



NATURAL GAS ANNUAL QUESTIONNAIRE 2009 AND HISTORICAL REVISIONS

drafted: July 2010

Attached is the annual questionnaire for natural gas which provides for the submission of 2009 data and historical revisions where applicable. Administrations are requested to complete the questionnaire at the latest **September 30th 2010**. Earlier submissions are welcome. Please send your questionnaire to:

- International Energy Agency (IEA/OECD), Energy Statistics Division
(the IEA will forward the data to the United Nations Economic Commission for Europe in Geneva).
- Commission of the European Communities, Eurostat, Energy and Transport Statistics
(for Member States of the European Union, EU Candidate Countries and EFTA Countries)
- United Nations Statistics Division, Energy Statistics Section

Transmission details are provided in the “Data Communication Procedures” section.

* *La version française du questionnaire est disponible auprès du Secrétariat.*

Data Communication Procedures

IEA

9, rue de la Fédération, 75739, Paris, Cedex 15, France

Please complete data for your country on the Energy Data Center:

<https://www.energydatacenter.org>

Alternatively, send the questionnaire electronically to: gasaq@iea.org

NOTE

For questions regarding the questionnaire, contact Ms. Mieke Reece

e-mail: mieke.reece@iea.org Telephone: + 33 1 40 57 66 32

For technical support during the submission process, contact Mr. Einar Einarsson:

e-mail: einar.einarsson@iea.org Telephone: + 33 1 40 57 66 62 (24-hour Voice Mail)

Eurostat

Bâtiment Jean Monnet, Plateau du Kirchberg, L-2920, Luxembourg

(for EU Member States , EU Candidate Countries and EFTA Countries)

The completed questionnaire should be transmitted by electronic mail to:

Head of Unit, Energy and Transport Statistics, Eurostat, Commission of the European Communities

E-MAIL ADDRESS

estat-energy@ec.europa.eu

NOTE

For questions regarding the questionnaire, contact Ms. Antigone Gikas et Ms. Ruxandra Roman-Enescu

e-mail: antigone.gikas@ec.europa.eu et ruxandra.roman-enescu@ec.europa.eu

Telephone: + 352 4301 35813

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 electronic mail to:

Ms. Ilaria DiMatteo, Chief, 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 values should be used.

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.

PRODUCT DEFINITION AND UNITS

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 Annual Questionnaire on Renewables and Wastes, 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 inputs "From Other Sources".

Data should be reported in **Terajoules (TJ) on the basis of gross calorific values (GCV) and in million cubic metres (at 15°C and 760 mm Hg, i.e. Standard Conditions)** except for Table 2, **Net Inland Consumption by Sector**, which is requested in TJ (GCV) only.

GEOGRAPHICAL NOTES

Australia excludes the overseas territories;

Denmark excludes the Danish Faroes and Greenland;

France includes Monaco and excludes the overseas territories Guadeloupe, Martinique, French Guyana, Reunion, St.-Pierre and Miquelon, New Caledonia, French Polynesia, Wallis and Futuna, and Mayotte;

Italy includes San Marino and the Vatican;

Japan includes Okinawa;

The Netherlands excludes Suriname and the Netherlands Antilles;

Portugal includes the Açores and Madeira;

Spain includes the Canary Islands, the Balearic Islands, and Ceuta and Melilla;

Switzerland does not include Liechtenstein;

The United States includes the 50 states and 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 15 and 16).

- 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. 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: From Other Sources

- of which from Oil: LPG for upgrading the quality e.g. heat content
- of which from Coal: manufactured gas for blending with natural gas
- of which from 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 the total 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 "From Other Sources" 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 Sector - Fishing) and consumption by military forces (see Other Sector- Not Elsewhere Specified - Other).

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.

6. Inland Consumption

(calculated) is defined as:

- + Indigenous Production
- + From Other Sources
- + Imports
- Exports
- 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

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.

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 note "Definitions for Electricity and Heat" reproduced in Annex 1.

1. Main Activity Producer Electricity Plants

(formerly known as Public Electricity Plants)

Report quantities of natural gas used (Fuels used by plants containing at least one CHP unit are to be reported under *Main activity producer CHP*).

2. Autoproducer Electricity Plants

Report quantities of natural gas used. (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

(formerly known as Public CHP Plants)

Report quantities of natural gas used.

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

(formerly known as Public Heat Plants)

Report quantities of natural gas used.

6. Autoproducer Heat Plants

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

7. Gas Works

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. To avoid double counting, natural gas used in blast furnaces should not be reported in Industry, Iron and Steel.

10. Gas-to-Liquid

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 "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 sub-sectors is not available, administrations should provide estimates wherever possible. Please inform the Secretariat of the basis for these estimates.

II. ENERGY SECTOR:

Report natural gas consumed by the energy industry to support extraction (mining, oil and gas production) or transformation activity. For example: natural gas consumed for heating, or operating pumps or compressors. ISIC¹ Divisions 05, 06, 19 and 35 + Group 091 + Class 0892 and 0721 (NACE² Divisions 05, 06, 19 and 35 + Group 09.1 + Class 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.

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, and natural gas used to operate the pipelines should be reported in the Transport sector.

3. Petroleum Refineries

Report natural gas consumed as fuel at petroleum 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

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 electric plants, combined heat and power plants, and heat plants.

8. Liquefaction (LNG) / Regasification

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

9. Gas-to-Liquid

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

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

2. Statistical classification of the economic activities in the European Community (NACE), Rev. 2 (NACE Rev. 2), EC-Eurostat, 2008.

10. Not Elsewhere Specified – Energy

Report energy activities not included elsewhere. Please state on the Remarks page what is included under this heading.

III. DISTRIBUTION LOSSES:

Report losses due to transport and distribution as well as pipeline losses (see above ‘Oil and Gas Extraction’).

IV. FINAL CONSUMPTION:

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

Non-Energy Use: Report by sector and sub-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, butadiene 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.

Energy Use: Report by sector and sub-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.

V. TRANSPORT SECTOR:

Report natural gas consumed for all transport activity irrespective of the economic sector in which the activity occurs. ISIC Divisions 49-51. (NACE Divisions 49-51).

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 ‘Other Sectors’.

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 household, 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 only 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. To avoid double counting, natural gas used in blast furnaces should be reported in the Energy or Transformation sector, depending on its use (NACE Divisions 24.1, 24.2, 24.3, 24.51 and 24.52).

2. Chemicals including Petrochemicals

ISIC Division 20, 21. (NACE Division 20, 21). Includes gas used as feedstock 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 Mineral Products

ISIC Division 23. (NACE Division 23). Report glass, ceramic, cement and other building materials industries.

5. Transport Equipment

ISIC Divisions 29 and 30. (NACE Divisions 29 and 30).

6. Machinery

Report fabricated metal products, machinery and equipment other than transport equipment. ISIC Divisions 25-28. (NACE Divisions 25-28).

7. Mining (excluding energy producing industries) and Quarrying

ISIC Divisions 07 and 08. (NACE Divisions 07 and 08).

8. Food Processing, Beverages and Tobacco

ISIC Divisions 10-12. (NACE Divisions 10-12).

9. Pulp, Paper and Printing

Includes reproduction of recorded media. ISIC Divisions 17 and 18. (NACE Divisions 17 and 18).

10. Wood and Wood Products (other than pulp and paper)

ISIC Division 16. (NACE Division 16).

11. Construction

ISIC Division 41-43. (NACE Division 41-43).

12. Textile and Leather

ISIC Divisions 13-15. (NACE Divisions 13-15).

13. Not Elsewhere Specified – Industry

If your 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 - Industry" 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**

Report natural gas consumed by businesses and offices in the public and private sectors. ISIC and NACE Divisions 33, 36, 37, 38, 39, 45, 46, 47, 52, 53, 55, 56, 58, 59, 60, 61, 62, 63, 64, 65, 66, 68, 69, 70, 71, 72, 73, 74, 75, 77, 78, 79, 80, 81, 82, 84, 85, 86, 87, 88, 90, 91, 92, 93, 94, 95, 96 and 99.

Note: Natural gas used for heating and lighting at stations and airports is to be reported in this category and should not be shown in the transport sector.

2. Residential

Report natural gas consumed by all households including "households with employed persons". ISIC Division 97 and 98. (NACE Division 97, 98).

3. Agriculture/Forestry

Report natural gas consumed by users classified as agriculture, hunting and forestry: ISIC Divisions 01 and 02 (NACE 01 and 02).

4. Fishing

Report natural gas delivered 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 Division 03 (NACE 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.

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.

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

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

Statistical differences may arise if only total imports and exports are available on the above basis, while the geographical breakdown is based on a different survey, source or concept. In this case, report the differences in the 'Other' category.

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-2007 (If data are not available for this period, please report the latest available data and indicate the relevant period).

In the first column **Name**, please indicate the location or site. For 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 the technical characteristics of the storage, see the definitions below.

Working gas 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.

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

Annex 1: 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** (formerly known as Public) 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 (only), heat (only) 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 Only** refers to a plant which is designed to produce electricity only. If one or more units of the plant is a CHP unit (*see below*) then the whole plant is designated as a CHP plant.
- **Combined Heat and Power (CHP)** 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 Only** refers to a plant which is designed to produce heat only. Heat delivered from CHP or Heat Only 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 Plants* 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:

	Electricity Only	CHP	Heat Only
Main Activity Producer	Report all production and all fuel used	Report all electricity and heat produced and all fuel used	Report all heat produced and all fuel used
Autoproducer		Report all electricity produced and heat sold with corresponding fuel used	Report heat sold and corresponding fuel used

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.

Table Relations in the Natural Gas Questionnaire

