

# Chapter 5

## Data Collection on Electricity Supply and Consumption

Ministry of Energy and Mines, Lao PDR

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## CHAPTER 5

# Data Collection on Electricity Supply and Consumption

### 1. Purpose

This document aims to help any person working for the Energy Data Collection Group of MEM to collect electricity supply and consumption information and generate an energy statistics report.

### 2. Introduction

The electricity questionnaire was prepared by the technical support of ERIA to help the DPC of MEM improve energy data collection in the Lao PDR.

### 3. Questionnaire Instructions

The questionnaire instructions, definition of products, and instructions for completing the electricity supply and final consumption are based on IEA's electricity and heat annual questionnaire 2017–2021 published in July 2019, the Energy Statistics Manual 2005 (IEA, 2005), and ISIC Revision 4 (UN-DESA, 2008).

#### 3.1. Data sources and time frames

Data can be collected monthly, quarterly, and annually from electricity generators, electricity transmission and distribution companies, electricity retailers, and cogenerators. If collected annually, the data should be reported for the calendar year (January to December).

#### 3.2. Units and conversion factors

Electricity is usually measured in watt-hours. The units for electricity used in the questionnaire are megawatt-hours (MWh) and gigawatt-hours (GWh). Energy (heat) content in calories is calculated by using conversion factors, e.g. 1 GWh = 860 Gcal or 1 kWh = 860 kcal.

#### Common Conversion Factor for Electricity

- Millions of tonnes of oil equivalent (Mtoe) is a unit of energy used to describe the energy content of all fuels, for example, 1 Mtoe = 11,630 GWh or 1 GWh = 86 toe.

**Table 5.1 Conversion Equivalents between Units of Energy**

| To:            | TJ                      | Gcal   | Mtoe                   | MBtu                | GWh                    |
|----------------|-------------------------|--------|------------------------|---------------------|------------------------|
| From:          | multiply by:            |        |                        |                     |                        |
| Terajoule (TJ) | 1                       | 238,8  | $2.388 \times 10^{-5}$ | 947,8               | 0,2778                 |
| Gigacalorie    | $4.1868 \times 10^{-3}$ | 1      | $10^{-7}$              | 3,968               | $1.163 \times 10^{-3}$ |
| Mtoe           | $4.1868 \times 10^4$    | $10^7$ | 1                      | $3.968 \times 10^7$ | 11630                  |
| Million Btu    | $1.0551 \times 10^{-3}$ | 0,252  | $2.52 \times 10^{-8}$  | 1                   | $2.931 \times 10^{-4}$ |
| Gigawatt-hour  | 3,6                     | 860    | $8.6 \times 10^{-5}$   | 3412                | 1                      |

Source: IEA (2005).

### 3.3. Electronic questionnaire

An electronic questionnaire (e.g. Excel spreadsheet) should be used in collecting the data to minimise the risk of data entry inconsistencies or errors.

### 3.4. What is electricity?

Electricity is an energy carrier with an extensive range of applications. It is used in almost all kinds of human activity, ranging from industrial production, household use, agriculture, commerce (to operate machines), lighting, and heating.

Electricity is produced as primary and secondary energy. Primary electricity is obtained from natural sources such as hydro, wind, solar, tide, and wave power. Secondary electricity is produced from the heat of nuclear fission of nuclear fuels, from geothermal heat and solar thermal heat, and by burning primary combustible fuels such as coal, natural gas, oil, renewables, and waste. After electricity is produced, it is distributed to final consumers through national or international transmission and distribution grids.

### 3.5. Definition of products

It is important to understand the energy source to complete the questionnaire. Energy source refers to the kinetic (e.g. hydro, wind), thermal (e.g. nuclear, geothermal), or combustible fuel used as input to generate electricity or heat.

- 1) Hydro – potential and kinetic energy of water converted into electricity in hydroelectric plants. Pumped storage from mixed and pure pumped storage plants should be included.
- 2) Geothermal – energy available as heat emitted from within the earth’s crust, usually in the form of hot water or steam.
- 3) Solar energy – solar radiation exploited for electricity generation.
  - Solar photovoltaic converts sunlight into electricity by using solar cells, usually made of semi-conducting materials that generate electricity when exposed to light.
  - Solar thermal can consist of

- solar thermal-electric plants, or
- equipment to produce heat for sale (hot water or steam)

4) Combustible fuels – refer to fuels capable of igniting or burning, i.e. reacting with oxygen to produce a significant temperature rise. They are combusted directly to produce electricity and/or heat.

5) Solid biomass – covers organic, non-fossil material of biological origin, which may be used as fuel to produce heat or generate electricity. Solid biomass includes:

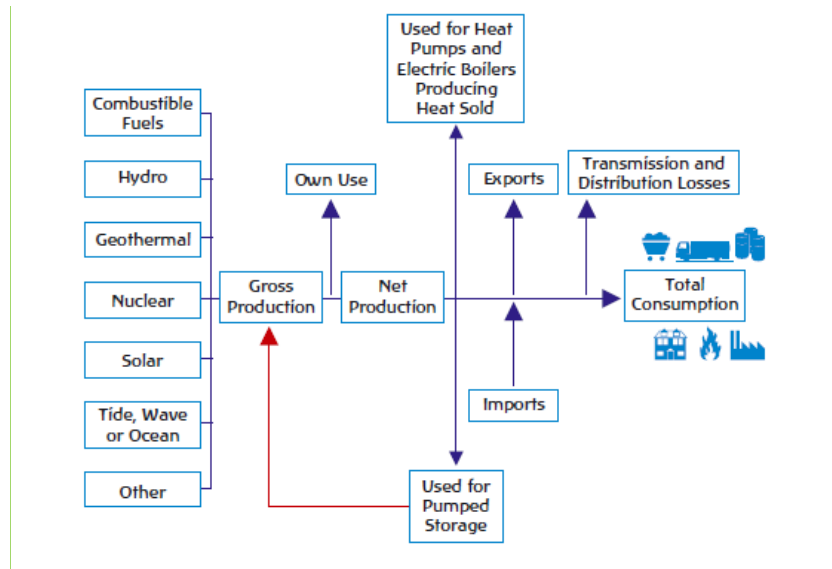
- Charcoal – covers the solid residue of the destructive distillation and pyrolysis of wood and other vegetal material
- Fuelwood, wood residues, and by-products – fuelwood or firewood (in log, brushwood, pellet, or chip form) obtained from natural or managed forests or isolated trees. Also included are wood residues used as fuel and in which the original composition of wood is retained. Charcoal and black liquor are excluded. The quantity of fuel used should be reported on a net calorific value basis.
- Black liquor – energy from the alkaline-spent liquor obtained from the digesters during the production of sulphate or soda pulp required for paper manufacture
- Bagasse – fuel obtained from the fibre, which remains after juice extraction in sugar cane processing
- Animal waste – energy from excreta of animals, meat and fish residues that are used directly as fuel when dry. This excludes waste used in anaerobic fermentation plants. Fuel gases from these plants are included under biogases.
- Other vegetal materials and residuals – biofuels not specified elsewhere and including straw, vegetable husks, groundnut shells, pruning brushwood, olive pomace, and other wastes arising from the maintenance, cropping, and processing of plants.
- Industrial waste (renewable) – solid renewable portion of industrial waste combusted directly at specific installations for meaningful energy purposes (for example, natural rubber in waste rubber tires or natural fibres in textile wastes). The quantity of fuel used should be reported on a net calorific value basis.

6) Wind – kinetic energy of wind exploited for electricity generation in wind turbines

7) Tide, wave, or ocean – Mechanical energy derived from tidal movement, wave motion, or ocean current and exploited for electricity generation.

### 3.6. Instructions for completing electricity supply and consumption

Figure 5.1 Electricity Flows Diagram



Source: IEA (2005).

#### 3.6.1 Definitions of electricity and heat – electricity supply

The supply of electricity and heat only includes production, imports, and exports. Electricity and heat are produced from several sources according to types of producers and types of plants.

**Types of Producers** – producers are classified according to the purpose of production:

- Main activity producer commits to generate electricity and/or heat for sale to third parties as their primary activity. They may be privately or publicly owned. Note that the sale need not take place through the public grid.
- Auto producer commits to generate electricity and/or heat, wholly or partly for their own use as an activity that supports their primary activity. They may be privately or publicly owned.

**Types of Plants** – a plant is a set of units. Plants are classified according to the combination of units:

- Electricity plant refers to a plant composed of electricity units only.
- Heat plant refers to a plant composed of heat units only.
- Combined heat and power (CHP) plant refers to all other combinations of units. For example, it can be a plant that has one CHP unit. Another example of a CHP plant is a combination of one electricity unit and one heat unit.

Electricity is produced as a primary or secondary product in power plants; the total electricity produced is called gross electricity production. Power plants consume some amount of electricity for their use. Net electricity production is obtained by deducting this amount from gross production;

this net production is distributed through national transmission and distribution grids to final consumers or transformed into heat in electric boilers or heat pumps, or stored using pumped-storage dams. It can also be exported through international transmission interconnections to another country or imported when a shortage occurs. During transmission and distribution, some losses occur caused by the grid's physical characteristics and the electricity-generating system.

- 1) Gross electricity production – is the sum of the electrical energy production by all the generating sets concerned (including pumped storage) measured at the main generators' output terminals.
- 2) Net electricity production – is equal to the gross electricity production less the electrical energy absorbed by the generating auxiliaries and the losses in the main generator transformers.
- 3) Own use by power plants – is the difference between gross and net electricity production.
- 4) Purchase from other producers – report electricity purchased from other producers or generators.
- 5) Imports and exports – the amounts of electricity and heat are considered imported or exported when these have crossed the country's political boundaries, whether customs clearance has taken place or not. If electricity is 'wheeled' or transited through a country, the amount should be reported as both an import and an export.
- 6) Inland deliveries/sales – report electricity delivered or sold for inland consumption.
- 7) Transmission and distribution losses – all losses due to transport and distribution of electrical energy and heat. For electricity, losses in transformers not considered integral parts of the power plants are also included.
- 8) Energy sector – report all electricity and purchased heat consumed by the energy sector to support the extraction (mining, oil and gas production) and transformation activities. It should exclude Own use by plant, Used for pumped storage, Used by heat pumps, and Used for electric boilers, which are reported elsewhere. Heat consumed by auto producers for their use should not be included. Consumption in support of pipeline operations (e.g. oil, gas, and coal slurry) should be reported in the Transport sector.
- 9) Fuel used for electricity generation – report the fuel input of coal (tonnes), oil (kl), and bagasse (tonnes) for electricity generation.

### *3.6.2 Definition of flows – final consumption of electricity by sector*

The final electricity and heat consumption refers to all electricity and heat used in agriculture, industry, commercial and public services, transport and residential sectors, and Other – not elsewhere specified. These sectors are classified by ISIC as follows.

- 1) Agriculture

- Agriculture and forestry – report electricity consumed by users classified as agriculture, hunting, and forestry by ISIC and NACE Divisions 01 and 02.
- Fishing – report electricity consumed for inland, coastal, and deep-sea fishing as specified in ISIC and NACE Division 03. Fishing should cover energy consumption in ships of all flags that refuelled in the country (include international fishing).

2) Industry – report the electricity consumed by the industry for its primary activities in the appropriate sub-sectors:

- Iron and steel – ISIC Group 241 and Class 2431. Fuels used in blast furnaces should be reported in the energy sector to avoid double counting.
  - This class includes conversion operations by reducing iron ore in blast furnaces and oxygen converters, or of ferrous waste and scrap in electric arc furnaces, or by directly reducing iron ore without fusion to obtain crude steel, which is smelted and refined in a ladle furnace.
  - This class includes the casting of iron and steel, i.e. the activities of iron and steel foundries.
- Chemical and petrochemical – ISIC and NACE Divisions 20 and 21
  - These divisions include the transformation of organic and inorganic raw materials by a chemical process and the formation of products. It distinguishes the production of basic chemicals that constitute the first industry group from the production of intermediate and end products produced by further processing of basic chemicals that make up the remaining industry classes.
  - These divisions include the manufacture of basic pharmaceutical products and pharmaceutical preparations. These also include the manufacture of medicinal chemical and botanical products.
- Non-ferrous metals – ISIC Group 242 and Class 2432 and (NACE Group 24.4 and Classes 24.53 and 24.54).
  - These classes include the production of basic precious metals: production and refining of unwrought or wrought precious metals – gold, silver, platinum, etc. – from ore and scrap.
  - Casting of non-ferrous metals, which include
    - semi-finished products of aluminium, magnesium, titanium, zinc, etc.
    - light metals
    - heavy metals
    - precious metals
    - die-casting of non-ferrous metal castings

- Non-metallic minerals – ISIC and NACE Division 23. This division includes manufacturing activities related to a single substance of mineral origin. This division includes glass and glass products (e.g. flat glass, hollow glass, fibres, technical glassware, etc.); ceramic products; tiles and baked clay products; and cement and plaster – from raw materials to finished articles. The manufacture of shaped and finished stone and other mineral products is also included in this division.
- Transport equipment – ISIC and NACE Divisions 29 and 30.
  - Manufacture of motor vehicles, trailers, and semi-trailers  
This division includes the manufacture of motor vehicles for transporting passengers or freight, various parts and accessories, and trailers and semi-trailers.
  - Manufacture of other transport equipment  
This division includes the manufacture of (i) transportation equipment such as shipbuilding and boat making; and (ii) railroad rolling stock and locomotives, aircraft, and spacecraft and their parts.
- Machinery – Report fabricated metal products, machinery, and equipment other than transport equipment. ISIC and NACE Divisions 25–28
- Mining (excluding energy-producing industries) and quarrying – ISIC Divisions 07 and 08 and Group 099 (NACE Divisions 07 and 08 and Group 09.9)
- Food, beverages, and tobacco - ISIC and NACE Divisions 10–12
- Paper, pulp, and printing - ISIC and NACE Divisions 17 and 18. Include the production of recorded media
- Wood and wood products (other than pulp and paper) - ISIC and NACE Division 16
- Construction – ISIC and NACE Divisions 41–43
- Textile and leather – ISIC and NACE Divisions 13–15
- Not elsewhere specified (Industry) – Report consumption not included above

3) Commercial and public services – these activities are covered by ISIC and NACE Divisions 33, 36–39, 45–47, 52–53, 55–56, 58–66, 68–75, 77–82, 84 (excluding Class 8422)–88, 90–96, and 99. Report consumption by businesses and offices in the public and private sectors. Note that electricity use at railway, bus stations, shipping piers, and airports should be reported in this category and not shown in the Transport sector. Also include fuel used by all non-transport activities of ISIC and NACE Divisions 49–51.

4) Transport – report electricity use for all transport activities irrespective of the economic sector where the activities occur (except military fuel use, see Not elsewhere specified – Other). Electricity used for heating and lighting at railway, bus stations, and airports should be reported in Commercial and public services. The transport sector is divided into the following sub-sectors:

- Rail – report electricity consumption used in rail traffic, including industrial railways and rail transport as part of urban or suburban transport systems (e.g. metro, tram).
- Pipeline transport – report electricity consumption supporting the operations of submarine and overland pipelines transporting gases, liquids, slurries, and other commodities up to the



distributors' network, including the energy used for pump stations and maintenance of the pipeline. Use for pipeline distribution of natural or manufactured gas, hot water, or steam (ISIC 35) from the distributor to the final users is excluded and should be reported in the Energy sector. Use for the final distribution of water (ISIC 36) to household, industry, commercial, and other users should be included in the Commercial and public services sector.

- Road – report electricity use in road vehicles. This includes electricity consumed in road transport vehicles such as electric buses, electric cars, and trolleybuses when the electricity is supplied from external sources to generate mechanical energy directly or used to charge batteries. Include use by agricultural vehicles on highways. Exclude use in stationary engines (this should be reported under the relevant economic sector), non-highway use in tractors (see Agriculture/Forestry – Other sector), and military use (see Not elsewhere specified – Other). The consumption of vehicles running on rails in urban transport (trams, metro, etc.) should be included under Rail transport.
- *Not elsewhere specified – Transport* – report electricity use for transport activities not included elsewhere.

5) Residential – report fuel consumed by all households, including those with employed persons (ISIC and NACE Divisions 97 and 98)

6) Other – Not elsewhere specified – report activities not included elsewhere (such as ISIC and NACE Class 8422). This category should include military use for all mobile and stationary consumption (e.g. ships, aircraft, and living quarters) within the country regardless of whether the use is by the military of that country or another country.

#### **4 Imports by Origin and Exports by Destination**

Report the gross trade in electricity between all countries, including quantities in transit. The country of origin for imports, from which electricity comes, and destination for exports, to which they are sent, are neighbouring countries.

The amount is treated as imported or exported when the electricity has crossed the country's political boundaries, whether customs clearance has taken place or not. Where no origin or destination can be reported or where the country is not specified in the questionnaire, the category 'Unknown' may be used.

#### **5. International Standard Industries Classification of all Economic Activities (ISIC)**

The following is ISIC's detailed structure.

## Section A

### Agriculture, forestry, and fishing

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 01</b> |       |       | <b>Crop and animal production, hunting, and related service activities</b> |
|                    | 011   |       | Growing of non-perennial crops   |
|                    |       | 0111  | Growing of cereals (except rice), leguminous crops, and oilseeds           |
|                    |       | 0112  | Growing of rice  |
|                    |       | 0113  | Growing of vegetables and melons, roots, and tubers                        |
|                    |       | 0114  | Growing of sugar cane  |
|                    |       | 0115  | Growing of tobacco   |
|                    |       | 0116  | Growing of fibre crops   |
|                    |       | 0119  | Growing of other non-perennial crops                                       |
|                    | 012   |       | Growing of perennial crops   |
|                    |       | 0121  | Growing of grapes  |
|                    |       | 0122  | Growing of tropical and subtropical fruits                                 |
|                    |       | 0123  | Growing of citrus fruits   |
|                    |       | 0124  | Growing of pome fruits and stone fruits                                    |
|                    |       | 0125  | Growing of other tree and bush fruits and nuts                             |
|                    |       | 0126  | Growing of oleaginous fruits   |
|                    |       | 0127  | Growing of beverage crops  |
|                    |       | 0128  | Growing of spices, aromatic, drug, and pharmaceutical crops                |
|                    |       | 0129  | Growing of other perennial crops   |
|                    | 013   | 0130  | Plant propagation  |
|                    | 014   |       | Animal production  |
|                    |       | 0141  | Raising of cattle and buffaloes  |
|                    |       | 0142  | Raising of horses and other equines  |
|                    |       | 0143  | Raising of camels and camelids   |
|                    |       | 0144  | Raising of sheep and goats   |
|                    |       | 0145  | Raising of swine and pigs  |
|                    |       | 0146  | Raising of poultry   |
|                    |       | 0149  | Raising of other animals   |
|                    | 015   | 0150  | Mixed farming  |
|                    | 016   |       | Support activities to agriculture and post-harvest crop activities         |
|                    |       | 0161  | Support activities for crop production                                     |
|                    |       | 0162  | Support activities for animal production                                   |
|                    |       | 0163  | Post-harvest crop activities   |
|                    |       | 0164  | Seed processing for propagation  |
|                    | 017   | 0170  | Hunting, trapping, and related service activities                          |
| <b>Division 02</b> |       |       | <b>Forestry and logging</b>  |
|                    | 021   | 0210  | Silviculture and other forestry activities                                 |
|                    | 022   | 0220  | Logging  |
|                    | 023   | 0230  | Gathering of non-wood forest products                                      |
|                    | 024   | 0240  | Support services to forestry   |

| <b>Division 03</b> |      | <b>Fishing and aquaculture</b> |
|--------------------|------|--------------------------------|
| 031                |      | Fishing                        |
|                    | 0311 | Marine fishing                 |
|                    | 0312 | Freshwater fishing             |
| 032                |      | Aquaculture                    |
|                    | 0321 | Marine aquaculture             |
|                    | 0322 | Freshwater aquaculture         |

## Section B

### Mining and quarrying

| Division           | Group | Class  | Description   |
|--------------------|-------|--|---|
| <b>Division 05</b> |       | <b>Mining of coal and lignite</b>                    |   |
|                    | 051   | 0510   | Mining of hard coal   |
|                    | 052   | 0520   | Mining of lignite   |
| <b>Division 06</b> |       | <b>Extraction of crude petroleum and natural gas</b> |   |
|                    | 061   | 0610   | Extraction of crude petroleum                               |
|                    | 062   | 0620   | Extraction of natural gas                                   |
| <b>Division 07</b> |       | <b>Mining of metal ores</b>                          |   |
|                    | 071   | 0710   | Mining of iron ores   |
|                    | 072   |  | Mining of non-ferrous metal ores                            |
|                    |       | 0721   | Mining of uranium and thorium ores                          |
|                    |       | 0729   | Mining of other non-ferrous metal ores                      |
| <b>Division 08</b> |       | <b>Other mining and quarrying</b>                    |   |
|                    | 081   | 0810   | Quarrying of stone, sand, and clay                          |
|                    | 089   |  | Mining and quarrying n.e.c.                                 |
|                    |       | 0891   | Mining of chemical and fertiliser minerals                  |
|                    |       | 0892   | Extraction of peat  |
|                    |       | 0893   | Extraction of salt  |
|                    |       | 0899   | Other mining and quarrying n.e.c.                           |
| <b>Division 09</b> |       | <b>Mining support service activities</b>             |   |
|                    | 091   | 0910   | Support activities for petroleum and natural gas extraction |
|                    | 099   | 0990   | Support activities for other mining and quarrying           |

## Section C

### Manufacturing

| Division           | Group | Class | Description   |
|--------------------|-------|-------|---|
| <b>Division 10</b> |       |       | <b>Manufacture of food products</b>   |
|                    | 101   | 1010  | Processing and preserving of meat   |
|                    | 102   | 1020  | Processing and preserving of fish, crustaceans, and molluscs                    |
|                    | 103   | 1030  | Processing and preserving of fruits and vegetables                              |
|                    | 104   | 1040  | Manufacture of vegetables and animal oils and fats                              |
|                    | 105   | 1050  | Manufacture of dairy products   |
|                    | 106   |       | Manufacture of grain mill products, starches, and starch products               |
|                    |       | 1061  | Manufacture of grain mill products  |
|                    |       | 1062  | Manufacture of starches and starch products                                     |
|                    | 107   |       | Manufacture of other food products  |
|                    |       | 1071  | Manufacture of bakery products  |
|                    |       | 1072  | Manufacture of sugar  |
|                    |       | 1073  | Manufacture of cocoa, chocolate, and sugar confectionery                        |
|                    |       | 1074  | Manufacture of macaroni, noodles, couscous, and similar farinaceous products    |
|                    |       | 1075  | Manufacture of prepared meals and dishes  |
|                    |       | 1079  | Manufacture of other food products n.e.c.                                       |
|                    | 108   | 1080  | Manufacture of prepared animal feeds  |
| <b>Division 11</b> |       |       | <b>Manufacture of beverages</b>   |
|                    |       | 1101  | Distilling, rectifying, and blending of spirits                                 |
|                    |       | 1102  | Manufacture of wines  |
|                    |       | 1103  | Manufacture of malt liquors and malt  |
|                    |       | 1104  | Manufacture of soft drinks; production of mineral water and other bottled water |
| <b>Division 12</b> |       |       | <b>Manufacture of tobacco products</b>  |
|                    | 120   | 1200  | Manufacture of tobacco products   |
| <b>Division 13</b> |       |       | <b>Manufacture of textiles</b>  |
|                    | 131   |       | Spinning, weaving, and finishing of textiles                                    |
|                    |       | 1311  | Preparation and spinning of textile fibres                                      |
|                    |       | 1312  | Weaving of textiles   |
|                    |       | 1313  | Finishing of textiles   |
|                    | 139   |       | Manufacture of other textiles   |
|                    |       | 1391  | Manufacture of knitted and crocheted fabrics                                    |
|                    |       | 1392  | Manufacture of made-up textile articles, except apparel                         |
|                    |       | 1393  | Manufacture of carpets and rugs   |
|                    |       | 1394  | Manufacture of cordage, rope, twine, and netting                                |
|                    |       | 1399  | Manufacture of other textiles n.e.c.  |
| <b>Division 14</b> |       |       | <b>Manufacture of wearing apparel</b>   |
|                    | 141   | 1410  | Manufacture of wearing apparel, except fur apparel                              |
|                    | 142   | 1420  | Manufacture of articles of fur  |
|                    | 143   | 1430  | Manufacture of knitted and crocheted apparel                                    |

| <b>Division</b>    | <b>Group</b> | <b>Class</b> | <b>Description</b>  |
|--------------------|--------------|--------------|---|
| <b>Division 15</b> |              |              | <b>Manufacture of leather and related products</b>  |
|                    | 151          |              | Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, and harness; dressing and dyeing of fur                |
|                    |              | 1511         | Tanning and dressing of leather; dressing and dyeing of fur   |
|                    |              | 1512         | Manufacture of luggage, handbags and the like, saddlery and harness   |
|                    | 152          | 1520         | Manufacture of footwear   |
| <b>Division 16</b> |              |              | <b>Manufacture of wood and products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials</b> |
|                    | 161          | 1610         | Sawmilling and planing of wood  |
|                    | 162          |              | Manufacture of products of wood, cork, straw, and plaiting materials  |
|                    |              | 1621         | Manufacture of veneer sheets and wood-based panels  |
|                    |              | 1622         | Manufacture of builders' carpentry and joinery  |
|                    |              | 1623         | Manufacture of wooden containers  |
|                    |              | 1629         | Manufacture of other products of wood; manufacture of articles of cork, straw, and plaiting materials                               |
| <b>Division 17</b> |              |              | <b>Manufacture of paper and paper products</b>  |
|                    |              | 1701         | Manufacture of pulp, paper, and paperboard  |
|                    |              | 1702         | Manufacture of corrugated paper and paperboard and of containers of paper and paperboard  |
|                    |              | 1709         | Manufacture of other articles of paper and paperboard   |
| <b>Division 18</b> |              |              | <b>Printing and reproduction of recorded media</b>  |
|                    | 181          |              | Printing and service activities related to printing   |
|                    |              | 1811         | Printing  |
|                    |              | 1812         | Service activities related to printing  |
|                    | 182          | 1820         | Reproduction of recorded media  |
| <b>Division 19</b> |              |              | <b>Manufacture of coke and refined petroleum products</b>   |
|                    | 191          | 1910         | Manufacture of coke oven products   |
|                    | 192          | 1920         | Manufacture of refined petroleum products   |
| <b>Division 20</b> |              |              | <b>Manufacture of chemicals and chemical products</b>   |
|                    | 201          |              | Manufacture of basic chemicals, fertilisers and nitrogen compounds, plastics and synthetic rubber in primary forms                  |
|                    |              | 2011         | Manufacture of basic chemicals  |
|                    |              | 2012         | Manufacture of fertilisers and nitrogen compounds   |
|                    |              | 2013         | Manufacture of plastics and synthetic rubber in primary forms   |
|                    | 202          |              | Manufacture of other chemical products  |
|                    |              | 2021         | Manufacture of pesticides and other agrochemical products   |
|                    |              | 2022         | Manufacture of paints, varnishes, and similar coatings; printing ink and mastics  |
|                    |              | 2023         | Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations                           |
|                    |              | 2029         | Manufacture of other chemical products n.e.c.   |
|                    | 203          | 2030         | Manufacture of man-made fibres  |
| <b>Division 21</b> |              |              | <b>Manufacture of pharmaceuticals, medicinal chemical and botanical products</b>  |
|                    | 210          | 2100         | Manufacture of pharmaceuticals, medicinal chemical and botanical products   |

| <b>Division</b>    | <b>Group</b> | <b>Class</b> | <b>Description</b>   |
|--------------------|--------------|--------------|--|
| <b>Division 22</b> |              |              | <b>Manufacture of rubber and plastics products</b>                                       |
|                    | 221          |              | Manufacture of rubber products   |
|                    |              | 2211         | Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres         |
|                    |              | 2219         | Manufacture of other rubber products   |
|                    | 222          | 2220         | Manufacture of plastics products   |
| <b>Division 23</b> |              |              | <b>Manufacture of other non-metallic mineral products</b>                                |
|                    | 231          | 2310         | Manufacture of glass and glass products  |
|                    | 239          |              | Manufacture of non-metallic mineral products n.e.c.                                      |
|                    |              | 2391         | Manufacture of refractory products   |
|                    |              | 2392         | Manufacture of clay building materials   |
|                    |              | 2393         | Manufacture of other porcelain and ceramic products                                      |
|                    |              | 2394         | Manufacture of cement, lime, and plaster   |
|                    |              | 2395         | Manufacture of articles of concrete, cement, and plaster                                 |
|                    |              | 2396         | Cutting, shaping, and finishing of stone   |
|                    |              | 2399         | Manufacture of other non-metallic mineral products n.e.c.                                |
| <b>Division 24</b> |              |              | <b>Manufacture of basic metals</b>   |
|                    | 241          | 2410         | Manufacture of basic iron and steel  |
|                    | 242          | 2420         | Manufacture of basic precious and other non-ferrous metals                               |
|                    | 243          |              | Casting of metals  |
|                    |              | 2431         | Casting of iron and steel  |
|                    |              | 2432         | Casting of non-ferrous metals  |
| <b>Division 25</b> |              |              | <b>Manufacture of fabricated metal products, except machinery and equipment</b>          |
|                    | 251          |              | Manufacture of structural metal products, tanks, reservoirs, and steam generators        |
|                    |              | 2511         | Manufacture of structural metal products   |
|                    |              | 2512         | Manufacture of tanks, reservoirs, and containers of metal                                |
|                    |              | 2513         | Manufacture of steam generators, except central heating hot water boilers                |
|                    | 252          | 2520         | Manufacture of weapons and ammunition  |
|                    | 259          |              | Manufacture of other fabricated metal products; metalworking service activities          |
|                    |              | 2591         | Forging, pressing, stamping, and roll-forming of metal; powder metallurgy                |
|                    |              | 2592         | Treatment and coating of metals; machining   |
|                    |              | 2593         | Manufacture of cutlery, hand tools, and general hardware                                 |
|                    |              | 2599         | Manufacture of other fabricated metal products n.e.c.                                    |
| <b>Division 26</b> |              |              | <b>Manufacture of computer, electronic, and optical products</b>                         |
|                    | 261          | 2610         | Manufacture of electronic components and boards  |
|                    | 262          | 2620         | Manufacture of computers and peripheral equipment  |
|                    | 263          | 2630         | Manufacture of communication equipment   |
|                    | 264          | 2640         | Manufacture of consumer electronics  |
|                    | 265          |              | Manufacture of measuring, testing, navigating, and control equipment; watches and clocks |
|                    |              | 2651         | Manufacture of measuring, testing, navigating, and control equipment                     |

|     |      |  |
|-----|------|--|
|     | 2652 | Manufacture of watches and clocks  |
| 266 | 2660 | Manufacture of irradiation, electromedical, and electrotherapeutic equipment |

| Division           | Group | Class   | Description  |
|--------------------|-------|---|--|
|                    | 267   | 2670  | Manufacture of optical instruments and photographic equipment  |
|                    | 268   | 2680  | Manufacture of magnetic and optical media  |
| <b>Division 27</b> |       | <b>Manufacture of electrical equipment</b>                        |  |
|                    | 271   | 2710  | Manufacture of electric motors, generators, transformers, and electricity distribution and control apparatus |
|                    | 272   | 2720  | Manufacture of batteries and accumulators  |
|                    | 273   |   | Manufacture of wiring and wiring devices   |
|                    |       | 2731  | Manufacture of fibre optic cables  |
|                    |       | 2732  | Manufacture of other electronic and electric wires and cables  |
|                    |       | 2733  | Manufacture of wiring devices  |
|                    | 274   | 2740  | Manufacture of electric lighting equipment   |
|                    | 275   | 2750  | Manufacture of domestic appliances   |
|                    | 279   | 2790  | Manufacture of other electrical equipment  |
| <b>Division 28</b> |       | <b>Manufacture of machinery and equipment n.e.c.</b>              |  |
|                    | 281   |   | Manufacture of general-purpose machinery   |
|                    |       | 2811  | Manufacture of engines and turbines, except aircraft, vehicle, and cycle engines                             |
|                    |       | 2812  | Manufacture of fluid power equipment   |
|                    |       | 2813  | Manufacture of other pumps, compressors, taps, and valves  |
|                    |       | 2814  | Manufacture of bearings, gears, gearing, and driving elements  |
|                    |       | 2815  | Manufacture of ovens, furnaces, and furnace burners  |
|                    |       | 2816  | Manufacture of lifting and handling equipment  |
|                    |       | 2817  | Manufacture of office machinery and equipment (except computers and peripheral equipment)                    |
|                    |       | 2818  | Manufacture of power-driven hand tools   |
|                    |       | 2819  | Manufacture of other general-purpose machinery   |
|                    | 282   |   | Manufacture of special-purpose machinery   |
|                    |       | 2821  | Manufacture of agricultural and forestry machinery   |
|                    |       | 2822  | Manufacture of metal-forming machinery and machine tools   |
|                    |       | 2823  | Manufacture of machinery for metallurgy  |
|                    |       | 2824  | Manufacture of machinery for mining, quarrying, and construction   |
|                    |       | 2825  | Manufacture of machinery for food, beverage, and tobacco processing  |
|                    |       | 2826  | Manufacture of machinery for textile, apparel, and leather production  |
|                    |       | 2829  | Manufacture of other special-purpose machinery   |
| <b>Division 29</b> |       | <b>Manufacture of motor vehicles, trailers, and semi-trailers</b> |  |
|                    | 291   | 2910  | Manufacture of motor vehicles  |
|                    | 292   | 2920  | Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers              |
|                    | 293   | 2930  | Manufacture of parts and accessories for motor vehicles  |
| <b>Division 30</b> |       | <b>Manufacture of other transport equipment</b>                   |  |

|                    |      |   |
|--------------------|------|---|
| 301                |      | Building of ships and boats                                   |
|                    | 3011 | Building of ships and floating structures                     |
|                    | 3012 | Building of pleasure and sporting boats                       |
| 302                | 3020 | Manufacture of railway locomotives and rolling stock          |
| 303                | 3030 | Manufacture of aircraft and spacecraft and related machinery  |
| 304                | 3040 | Manufacture of military fighting vehicles                     |
| 309                |      | Manufacture of transport equipment n.e.c.                     |
|                    | 3091 | Manufacture of motorcycles                                    |
|                    | 3092 | Manufacture of bicycles and invalid carriages                 |
|                    | 3099 | Manufacture of other transport equipment n.e.c.               |
| <b>Division 31</b> |      | <b>Manufacture of furniture</b>                               |
| 310                | 3100 | Manufacture of furniture                                      |
| <b>Division 32</b> |      | <b>Other manufacturing</b>                                    |
| 321                |      | Manufacture of jewellery, bijouterie, and related articles    |
|                    | 3211 | Manufacture of jewellery and related articles                 |
|                    | 3212 | Manufacture of imitation jewellery and related articles       |
| 322                | 3220 | Manufacture of musical instruments                            |
| 323                | 3230 | Manufacture of sports goods                                   |
| 324                | 3240 | Manufacture of games and toys                                 |
| 325                | 3250 | Manufacture of medical and dental instruments and supplies    |
| 329                | 3290 | Other manufacturing n.e.c.                                    |
| <b>Division 33</b> |      | <b>Repair and installation of machinery and equipment</b>     |
| 331                |      | Repair of fabricated metal products, machinery, and equipment |
|                    | 3311 | Repair of fabricated metal products                           |
|                    | 3312 | Repair of machinery   |
|                    | 3313 | Repair of electronic and optical equipment                    |
|                    | 3314 | Repair of electrical equipment                                |
|                    | 3315 | Repair of transport equipment, except motor vehicles          |
|                    | 3319 | Repair of other equipment                                     |
| 332                | 3320 | Installation of industrial machinery and equipment            |



## Section D

### Electricity, gas, steam, and air-conditioning supply

| Division           | Group | Class | Description   |
|--------------------|-------|-------|---|
| <b>Division 35</b> |       |       | <b>Electricity, gas, steam, and air-conditioning supply</b>     |
|                    | 351   | 3510  | Electric power generation, transmission, and distribution       |
|                    | 352   | 3520  | Manufacture of gas; distribution of gaseous fuels through mains |
|                    | 353   | 3530  | Steam and air conditioning supply                               |

## Section E

### Water supply; sewerage, waste management, and remediation activities

| Division           | Group | Class | Description   |
|--------------------|-------|-------|---|
| <b>Division 36</b> |       |       | <b>Water collection, treatment, and supply</b>                                  |
|                    | 360   | 3600  | Water collection, treatment, and supply   |
|                    | 370   | 3700  | Sewerage  |
| <b>Division 38</b> |       |       | <b>Waste collection, treatment, and disposal activities; materials recovery</b> |
|                    | 381   |       | Waste collection  |
|                    |       | 3811  | Collection of non-hazardous waste   |
|                    |       | 3812  | Collection of hazardous waste   |
|                    | 382   |       | Waste treatment and disposal  |
|                    |       | 3821  | Treatment and disposal of non-hazardous waste                                   |
|                    |       | 3822  | Treatment and disposal of hazardous waste                                       |
|                    | 383   | 3830  | Materials recovery  |
| <b>Division 39</b> |       |       | <b>Remediation activities and other waste management services</b>               |
|                    | 390   | 3900  | Remediation activities and other waste management services                      |

## Section F

### Construction

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 41</b> |       |       | <b>Construction of buildings</b>                                     |
|                    | 410   | 4100  | Construction of buildings  |
| <b>Division 42</b> |       |       | <b>Civil engineering</b>   |
|                    | 421   | 4210  | Construction of roads and railways                                   |
|                    | 422   | 4220  | Construction of utility projects                                     |
|                    | 429   | 4290  | Construction of other civil engineering projects                     |
| <b>Division 43</b> |       |       | <b>Specialised construction activities</b>                           |
|                    | 431   |       | Demolition and site preparation                                      |
|                    |       | 4311  | Demolition   |
|                    |       | 4312  | Site preparation   |
|                    | 432   |       | Electrical, plumbing, and other construction installation activities |
|                    |       | 4321  | Electrical installation  |
|                    |       | 4322  | Plumbing, heat, and air-conditioning installation                    |
|                    |       | 4329  | Other construction installation                                      |
|                    | 433   | 4330  | Building completion and finishing                                    |
|                    | 439   | 4390  | Other specialised construction activities                            |

## Section G

### Wholesale and retail trade; repair of motor vehicles and motorcycles

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 45</b> |       |       | <b>Wholesale and retail trade and repair of motor vehicles and motorcycles</b> |
|                    | 451   | 4510  | Sale of motor vehicles   |
|                    | 452   | 4520  | Maintenance and repair of motor vehicles                                       |
|                    | 453   | 4530  | Sale of motor vehicle parts and accessories                                    |
|                    | 454   | 4540  | Sale, maintenance, and repair of motorcycles and related parts and accessories |
| <b>Division 46</b> |       |       | <b>Wholesale trade, except of motor vehicles and motorcycles</b>               |
|                    | 461   | 4610  | Wholesale on a fee or contract basis   |
|                    | 462   | 4620  | Wholesale of agricultural raw materials and live animals                       |
|                    | 463   | 4630  | Wholesale of food, beverages, and tobacco                                      |
|                    | 464   |       | Wholesale of household goods   |
|                    |       | 4641  | Wholesale of textiles, clothing, and footwear                                  |
|                    |       | 4649  | Wholesale of other household goods   |
|                    | 465   |       | Wholesale of machinery, equipment, and supplies                                |
|                    |       | 4651  | Wholesale of computers, computer peripheral equipment, and software            |
|                    |       | 4652  | Wholesale of electronic and telecommunications equipment and parts             |
|                    |       | 4653  | Wholesale of agricultural machinery, equipment, and supplies                   |
|                    |       | 4659  | Wholesale of other machinery and equipment                                     |

| <b>Division 46</b> |      | <b>Wholesale trade, except of motor vehicles and motorcycles</b>  |
|--------------------|------|---|
| 466                |      | Other specialised wholesale   |
|                    | 4661 | Wholesale of solid, liquid, and gaseous fuels and related products  |
|                    | 4662 | Wholesale of metals and metal ores  |
|                    | 4663 | Wholesale of construction materials, hardware, plumbing, and heating equipment and supplies                                       |
|                    | 4669 | Wholesale of waste and scrap and other products n.e.c.  |
| 469                | 4690 | Non-specialised wholesale trade   |
| <b>Division 47</b> |      | <b>Retail trade, except of motor vehicles and motorcycles</b>   |
| 471                |      | Retail sale in non-specialised stores   |
|                    | 4711 | Retail sale in non-specialised stores with food, beverages, or tobacco predominating  |
|                    | 4719 | Other retail sale in non-specialised stores   |
| 472                |      | Retail sale of food, beverages, and tobacco in specialised stores   |
|                    | 4721 | Retail sale of food in specialised stores   |
|                    | 4722 | Retail sale of beverages in specialised stores  |
|                    | 4723 | Retail sale of tobacco products in specialised stores   |
| 473                | 4730 | Retail sale of automotive fuel in specialised stores  |
| 474                |      | Retail sale of information and communications equipment in specialised stores   |
|                    | 4741 | Retail sale of computers, peripheral units, software and telecommunications equipment in specialised stores                       |
|                    | 4742 | Retail sale of audio and video equipment in specialised stores  |
| 475                |      | Retail sale of other household equipment in specialised stores  |
|                    | 4751 | Retail sale of textiles in specialised stores   |
|                    | 4752 | Retail sale of hardware, paints, and glass in specialised stores  |
|                    | 4753 | Retail sale of carpets, rugs, wall and floor coverings in specialised stores  |
|                    | 4759 | Retail sale of electrical household appliances, furniture, lighting equipment, and other household articles in specialised stores |
| 476                |      | Retail sale of cultural and recreation goods in specialised stores  |
|                    | 4761 | Retail sale of books, newspapers, and stationary in specialised stores  |
|                    | 4762 | Retail sale of music and video recordings in specialised stores   |
|                    | 4763 | Retail sale of sporting equipment in specialised stores   |
|                    | 4764 | Retail sale of games and toys in specialised stores   |
| 477                |      | Retail sale of other goods in specialised stores  |
|                    | 4771 | Retail sale of clothing, footwear, and leather articles in specialised stores   |
|                    | 4772 | Retail sale of pharmaceutical and medical goods, cosmetic and toilet articles in specialised stores                               |
|                    | 4773 | Other retail sale of new goods in specialised stores  |
|                    | 4774 | Retail sale of second-hand goods  |
| 478                |      | Retail sale via stalls and markets  |
|                    | 4781 | Retail sale via stalls and markets of food, beverages, and tobacco products   |
|                    | 4782 | Retail sale via stalls and markets of textiles, clothing, and footwear  |
|                    | 4789 | Retail sale via stalls and markets of other goods   |
| 479                |      | Retail trade not in stores, stalls, or markets  |
|                    | 4791 | Retail sale via mail order houses or via Internet   |
|                    | 4799 | Other retail sale not in stores, stalls, or markets   |

## Section H

### Transportation and storage

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 49</b> |       |       | <b>Land transport and transport via pipelines</b>            |
|                    | 491   |       | Transport via railways                                       |
|                    |       | 4911  | Passenger rail transport, interurban                         |
|                    |       | 4912  | Freight rail transport                                       |
|                    | 492   |       | Other land transport   |
|                    |       | 4921  | Urban and suburban passenger land transport                  |
|                    |       | 4922  | Other passenger land transport                               |
|                    |       | 4923  | Freight transport by road                                    |
|                    | 493   | 4930  | Transport via pipeline                                       |
| <b>Division 50</b> |       |       | <b>Water transport</b>                                       |
|                    | 501   |       | Sea and coastal water transport                              |
|                    |       | 5011  | Sea and coastal passenger water transport                    |
|                    |       | 5012  | Sea and coastal freight water transport                      |
|                    | 502   |       | Inland water transport                                       |
|                    |       | 5021  | Inland passenger water transport                             |
|                    |       | 5022  | Inland freight water transport                               |
| <b>Division 51</b> |       |       | <b>Air transport</b>   |
|                    | 511   | 5110  | Passenger air transport                                      |
|                    | 512   | 5120  | Freight air transport  |
| <b>Division 52</b> |       |       | <b>Warehousing and support activities for transportation</b> |
|                    | 521   | 5210  | Warehousing and storage                                      |
|                    | 522   |       | Support activities for transportation                        |
|                    |       | 5221  | Service activities incidental to land transportation         |
|                    |       | 5222  | Service activities incidental to water transportation        |
|                    |       | 5223  | Service activities incidental to air transportation          |
|                    |       | 5224  | Cargo handling   |
|                    |       | 5229  | Other transportation support activities                      |
| <b>Division 53</b> |       |       | <b>Postal and courier activities</b>                         |
|                    | 531   | 5310  | Postal activities  |
|                    | 532   | 5320  | Courier activities   |

## Section I

### Accommodation and food service activities

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 55</b> |       |       | <b>Accommodation</b>   |
|                    | 551   | 5510  | Short-term accommodation activities                            |
|                    | 552   | 5520  | Camping grounds, recreational vehicle parks, and trailer parks |
|                    | 559   | 5590  | Other accommodation  |
| <b>Division 56</b> |       |       | <b>Food and beverage service activities</b>                    |
|                    | 561   | 5610  | Restaurants and mobile food service activities                 |
|                    | 562   |       | Event catering and other food service activities               |
|                    |       | 5621  | Event catering   |
|                    |       | 5629  | Other food service activities                                  |
|                    | 563   | 5630  | Beverage serving activities                                    |

## Section J

### Information and communication

| Division           | Group | Class | Description   |
|--------------------|-------|-------|---|
| <b>Division 58</b> |       |       | <b>Publishing activities</b>  |
|                    | 581   |       | Publishing of books, periodicals, and other publishing activities   |
|                    |       | 5811  | Book publishing   |
|                    |       | 5812  | Publishing of directories and mailing lists   |
|                    |       | 5813  | Publishing of newspapers, journals, and periodicals   |
|                    |       | 5819  | Other publishing activities   |
|                    | 582   | 5820  | Software publishing   |
| <b>Division 59</b> |       |       | <b>Motion picture, video and television programme production, sound recording and music publishing activities</b> |
|                    | 591   |       | Motion picture, video and television programme activities   |
|                    |       | 5911  | Motion picture, video and television programme production activities  |
|                    |       | 5912  | Motion picture, video and television programme post-production activities   |
|                    |       | 5913  | Motion picture, video and television programme distribution activities  |
|                    |       | 5914  | Motion picture projection activities  |
|                    | 592   | 5920  | Sound recording and music publishing activities   |

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 60</b> |       |       | <b>Programming and broadcasting activities</b>                     |
|                    | 601   | 6010  | Radio broadcasting   |
|                    | 602   | 6020  | Television programming and broadcasting activities                 |
| <b>Division 61</b> |       |       | <b>Telecommunications</b>  |
|                    | 611   | 6110  | Wired telecommunications activities                                |
|                    | 612   | 6120  | Wireless telecommunications activities                             |
|                    | 613   | 6130  | Satellite telecommunications activities                            |
|                    | 619   | 6190  | Other telecommunications activities                                |
| <b>Division 62</b> |       |       | <b>Computer programming, consultancy, and related activities</b>   |
|                    |       | 6201  | Computer programming activities                                    |
|                    |       | 6202  | Computer consultancy and computer facilities management activities |
|                    |       | 6209  | Other information technology and computer service activities       |
| <b>Division 63</b> |       |       | <b>Information service activities</b>                              |
|                    | 631   |       | Data processing, hosting, and related activities; web portals      |
|                    |       | 6311  | Data processing, hosting, and related activities                   |
|                    |       | 6312  | Web portals  |
|                    | 639   |       | Other information service activities                               |
|                    |       | 6391  | News agency activities   |
|                    |       | 6399  | Other information service activities n.e.c.                        |

## Section K

### Financial and insurance activities

| Division           | Group | Class | Description   |
|--------------------|-------|-------|---|
| <b>Division 64</b> |       |       | <b>Financial service activities, except insurance and pension funding</b>                   |
|                    | 641   |       | Monetary intermediation   |
|                    |       | 6411  | Central banking   |
|                    |       | 6419  | Other monetary intermediation   |
|                    | 642   | 6420  | Activities of holding companies   |
|                    | 643   | 6430  | Trusts, funds, and similar financial entities   |
|                    | 649   |       | Other financial service activities, except insurance and pension funding activities         |
|                    |       | 6491  | Financial leasing   |
|                    |       | 6492  | Other credit granting   |
|                    |       | 6499  | Other financial service activities, except insurance and pension funding activities, n.e.c. |
| <b>Division 65</b> |       |       | <b>Insurance, reinsurance and pension funding, except compulsory social security</b>        |
|                    | 651   |       | Insurance   |
|                    |       | 6511  | Life insurance  |
|                    |       | 6512  | Non-life insurance  |
|                    | 652   | 6520  | Reinsurance   |
|                    | 653   | 6530  | Pension funding   |

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 66</b> |       |       | <b>Activities auxiliary to financial service and insurance activities</b>                  |
|                    | 661   |       | Activities auxiliary to financial service activities, except insurance and pension funding |
|                    |       | 6611  | Administration of financial markets  |
|                    |       | 6612  | Security and commodity contracts brokerage   |
|                    |       | 6619  | Other activities auxiliary to financial service activities                                 |
|                    | 662   |       | Activities auxiliary to insurance and pension funding                                      |
|                    |       | 6621  | Risk and damage evaluation   |
|                    |       | 6622  | Activities of insurance agents and brokers   |
|                    |       | 6629  | Other activities auxiliary to insurance and pension funding                                |
|                    | 663   | 6630  | Fund management activities   |

## Section L

### Real estate activities

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 68</b> |       |       | <b>Real estate activities</b>                      |
|                    | 681   | 6810  | Real estate activities with own or leased property |
|                    | 682   | 6820  | Real estate activities on a fee or contract basis  |

## Section M

### Professional, scientific, and technical activities

| Division           | Group | Class | Description   |
|--------------------|-------|-------|---|
| <b>Division 69</b> |       |       | <b>Legal and accounting activities</b>  |
|                    | 691   | 6910  | Legal activities  |
|                    | 692   | 6920  | Accounting, bookkeeping, and auditing activities; tax consultancy               |
| <b>Division 70</b> |       |       | <b>Activities of head offices; management consultancy activities</b>            |
|                    | 701   | 7010  | Activities of head offices  |
|                    | 702   | 7020  | Management consultancy activities   |
| <b>Division 71</b> |       |       | <b>Architectural and engineering activities; technical testing and analysis</b> |
|                    | 711   | 7110  | Architectural and engineering activities and related technical consultancy      |
|                    | 712   | 7120  | Technical testing and analysis  |
| <b>Division 72</b> |       |       | <b>Scientific research and development</b>                                      |
|                    | 721   | 7210  | Research and experimental development on natural sciences and engineering       |
|                    | 722   | 7220  | Research and experimental development on social sciences and humanities         |
| <b>Division 73</b> |       |       | <b>Advertising and market research</b>  |
|                    | 731   | 7310  | Advertising   |
|                    | 732   | 7320  | Market research and public opinion polling                                      |
| <b>Division 74</b> |       |       | <b>Other professional, scientific, and technical activities</b>                 |
|                    | 741   | 7410  | Specialised design activities   |

|     |      |   |
|-----|------|---|
| 742 | 7420 | Photographic activities   |
| 749 | 7490 | Other professional, scientific, and technical activities n.e.c. |

## Section N

### Administrative and support service activities

| Division           | Group | Class | Description   |
|--------------------|-------|-------|---|
| <b>Division 77</b> |       |       | <b>Rental and leasing activities</b>  |
|                    | 771   | 7710  | Renting and leasing of motor vehicles   |
|                    | 772   |       | Renting and leasing of personal and household goods                                 |
|                    |       | 7721  | Renting and leasing of recreational and sports goods                                |
|                    |       | 7722  | Renting of videotapes and disks   |
|                    |       | 7729  | Renting and leasing of other personal and household goods                           |
|                    | 773   | 7730  | Renting and leasing of other machinery, equipment, and tangible goods               |
|                    | 774   | 7740  | Leasing of intellectual property and similar products, except copyrighted works     |
| <b>Division 78</b> |       |       | <b>Employment activities</b>  |
|                    | 781   | 7810  | Activities of employment placement agencies   |
|                    | 782   | 7820  | Temporary employment agency activities  |
|                    | 783   | 7830  | Other human resources provision   |
| <b>Division 79</b> |       |       | <b>Travel agency, tour operator, reservation service, and related activities</b>    |
|                    | 791   |       | Travel agency and tour operator activities  |
|                    |       | 7911  | Travel agency activities  |
|                    |       | 7912  | Tour operator activities  |
|                    | 799   | 7990  | Other reservation service and related activities                                    |
| <b>Division 80</b> |       |       | <b>Security and investigation activities</b>  |
|                    | 801   | 8010  | Private security activities   |
|                    | 802   | 8020  | Security systems service activities   |
|                    | 803   | 8030  | Investigation activities  |
| <b>Division 81</b> |       |       | <b>Services to buildings and landscape activities</b>                               |
|                    | 811   | 8110  | Combined facilities support activities  |
|                    | 812   |       | Cleaning activities   |
|                    |       | 8121  | General cleaning of buildings   |
|                    |       | 8129  | Other building and industrial cleaning activities                                   |
|                    | 813   | 8130  | Landscape care and maintenance service activities                                   |
| <b>Division 82</b> |       |       | <b>Office administrative, office support, and other business support activities</b> |
|                    | 821   |       | Office administrative and support activities  |
|                    |       | 8211  | Combined office administrative service activities                                   |
|                    |       | 8219  | Photocopying, document preparation, and other specialised office support activities |
|                    | 822   | 8220  | Activities of call centres  |
|                    | 823   | 8230  | Organisation of conventions and trade shows   |
|                    | 829   |       | Business support service activities n.e.c.  |



|  |      |  |
|--|------|--|
|  | 8291 | Activities of collection agencies and credit bureaus |
|  | 8292 | Packaging activities                                 |
|  | 8299 | Other business support service activities n.e.c.     |

## Section O

### Public administration and defence; compulsory social security

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 84</b> |       |       | <b>Public administration and defence; compulsory social security</b>   |
|                    | 841   |       | Administration of the State and the economic and social policy of the community  |
|                    |       | 8411  | General public administration activities   |
|                    |       | 8412  | Regulation of the activities of providing healthcare, education, cultural services, and other social services, excluding social security |
|                    |       | 8413  | Regulation of and contribution to a more efficient operation of businesses   |
|                    | 842   |       | Provision of services to the community as a whole  |
|                    |       | 8421  | Foreign affairs  |
|                    |       | 8422  | Defence activities   |
|                    |       | 8423  | Public order and safety activities   |
|                    | 843   | 8430  | Compulsory social security activities  |

## Section P

### Education

| Division           | Group | Class | Description                                  |
|--------------------|-------|-------|--|
| <b>Division 85</b> |       |       | <b>Education</b>                             |
|                    | 851   | 8510  | Pre-primary and primary education            |
|                    | 852   |       | Secondary education                          |
|                    |       | 8521  | General secondary education                  |
|                    |       | 8522  | Technical and vocational secondary education |
|                    | 853   | 8530  | Higher education                             |
|                    | 854   |       | Other education                              |
|                    |       | 8541  | Sports and recreation education              |
|                    |       | 8542  | Cultural education                           |
|                    |       | 8549  | Other education n.e.c.                       |
|                    | 855   | 8550  | Educational support activities               |

## Section Q

### Human health and social work activities

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 86</b> |       |       | <b>Human health activities</b>   |
|                    | 861   | 8610  | Hospital activities  |
|                    | 862   | 8620  | Medical and dental practice activities   |
|                    | 869   | 8690  | Other human health activities  |
|                    | 871   | 8710  | Residential nursing care facilities  |
|                    | 872   | 8720  | Residential care activities for mental retardation, mental health, and substance abuse |
|                    | 873   | 8730  | Residential care activities for the elderly and disabled                               |
|                    | 879   | 8790  | Other residential care activities  |
| <b>Division 88</b> |       |       | <b>Social work activities without accommodation</b>                                    |
|                    | 881   | 8810  | Social work activities without accommodation for the elderly and disabled              |
|                    | 889   | 8890  | Other social work activities without accommodation                                     |

## Section R

### Arts, entertainment, and recreation

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 90</b> |       |       | <b>Creative, arts, and entertainment activities</b>                |
|                    | 900   | 9000  | Creative, arts, and entertainment activities                       |
| <b>Division 91</b> |       |       | <b>Libraries, archives, museums, and other cultural activities</b> |
|                    |       | 9101  | Library and archives activities                                    |
|                    |       | 9102  | Museums activities and operation of historical sites and buildings |
|                    |       | 9103  | Botanical and zoological gardens and nature reserves activities    |
| <b>Division 92</b> |       |       | <b>Gambling and betting activities</b>                             |
|                    | 920   | 9200  | Gambling and betting activities                                    |
| <b>Division 93</b> |       |       | <b>Sports activities and amusement and recreation activities</b>   |
|                    | 931   |       | Sports activities  |
|                    |       | 9311  | Operation of sports facilities                                     |
|                    |       | 9312  | Activities of sports clubs   |
|                    |       | 9319  | Other sports activities  |
|                    | 932   |       | Other amusement and recreation activities                          |
|                    |       | 9321  | Activities of amusement parks and theme parks                      |
|                    |       | 9329  | Other amusement and recreation activities n.e.c.                   |

## Section S

### Other service activities

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 94</b> |       |       | <b>Activities of membership organisations</b>                                |
|                    | 941   |       | Activities of business, employers, and professional membership organisations |
|                    |       | 9411  | Activities of business and employers membership organisations                |
|                    |       | 9412  | Activities of professional membership organisations                          |
|                    | 942   | 9420  | Activities of trade unions   |
|                    | 949   |       | Activities of other membership organisations                                 |
|                    |       | 9491  | Activities of religious organisations  |
|                    |       | 9492  | Activities of political organisations  |
|                    |       | 9499  | Activities of other membership organisations n.e.c.                          |
| <b>Division 95</b> |       |       | <b>Repair of computers and personal and household goods</b>                  |
|                    | 951   |       | Repair of computers and communication equipment                              |
|                    |       | 9511  | Repair of computers and peripheral equipment                                 |
|                    |       | 9512  | Repair of communication equipment  |
|                    | 952   |       | Repair of personal and household goods                                       |
|                    |       | 9521  | Repair of consumer electronics   |
|                    |       | 9522  | Repair of household appliances and home and garden equipment                 |
|                    |       | 9523  | Repair of footwear and leather goods   |
|                    |       | 9524  | Repair of furniture and home furnishings                                     |
|                    |       | 9529  | Repair of other personal and household goods                                 |
| <b>Division 96</b> |       |       | <b>Other personal service activities</b>                                     |
|                    |       | 9601  | Washing and (dry-) cleaning of textile and fur products                      |
|                    |       | 9602  | Hairdressing and other beauty treatment                                      |
|                    |       | 9603  | Funeral and related activities   |
|                    |       | 9609  | Other personal service activities n.e.c.                                     |

## Section T

### Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 97</b> |       |       | <b>Activities of households as employers of domestic personnel</b>                                 |
|                    | 970   | 9700  | Activities of households as employers of domestic personnel  |
| <b>Division 98</b> |       |       | <b>Undifferentiated goods- and services-producing activities of private households for own use</b> |
|                    | 981   | 9810  | Undifferentiated goods-producing activities of private households for own use                      |
|                    | 982   | 9820  | Undifferentiated service-producing activities of private households for own use                    |

## Section U

### Activities of extraterritorial organisations and bodies

| Division           | Group | Class | Description  |
|--------------------|-------|-------|--|
| <b>Division 99</b> |       |       | <b>Activities of extraterritorial organisations and bodies</b> |
|                    | 990   | 9900  | Activities of extraterritorial organisations and bodies        |

## 6. Sample of filling the questionnaire

### 6.1 Electricity supply

The following is the sample information of Company B. Please note that this reflects dummy – and not actual – data.

Table 5.2 Electricity Supply

| Date: 31 March 2020   |               |
|---|---------------|
| <b>Annual Electricity Supply<br/>Calendar Year 2019 (January 2019 to December 2019)</b> |               |
|   | Unit: GWh     |
| <b>Gross Generation</b>   | <b>16.205</b> |
| Hydro   | 14.000        |
| Biomass (Bagasse, etc.)   | 5             |
| Solar PV  | 0,001         |
| Oil   | 0             |
| Coal  | 2.200         |
|   |               |
| <b>Total Own Use<sup>1</sup></b>  | <b>590</b>    |
|   |               |
| <b>Net Generation</b>   | <b>15.615</b> |
| Hydro   | 14.000        |
| Biomass (Bagasse, etc.)   | 3             |
| Solar PV  | 0,001         |
| Oil   |               |
| Coal  | 1.612         |
|   |               |
| <b>Purchase from IPP<sup>2</sup></b>  | <b>1.000</b>  |
|   |               |
| <b>Total Imports</b>  | <b>2.000</b>  |
|   |               |
| <b>Total Exports</b>  | <b>12.000</b> |

|   |              |
|---|--------------|
|   |              |
| <b>Inland Deliveries/Sales</b>                      | <b>5.411</b> |
|   |              |
| <b>Total Transmission &amp; Distribution Losses</b> | <b>1.204</b> |
|   |              |
| <b>Fuel Used for Electricity Generation</b>         |              |
| Coal (tonnes)                                       | 135          |
| Oil (kl)  | 0            |
| Bagasse (tonnes)                                    | 100          |
|   |              |
| <b>Installed Capacity (MW)</b>                      | <b>4.200</b> |
| Hydro   | 1.600        |
| Biomass (Bagasse, etc.)                             | 600          |
| Solar PV  |              |
| Oil   |              |
| Coal  | 2.000        |

Note:

1. Electricity used by the generator for auxiliary services (e.g. lighting, coal grinders) and internal losses.

The cells highlighted in pink are linked cells from the 'Imports, Exports and Electricity Sales Electricité Du Laos (EDL)' tabs.

2. IPP = independent power producer

1) Gross Generation – Do not enter data in this row, which is automatically calculated by the formula: Hydro + Biomass (Bagasse, etc.) + Solar PV + Oil + Coal

- Hydro = 16,205 GWh; under 'Electricity Supply tab' in the questionnaire, enter '16,205 GWh' in the row 'Hydro, column Unit: GWh'.
- Biomass (Bagasse, etc.) = 5 GWh; under 'Electricity Supply tab' in the questionnaire, enter '5 GWh' in the row 'Biomass (Bagasse, etc.), column Unit: GWh'.
- Solar PV = 0.001 GWh; under 'Electricity Supply tab' in the questionnaire, enter '0.001 GWh' in the row 'Solar PV, column Unit: GWh'.
- Oil – In this example, Company B does not use oil to produce electricity. Under 'Electricity Supply tab' in the questionnaire, enter '0 GWh' in the row 'Oil, column Unit: GWh'.
- Coal = 2,200 GWh; under 'Electricity Supply tab' in the questionnaire, enter 2,200 GWh in the row 'Coal, column Unit: GWh'.

2) Total Own Use – In this example, Company B used 590 GWh for internal use. Under 'Electricity Supply tab' in the questionnaire, enter '590 GWh' in the row 'Total Own Use, column Unit: GWh'.

3) Net Generation – Do not enter data in this row, which is automatically calculated by the formula: Hydro + Biomass (Bagasse, etc.) + Solar PV + Oil + Coal

- Hydro = 14,000 GWh; under the 'Electricity Supply tab' of the questionnaire, enter '14,000 GWh' in the row 'Hydro, column Unit: GWh'.

- Biomass (Bagasse, etc.) = 3 GWh; under the 'Electricity Supply tab' of the questionnaire, enter '3 GWh' in the row 'Biomass (Bagasse, etc.)', column Unit: GWh'.
- Solar PV = 0.001 GWh; under the 'Electricity Supply tab' of the questionnaire, enter '0.001 GWh' in the row 'Solar PV, column Unit: GWh'.
- Oil – In this example, Company B has not used oil to produce electricity. In the questionnaire 'Electricity Supply tab', enter zero in the row 'Oil, column Unit: GWh'.

4) Purchase from Independent Power Producer (IPP) – In this example, Company B purchased 1,000 GWh. Under the 'Electricity Supply tab' of the questionnaire, enter '1,000 GWh' in the row 'Purchase from IPPs, column Unit: GWh'.

5) Total Imports – Do not enter data in this row. The cells highlighted in pink are linked to and automatically calculated from the 'Imports by Origin' tab, i.e. total electricity imported. Company B must enter data in the 'Imports by Origin' tab to fill the 'Total Import' row. In this example, Company B imported 2,000 GWh of electricity, i.e. Total Import = 2,000 GWh.

6) Total Exports – Do not enter data in this row. The cells highlighted in pink are linked to and automatically calculated from the 'Exports by Destination' tab, i.e. total electricity exported. Company B must enter data in the 'Exports by Destination' tab to fill the 'Total Export' row. In this example, Company B exported 12,000 GWh of electricity, i.e. Total Export = 12,000 GWh.

7) Inland Deliveries/Sales (for Electricité Du Laos [EDL]) – Do not enter data in this row. The cells highlighted in pink are linked to and automatically calculated from the 'Electricity Sales EDL' tab, i.e. total electricity sold. Company B (EDL) must enter data in the 'Electricity Sales EDL' tab to fill the 'Inland Deliveries/Sales' row. In this example, Company B (EDL) sold 5,411 GWh of electricity, i.e. Inland Deliveries/Sales = 5,411 GWh.

8) Inland Deliveries/Sales (to EDL – for IPP) – Enter data in this row for IPP as IPP does not have an 'Electricity Sale' tab. In this example, Company B (IPP) sold 4,411 GWh of electricity to EDL; enter 4,411 GWh in the row 'Sales to EDL, column Unit: GWh'.

9) Total Transmission and Distribution Losses – In this example, Company B has total transmission and distribution losses of 1,204 GWh of electricity, i.e. Total Transmission and Distribution Losses = 1,204 GWh.

10) Fuel Used for Electricity Generation – In this example, Company B has used the following fuels for electricity generation:

- Coal = 135 tonnes; under the 'Electricity Supply tab' of the questionnaire, enter '135 tonnes' in the row 'Coal (Tonnes), column Unit: GWh'.
- Oil – In this example, Company B has not used oil for electricity generation. Under the 'Electricity Supply tab' of the questionnaire, enter 0 Kl in the row 'Oil (Kl), column Unit: GWh'.
- Bagasse = 100 tonnes; under the 'Electricity Supply tab' of the questionnaire, enter '100 tonnes' in the row 'Bagasse, column Unit: GWh'.

11) Installed Capacity (MW) – Do not enter data in this row, which is automatically calculated by the formula: Hydro + Biomass (Bagasse, etc.) + Solar PV + Oil + Coal

- Hydro = 1,600 MW; under the 'Electricity Supply tab' of the questionnaire, enter '1,600 MW' in the row 'Hydro – Installed Capacity (MW), column Unit: GWh'.
- Biomass (Bagasse, etc.) = 600 MW; under the 'Electricity Supply tab' of the questionnaire, enter 600 MW in the row 'Biomass (Bagasse, etc.) – Installed Capacity (MW), column Unit: GWh'.
- Solar PV – In this example, Company B has not reported installed capacity for 'Solar PV'. On the questionnaire, enter '0 MW' in the row 'Solar PV – Installed Capacity (MW), column Unit: GWh'.
- Oil – In this example, Company B has not reported installed capacity for 'Oil'. On the questionnaire, enter '0 MW' in the row 'Oil – Installed Capacity (MW), column Unit: GWh'.
- Coal = 2,000 MW; under 'Electricity Supply tab' of the questionnaire, enter '2,000 MW' in the row 'Coal – Installed Capacity (MW), column Unit: GWh'.

12) Result of filling the 'Electricity Supply' tab of the questionnaire

Table 5.2 shows the filled questionnaire using the above information and instructions.

## 6.2 Electricity consumption

The following is the sample information of Company B. Please note that this reflects dummy – and not actual – data.

**Table 5.3 Electricity Consumption**

| Company name: Company B  |   |                        |
|--|---|------------------------|
| Date: 31 March 2020  |   |                        |
| Annual Electricity Sales by Sector - Unit in MWh<br>Calendar Year 2019 (January 2019 to December 2019) |   |                        |
| Sales classification   | ISIC Revision 4, 2008   | Electricity Sold (MWh) |
| <b>Agriculture</b>   |   | <b>35</b>              |
| Agriculture/Forestry   | Divisions 01 & 02   | 35                     |
| Fishing  | Division 03   |                        |
|  |   |                        |
| <b>Industrial</b>  |   | <b>2.536</b>           |
| Iron and steel   | Group 241 & Class 2431  |                        |
| Chemical and petrochemical   | Divisions 20 & 21   |                        |
| Non-ferrous metals   | Group 242 & Class 2432  |                        |
| Non-metallic minerals  | Division 23   |                        |
| Transport equipment  | Divisions 29 & 30   |                        |
| Machinery  | Divisions 25, 26, 27 & 28   |                        |
| Mining and quarrying   | Divisions 07 & 08   |                        |
| Food, beverages, and tobacco   | Divisions 10, 11 & 12   |                        |
| Paper, pulp, and printing  | Divisions 17 & 18   |                        |
| Wood and wood products   | Division 16   |                        |
| Construction   | Divisions 41, 42 & 43   |                        |
| Textiles and leather   | Divisions 13, 14 & 15   |                        |
| Not elsewhere specified (Industry)   | Divisions 22, 31 & 32   | 2.536                  |
|  |   |                        |
| <b>Transport</b>   | Divisions 49, 50 & 51   |                        |
| Rail   |   |                        |
| Domestic navigation  |   |                        |
| Not-specified (Transport)  |   |                        |
|  |   |                        |
| <b>Commercial and public services</b>  | Divisions 33 to 39, 45 to 47, 52 to 53, 55 to 56, 58 to 66, 68 to 96 & 99 | <b>1.000</b>           |
|  |   |                        |
| <b>Residential</b>   | Divisions 97 & 98   | <b>1.800</b>           |
|  |   |                        |
| <b>Other - Not elsewhere specified</b>   | Not included elsewhere above  | <b>40</b>              |
|  |   |                        |
| <b>Total Sold</b>  |   | <b>5.411</b>           |

**Notes:**

ISIC: International Standard Industries Classification of All Economic Activities (ISIC) Revision 4, Department of Economic and Social Affairs, Statistics Division, United Nations New York, 2008.

GST : Goods and Services Tax.

**Sources:**

This questionnaire is based on the International Energy Agency (IEA)'s electricity annual questionnaire in July 2019, Energy Statistics Division, and the classification is based on UN-DESA (2008).

1) Agriculture – Do not enter data in this row which is automatically calculated by the formula:  
Agriculture/Forestry + Fishing.

- Agriculture/Forestry – In this example, Company B sold electricity for 'Agriculture/Forestry', i.e. Agriculture/Forestry = 35 MWh. Enter '35 MWh' in this row.
- Fishing – Company B has not sold electricity for 'Fishing', i.e. Fishing = 0 MWh. Enter zero or leave the cell blank.

2) Industrial – Do not enter data in this row which is automatically calculated by the following formula: Iron and steel + Chemical and petrochemical + Non-ferrous metals + Non-metallic minerals



+ Transport equipment + Machinery + Mining and quarrying + Food, beverages, and tobacco + Paper, pulp, and printing + Wood and wood products + Construction + Textiles and leather + Not elsewhere specified (Industry)

- Industry – In this example, Company B has not sold electricity for the ‘Industry’ sector except for the category ‘Not elsewhere specified (Industry)’. Enter zero or leave the cells blank.
- Not elsewhere specified (Industry) – Company B has sold 2,536 MWh of electricity for the category that is not listed in the ‘Industry’ sector. The category ‘Not elsewhere specified (Industry)’ might be used, i.e. Not elsewhere specified (Industry)= 2,536 MWh.

3) Transport – Do not enter data in this row which is automatically calculated by the formula: Rail + Domestic Navigation + Not-specified (Transport)

- Rail – In this example, Company B has not sold electricity for ‘Rail’, i.e. Rail = 0 MWh. Enter zero in this row or leave the cell blank.
- Domestic navigation – Company B has not sold electricity for ‘Domestic navigation’, i.e. Domestic navigation = 0 MWh. Enter zero in this row or leave the cell blank.
- Not-specified (Transport) – In this example, Company B has not sold electricity for ‘Not-specified (Transport), i.e. Not-specified (Transport) = 0 MWh. Enter zero in this row or leave the cell blank.

4) Commercial and public services – In this example, Company B has sold 1,000 MWh of electricity for the ‘Commercial and public services’ sectors. Enter ‘1,000 MWh’ in this row.

5) Residential – In this example, Company B has sold 1,800 MWh of electricity for the ‘Residential’ sector. Enter ‘1,800 MWh’ in this row.

6) Other – Not elsewhere specified – In this example, Company B has sold 40 MWh of electricity for the sector that is not listed above, i.e. ‘Other – Not elsewhere specified’. Enter ‘40 MWh’ in this row.

7) Total sold – Do not enter data in this row which is automatically calculated by the formula: Agriculture + Industrial + Transport + Commercial and Public Services + Residential + ‘Other – Not elsewhere specified’.

8) Result of filling the ‘Electricity Consumption’ tab of the questionnaire

Table 5.3 shows the filled questionnaire using the above information and instructions.

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### 6.3 Imports by origin

If Company B imported electricity, enter the import data in the ‘Electricity Supply’ tab.

Note that this reflects dummy – not actual – data.

**Table 5.4 Imports by Origin**

| Company name: Company B<br>Date: 31 March 2020<br><br><b>Imports by Origin - Electricity</b><br><b>Calendar Year 2019 (January 2019 to December 2019)</b> |              |
|---|--------------|
|   | Unit: GWh    |
| <b>APEC Economies</b>   | <b>2.000</b> |
| Australia   |              |
| Brunei Darussalam   |              |
| Canada  |              |
| Chile   |              |
| China   | 800          |
| Hong Kong, China  |              |
| Indonesia   |              |
| Japan   |              |
| Republic of Korea   |              |
| Malaysia  |              |
| Mexico  |              |
| New Zealand   |              |
| Papua New Guinea  |              |
| Peru  |              |
| Philippines   |              |
| Russian Federation  |              |
| Singapore   |              |
| Chinese Taipei  |              |
| Thailand  | 500          |
| United States of America  |              |
| Viet Nam  | 700          |
| <b>ASEAN (non-APEC) Economies</b>   | <b>0</b>     |
| Myanmar   |              |
| Lao PDR   |              |
| <b>Cambodia</b>   |              |
| <b>Rest of the World</b>  | <b>0</b>     |
| Other Asia and Pacific  |              |
| Other Americas  |              |
| Europe & Former Soviet Union (excluding Russia)   |              |
| Middle East   |              |
| Africa  |              |
| Unknown   |              |
| <b>Total</b>  | <b>2.000</b> |

Note:

Please do not enter data on the cells highlighted in yellow. They are automatically calculated for the total coal imported from a group of economies or regions worldwide.

1) APEC Economies – Do not enter data in the cell highlighted in **yellow**. It is automatically calculated for the total electricity imported from a group of APEC economies.

- Import from China – In this example, Company B imported 800 GWh of ‘Electricity’ from China. Enter 800 GWh in this row.
- Import from Thailand – Company B imported 500 GWh of ‘Electricity’ from Thailand. Enter ‘500 GWh’ in this row.
- Import from Viet Nam – Company B imported 700 GWh of ‘Electricity’ from Viet Nam. Enter ‘700 GWh’ in this row.

2) ASEAN (non-APEC), Rest of the World, and Unknown Economies – Do not enter data in the cells highlighted in **yellow**. They are automatically calculated for the total electricity imported from a group of ASEAN (non-APEC) economies or regions globally.

Where no origin can be reported or where the country is not specified in the questionnaire, the category 'Unknown' may be used.

3) Total – Do not enter data in this row, which is automatically calculated by the formula: APEC Economies + ASEAN (non-APEC) + Rest of the World + Unknown

4) Result of filling the 'Import' tab of the questionnaire

Table 5.4 shows how to fill the 'Import' tab using the above information and instructions.

## 6.4 Exports by destination

If Company B exported electricity, enter the export data in this tab to show the total export in the 'Electricity Supply' tab. Note that dummy – and not actual – data is used in the example.

**Table 5.5 Exports by Destination**

| Company name: Company B<br>Date: 31 March 2020   |               |
|--|---------------|
| Exports by Destination - Electricity<br>Calendar Year 2019 (January 2019 to December 2019) |               |
|  | Unit: GWh     |
| <b>APEC Economies</b>  | <b>8.000</b>  |
| Australia  |               |
| Brunei Darussalam  |               |
| Canada   |               |
| Chile  |               |
| China  |               |
| Hong Kong, China   |               |
| Indonesia  |               |
| Japan  |               |
| Republic of Korea  |               |
| Malaysia   |               |
| Mexico   |               |
| New Zealand  |               |
| Papua New Guinea   |               |
| Peru   |               |
| Philippines  |               |
| Russian Federation   |               |
| Singapore  |               |
| Chinese Taipei   |               |
| Thailand   | 8.000         |
| United States of America   |               |
| Viet Nam   |               |
| <b>ASEAN (non-APEC) Economies</b>  | <b>4.000</b>  |
| Myanmar  |               |
| Lao PDR  |               |
| Cambodia   | 4.000         |
| <b>Rest of the World</b>   | <b>0</b>      |
| Other Asia and Pacific   |               |
| Other Americas   |               |
| Europe & Former Soviet Union (excluding Russia)  |               |
| Middle East  |               |
| Africa   |               |
| Unknown  |               |
| <b>Total</b>   | <b>12.000</b> |

Note:

Please do not enter data on the cells highlighted in yellow. They are automatically calculated for the total coal exported to a group of economies or regions worldwide.

1) APEC Economies – Do not enter data in the cell highlighted in **yellow**. It is automatically calculated for the total electricity exported to all APEC economies.

- Export to Thailand – In this example, Company B exported 8,000 GWh of 'Electricity' to Thailand. Enter 8,000 GWh in this row.

2) ASEAN (non-APEC) Economies – Do not enter data in the cell highlighted in yellow. It is automatically calculated from the total electricity exported to all ASEAN (non-APEC) economies.

- Export to Cambodia – In this example, Company B exported 4,000 GWh of ‘Electricity’ to Viet Nam. Enter ‘4,000 GWh’ in this row.

3) Rest of the World and Unknown Economies – Do not enter data in the cells highlighted in yellow. They are automatically calculated for the total electricity exported to regions globally.

Where no destination can be reported or where the country is not specified in the questionnaire, the category ‘Unknown’ may be used.

4) Total – Do not enter data in this row which is automatically calculated by the formula: APEC Economies + ASEAN (non-APEC) + Rest of the World + Unknown

5) Result of filling the ‘Export’ tab of the questionnaire

Table 5.5 shows how to fill the ‘Export’ tab using the above examples and instructions.

## References

International Energy Agency (IEA) (2005), *Energy Statistics Manual*. Paris: IEA.

United Nations Department of Economic and Social Affairs (UN-DESA) (2008), *International Standard Industries Classification of All Economic Activities (ISIC)*, Revision 4. New York: UN.