NATURAL GAS

ANNUAL QUESTIONNAIRE

2015

AND HISTORICAL REVISIONS

drafted: July 2016

Attached is the annual questionnaire for natural gas which provides for the submission of 2015 data and historical revisions where applicable. Administrations are requested to complete the questionnaire at the latest **30 September 2016**. Earlier submissions are welcome. The transmission deadline for countries reporting to Eurostat is 30 November 2016 (Regulation (EC) No 1099/2008 on energy statistics).

Please send your questionnaire to:

- International Energy Agency (IEA/OECD), Energy Data Centre
  (the IEA will forward the data to the United Nations Economic Commission for Europe in Geneva).
- European Commission, Eurostat, Energy Statistics
  (for EU Member States, EFTA countries, Candidate Countries and Potential Candidates*)*
- United Nations Statistics Division, Energy Statistics Section

Transmission details are provided in the "Data communication procedures" section.

Data communication procedures

IEA

31-35, rue de la Fédération, 75739, Paris, Cedex 15, France

Please complete data for your country on the Energy Data Management Center:
https://www.energydatacenter.org

Alternatively, send the questionnaire electronically to:

E-MAIL ADDRESS gasaq@iea.org

NOTE

For questions regarding the questionnaire, contact the e-mail above.

* *

Eurostat

European Commission – Eurostat, Unit E.5: Energy, [Name of person], 2920 Luxembourg
(for EU Member States, EFTA countries, Candidate Countries and Potential Candidates)

The completed questionnaire should be transmitted via the **Single Entry Point (SEP)** following the implementing procedures of **eDAMIS** (electronic Data files Administration and Management Information System): https://webgate.ec.europa.eu/edamis/

E-MAIL ADDRESS estat-energy@ec.europa.eu

NOTE

For questions regarding the questionnaire, contact Mr. Cristian Fetie, +352 4301 37347, CRISTIAN.FETIE@ec.europa.eu

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United Nations

United Nations Statistics Division, Energy Statistics Section
2 UN plaza, DC2-1414, New York, NY 10017, USA

The completed questionnaire should be transmitted by e-mail to:
Mr. Ralf Becker, Chief, Industrial and Energy Statistics Section, United Nations Statistics Division

E-MAIL ADDRESS energy_stat@un.org

NOTE

Fax: (1-212)-963-0623

REPORTING INSTRUCTIONS

Data should be reported for calendar years. If fiscal year data have to be used, please state this clearly and specify the period covered.

For consistency between administrations and to conform with computer software, the data reported in this questionnaire should be in whole numbers (i.e. no decimals or fractions) in the unit shown for each table.

The definitions and reporting conventions used in this questionnaire are the same as those used in the other annual questionnaires (Coal, Oil, Renewables and Electricity and heat). Please ensure that data on fuel used for electricity and heat production reported in this questionnaire are consistent with those reported for the same categories in the Electricity and heat questionnaire.

Please report all data using Gross calorific values except when specifically mentioned that Net calorific values should be used.

Where data are not available, estimates should be given and identified as such in the Remarks page. Any data reported under Not elsewhere specified should be explained in the Remarks page.

INTERNATIONAL STANDARD INDUSTRIAL CLASSIFICATION

In 2008, the United Nations and the European Commission have published in parallel their revised classification codes.

- United Nations:

  International Standard Industrial Classification of all Economic Activities – ISIC, Rev.4

- European Commission:

  Statistical classification of economic activities in the European Community – NACE, Rev.2

Eurostat and the International Energy Agency jointly produced a correspondence table aimed at providing continuity of time series and have updated the references in the joint questionnaires accordingly.

UNITS

Data should be reported in **Terajoules (TJ) on the basis of Gross calorific values (GCV) and in million cubic metres (at 15^{o}C and 760 mm Hg, i.e. Standard Conditions)** except for Table 2, **Inland consumption by sector,** which is requested in TJ (GCV) only.

Report all figures to the nearest whole number of million cubic metres and terajoules.

(Examples: eighteen million four hundred and thirty-six thousand and one hundred and fifty-six cubic metres should be reported as "18"; one million seven hundred and twenty-eight and three hundred cubic metres should be reported as "2"; eighteen million five hundred thousand cubic metres should be reported as "18" or "19", as required to ensure that rounded figures add to totals where relevant.)

DEFINITION OF NATURAL GAS

Natural gas comprises gases, occurring in underground deposits, whether liquefied or gaseous, consisting mainly of methane. It includes both "non-associated" gas originating from fields producing hydrocarbons only in gaseous form, and "associated" gas produced in association with crude oil as well as methane recovered from coal mines (colliery gas) or from coal seams (coal seam gas). Biogases produced by anaerobic digestion of biomass (e.g. municipal or sewage gas) should be reported in the Renewables annual questionnaire, while gas works gas production should be reported in the Coal annual questionnaire. Transfers of such production to the natural gas network will be reported as “Receipts from other sources”.

GEOGRAPHICAL NOTES

Australia excludes the overseas territories;

Denmark excludes the Faroe Islands and Greenland;

France includes Monaco and excludes the following overseas departments and territories: French Guiana, French Polynesia, Guadeloupe, Martinique, Mayotte, New Caledonia, Réunion, Saint-Pierre and Miquelon, and Wallis and Futuna;

Italy includes San Marino and the Holy See;

Japan includes Okinawa;

The Netherlands excludes Aruba, Curaçao, Suriname and the other former Netherland Antilles (Bonaire, Saba, Saint Eustatius and Sint Maarten);

Portugal includes the Azores and Madeira;

Spain includes the Canary Islands;

Switzerland does not include Liechtenstein;

United States includes the 50 states and the District of Columbia.

INSTRUCTIONS FOR COMPLETING INDIVIDUAL TABLES IN THE QUESTIONNAIRE

TABLE 1
SUPPLY OF NATURAL GAS

1. Indigenous production

All dry marketable production within national boundaries, including offshore production. Production is measured after purification and extraction of NGLs and sulphur. Extraction losses and quantities reinjected, vented or flared are not included. Production includes quantities used within the natural gas industry; in gas extraction, pipeline systems and processing plants. Quantities vented and/or flared should be shown separately as memo items on table 1 (lines 17 and 18).

- Associated gas: natural gas produced in association with crude oil.
- Non-associated gas: natural gas originating from fields producing hydrocarbons only in gaseous form.
- Colliery and coal seam gas: methane produced at coal mines or from coal seams, piped to the surface and consumed at collieries or transmitted by pipeline to consumers.

2. Receipts from other sources:

Report supplies of fuel of which production is covered in other fuel energy balances, but which are blended with natural gas, and consumed as a blend. Further details of this component are to be provided as memo items:

Memo items: Receipts from other sources

- **Oil**: LPG for upgrading the quality e.g. heat content
- **Coal**: manufactured gas for blending with natural gas
- **Renewables**: biogas for blending with natural gas

3. Imports and Exports

Amounts are regarded as imported or exported when they have crossed the political boundaries of the country, whether customs clearance has taken place or not. Data should be taken from declarations from importers and exporters, although these may not be identical with customs data. Imports of liquefied natural gas should cover only dry marketable equivalent, including amounts used as own consumption in the regasification process. The amounts used as own consumption during regasification should be reported under Liquefaction/regasification in the Energy sector. Any gas liquids (e.g. LPG) extracted during the regasification process should be reported under inputs "Receipts from other sources" of "Other hydrocarbons" in the Annual oil questionnaire.

- Tables 3 and 4 concern imports of gas by ultimate origin for use in the country, and exports of domestically produced gas by ultimate destination.
- Imports and Exports reported in Table 1 should correspond to Total imports and Total exports on each of Tables 3 and 4 respectively.

4. International marine bunkers

Report the quantities of LNG or natural gas used by ships of all flags that are engaged in international navigation. The international navigation may take place at sea, on inland lakes and waterways, and in coastal waters. Exclude consumption by ships engaged in domestic navigation (see Domestic navigation). The domestic/international split should be determined on the basis of port of departure and port of arrival, and not by the flag or nationality of the ship. Exclude consumption by fishing vessels (see Other sectors - Fishing) and consumption by military forces (see Not elsewhere specified – Other sectors).

5. Stock changes

This is the change in stock level of recoverable gas; the difference between opening stock level at the first day of the year and closing stock level at the last day of the year of stocks held on national territory. A stock build is shown as a negative number and a stock draw as a positive number. Note that additions to and withdrawals from LNG storage should also be included here.

6. Inland consumption (Calculated)

This is defined as:

+ Indigenous production

+ Receipts from other sources

+ Imports (Balance)

- Exports (Balance)

- International marine bunkers

+ Stock changes

7. Statistical difference

This is the difference between calculated and observed inland consumption. National administrations sometimes obtain the data components of domestic availability from a variety of sources. Owing to differences in concepts, coverage, timing and definitions, observed and calculated inland consumption are often not identical. Reasons for any major statistical difference should be stated in the section provided for on the Remarks page.

8. Inland consumption (Observed)

This category represents deliveries of marketable gas to the inland market, including gas used by the gas industry for heating and operation of their equipment (i.e. consumption in gas extraction, in the pipeline system and in processing plants) and including losses in distribution.

Note: Inland consumption as reported on Table 1 (cell 12B) should correspond to inland consumption of Table 2a (cell 1A). Please note the method by which this item is calculated: inland consumption of natural gas includes all ***own use.***

9. Recoverable gas

Total volume of gas in excess of cushion gas that is available for delivery during any input-output cycle.

10. Stock levels

Stock levels: this refers to recoverable natural gas stored in special storage facilities (depleted gas and/or oil field, aquifer, salt cavity, mixed caverns, or other) as well as liquefied natural gas storage. Cushion gas should be excluded.

Opening and Closing stock levels (national territory): Please report all natural gas stored on your national territory whether it belongs to your country or to another country.

Opening and Closing stock levels (held abroad): Please report all natural gas that is stored in a third country but belongs to your country. The remarks page should be used to indicate in which country these stocks are held. These quantities are not included in the stock levels reported in "Opening and Closing stock levels [National Territory]".

11. Gas vented

The volume of gas released into the air on the production site or at the gas processing plant.

12. Gas flared

The volume of gas burned in flares on the production site or at the gas processing plant.

13. Cushion gas

Total volume of gas required as a permanent inventory to maintain adequate underground storage reservoir pressures and deliverability rates throughout the output cycle.

TABLE 2
CONSUMPTION BY SECTOR

I. TRANSFORMATION SECTOR:

For a proper appreciation of the reporting of ***natural gas*** used in the generation of electricity and heat, respondents are urged to read the notes relating to this sector in Annex 2.

1. Main activity producer electricity plants

Report quantities of natural gas used to produce electricity. Fuels used by plants containing at least one CHP unit are to be reported under *Main activity producer combined heat and power plants*.

2. Autoproducer electricity plants

Report quantities of natural gas used to produce electricity. Fuel used by plants containing at least one CHP unit is to be reported under *Autoproducer combined heat and power plants*.

3. Main activity producer combined heat and power (CHP) plants

Report quantities of natural gas used to produce electricity and heat.

4. Autoproducer combined heat and power (CHP) plants

Report quantities of natural gas that correspond to the quantity of electricity produced and heat sold.

5. Main activity producer heat plants

Report quantities of natural gas used to produce heat.

6. Autoproducer heat plants

Report quantities of natural gas that correspond to the quantity of heat sold.

7. Gas works (and other conversion to gases)

Report quantities of natural gas used to produce gas at gas works and gasification plants. Fuel used for heating and operation of equipment should not be reported here, but reported as consumption in the Energy sector.

8. Coke ovens

Report quantities of natural gas used in coke ovens. Fuel used for heating and operation of equipment should not be reported here, but reported as consumption in the Energy sector.

9. Blast furnaces

Report quantities of natural gas used in blast furnaces. Natural gas used for heating and operation of equipment should not be reported here, but reported as consumption in the Energy sector. To avoid double counting, natural gas used in blast furnaces should not be reported in the Iron and steel sector.

10. Gas-to-liquids (GTL)

Report quantities of natural gas used as feedstock for the conversion to liquids e.g. the quantities of fuel entering the methanol production process for transformation into methanol. The output of liquids from this transformation process should be reported under inputs "Receipts from other sources" in the Annual oil questionnaire.

11. Not elsewhere specified – Transformation

Data should be reported here only as a last resort. If a final breakdown into the above sectors is not available, administrations should explain on the Remarks page the basis for any estimates.

II. ENERGY SECTOR

Report natural gas consumed by the Energy sector to support extraction (mining, oil and gas production) or plant operation of transformation activities. For example: natural gas consumed for heating, or operating pumps or compressors. This Energy sector includes ISIC[1] divisions 05, 06, 19, 35, group 091, classes 0892 and 0721 (NACE[2] divisions 05, 06, 19, 35, group 09.1, classes 08.92 and 07.21).

Quantities of natural gas transformed into another energy form should be reported under the Transformation sector. Natural gas consumed in support of the operation of oil and gas pipelines should be reported in the Transport sector.

The Energy sector includes the manufacture of chemical materials for atomic fission and fusion and the products of these processes.

1. Coal mines

Report natural gas consumed as fuel to support the extraction and preparation of coal within the coal mining industry.

2. Oil and gas extraction

Report natural gas consumed as fuel in the oil and gas extraction process and in natural gas processing plants. Pipeline losses should be reported as Distribution losses.

3. Oil refineries

Report natural gas consumed as fuel at oil refineries.

4. Coke ovens

Report natural gas consumed as fuel at coking plants.

5. Blast furnaces

Report natural gas consumed in blast furnaces operations.

6. Gas works (and other conversion to gases)

Report natural gas consumed as fuel at gas works and coal gasification plants.

7. Electricity, CHP and heat plants

Report natural gas consumed as fuel at electricity plants, combined heat and power plants, and heat plants.

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1. International Standard Industrial Classification of All Economic Activity, Series M, No. 4/Rev.4 United Nations, New York, 2008.

8. Liquefaction (LNG) / regasification

Report natural gas consumed as fuel at gas liquefaction and regasification plants.

9. Gas-to-liquids (GTL)

Report natural gas consumed as fuel at the Gas-to-liquids conversion plants.

10. Not elsewhere specified – Energy

Data should be reported here only as a last resort. Report energy activities not included elsewhere. If a final breakdown into the above sectors is not available, administrations should explain on the Remarks page the basis for any estimates.

III. DISTRIBUTION LOSSES:

Report losses due to transport and distribution as well as pipeline losses. Natural gas used to operate the pipelines should be reported in the Transport sector.

IV. TOTAL FINAL CONSUMPTION

Final consumption is the sum of consumption by the different end-use sectors (in the Transport, Industry and Other sectors). It includes both energy and non-energy use. It excludes deliveries for transformation and/or use by the energy producing industries.

Energy use: Report by sector all energy use of natural gas. Report amounts of energy consumed as fuel for petrochemical processes such as steam cracking, ammonia production and methanol production.

Non-energy use: Report by sector non-energy use of natural gas. This category includes feedstocks in processes such as cracking and reforming for the purpose of producing ethylene, propylene, butylene, aromatics, butadene and other non-energy hydrocarbon-based raw materials. Do not include amounts of energy consumed as fuel for petrochemical processes such as steam cracking, ammonia production and methanol production.

V. TRANSPORT SECTOR

Report natural gas used for all transport activity irrespective of the economic sector, in which the activity occurs (except for military fuel use, see Not elsewhere specified - Other). ISIC and NACE divisions 49, 50 and 51.

1. Road

Report compressed natural gas (CNG) for use in road vehicles. Include natural gas used by agricultural vehicles on highways. Exclude natural gas consumed in stationary engines, which should be reported under Not elsewhere specified - Other.

of which biogas: Report amounts of biogas included in road consumption.

2. Pipeline transport

Report natural gas used as energy in the support and operation of pipelines transporting gases, liquids, slurries and other commodities, including the energy used for pump stations and maintenance of the pipeline. Natural gas used as energy for the pipeline distribution of natural or manufactured gas, hot water or steam (ISIC 35) from the distributor to final users is excluded and should be reported in the Energy sector, while the gas used for the final distribution of water (ISIC 36) to households, industrial, commercial and other users should be included in the Commercial/public sector. Losses occurring during this transport between distributor and final users should be reported as Distribution losses.

3. Not elsewhere specified – Transport

Report natural gas used for transport activities not included elsewhere. Please state on the Remarks page what is included under this heading.

VI. INDUSTRY SECTOR

Report natural gas consumed by the industrial undertaking in support of its primary activities.

Report quantities of natural gas consumed in heat and CHP plants for the production of heat used by the plant itself. Quantities of natural gas consumed for the production of heat that is sold, and for the production of electricity, should be reported under the appropriate Transformation sector.

1. Iron and steel

ISIC group 241 and class 2431 (NACE groups 24.1, 24.2, 24.3 and classes 24.51 and 24.52). To avoid double counting, natural gas used in blast furnaces should be reported in the Energy or Transformation sector, depending on its use.

2. Chemical and petrochemical

ISIC and NACE divisions 20 and 21. Includes gas used as fuel (energy use) and feedstock (non-energy use) in the petrochemical industry.

3. Non-ferrous metals

ISIC group 242 and class 2432 (NACE group 24.4 and classes 24.53, 24.54).

4. Non-metallic minerals

ISIC and NACE division 23. Report glass, ceramic, cement and other building materials industries.

5. Transport equipment

ISIC and NACE divisions 29 and 30.

6. Machinery

ISIC and NACE divisions 25, 26, 27 and 28. Report fabricated metal products, machinery and equipment other than transport equipment.

7. Mining (excluding energy producing industries) and quarrying

ISIC divisions 07, 08 and group 099 (NACE divisions 07, 08 and group 09.9).

8. Food, beverages and tobacco

ISIC and NACE divisions 10, 11 and 12.

9. Paper, pulp and printing

ISIC and NACE divisions 17 and 18. Includes reproduction of recorded media.

10. Wood and wood products (other than pulp and paper)

ISIC and NACE division 16.

11. Construction

ISIC and NACE divisions 41, 42 and 43.

12. Textile and leather

ISIC and NACE divisions 13, 14 and 15.

13. Not elsewhere specified – Industry

If your country's industrial classification of natural gas consumption does not correspond to the above ISIC (or NACE) codes, please estimate the breakdown by industry and include in Not elsewhere specified only consumption in sectors which is not covered above. ISIC and NACE divisions 22, 31 and 32.

VII. OTHER SECTORS

1. Commercial and public services

ISIC and NACE divisions 33, 36-39, 45-47, 52, 53, 55, 56, 58-66, 68-75, 77-82, 84 (excluding ISIC class 8422, NACE class 84.22), 85-88, 90-96 and 99. Report natural gas consumed by businesses and offices in the public and private sectors.

Note: Natural gas used for heating and lighting at railway, bus stations, shipping piers and airports is to be reported in this category and should not be shown in the Transport sector.

2. Residential

ISIC and NACE divisions 97 and 98. Report natural gas consumed by all households including "households with employed persons".

3. Agriculture/forestry

ISIC and NACE divisions 01 and 02. Report natural gas consumed by users classified as agriculture, hunting and forestry.

4. Fishing

Report natural gas used for inland, coastal and deep-sea fishing. Fishing should cover fuels delivered to ships of all flags that have refueled in the country (include international fishing). Also include energy used in the fishing industry as specified in ISIC and NACE division 03.

5. Not elsewhere specified – Other

Report activities not included elsewhere. This category includes military fuel use for all mobile and stationary consumption (e.g. ships, aircraft, road and energy used in living quarters), regardless of whether the fuel delivered is for the military of that country or for the military of another country. Please specify on the Remarks page what is included under this heading.

TABLES 3 AND 4
IMPORTS BY ORIGIN AND EXPORTS BY DESTINATION

For geographical coverage of OECD countries, please refer to page 3. The following geographical definitions are used in Tables 3 and 4.

In general imports and exports should be reported on the following basis:

Imports: Imports of gas should be reported by ultimate origin (the country in which the natural gas was produced). Only imports destined for use in the country are considered.

Exports: Only report exports of domestically produced gas. Exports should be reported by ultimate destination (the country in which the natural gas will be consumed). Gas transiting your country should not be included.

The following particular points should also be noted:

Swap deals: Where a country has agreed to swap gas with another country then both countries are to report the import and origin of the gas physically imported for use within the country. For example, country A has a contract with Algeria to import gas, but swaps this gas with country B for gas from Norway. Country A reports imports from Norway, country B reports the imports from Algeria.

Spot purchases: Please report the ultimate origin and ultimate destination of spot purchase. In the case of purchases from an exchange point or hub, please report amounts imported from each origin on the basis of the average supply to the hub or exchange point.

Regasified LNG destined for a third country: This particular case may be handled by the reporting country as follows: Imported LNG which is regasified in your country and subsequently exported to another country should be considered as an import of LNG into your country and as an export of gas to the country of destination.

Please use data from declarations of importers and exporters, although these may not be identical to customs data.

Only in cases where it is impossible to identify or estimate (from physical flows for example) the ultimate origin and/or destination or where the country is not specified should the country "Not elsewhere specified" be used.

TABLE 5
GAS STORAGE CAPACITY

Gas security is becoming an increasingly important energy policy issue in gas consuming countries. For this reason, it is important that the gas storage capacity and the peak output is known. Please complete this table with data at end-2016 (if data are not available for this period, please report the latest available data and indicate the relevant period). This table should be completed with details of both gaseous natural gas storage and liquefied natural gas storage.

In the first column, **Name**, please indicate the location or site of the storage.

For gaseous natural gas:

In the second column please indicate which **type** of storage the gas is held in. There are three main types of storage in use:

- Depleted oil and gas fields are naturally capable of containing the gas and have existing installations for the injection and withdrawal of the gas.
- Aquifers may be used as storage reservoirs provided that they have suitable geological characteristics. The porous sedimentary layer must be overlaid by an impermeable cap rock.
- Salt cavities may exist naturally or be formed by injecting water and removing the brine. They are generally smaller than the reservoirs provided by depleted oil and gas fields or aquifers but offer very good withdrawal rates and are well suited for peak-shaving requirements.

For LNG:

Please indicate in the second column whether the storage is above, in or below ground and the number of storage tanks of the facility.

In the third column please indicate the **working capacity** of the storage facility in million cubic metres (Million m^3).

- **Working capacity**: total gas storage capacity minus cushion gas.
- **Cushion gas**: total volume of gas required as a permanent inventory to maintain adequate underground storage reservoir pressures and deliverability rates throughout the output cycle.

The fourth column should show the **peak output** in million cubic metres per day (Million m^3/day).

- **Peak output**: the maximum rate at which gas can be withdrawn from storage.

ANNEX 1: IMPORT ORIGINS AND EXPORT DESTINATIONS

The following list shows the countries which are not separately identified as import origins or export destinations in Tables 3 and 4. They should be grouped in the category under which they are classified.

NATURAL GAS IMPORTS

Other Asia and Oceania
Afghanistan
Bangladesh
Bhutan
Cambodia
Democratic People's Republic of Korea
Fiji
Kiribati
Lao People's Democratic Republic
Macau, China
Maldives
Mongolia
Nauru
Nepal
Pakistan
Palau
Philippines
Solomon Islands
Sri Lanka
Chinese Taipei
Thailand
Tonga
Tuvalu
Vanuatu

Other Former Soviet Union
Armenia
Belarus
Georgia
Kyrgyzstan
Moldova
Tajikistan

NATURAL GAS EXPORTS

Other Non-OECD Americas
Antigua and Barbuda
Aruba
Bahamas
Barbados
Belize
Bermuda
Bolivia
Cayman Islands
Costa Rica
Colombia
Cuba
Curaçao
Dominica
Ecuador
El Salvador
Falkland Islands (Malvinas)
Grenada
Guatemala
Guyana
Haiti
Honduras
Jamaica
Nicaragua
other former Netherland Antilles (Bonaire, Saba, Saint Eustatius and Sint Maarten)
Panama
Paraguay
Peru
Saint Kitts and Nevis
Saint Lucia
Saint Vincent and the Grenadines
Suriname
Trinidad and Tobago
Turks and Caicos Islands
Uruguay
Venezuela

Other Former Soviet Union
Azerbaijan
Turkmenistan

ANNEX 2: DEFINITIONS FOR ELECTRICITY AND HEAT

The questionnaires seek information on the fuel requirements for, and the generation of electricity and heat according to producer and generating plant types.

Types of producer:

Producers are classified according to the purpose of production:

- ***Main activity producer*** undertakings 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.
- ***Autoproducer*** undertakings generate electricity and/or heat, wholly or partly for their own use as an activity which supports their primary activity. They may be privately or publicly owned.

Types of Plant:

The separation of fuel use and electricity/heat generation statistics according to the type of plant (i.e. electricity, heat or combined electricity and heat) will normally be conducted using statistics collected at the plant level, i.e. generating stations comprising one or more generating sets or units. The definitions given below have been prepared on this assumption. However, when a country has data for the electricity and heat output and fuel inputs for ***each of the generating units*** within a plant, these data should be used to prepare the report. In this case the definitions set out below will need to be interpreted on the unit basis rather than on the plant basis.

- ***Electricity plant*** refers to a plant which is designed to produce only electricity. If one or more units of the plant are CHP units (*see below*) then the whole plant is designated as a CHP plant.
- ***Combined heat and power (CHP) plant*** refers to a plant which is designed to produce both heat and electricity. It is sometimes referred to as a co-generation power station. If possible, fuel inputs ***and*** electricity/heat outputs should be reported on a unit basis rather than on a plant basis. However, if data are not available on a unit basis, the convention for defining a CHP plant noted above should be adopted.
- ***Heat plant*** refers to a plant which is designed to produce only heat. Note: Heat delivered from CHP or Heat plants may be used for process or space heating purposes in any sector of economic activity including the Residential sector.

It should be noted that:

- ***Electricity*** production reported for *Autoproducer electricity* or *Autoproducer CHP* should be the total quantity of electricity generated.
- All ***heat*** production from *Main activity producer - CHP* and *Main activity producer - Heat* plants should be reported. However, heat production reported for *Autoproducer CHP* and *Autoproducer heat* plants should comprise only the heat sold to third parties. Heat consumed by autoproducers should not be included.
- Report in the transformation sector only those quantities of fuels used to generate the amounts of electricity and heat reported in the questionnaire. The quantities of fuel consumed for the production of heat which is not sold will remain in the figures for the final consumption of fuels by the relevant sector of economic activity.

The reporting requirements for *transformation sector* activities can be summarised schematically as follows:

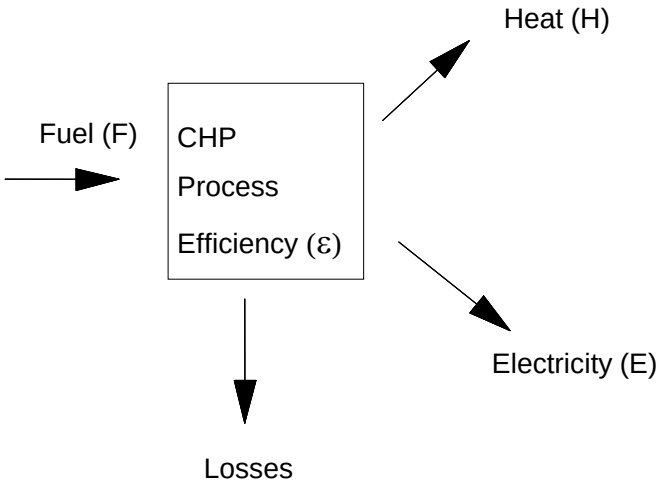
<table>
<tr><th></th><th>Electricity plant</th><th>CHP plant</th><th>Heat plant</th></tr>
<tr><td>Main activity producer</td><td rowspan="2">Report all production and all fuel used</td><td>Report all electricity and heat produced and all fuel used</td><td>Report all heat produced and all fuel used</td></tr>
<tr><td>Autoproducer</td><td>Report all electricity produced and only heat sold with corresponding fuel used</td><td>Report only heat sold and corresponding fuel used</td></tr>
</table>

In this questionnaire the term **Combustible fuels** refers to fuels that are capable of igniting or burning, i.e. reacting with oxygen to produce a significant rise in temperature.

METHODOLOGY FOR APPORTIONING FUEL INPUT IN A CHP PLANT

In cases where national administrations have not adopted a methodology for this purpose, the following approach is proposed where the fuel input is divided between electricity and heat in proportion to their shares of the CHP useful energy output.

In CHP units the relationship between the fuel input and the output electricity and heat, without regard to the type of thermodynamic process, may be modelled simply in the diagram below.



The following relationship defining overall efficiency (ε) is:

$$\varepsilon = (H + E) / F$$

The definition given proposes that the imputed fuel use for electricity, F_e , and (as a consequence) that for heat, F_h , are:

$$F_e = F - H / \varepsilon = F (E / (E + H))$$

$$F_h = F - E / \varepsilon = F (H / (E + H))$$

The formula should be used only where national administrations have not already adopted a methodology for the purpose of reporting CHP on a unit basis.

ANNEX 3: LIST OF ABBREVIATIONS

CHP	combined heat and power (plant)
CNG	compressed natural gas
EU	European Union
GCV	gross calorifc value
GTL	gas-to-liquids
IEA	International Energy Agency
ISIC	International Standard Industrial Classification
kJ/m3	kilojoule per cubic metre
LNG	liquefied natural gas
LPG	liquefied petroleum gas; refers to propane, butane and their isomers, which are gases at atmospheric pressure and normal temperature
m3	cubic metres
mm Hg	millimetres of mercury
NACE	Statistical Classification of Economic Activities in the European Community
NCV	net calorific value
NGL	natural gas liquids
OECD	Organisation for Economic Co-Operation and Development
TJ	Terajoules
UN	United Nations
UNSD	United Nations Statistics Division

ANNEX 4: TABLE RELATIONS IN THE NATURAL GAS QUESTIONNAIRE