intended to show the flows of how energy is being consumed by the final sectors. The flows reflect the final energy consumption and non-energy use of energy products. Thus, it excludes deliveries of fuel and other energy products for use in transformation processes (covered in the middle block) and the use of energy products for energy needs of the energy industries (also covered in the middle block). Final energy consumers are grouped into three main categories:

[2] Because of the sign convention in energy balances, where quantities that contribute to the supply receive positive signs whilst those that are removed receive negative signs, these parts can be added up straight.

1. manufacturing, construction, and non-fuel mining industries;
2. transport; and
3. other (agriculture; forestry and fishing; commerce; and public services, households, and other consumers).

Figure 3.1 shows a simplified diagram of the energy flow in an EBT.

Figure 3.1. Energy Flow in the Energy Balance



Source: Economic Research Institute for ASEAN and East Asia (ERIA) (2018).

A separate row is reserved for the statistical difference, defined as the difference between the total inland delivery and consumption of energy products. The statistical difference occurs because of the discrepancy arising from various practical limitations and problems related to the collection of data which make up supply and demand, such as sampling or other collection errors. Data may also be taken from different data sources which use different time periods, different spatial coverage, different fuel specifications, or different conversions from volume to mass or from mass to energy content in the supply and demand sides of the balance.

In general, the statistical difference is calculated by subtracting supply from demand as follows:

> *Statistical Difference = Total Primary Energy Supply + Transfers + Transformation + Energy Industries Own Use + Losses – Final Consumption*

The EBT can be presented in both detailed and aggregated formats. The degree of detail depends on the policy concern, data and resource availability, and the underlying classifications used. Usually, a simplified format is used for countries of small size and/or for which the types of energy flows are few and far between, and, as a result, can be summarised without much information loss. The detailed definition of energy products and energy flows is shown in Annex 1. The development of the Myanmar EBT 2000–2016 is provided in section 3.4. The structuring of an energy balance depends on the country's energy production and consumption patterns and the level of detail that the country requires.

Methodology

The methodology for making EBTs, defining and grouping of energy products, as well as statistical terminology are harmonised with internationally established standards. The data for the energy balances is based on the individual data collected for commodity (products) balances for coal, petroleum, gas, electricity, and renewables. The data is usually expressed in physical units of the products so that for each product the completeness of the data can be observed from the commodity balance. The data in the commodity balance is combined to produce the energy balance.

Data collection format

The primary energy data required for the development of the Myanmar EBT 2000–2016 was discussed in Chapter 1. The data is then entered in the reporting format for each of the energy products, which in the case of Myanmar consist of coal; petroleum products; biomass (fuelwood, charcoal, bagasse); hydro; solar; and electricity (including imported electricity). The format used is the Asia-Pacific Economic Cooperation and Association of Southeast Asian Nations (APEC-ASEAN)[3] joint questionnaire developed to assemble the main statistics of each product and provide a check on the completeness of the data

because the questionnaire will balance the supply and use of the respective products. The joint questionnaire consists of five questionnaires, each for the energy products (coal, oil, gas, oil, electricity, and renewables). The content of the questionnaire basically consists of the supply data, transformation and energy industry own use, and final consumption (including non-energy use).

After data has been completely entered in the APEC–ASEAN joint format, which for Myanmar excludes the natural gas questionnaire, the data is then used to generate the EBT through an interface programme provided by ERIA for the Myanmar Energy Statistics project.

Unit and conversion

All entries in the EBT are expressed in one energy unit: kilocalorie (kcal), gigajoule (GJ), kilo ton of oil equivalent (ktoe), etc. Net calorific values (NCV) are generally used in building energy balances since most current technologies cannot recover latent heat, which will thus not be treated as part of a fuel's energy-providing capability. However, providing both gross and net calorific values whilst making clear which one is used in the balance is considered good practice. This allows the monitoring of technological advances in respect to recovering latent heat.

The unit in the APEC–ASEAN joint questionnaire is the physical unit and differs between the products. The unit in the oil questionnaire is in thousands of metric tons (kt), whilst primary data are mainly in kilolitres. Specific gravities data requirement is included in the oil questionnaire as well as the NCV to convert into an energy unit (kilocalorie). If there is a refinery in the country, refinery intake data is also requested in the questionnaire in kilo tons.

The unit in the coal questionnaire is also in kilo ton except for the gases produced from coal (coke oven gas, etc.) which are measured in gross kilocalories. For the other coal and coal products, the calorific value data is also requested in the coal questionnaire. The unit in the new and renewable questionnaire is in kilo tons for solid biomass (fuelwood, charcoal, bagasse, and other biomass). The other new and renewable energy is either in the form of kilocalories or gigawatt-hours (GWh). Additional calorific value of the products is also requested in the questionnaire.

The electricity questionnaire is in gigawatt-hours for production and consumption. For the fossil fuel input data, the unit is that of the products. A conversion data to kilocalorie is also requested in the questionnaire. The existing installed capacity is also included in the questionnaire in megawatts (MW).

The Myanmar EBT 2000–2016 adopted the energy unit of ton of oil equivalent (toe). One unit of toe is defined as 107 kl (41.868 GJ). There are two heat values: one is NCV and the other is gross calorific value (GCV). The differences between NCV and GCV are:

- For coal and oil – the NCV is less than about 5% of GCV.
- For gas – the NCV is around less than 10% of GCV.

The calorific content of the different energy products in Myanmar is shown in Table 3.1.

Also, thermal efficiency of primary electricity such as hydropower generation is assumed as follows:

- Hydro – 100%
- Nuclear – 33%
- Geothermal – 10%
- Solar/wind/tide – 100%

Table 3.1. Naphtha Supply and Consumption

Energy Products	Original Unit	Calorific Content (ton of oil equivalent)
Sub-bituminous Coal	metric ton	0.4513
Lignite	metric ton	0.2842
BKB/PB	metric ton	0.4943
Crude Oil	metric ton	1.0101
Motor Gasoline	metric ton	1.0579
Aviation Gasoline	metric ton	1.0579
Naphtha	metric ton	1.0579
Kerosene Type Jet Fuel	metric ton	1.0531
Kerosene	metric ton	1.0459
Gas/Diesel Oil	metric ton	1.0268
Fuel Oil	metric ton	0.9648
Liquefied Petroleum Gas	metric ton	1.1295
White Spirit SBP	metric ton	0.9600

Lubricants	metric ton	0.9600
Bitumen	metric ton	0.9600
Paraffin Waxes	metric ton	0.9600
Petroleum Coke	metric ton	0.7761
Other Petroleum Products	metric ton	0.9600
Natural Gas	1,000 cubic metres	0.8684
Fuelwood and Wood Waste	metric ton	0.3725
Bagasse	metric ton	0.2300
Charcoal	metric ton	0.7045
Other Biomass	metric ton	0.3319
Electricity	megawatt-hour	0.0860

BKB/PB = brown coal briquette.

Source: ERIA (2018).

Estimation Method for Missing Data

Due to the limitation of existing energy statistics, some of the information needed to compile the EBT is estimated. This section explains the estimation methods for the above-mentioned missing data.

Coal

Main activity producer – Electricity Plants: The transformation input of sub-bituminous coal and lignite in electricity plants from 2014 to 2016 is estimated with coal-fired electricity production and average efficiency of coal-fired electricity plants from 2000 to 2013 (17.8%).

Coal transformation – brown coal briquette (BKB/PB) plants: 100% transformation efficiency is assumed for BKB production.

Iron and steel – The coal consumption of the FeNi Factory is assumed to be half sub-bituminous coal and half lignite in 2012.

Crude oil and petroleum products

Stock at opening and closing – The missing opening stock is assumed to be equal to the stock at closing of the previous year. The missing closing stock is assumed to be equal to the stock at the opening of next year. If the above data is not available, the missing opening stock is assumed to be equal to the

stock at closing deducting supply and adding consumption, whilst the missing closing stock is assumed to be equal to the stock at opening adding supply and deducting consumption.

Main activity producer – electricity plants: The transformation input of diesel in electricity plants in 2000–2006 and 2009–2016 is estimated with oil-fired electricity production and average efficiency of oil-fired electricity plants from 2007 to 2008 (27.7%).

Industry sector – not elsewhere specified: Fuel oil consumption can only be disaggregated by sales to government agencies and the private sector. The amount consumed by the private sector is assumed to go to 'not elsewhere specified' (industry). The missing petroleum coke consumption in 2011 is estimated with gross refinery output and stock change.

Transport sector – road: Motor gasoline and diesel oil reported under 'not elsewhere specified' (transport) is reclassified as road.

Other sector – residential: All liquefied petroleum gas (LPG) consumption before 2014 is classified as residential sector, due to the lack of disaggregated data.

Other sector – others: Aviation gasoline is used for military purposes, and classified as 'not elsewhere specified' (others). The missing paraffin waxes consumption in 2004, 2009, and 2013–2016 is estimated with gross refinery output, imports, and stock change.

Gas

Loss and own use – oil and gas extraction: Missing oil and gas extraction consumption from 2000 to 2010 is estimated with the average own use rate (about 2%) over total gas production in 2011–2016 and deducted from 'not elsewhere specified' (others).

Industry sector – The consumption of the non-metallic minerals industry in 2012–2014 was misclassified as construction industry and is reclassified. Besides, the gas consumption of the industry sector is disaggregated according to its consumption structure in 2012–2014.

Hydro

Indigenous production – The generation of hydroelectricity provided by the Ministry of Electricity and Energy (MOEE) does not include micro hydro and exported hydro power. They are added back to hydroelectricity generation.

Geothermal, solar, etc.

Indigenous production – Solar photovoltaic (PV) and wind electricity generation is not included in the data provided by the MOEE. They are added to total electricity generation.

Biomass

Indigenous production and consumption of fuelwood – The reported other biomass is added to fuelwood and wood waste. Fuelwood consumption is assumed to be 30% for industry, 30% for commercial, and 40% for residential.

Transformation of charcoal – The input–output ratio between fuelwood and charcoal is assumed to be 4 to 1.

Electricity

Own use of main activity producer – The own use of electricity plants is disaggregated with assumed own use rate, which is 5.0% for coal-fired plant, 3.5% for oil-fired plant, 2.0% for gas-fired plant, 0.5% for hydro, and 0% for solar PV and wind.

Energy Balance Table 2000–2016

Table 3.2. Myanmar Energy Balance Table, 2000

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	241		420		4,508	163			6,989			12,321
2. Imports			654	751								1,405
3. Exports	-181				-3,159							-3,340
4. International Marine Bunkers				-0								-0
5. International Aviation Bunkers				-18								-18
6. Stock Changes			-6	-9								-15
7. Total Primary Energy Supply	60		1,068	724	1,349	163			6,989			10,353
8. Transfers												
9. Total Transformation Sector			-1,068	883	-807	-163			-143	440		-857
9.1 Main Activity Producer				-11	-807	-163				440		-541
9.2 Auto Producers												
9.3 Gas Processing												
9.4 Refineries			-1,068	894								-174
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-143			-143
9.9 Other Transformation												
10. Loss and Own Use				-7	-93					-159		-259
11. Discrepancy	-0			-1	-52							-53
12. Total Final Energy Consumption	60			1,599	398				6,846	281		9,184
13. Industry Sector	60			629	396				2,054	111		3,250
13.1 Iron and Steel	29				11							39
13.2 Chemical (incl. Petrochemical)					154							154
13.3 Non-ferrous Metals					2							2
13.4 Non-metallic Mineral Products	29				203							232
13.5 Transportation Equipment					1							1
13.6 Machinery					4							4
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					5							5
13.9 Pulp, Paper, and Printing					10							10
13.10 Wood and Wood Products												
13.11 Construction												
13.12 Textiles and Leather					5							5
13.13 Other Industry	2			629					2,054	111		2,796
14. Transport Sector				930	2							931
14.1 Domestic Air Transport				47								47
14.2 Road				882	2							884
14.3 Rail												
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				40					4,792	170		5,002
15.1 Residential and Commercial				28					4,792	162		4,983
15.1.1 Commerce and Public Services				12					2,054	45		2,111
15.1.2 Residential				16					2,738	117		2,872
15.2 Agriculture												
15.3 Fishing												
15.4 Others				13						7		20
16. of which Non-energy Use				13	139							152
17. Electricity Output in GWh			36		3,190	1,892						5,118
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.3. Myanmar Energy Balance Table, 2001

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	286		597		7,180	173			7,151			15,387
2. Imports			544	594								1,137
3. Exports	-240		-169		-5,967							-6,375
4. International Marine Bunkers				-3								-3
5. International Aviation Bunkers				-18								-18
6. Stock Changes			35	-16								19
7. Total Primary Energy Supply	46		1,007	557	1,214	173			7,151			10,147
8. Transfers												
9. Total Transformation Sector			-996	790	-714	-173			-175	403		-866
9.1 Main Activity Producer				-10	-714	-173				403		-493
9.2 Auto Producers												
9.3 Gas Processing												
9.4 Refineries			-996	799								-197
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-175			-175
9.9 Other Transformation												
10. Loss and Own Use				-11	-148					-142		-300
11. Discrepancy	0		-10	-32	-102				0			-143
12. Total Final Energy Consumption	46			1,304	250				6,976	262		8,837
13. Industry Sector	46			513	248				2,093	99		2,998
13.1 Iron and Steel	16				7							22
13.2 Chemical (incl. Petrochemical)					97							97
13.3 Non-ferrous Metals					1							1
13.4 Non-metallic Mineral Products	29				127							157
13.5 Transportation Equipment					1							1
13.6 Machinery					3							3
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					3							3
13.9 Pulp, Paper, and Printing					7							7
13.10 Wood and Wood Products												
13.11 Construction												
13.12 Textiles and Leather					3							3
13.13 Other Industry	1			513					2,093	99		2,705
14. Transport Sector				761	2							763
14.1 Domestic Air Transport				52								52
14.2 Road				709	2							711
14.3 Rail												
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				30					4,883	163		5,076
15.1 Residential and Commercial				27					4,883	156		5,065
15.1.1 Commerce and Public Services				10					2,093	48		2,151
15.1.2 Residential				17					2,790	107		2,914
15.2 Agriculture												
15.3 Fishing												
15.4 Others				3						7		11
16. of which Non-energy Use				5	87							92
17. Electricity Output in GWh			31		2,650	2,008						4,689
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.4. Myanmar Energy Balance Table, 2002

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	253		828		8,755	182			7,318			17,336
2. Imports			475	481								956
3. Exports	-199		-170		-7,265							-7,633
4. International Marine Bunkers				-2								-2
5. International Aviation Bunkers				-15								-15
6. Stock Changes			-19	44								25
7. Total Primary Energy Supply	54		1,115	507	1,491	182			7,318			10,667
8. Transfers												
9. Total Transformation Sector			-1,067	980	-828	-182			-204	436		-864
9.1 Main Activity Producer				-9	-828	-182				436		-582
9.2 Auto Producers												
9.3 Gas Processing												
9.4 Refineries			-1,067	989								-78
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-204			-204
9.9 Other Transformation												
10. Loss and Own Use				-11	-180					-136		-327
11. Discrepancy	0		-48	60	-130				0			-118
12. Total Final Energy Consumption	54			1,536	353				7,114	300		9,356
13. Industry Sector	54			639	351				2,134	122		3,301
13.1 Iron and Steel	17				9							26
13.2 Chemical (incl. Petrochemical)					137							137
13.3 Non-ferrous Metals					1							1
13.4 Non-metallic Mineral Products	34				180							214
13.5 Transportation Equipment					1							1
13.6 Machinery					4							4
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					5							5
13.9 Pulp, Paper, and Printing					9							9
13.10 Wood and Wood Products												
13.11 Construction												
13.12 Textiles and Leather					5							5
13.13 Other Industry	3			639					2,134	122		2,898
14. Transport Sector				848	2							850
14.1 Domestic Air Transport				61								61
14.2 Road				787	2							789
14.3 Rail												
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				49					4,980	178		5,206
15.1 Residential and Commercial				46					4,980	171		5,196
15.1.1 Commerce and Public Services				29					2,134	47		2,210
15.1.2 Residential				17					2,846	123		2,986
15.2 Agriculture												
15.3 Fishing												
15.4 Others				3						7		10
16. of which Non-energy Use				3	123							126
17. Electricity Output in GWh			29		2,928	2,111						5,068
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.5. Myanmar Energy Balance Table, 2003

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	418		941		9,138	178			7,540			18,214
2. Imports				676								676
3. Exports	-333				-7,486							-7,818
4. International Marine Bunkers				-3								-3
5. International Aviation Bunkers				-13								-13
6. Stock Changes			15	7								23
7. Total Primary Energy Supply	85		956	668	1,652	178			7,540			11,080
8. Transfers												
9. Total Transformation Sector			-975	902	-951	-178			-321	467		-1,057
9.1 Main Activity Producer				-10	-951	-178				467		-672
9.2 Auto Producers												
9.3 Gas Processing												
9.4 Refineries			-975	912								-63
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-321			-321
9.9 Other Transformation												
10. Loss and Own Use				-6	-161					-136		-302
11. Discrepancy	0		19	62	-200				-0	0		-120
12. Total Final Energy Consumption	85			1,626	340				7,219	331		9,601
13. Industry Sector	85			597	338				2,166	136		3,321
13.1 Iron and Steel	22				9							31
13.2 Chemical (incl. Petrochemical)					132							132
13.3 Non-ferrous Metals					1							1
13.4 Non-metallic Mineral Products	60				173							234
13.5 Transportation Equipment					1							1
13.6 Machinery					4							4
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					4							4
13.9 Pulp, Paper, and Printing					9							9
13.10 Wood and Wood Products												
13.11 Construction												
13.12 Textiles and Leather					4							4
13.13 Other Industry	2			597					2,166	136		2,901
14. Transport Sector				975	2							977
14.1 Domestic Air Transport				70								70
14.2 Road				905	2							907
14.3 Rail												
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				54					5,053	195		5,302
15.1 Residential and Commercial				51					5,053	188		5,292
15.1.1 Commerce and Public Services				34					2,166	50		2,250
15.1.2 Residential				17					2,888	139		3,043
15.2 Agriculture												
15.3 Fishing												
15.4 Others				3						7		10
16. of which Non-energy Use				2	119							121
17. Electricity Output in GWh			31		3,320	2,075						5,426
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.6. Myanmar Energy Balance Table, 2004

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	448		1,004		10,473	207			7,595			19,728
2. Imports				691								691
3. Exports	-361		-58		-8,685							-9,104
4. International Marine Bunkers				-2								-2
5. International Aviation Bunkers				-17								-17
6. Stock Changes			-13	-74								-87
7. Total Primary Energy Supply	87		934	598	1,788	207			7,595			11,210
8. Transfers												
9. Total Transformation Sector	-40		-918	804	-1,080	-207			-177	482		-1,136
9.1 Main Activity Producer	-40			-10	-1,080	-207				482		-855
9.2 Auto Producers												
9.3 Gas Processing												
9.4 Refineries			-918	814								-104
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-177			-177
9.9 Other Transformation												
10. Loss and Own Use				-6	-183					-146		-335
11. Discrepancy	0		-15	13	-135				-0			-137
12. Total Final Energy Consumption	47			1,409	391				7,419	336		9,602
13. Industry Sector	47			548	387				2,226	133		3,341
13.1 Iron and Steel	22				10							33
13.2 Chemical (incl. Petrochemical)					151							151
13.3 Non-ferrous Metals					2							2
13.4 Non-metallic Mineral Products	23				199							222
13.5 Transportation Equipment					1							1
13.6 Machinery					4							4
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					5							5
13.9 Pulp, Paper, and Printing					10							10
13.10 Wood and Wood Products												
13.11 Construction												
13.12 Textiles and Leather					5							5
13.13 Other Industry	1			548					2,226	133		2,908
14. Transport Sector				817	4							821
14.1 Domestic Air Transport				56								56
14.2 Road				761	4							765
14.3 Rail												
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				44					5,193	203		5,440
15.1 Residential and Commercial				41					5,193	196		5,430
15.1.1 Commerce and Public Services				28					2,226	53		2,307
15.1.2 Residential				13					2,968	143		3,123
15.2 Agriculture												
15.3 Fishing												
15.4 Others				3						7		10
16. of which Non-energy Use				2	136							137
17. Electricity Output in GWh	60		33		3,107	2,408						5,608
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.7. Myanmar Energy Balance Table, 2004

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	534		1,072		10,758	258			7,740			20,361
2. Imports				830								830
3. Exports	-281		-165		-9,066							-9,513
4. International Marine Bunkers				-2								-2
5. International Aviation Bunkers				-11								-11
6. Stock Changes			5	6								11
7. Total Primary Energy Supply	252		912	823	1,691	258			7,740			11,676
8. Transfers												
9. Total Transformation Sector	-154		-876	760	-1,001	-258			-183	522		-1,189
9.1 Main Activity Producer	-154			-10	-1,001	-258				522		-901
9.2 Auto Producers												
9.3 Gas Processing												
9.4 Refineries			-876	770								-106
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-183			-183
9.9 Other Transformation												
10. Loss and Own Use				-6	-186					-147		-339
11. Discrepancy	-0		-36	-138	-206							-381
12. Total Final Energy Consumption	99			1,439	298				7,557	374		9,767
13. Industry Sector	99			626	263				2,267	151		3,405
13.1 Iron and Steel	23				7							30
13.2 Chemical (incl. Petrochemical)					102							102
13.3 Non-ferrous Metals					1							1
13.4 Non-metallic Mineral Products	62				135							197
13.5 Transportation Equipment					1							1
13.6 Machinery					3							3
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					3							3
13.9 Pulp, Paper, and Printing					7							7
13.10 Wood and Wood Products												
13.11 Construction												
13.12 Textiles and Leather					3							3
13.13 Other Industry	14			626					2,267	151		3,058
14. Transport Sector				768	35							803
14.1 Domestic Air Transport				55								55
14.2 Road				713	35							749
14.3 Rail												
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				45					5,290	223		5,558
15.1 Residential and Commercial				43					5,290	216		5,549
15.1.1 Commerce and Public Services				26					2,267	60		2,353
15.1.2 Residential				17					3,023	156		3,195
15.2 Agriculture												
15.3 Fishing												
15.4 Others				2						8		10
16. of which Non-energy Use				1	92							93
17. Electricity Output in GWh	244		33		2,786	3,001						6,064
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.8. Myanmar Energy Balance Table, 2006

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	593		1,007		11,316	286			8,014			21,216
2. Imports				856								856
3. Exports	-233		-113		-9,580							-9,925
4. International Marine Bunkers				-1								-1
5. International Aviation Bunkers				-14								-14
6. Stock Changes			-40	12								-28
7. Total Primary Energy Supply	360		855	853	1,735	286			8,014			12,104
8. Transfers												
9. Total Transformation Sector	-229		-861	835	-910	-286			-233	530		-1,154
9.1 Main Activity Producer	-229			-9	-910	-286				530		-903
9.2 Auto Producers												
9.3 Gas Processing												
9.4 Refineries			-861	843								-17
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-233			-233
9.9 Other Transformation												
10. Loss and Own Use				-6	-233					-156		-395
11. Discrepancy			6	-49	-48				-0	-0		-91
12. Total Final Energy Consumption	131			1,632	545				7,781	375		10,464
13. Industry Sector	131			781	462				2,334	159		3,868
13.1 Iron and Steel	29				12							42
13.2 Chemical (incl. Petrochemical)					180							180
13.3 Non-ferrous Metals					2							2
13.4 Non-metallic Mineral Products	63				237							301
13.5 Transportation Equipment					2							2
13.6 Machinery					5							5
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					6							6
13.9 Pulp, Paper, and Printing					12							12
13.10 Wood and Wood Products												
13.11 Construction												
13.12 Textiles and Leather					6							6
13.13 Other Industry	39			781					2,334	159		3,313
14. Transport Sector				812	83							894
14.1 Domestic Air Transport				57								57
14.2 Road				721	83							804
14.3 Rail				34								34
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				39					5,447	215		5,701
15.1 Residential and Commercial				37					5,447	210		5,694
15.1.1 Commerce and Public Services				25					2,334	71		2,430
15.1.2 Residential				13					3,112	139		3,264
15.2 Agriculture												
15.3 Fishing												
15.4 Others				2						5		7
16. of which Non-energy Use				1	162							163
17. Electricity Output in GWh	401		28		2,410	3,325						6,164
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.9. Myanmar Energy Balance Table, 2007

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	504		1,023		11,718	311			8,250			21,806
2. Imports				945								945
3. Exports	-103		-143		-9,820							-10,066
4. International Marine Bunkers				-1								-1
5. International Aviation Bunkers				-13								-13
6. Stock Changes			7	-14								-7
7. Total Primary Energy Supply	401		886	917	1,899	311			8,250			12,664
8. Transfers												
9. Total Transformation Sector	-213		-866	763	-1,015	-311			-211	550		-1,303
9.1 Main Activity Producer	-213			-10	-1,015	-311				550		-999
9.2 Auto Producers												
9.3 Gas Processing												
9.4 Refineries			-866	773								-93
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-211			-211
9.9 Other Transformation												
10. Loss and Own Use				-6	-241					-169		-415
11. Discrepancy	0		-20	-48	-7				0	-0		-75
12. Total Final Energy Consumption	188			1,625	637				8,039	382		10,870
13. Industry Sector	188			817	519				2,412	161		4,096
13.1 Iron and Steel	29				14							42
13.2 Chemical (incl. Petrochemical)					202							202
13.3 Non-ferrous Metals					2							2
13.4 Non-metallic Mineral Products	91				266							357
13.5 Transportation Equipment					2							2
13.6 Machinery					6							6
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					7							7
13.9 Pulp, Paper, and Printing					14							14
13.10 Wood and Wood Products												
13.11 Construction												
13.12 Textiles and Leather					7							7
13.13 Other Industry	68			817					2,412	161		3,458
14. Transport Sector				776	118							894
14.1 Domestic Air Transport				56								56
14.2 Road				688	118							806
14.3 Rail				32								32
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				32					5,627	221		5,880
15.1 Residential and Commercial				31					5,627	216		5,874
15.1.1 Commerce and Public Services				22					2,412	74		2,508
15.1.2 Residential				9					3,215	142		3,366
15.2 Agriculture												
15.3 Fishing												
15.4 Others				1						5		6
16. of which Non-energy Use				1	182							183
17. Electricity Output in GWh	436		34		2,310	3,619						6,398
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.10. Myanmar Energy Balance Table, 2008

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	274		916		9,966	350			8,497			20,003
2. Imports				705								705
3. Exports	-19				-8,056							-8,075
4. International Marine Bunkers				-1								-1
5. International Aviation Bunkers				-13								-13
6. Stock Changes			-15	-56								-71
7. Total Primary Energy Supply	255		901	635	1,910	350			8,497			12,548
8. Transfers												
9. Total Transformation Sector	-111		-833	717	-977	-350			-209	569		-1,193
9.1 Main Activity Producer	-111			-13	-977	-350				569		-881
9.2 Auto Producers												
9.3 Gas Processing												
9.4 Refineries			-833	730								-103
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-209			-209
9.9 Other Transformation												
10. Loss and Own Use				-6	-205					-165		-376
11. Discrepancy	0		-68	-21	23					0		-66
12. Total Final Energy Consumption	144			1,325	751				8,288	404		10,912
13. Industry Sector	144			553	603				2,486	164		3,950
13.1 Iron and Steel	22				16							38
13.2 Chemical (incl. Petrochemical)					235							235
13.3 Non-ferrous Metals					2							2
13.4 Non-metallic Mineral Products	103				310							412
13.5 Transportation Equipment					2							2
13.6 Machinery					7							7
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					8							8
13.9 Pulp, Paper, and Printing					16							16
13.10 Wood and Wood Products												
13.11 Construction												
13.12 Textiles and Leather					8							8
13.13 Other Industry	19			553					2,486	164		3,222
14. Transport Sector				739	148							887
14.1 Domestic Air Transport				50								50
14.2 Road				655	148							803
14.3 Rail				34								34
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				33					5,801	241		6,075
15.1 Residential and Commercial				31					5,801	236		6,068
15.1.1 Commerce and Public Services				22					2,486	81		2,589
15.1.2 Residential				9					3,315	155		3,479
15.2 Agriculture												
15.3 Fishing												
15.4 Others				2						5		7
16. of which Non-energy Use				1	212							213
17. Electricity Output in GWh	220		40		2,291	4,071						6,622
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.11. Myanmar Energy Balance Table, 2009

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	209		879		10,804	452			8,709			21,052
2. Imports				502								502
3. Exports	-14		-95		-9,188							-9,297
4. International Marine Bunkers				-2								-2
5. International Aviation Bunkers				-13								-13
6. Stock Changes			38	30								67
7. Total Primary Energy Supply	195		822	517	1,616	452			8,709			12,310
8. Transfers												
9. Total Transformation Sector	-93		-806	653	-566	-452			-165	599		-830
9.1 Main Activity Producer	-93			-9	-566	-452				599		-522
9.2 Auto Producers												
9.3 Gas Processing												
9.4 Refineries			-806	663								-143
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-165			-165
9.9 Other Transformation												
10. Loss and Own Use				-6	-222					-169		-398
11. Discrepancy			-16	-38	-206							-260
12. Total Final Energy Consumption	102			1,126	621				8,543	429		10,822
13. Industry Sector	102			480	457				2,563	159		3,761
13.1 Iron and Steel	21				12							33
13.2 Chemical (incl. Petrochemical)					178							178
13.3 Non-ferrous Metals					2							2
13.4 Non-metallic Mineral Products	58				235							292
13.5 Transportation Equipment					2							2
13.6 Machinery					5							5
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					6							6
13.9 Pulp, Paper, and Printing					12							12
13.10 Wood and Wood Products												
13.11 Construction												
13.12 Textiles and Leather					6							6
13.13 Other Industry	23			480					2,563	159		3,225
14. Transport Sector				619	164							783
14.1 Domestic Air Transport				52								52
14.2 Road				531	164							695
14.3 Rail				36								36
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				27					5,980	270		6,278
15.1 Residential and Commercial				25					5,980	265		6,271
15.1.1 Commerce and Public Services				18					2,563	92		2,673
15.1.2 Residential				8					3,417	173		3,598
15.2 Agriculture												
15.3 Fishing												
15.4 Others				2						5		7
16. of which Non-energy Use				1	160							161
17. Electricity Output in GWh	250		30		1,428	5,256						6,964
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.12. Myanmar Energy Balance Table, 2010

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	313		937		10,920	532		0	8,924			21,627
2. Imports				1,619								1,619
3. Exports					-8,988							-8,988
4. International Marine Bunkers				-2								-2
5. International Aviation Bunkers				-19								-19
6. Stock Changes			7	30								36
7. Total Primary Energy Supply	313		944	1,629	1,933	532		0	8,924			14,275
8. Transfers												
9. Total Transformation Sector	-131		-891	755	-1,013	-532		-0	-166	742		-1,237
9.1 Main Activity Producer	-131			-10	-1,013	-532		-0		742		-945
9.2 Auto Producers												
9.3 Gas Processing												
9.4 Refineries			-891	765								-126
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-166			-166
9.9 Other Transformation												
10. Loss and Own Use				-6	-224					-199		-429
11. Discrepancy			-53	-77	-20					-0		-150
12. Total Final Energy Consumption	182			2,301	675				8,758	543		12,458
13. Industry Sector	182			1,004	502				2,627	197		4,511
13.1 Iron and Steel					13							13
13.2 Chemical (incl. Petrochemical)					196							196
13.3 Non-ferrous Metals					2							2
13.4 Non-metallic Mineral Products	164				257							421
13.5 Transportation Equipment					2							2
13.6 Machinery					5							5
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					7							7
13.9 Pulp, Paper, and Printing					13							13
13.10 Wood and Wood Products												
13.11 Construction												
13.12 Textiles and Leather					7							7
13.13 Other Industry	18			1,004					2,627	197		3,846
14. Transport Sector				1,268	173							1,441
14.1 Domestic Air Transport				60								60
14.2 Road				1,172	173							1,345
14.3 Rail				36								36
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				29					6,131	346		6,506
15.1 Residential and Commercial				27					6,131	341		6,498
15.1.1 Commerce and Public Services				15					2,627	112		2,754
15.1.2 Residential				12					3,503	228		3,743
15.2 Agriculture												
15.3 Fishing												
15.4 Others				3						6		8
16. of which Non-energy Use				1	176							177
17. Electricity Output in GWh	391		33		2,012	6,189		0				8,625
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.13. Myanmar Energy Balance Table, 2011

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	309		849		11,426	649		0	9,537			22,771
2. Imports	21			1,537								1,559
3. Exports	-11				-8,970							-8,981
4. International Marine Bunkers				-1								-1
5. International Aviation Bunkers				-27								-27
6. Stock Changes			-32	-223								-255
7. Total Primary Energy Supply	320		817	1,286	2,456	649		0	9,537			15,065
8. Transfers												
9. Total Transformation Sector	-153		-835	781	-1,283	-649		-0	-158	899		-1,398
9.1 Main Activity Producer	-153			-12	-1,283	-649		-0		899		-1,197
9.2 Auto Producers												
9.3 Gas Processing												
9.4 Refineries			-835	793								-42
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-158			-158
9.9 Other Transformation												
10. Loss and Own Use				-5	-197					-250		-452
11. Discrepancy			19	4	-140				-0	13		-104
12. Total Final Energy Consumption	167			2,066	836				9,380	662		13,111
13. Industry Sector	167			818	660				2,785	233		4,664
13.1 Iron and Steel	31				18							49
13.2 Chemical (incl. Petrochemical)					257							257
13.3 Non-ferrous Metals					3							3
13.4 Non-metallic Mineral Products	107				339							446
13.5 Transportation Equipment					2							2
13.6 Machinery					7							7
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					9							9
13.9 Pulp, Paper, and Printing					17							17
13.10 Wood and Wood Products												
13.11 Construction				52								52
13.12 Textiles and Leather					9							9
13.13 Other Industry	28			766					2,785	233		3,813
14. Transport Sector				1,212	176							1,388
14.1 Domestic Air Transport				74								74
14.2 Road				1,100	176							1,276
14.3 Rail				38								38
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				36					6,595	429		7,060
15.1 Residential and Commercial				34					6,595	422		7,051
15.1.1 Commerce and Public Services				16					2,785	132		2,933
15.1.2 Residential				18					3,810	290		4,118
15.2 Agriculture												
15.3 Fishing												
15.4 Others				2						7		9
16. of which Non-energy Use				75	232							307
17. Electricity Output in GWh	312		38		2,556	7,544		4				10,455
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.14. Myanmar Energy Balance Table, 2012

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	305		829	12	11,477	668		0	9,627			22,919
2. Imports	2			1,442								1,443
3. Exports			-141		-8,900							-9,041
4. International Marine Bunkers				-2								-2
5. International Aviation Bunkers				-36								-36
6. Stock Changes			62	84								146
7. Total Primary Energy Supply	306		750	1,501	2,577	668		0	9,627			15,430
8. Transfers												
9. Total Transformation Sector	-131		-697	626	-1,430	-668		-0	-170	943		-1,527
9.1 Main Activity Producer	-131			-16	-1,409	-668		-0		943		-1,281
9.2 Auto Producers												
9.3 Gas Processing					-21							-21
9.4 Refineries			-697	642								-54
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-170			-170
9.9 Other Transformation												
10. Loss and Own Use				-5	-238					-233		-476
11. Discrepancy	-5		-54	-148	-336				-0	0		-542
12. Total Final Energy Consumption	171			1,974	573				9,457	710		12,885
13. Industry Sector	171			1,094	393				2,795	331		4,784
13.1 Iron and Steel	27				15							42
13.2 Chemical (incl. Petrochemical)					197							197
13.3 Non-ferrous Metals					2							2
13.4 Non-metallic Mineral Products	142				150							292
13.5 Transportation Equipment					2							2
13.6 Machinery					4							4
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					6							6
13.9 Pulp, Paper, and Printing					12							12
13.10 Wood and Wood Products												
13.11 Construction				78								78
13.12 Textiles and Leather					5							5
13.13 Other Industry	2			1,016					2,795	331		4,144
14. Transport Sector				847	165							1,013
14.1 Domestic Air Transport				73								73
14.2 Road				738	165							903
14.3 Rail				36								36
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				32	14				6,662	379		7,088
15.1 Residential and Commercial				32	14				6,662	372		7,080
15.1.1 Commerce and Public Services				16	14				2,795	141		2,967
15.1.2 Residential				16					3,866	231		4,113
15.2 Agriculture												
15.3 Fishing												
15.4 Others				1						7		8
16. of which Non-energy Use				105	177							283
17. Electricity Output in GWh	265		51		2,883	7,766		4				10,969
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.15. Myanmar Energy Balance Table, 2013

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	235		846	8	11,853	973		0	9,372			23,288
2. Imports	16			1,910								1,926
3. Exports	-24		-238		-9,159					-218		-9,639
4. International Marine Bunkers				-3								-3
5. International Aviation Bunkers				-78								-78
6. Stock Changes			3	19								22
7. Total Primary Energy Supply	227		611	1,856	2,694	973		0	9,372	-218		15,516
8. Transfers												
9. Total Transformation Sector	-59		-557	477	-1,500	-973		-0	-180	1,268		-1,525
9.1 Main Activity Producer	-59			-19	-1,488	-973		-0		1,268		-1,272
9.2 Auto Producers												
9.3 Gas Processing					-12							-12
9.4 Refineries			-557	496								-61
9.5 Coal Transformation												
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-180			-180
9.9 Other Transformation												
10. Loss and Own Use				-5	-268					-223		-496
11. Discrepancy	0		-54	-109	-271				0	-0		-434
12. Total Final Energy Consumption	168			2,219	654				9,193	827		13,061
13. Industry Sector	168			1,261	475				2,704	349		4,958
13.1 Iron and Steel	25				9							34
13.2 Chemical (incl. Petrochemical)					153							153
13.3 Non-ferrous Metals					2							2
13.4 Non-metallic Mineral Products	90				280							370
13.5 Transportation Equipment					1							1
13.6 Machinery					5							5
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					5							5
13.9 Pulp, Paper, and Printing					15							15
13.10 Wood and Wood Products												
13.11 Construction				110								110
13.12 Textiles and Leather					6							6
13.13 Other Industry	53			1,152					2,704	349		4,258
14. Transport Sector				881	178							1,060
14.1 Domestic Air Transport				47								47
14.2 Road				797	178							976
14.3 Rail				37								37
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector				77	1				6,489	478		7,044
15.1 Residential and Commercial				40	1				6,489	469		6,998
15.1.1 Commerce and Public Services				13	1				2,704	146		2,863
15.1.2 Residential				27					3,784	324		4,135
15.2 Agriculture												
15.3 Fishing												
15.4 Others				37						9		46
16. of which Non-energy Use				186	138							324
17. Electricity Output in GWh	136		61		3,228	11,310		4				14,739
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.16. Myanmar Energy Balance Table, 2014

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	181		810	10	16,499	886		1	10,012			28,398
2. Imports	150			3,679								3,828
3. Exports	-6		-243		-13,238					-126		-13,613
4. International Marine Bunkers				-0								-0
5. International Aviation Bunkers				-84								-84
6. Stock Changes			-31	-772	-7							-810
7. Total Primary Energy Supply	325		536	2,833	3,254	886		1	10,012	-126		17,720
8. Transfers												
9. Total Transformation Sector	-34	1	-561	489	-2,129	-886		-1	-182	1,345		-1,958
9.1 Main Activity Producer	-34			-20	-2,116	-886		-1		1,345		-1,712
9.2 Auto Producers												
9.3 Gas Processing					-13							-13
9.4 Refineries			-561	509								-52
9.5 Coal Transformation	-2	2										0
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-182			-182
9.9 Other Transformation												
10. Loss and Own Use				-5	-387					-250		-641
11. Discrepancy	0		25	-208	-164				0	0		-346
12. Total Final Energy Consumption	290	1		3,110	573				9,830	970		14,773
13. Industry Sector	290			1,782	391				2,886	454		5,803
13.1 Iron and Steel	51				10							61
13.2 Chemical (incl. Petrochemical)					140							140
13.3 Non-ferrous Metals					2							2
13.4 Non-metallic Mineral Products	53				217							269
13.5 Transportation Equipment					1							1
13.6 Machinery					5							5
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					5							5
13.9 Pulp, Paper, and Printing					6							6
13.10 Wood and Wood Products												
13.11 Construction				215								215
13.12 Textiles and Leather					6							6
13.13 Other Industry	186			1,568					2,886	454		5,094
14. Transport Sector				1,254	181							1,436
14.1 Domestic Air Transport				56								56
14.2 Road				1,161	181							1,342
14.3 Rail				37								37
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector		1		73	1				6,944	516		7,535
15.1 Residential and Commercial		1		43	1				6,944	505		7,493
15.1.1 Commerce and Public Services				12	1				2,886	151		3,049
15.1.2 Residential		1		31					4,058	354		4,444
15.2 Agriculture												
15.3 Fishing												
15.4 Others				31						11		42
16. of which Non-energy Use				302	126							429
17. Electricity Output in GWh	70		65		5,193	10,298		14				15,639
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.17. Myanmar Energy Balance Table, 2015

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	159		659	14	17,110	915		1	9,101			27,960
2. Imports	114			4,712								4,826
3. Exports	-6		-150	-34	-13,712					-107		-14,008
4. International Marine Bunkers				-1								-1
5. International Aviation Bunkers				-41								-41
6. Stock Changes			-29	163	4							138
7. Total Primary Energy Supply	268		481	4,812	3,402	915		1	9,101	-107		18,873
8. Transfers												
9. Total Transformation Sector	-2	2	-432	391	-2,402	-915		-1	-183	1,481		-2,061
9.1 Main Activity Producer				-17	-2,385	-915		-1		1,481		-1,837
9.2 Auto Producers												
9.3 Gas Processing					-17							-17
9.4 Refineries			-432	409								-24
9.5 Coal Transformation	-2	2										
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-183			-183
9.9 Other Transformation												
10. Loss and Own Use				-5	-470					-222		-697
11. Discrepancy	-0		-48	-437	-32				-0	0		-518
12. Total Final Energy Consumption	267	2		4,760	498				8,918	1,153		15,597
13. Industry Sector	267			2,791	330				2,624	354		6,366
13.1 Iron and Steel	28				5							33
13.2 Chemical (incl. Petrochemical)					160							160
13.3 Non-ferrous Metals					2							2
13.4 Non-metallic Mineral Products	92				142							235
13.5 Transportation Equipment					0							0
13.6 Machinery					5							5
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					5							5
13.9 Pulp, Paper, and Printing					3							3
13.10 Wood and Wood Products												
13.11 Construction				154								154
13.12 Textiles and Leather					7							7
13.13 Other Industry	147			2,637	2				2,624	354		5,764
14. Transport Sector				1,892	167							2,059
14.1 Domestic Air Transport				97								97
14.2 Road				1,758	167							1,925
14.3 Rail				37								37
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector		2		78	1				6,293	799		7,172
15.1 Residential and Commercial		2		47	1				6,293	790		7,131
15.1.1 Commerce and Public Services				23	1				2,624	216		2,864
15.1.2 Residential		2		23					3,669	574		4,268
15.2 Agriculture												
15.3 Fishing												
15.4 Others				31						9		41
16. of which Non-energy Use				283	144							426
17. Electricity Output in GWh			55		6,518	10,639		11				17,223
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid, TJ = terajoule.

Source: Author.

Table 3.18. Myanmar Energy Balance Table, 2016

Unit: kilotons of oil equivalent

	Coal	Coal Products	Crude Oil and NGL	Petroleum Products	Gas	Hydro	Nuclear	Geothermal, Solar etc.	Others	Electricity	Heat	Total
1. Indigenous Production	209		607	11	16,466	1,043		1	9,069			27,406
2. Imports	208			3,966								4,174
3. Exports	-4		-146	-173	-12,834					-205		-13,361
4. International Marine Bunkers				-1								-1
5. International Aviation Bunkers				-89								-89
6. Stock Changes			-0	357	-1							355
7. Total Primary Energy Supply	414		461	4,070	3,631	1,043		1	9,069	-205		18,484
8. Transfers												
9. Total Transformation Sector	-7	2	-418	400	-2,747	-1,043		-1	-141	1,742		-2,213
9.1 Main Activity Producer	-5			-19	-2,730	-1,043		-1		1,742		-2,056
9.2 Auto Producers												
9.3 Gas Processing					-17							-17
9.4 Refineries			-418	419								0
9.5 Coal Transformation	-2	2										-0
9.6 Petrochemical Industry												
9.7 Biofuel Processing												
9.8 Charcoal Processing									-141			-141
9.9 Other Transformation												
10. Loss and Own Use				-5	-431					-216		-652
11. Discrepancy	0		-43	-261	-23				-0	-0		-327
12. Total Final Energy Consumption	407	2		4,204	430				8,928	1,321		15,292
13. Industry Sector	407			2,037	265				2,633	400		5,743
13.1 Iron and Steel	37				7							44
13.2 Chemical (incl. Petrochemical)					117							117
13.3 Non-ferrous Metals					2							2
13.4 Non-metallic Mineral Products	123				119							242
13.5 Transportation Equipment					0							0
13.6 Machinery					5							5
13.7 Mining and Quarrying												
13.8 Food, Beverages, and Tobacco					6							6
13.9 Pulp, Paper, and Printing					0							0
13.10 Wood and Wood Products												
13.11 Construction				215								215
13.12 Textiles and Leather					8							8
13.13 Other Industry	49			1,823	2				2,305	400		4,578
14. Transport Sector				2,065	164							2,230
14.1 Domestic Air Transport				128								128
14.2 Road				1,902	164							2,066
14.3 Rail				36								36
14.4 Inland Waterways												
14.5 Pipeline Transport												
14.6 Other Transport												
15. Other Sector		2		102	0				6,294	921		7,320
15.1 Residential and Commercial		2		70	0				6,294	911		7,278
15.1.1 Commerce and Public Services				34	0				2,633	260		2,928
15.1.2 Residential		2		35					3,661	651		4,350
15.2 Agriculture												
15.3 Fishing												
15.4 Others				32						10		42
16. of which Non-energy Use				424	105							529
17. Electricity Output in GWh	10		61		8,052	12,125		9				20,258
18. Heat Output in TJ												

GWh = gigawatt-hour, NGL = natural gas liquid TJ = terajoule.

Source: Author.

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