# Appendix B

## SECTORAL ENERGY DEMAND: DATA COLLECTION, DEFINITIONS AND METHODOLOGY

The data used in Chapter 5 were collected from many different sources. They are presented in certain pre-determined accounting formats and conventions. The basic procedure involved is the construction of energy balances. This appendix sets out some details of the collection of the data, the analytical framework of an energy balance and the construction of energy balances for the ASEAN countries.

### The Energy Balance: Accounting Format and Data Presentation

The prerequisite for an understanding of the complex functions and interrelations of an energy economy is to trace for any given fuel, the activities from production through trade and conversion to end-uses. A systematic compilation of data for all types of fuels presented in this way forms the basis of an energy balance. Energy balances provide the statistical underpinning for energy utilization analysis, summarizing the past evolution of the energy system and the present-day energy situation. There are a variety of alternative forms of energy balance in use, each having its own format and its own conventions. A typical energy balance is in a matrix form, with columns relating to types of fuels or sources of energy, and rows to disposals of energy such as final consumption, losses and conversion process from one fuel to another, and the supplies of different forms of energy. The format and conventions upon which the data in Chapter 5 are based are described below. For further information about energy balance the reader may refer to statistical publications by individual agencies, such as by the OECD, or to a review by the United Kingdom Department of Energy (1977).

The need to construct the energy balances by the researcher, which is extremely time-consuming, arises not only from the lack of published energy consumption data, but also from the fact that, in a comparative study, the energy data used must be harmonized for all countries to enable meaningful comparisons to be made between countries. Chapter 5 deals primarily with inter-country comparisons of energy end-use. For these purposes greater emphasis have been placed on energy balance construction on the parts of the balance

related to energy conversion and final energy use. The level of disaggregation of an energy balance, both of fuel and sector, is under the constraint of data availability. There are great variations in data availability among the ASEAN countries. The basic framework of the energy balance is therefore preferable to be in such a way that not only the limited data available for countries with little information are meaningfully included but the more disaggregated energy data available for other countries are fully utilized and presented. The format of the energy balance used in this study in its final form is shown in Table B1. The definitions for each of the items on the row and the column are given below.

## Column

*Petroleum:* Comprises all petroleum products. They include LPG, gasolines (aviation and motor gasolines, also include naphtha for some countries), kerosenes, jet fuels, diesel fuels, fuel oils, liquid fuels used as feedstocks and for non-energy use, refinery fuel and losses, and liquid fuels used in synthetic fuel production. To fill in the entries in this column an oil balance is first constructed with items on the row similar to those in the energy balance but with each of the above petroleum products as a column. The sum of all entries in a row in the oil balance gives the total for petroleum for the same row in the energy balance.

*Coal:* Includes primary and secondary solid fuels. They are mainly coal, lignite and coke.

*Gas:* Includes natural gas and manufactured gases.

*Electricity:* This column gives the thermal value of end-use electricity and the total electricity generated.

*Hydro:* Total hydroelectricity supplies presented in primary energy terms including an estimated conversion loss. The total gives the equivalent amount of fossil fuel-fired power plant to generate the same amount of electricity. The generation efficiency is given by the average for all fossil fuel-fired plants in the country in the year concerned.

*Geothermal:* Geothermal electricity supplies in primary energy terms including an estimated conversion loss (see Hydro above).

*Electricity trade:* Imports and/or exports of electricity given in primary energy terms including an estimated conversion loss (see Hydro above).

*Total commercial:* The sum of entries from column 1 to column 7.

*Non-commercial:* Non-commercial energy, includes fuelwood, charcoal and crop residues. The production and consumption are measured in PRV.

*Total:* The sum of commercial energy and non-commercial energy.

## Row

*Transport:* Comprises road, rail, water and air transport. Water transport includes coastal and inland shipping, and fishing but excludes marine bunkers. Air transport includes fuels supplied to all international and domestic civil aircraft and military aircraft.

*Industry:* A highly aggregated sector, covering manufacturing, mining, construction and other miscellaneous uses not included under the other categories of final consumption in the energy balance such as agricultural use. Energy consumption in mining excludes that used in energy mining, such as in coal, oil or gas production (see Own use/losses below). Electricity consumption includes that used in oil refining supplied by the electricity utilities but excludes refinery fuel use (oil and gas used in oil refineries) and processing loss.

*Household/Commercial:* Energy use in domestic households and in the commercial and public sector, such as government offices, military camps, hospitals, schools, restaurants, street lighting, and so forth.

*Non-energy use:* Fuels for non-energy use, including feedstocks and other non-energy use. Feedstocks are products of petroleum refining or natural gas, which are used as the starting point for other chemical synthesis. Fuels for other non-energy use of petroleum include bitumen, lubricants and products such as wax, white spirit, and so forth.

*Total final use:* Total energy use in the final energy consuming sectors (sum of row 1 to row 4).

*Own use/losses:* Transmission and distribution losses, electricity used in power station auxiliaries, coal consumed in mines, and natural gas used in the oil and gas industry.

*Electricity generation:* Fuel inputs to power plants are positive in sign while electricity output, given in thermal equivalent and in column 4, is negative. The overall sum given in the entry in the last column of the energy balance is the conversion loss.

*Gas manufacture:* Same as electricity generation but for the produc-

tion of gases from non-gaseous energy sources.

*Petroleum refinery:* Refinery fuel and refinery processing loss, exclude the consumption of electricity bought from electricity utilities which is usually not given separately from uses in industry in original sources. They are the actual use in the year concerned, and not the adjusted figures in the energy time-series described in Appendix A.

*Primary energy input:* Primary energy input to the economy. On the demand side it is given by "Total final use" plus uses in the energy sector. On the supply side it equals "Indigenous supply + Marine bunkers + Net imports + Unaccounted". The total supply and the total demand must balance.

*Indigenous supply:* Indigenous production of primary fuels.

*Marine Bunkers:* Fuels supplied to ships in international transportation irrespective of the flag of the carrier.

*Net imports:* Except for natural gas, not exactly "Imports − Exports" but derived from "Primary energy input − Indigenous supply − Bunkers". Items included other than trade are stock change and statistical discrepancy. For natural gas since trade may be small compared to losses, the two are given separately. Natural gas flared, re-injected to oil fields, losses or unaccounted is included under the item "Unaccounted" in the last row of the energy balance while the entry in "Net imports" gives the actual gas traded.

*Unaccounted:* See Net imports above.

**Completing the Energy Balances**

The major problem of constructing the energy balances for the ASEAN countries is data availability. There is as yet no one published source which gives data on sectoral energy use for the five ASEAN countries. National statistical publications, do not usually give sectoral consumption statistics except for electricity. The limited sectoral energy consumption data given in the national statistical sources of the ASEAN countries often have the drawback that they are not adequately defined and the conventions used not fully specified. A good example is energy use for transport. Figures given may or may not include bunkers, fuels supplied to overseas bound aircraft, or fuel use by fishing boats. Very often the calorific values for fuels are not stated and it is also not certain how electricity consumption is measured, whether it is given on a heat supplied basis or in terms of the fuel needed to generate that amount of electricity. Due to the above, and the fact that in a comparative study the data for all countries must be harmonized, the data given in these

various sources must be used with caution in inter-country comparisons.

Although data shortage poses a major problem, it is possible, in the absence of a comprehensive input database, to proceed in a sequential way in completing energy balances starting from data that are most readily available and proceed to those of greater uncertainty. The time-series data in Chapter 2 give useful overall aggregates which can be used as the starting point for the construction of energy balances. The incompatability of the data on total consumption for individual fuels from different sources, which may be due to errors in data collection, variations in definitions or coverage, or different conversion factors used, can be resolved. This is especially important if one is attempting to construct energy balances for a country for two different years which are many years apart, and if the definitions and conventions used in the two balances are to remain the same. The basic format of the energy balances adopted in this study has a matrix structure of 14 rows and 10 columns, with 2 rows and 2 columns giving subtotals or totals. If the oil balance, which comprises six petroleum products and hence six additional columns, is included there will be a total of 16 columns and the total number of entries of the matrix will be 224. There are, however, a number of entries which are not applicable, or in practice will never or very rarely contain any number. These entries are, for example, coal for petroleum refining or jet fuels for household use, and can therefore be ignored. The sequence to complete the energy balances is described below. The reader may refer to Table B1 when going through the sections that follow. The step taken corresponds to the number shown in the table. For further information the reader may refer to Clark (1979) or Ang (1980).

*Step 1:* Data on electricity generation and end-uses are most readily available. Gross electricity generation (both public generation and industrial generation), utility own use, transmission and distribution losses, and sectoral end-uses are often given in national statistical yearbooks, or publications or annual reports of electricity utilities.

*Step 2:* Determine the types and amounts of fuels used in electricity generation. Data on public generation are given in various United Nations publications or in national statistical sources. Fuel input in industrial generation is usually not available, but in most ASEAN countries, diesel fuel and fuel oil are most likely used. If data are not available the efficiency of industrial generation is assumed to be the same as that for public generation for the same type of generation.

*Step 3:* Knowing the electricity generated and fuel input, the average generating efficiency of fossil fuel power plants is calculated. It is used to convert hydro and geothermal electricity into primary energy equivalent.

*Step 4:* Fill in inland energy petroleum product, coal and natural gas requirements. These figures are fairly similar to those for the same years in the energy time-series shown in Figures 2.3, 2.5, 2.7, 2.9 and 2.11 in Chapter 2 except that fuels for non-energy use are included in the energy balances but not in the time-series. Bunkers are excluded from diesel fuel and fuel oil consumption figures. Gas that was not actually utilized is also excluded from natural gas consumption.

*Step 5:* Fill in final consumption of coal, and natural and manufactured gases by sectors. Coal consumption data are generally good for the countries of ASEAN.

*Step 6:* Fill in petroleum products to specific uses. The products include LPG, gasolines, jet fuel, and kerosene. LPG and kerosene are mainly used in the household/commercial sector, motor and aviation gasolines and jet fuel in the transport sector. LPG and kerosene may also be used in industry, and if data are not available, estimates are made to allocate these consumptions. Naphtha for synthetic gas production is included under gasolines. Manufactured gas production and consumption figures are usually available, but the fuel input requirements in producing the gas are usually not available. If this is the case, an estimated conversion efficiency is used.

*Step 7:* Knowing the total requirements of diesel and fuel oil and the amounts of them used in the energy sector for electricity generation and gas production, the total final use of these two products may be determined. To allocate the final use of these products by sectors is the most difficult step, as they are used in all the major final consuming sectors. If data are not available, estimates are first made on the consumption in the transport sector, and the commercial and public sector. If diesel fuel used in the transport sector and fuel oil for electricity generation have been allocated the rest are mainly consumed in industry. It is therefore preferable to have the consumptions of these two products in industry as a residual given by the difference between the total final consumption and the consumption by all other sectors. If it has not been possible to single out diesel fuel and fuel oil consumptions that were used for industrial electricity generation and to include them under electricity generation in Step 2, they would still be allocated under industry. Consequently there is no danger of double-counting in terms of sectoral energy consumption.

*Step 8:* Fill in petroleum used for other specific purposes. These include refinery use, feedstocks, other non-energy use and bunkers.

*Step 9:* Fill in non-commercial energy consumption. They are based on estimates by the author in Chapter 4 and are measured in PRV.

*Step 10:* Sum up petroleum product consumption by sectors. Fill in

indigenous supply of primary fuels and trades in natural gas and electricity.

*Step 11:* Complete the energy balance by adding up relevant columns and rows to give subtotals and totals.

**Energy Balances for the ASEAN Countries**

The main data sources consulted in completing the energy balances of the ASEAN countries are listed in the section, Data Sources. Because of the problems of data availability, it is inevitable that some estimates must be made by the researcher, and these estimates might be subject to a certain margin of error. However, the accounting framework of energy balance provides a means for testing the internal consistency of the basic energy data relating to supply, conversion and demand. For each of the fuels the overall supply and demand must equal. For secondary energy production, the energy available for final use plus losses and energy sector own use must amount to the fuel input. The comparatively simple energy supply and demand systems in the ASEAN countries, as compared to those in the industrialized countries, also reduce the complexity of energy balance construction to a very great extent. Only two major energy sources are often involved, namely, petroleum and electricity. There are also relatively few transformations from primary fuels to secondary energy.

Energy balances have been constructed for each of the ASEAN countries for three benchmark years, 1960, 1972 and 1980. The years 1960 and 1980 are the beginning and the final years of the time-series given in Chapter 2. The year 1972 is the very last year of a period of low energy prices with no major recessionary setbacks. The changing structure of energy demand from 1960 to 1972 was therefore one under low energy prices while that from 1972 to 1980 was under a high price regime. Energy balances have also been constructed for 1976. They have been used to cross-check energy consumption data but are not shown here. The 1960, 1972 and 1980 energy balances for ASEAN which comprises the five ASEAN countries are shown from Table B2 to Table B4.

Data in the energy balances for individual countries of ASEAN are briefly described below.

*Indonesia:* As a vast country with a still less developed economy, Indonesia is a country where statistical data collection has often been a major problem. Data on energy end-uses, and especially the final consumption of petroleum products, are scarce. End-use data on coal and natural gas are more readily available and reliable. The end-uses of petroleum products are mostly the author's estimates, partly based on data supplied by the oil industry. Some data are available on electricity end-uses but data on industrial generation and consumption are incomplete.

*Malaysia:* Data on energy consumption except those on electricity consumption are not available from any national statistical source. Nevertheless, in Malaysia, the energy supply and demand patterns are relatively simple as petroleum products are the dominant energy sources. Estimates of the end-uses of petroleum products are based on data supplied by the oil industry, and they are generally good. Data are usually available for Peninsular Malaysia but not for East Malaysia. Electricity generation and consumption are based on statistics published by the electricity utilities.

*Philippines:* In additional to estimates by international agencies and energy companies, data on energy use by sectors are also given in publications by the Philippine Ministry of Energy. Due to variations in coverage, fuel classifications and in conversion factor used, consumption figures given in these sources very often differ from each other. To conform to the conventions described in this appendix adjustments have been made. Energy use in the Philippines was predominantly supplied by petroleum products and problems faced in energy balance construction came largely from the breaking down of petroleum product consumption. However, data on electricity and coal consumptions are generally good.

*Singapore:* Data were obtained from the oil industry on petroleum product deliveries covering the amount of each product supplied by the industry to retailers, consumers, the government, and the military. The problem involved was to break down and regroup these energy consumption data according to the sectors defined in our energy balance. Electricity and gas production and consumptions are based on data given in official publications. Estimates of oil and electricity consumptions in the industrial sector have been cross-checked with fuel consumption and expenditure data given in the census of industrial production.

*Thailand:* Consumption data on petroleum products by economic sectors are given in the publications by the National Energy Administration of Thailand. Data on solid fuel and electricity end-uses are also available in these and various other national statistical publications. These data were used extensively in the construction of energy balances. Electricity was traded between Thailand and Laos, and this has been taken into account in the energy balances. The official publications also give non-commercial energy consumption. These figures seem to be the recorded consumption only, and they are not used in this study.

## Conventions in Data Presentation

Having constructed the energy balances, it is possible to abstract the data they contain in various ways and present them differently according to the needs of the researcher. For instance, one could calculate from the balance the market shares of energy use by fuel types in industry, or the consumption shares of commercial energy

use by sectors. In Chapter 5 a study is made on the changing structure of sectoral energy demand in the ASEAN countries based on the data given in Table 5.1. The conventions used in computing the data shown in the table and various other tables in the chapter are described below.

In studying the changing patterns of final energy use, the following three categories of sectoral energy consumption may be computed in terms of share. They are measurements based on commercial energy, total primary energy, and total energy consumption with non-commercial energy given in PRV. Only data for the first and the last categories are presented in Table 5.1. For each category of consumption, there could be two different sets of sectoral consumption data, depending on how secondary energy is measured. Demand in the final consuming sectors can be measured in delivered energy terms such that all losses incurred and own use in the conversion of primary fuels to secondary energy are treated as a separate category of uses (that is, uses in the energy sector). Alternatively the consumption of secondary energy can be given in terms of the energy input before conversion such that the energy sector could be left out. The former of the two conventions is adopted in Table 5.1. The main difference between the two conventions is that the former gives a lower consumption share for sectors high in secondary energy consumption, particularly electricity consumption (these are sectors such as industry and household/commercial). For sectors where electricity consumption is minimal, such as transport, there would not be much difference between the two computed consumption shares. Note that petroleum products are secondary energy but they are not adjusted for the fuel used in oil refineries because refinery fuel use is excluded from the calculation of consumption shares in Table 5.1. Based on the data given in Table B4 and the first convention, sectoral commercial energy consumption in ASEAN in relation to total consumption are: transport (32 per cent), industry (26 per cent), household and commercial (19 per cent), non-energy use (5 per cent), and the energy sector excluding refinery use, and own use and losses of natural gas (18 per cent). The corresponding figures based on the second convention are: transport (31 per cent), industry (36 per cent), household and commercial (28 per cent), and non-energy use (5 per cent). The two sets of consumption shares have been calculated for all the ASEAN countries but for conciseness only the set with secondary energy measured in delivered energy terms is presented in Table 5.1. Only rarely are the conclusions arrived at in the first section of Chapter 5 different, if the analysis is based on the alternative set of consumption figures. However, in inter-country comparisons of sectoral energy use, great variations may arise if comparisons are made between countries which differ significantly regarding the proportion of electricity consumption in total sectoral energy use. One example is to compare industrial energy use between the countries of ASEAN (Table 5.8). In this circumstance, estimates based on both conventions are shown.

Table B1

ASEAN Energy Balance: General Format
(MTOE)

| | Petroleum | Coal | Gas | Electricity use | Hydro | Geothermal | Electricity trade | Total commercial | Non-commercial | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Transport | 6/7/10 | 5 | 5 | 1 | × | × | × | 11 | 9 | 11 |
| Industry | 6/7/10 | 5 | 5 | 1 | × | × | × | 11 | 9 | 11 |
| Household/Commercial | 6/7/10 | 5 | 5 | 1 | × | × | × | 11 | 9 | 11 |
| Non-energy use | 8/10 | × | 5 | × | × | × | × | 11 | × | 11 |
| Total final use | 6/7/10 | 5 | 5 | 1 | × | × | × | 11 | 9 | 11 |
| Own use/losses | × | 5 | 5 | 1 | × | × | × | 11 | × | 11 |
| Electricity generation | 2/10 | 2 | 2 | 1 | 1/3 | 1/3 | 1/3 | 11 | × | 11 |
| Gas manufacture | 6/7/10 | × | 5 | × | × | × | × | 11 | × | 11 |
| Petroleum refineries | 8/10 | × | 5 | × | × | × | × | 11 | × | 11 |
| Primary energy input | 4 | 4 | 4 | × | 4 | 4 | 4 | 11 | 9 | 11 |
| Indigenous supply | 10 | 10 | 10 | × | 10 | 10 | × | 11 | 10 | 11 |
| Marine bunkers | 8 | × | × | × | × | × | × | 11 | × | 11 |
| Net imports | 11 | 11 | 10 | × | × | × | 10 | 11 | 11 | 11 |
| Unaccounted | × | × | 11 | × | × | × | × | 11 | × | 11 |

Notes: For petroleum steps 2,6,7 and 8 are carried out separately in an oil balance. Entries which are not applicable or rarely contain any number are indicated by an "×".

Table B2

ASEAN Energy Balance, 1960
(MTOE)

| | Petroleum | Coal | Gas | Electricity use | Hydro | Geothermal | Electricity trade | Total commercial | Non-commercial | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Transport | 3.6 | 0.3 | — | — | — | — | — | 3.9 | .. | 3.9 |
| Industry | 1.4 | 0.1 | .. | 0.2 | — | — | — | 1.7 | 1.1 | 2.8 |
| Household/Commercial | 1.8 | — | .. | 0.3 | — | — | — | 2.1 | 8.9 | 11.0 |
| Non-energy use | 0.3 | — | — | — | — | — | — | 0.3 | — | 0.3 |
| Total final use | 7.1 | 0.4 | .. | 0.5 | — | — | — | 8.0 | 10.0 | 18.0 |
| Own use/losses | — | .. | 0.4 | 0.1 | — | — | — | 0.5 | — | 0.5 |
| Electricity generation | 1.4 | 0.1 | — | −0.6 | 0.8 | — | .. | 1.7 | — | 1.7 |
| Gas manufacture | .. | — | .. | — | — | — | — | .. | — | .. |
| Petroleum refineries | 0.9 | — | — | — | — | — | — | 0.9 | — | 0.9 |
| Primary energy input | 9.4 | 0.5 | 0.4 | — | 0.8 | — | — | 11.1 | 10.0 | 21.1 |
| Indigenous supply | 19.9 | 0.5 | 2.2 | — | 0.8 | — | — | 23.4 | 10.0 | 33.4 |
| Marine bunkers | −2.6 | — | — | — | — | — | — | −2.6 | — | −2.6 |
| Net imports | −7.9 | .. | 0.1 | — | — | — | .. | −7.8 | — | −7.8 |
| Unaccounted | — | — | −1.9 | — | — | — | — | −1.9 | — | −1.9 |

Notes: .. : Less than 0.05 MTOE.
— : Nil or unknown.

Non-commercial energy is given in PRV while electricity trade in primary energy terms.
"Net imports" if negative the absolute value gives net exports.

Table B3

ASEAN Energy Balance, 1972
(MTOE)

| | Petroleum | Coal | Gas | Electricity use | Hydro | Geothermal | Electricity trade | Total commercial | Non-commercial | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Transport | 3.6 | 0.3 | — | — | — | — | — | 3.9 | .. | 3.9 |
| Industry | 1.4 | 0.1 | .. | 0.2 | — | — | — | 1.7 | 1.1 | 2.8 |
| Household/Commercial | 1.8 | — | .. | 0.3 | — | — | — | 2.1 | 8.9 | 11.0 |
| Non-energy use | 0.3 | — | — | — | — | — | — | 0.3 | — | 0.3 |
| Total final use | 7.1 | 0.4 | .. | 0.5 | — | — | — | 8.0 | 10.0 | 18.0 |
| Own use/losses | — | .. | 0.4 | 0.1 | — | — | — | 0.5 | — | 0.5 |
| Electricity generation | 1.4 | 0.1 | — | −0.6 | 0.8 | — | .. | 1.7 | — | 1.7 |
| Gas manufacture | .. | — | .. | — | — | — | — | .. | — | .. |
| Petroleum refineries | 0.9 | — | — | — | — | — | — | 0.9 | — | 0.9 |
| Primary energy input | 31.0 | — | 0.7 | — | 1.8 | — | .. | 33.8 | 12.2 | 46.0 |
| Indigenous supply | 57.0 | 0.3 | 5.3 | — | 1.8 | — | — | 64.4 | 12.2 | 76.6 |
| Marine bunkers | −6.4 | — | — | — | — | — | — | −6.4 | — | −6.4 |
| Net imports | −19.6 | .. | — | — | — | — | .. | −19.6 | — | −19.6 |
| Unaccounted | — | — | −4.6 | — | — | — | — | −4.6 | — | −4.6 |

Notes: .. : Less than 0.05 MTOE.
— : Nil or unknown.

Non-commercial energy is given in PRV while electricity trade in primary energy terms.
"Net imports" if negative the absolute value gives net exports.

Table B4

ASEAN Energy Balance, 1980
(MTOE)

| | Petroleum | Coal | Gas | Electricity use | Hydro | Geothermal | Electricity trade | Total commercial | Non-commercial | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Transport | 18.0 | .. | — | — | — | — | — | 18.0 | .. | 18.0 |
| Industry | 12.2 | 0.5 | — | 2.3 | — | — | — | 15.0 | 1.4 | 16.4 |
| Household/Commercial | 8.7 | — | 0.1 | 1.9 | — | — | — | 10.7 | 11.0 | 21.7 |
| Non-energy use | 1.3 | — | 1.5 | — | — | — | — | 2.8 | — | 2.8 |
| Total final use | 40.2 | 0.5 | 1.6 | 4.2 | — | — | — | 46.5 | 12.4 | 58.9 |
| Own use/losses | — | .. | 1.6 | 0.7 | — | — | — | 2.3 | — | 2.3 |
| Electricity generation | 11.1 | 0.5 | — | −4.9 | 2.2 | 0.5 | 0.2 | 9.6 | — | 9.6 |
| Gas manufacture | 0.1 | — | −0.1 | — | — | — | — | .. | — | .. |
| Petroleum refineries | 3.2 | — | 0.2 | — | — | — | — | 3.4 | — | 3.4 |
| Primary energy input | 54.6 | 1.0 | 3.3 | — | 2.2 | 0.5 | 0.2 | 61.8 | 12.4 | 74.2 |
| Indigenous supply | 91.3 | 0.8 | 15.0 | — | 2.2 | 0.5 | — | 110.4 | 12.4 | 122.8 |
| Marine bunkers | −5.7 | — | — | — | — | — | — | −5.7 | — | −5.7 |
| Net imports | −31.0 | 0.2 | −10.7 | — | — | — | 0.2 | −41.3 | — | −41.3 |
| Unaccounted | — | — | −1.6 | — | — | — | — | −1.6 | — | −1.6 |

Notes: .. : Less than 0.05 MTOE.
— : Nil or unknown.

Non-commercial energy is given in PRV while electricity trade in primary energy terms.
"Net imports" if negative the absolute value gives net exports.