HOUSEHOLDS

FINAL ENERGY CONSUMPTION QUESTIONNAIRE

January 2024

The annual questionnaire for final energy consumption in households allows for data transmission of 2020 data onwards, and historical revisions from 2017 where applicable. Under the Regulation (EC) 1099/2008 on energy statistics, the data transmission deadline for the EU Member States, the European Economic Area and the candidate countries reporting to the European Commission - Eurostat is 31 March of Y+2 for reference year Y. Earlier data transmission with definitive data is welcome.

Please send your questionnaire to:

- European Commission, Eurostat, Energy Statistics
  (for Member States of the European Union, EU Candidate Countries and EFTA Countries)

Transmission details are provided below:

The completed questionnaire should be transmitted to Eurostat via the **Single Entry Point (SEP)** following the implementing procedures of **eDAMIS** (electronic Data files Administration and Management Information System), selecting the electronic data collection ENERGY_ESH_A and indicating the submission year.

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

NOTE

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DEFINITIONS

1. Final energy consumption in the households sector

The main goal of this questionnaire is to report fuel quantities and energy consumed by the households sector in support of its primary activities.

A Household means a person living alone or a group of people who live together in the same private dwelling and sharing expenditures including the joint provision of the essentials of living. The Households sector, also known as the residential (or domestic) sector, is therefore a collective pool of all households in a country.

The fuels and the energy consumed to be reported are the ones consumed by all households including “households with employed persons”. The questionnaire should also cover NACE Divisions 97 and 98 (NACE Section T), as defined for "*Other sectors – Residential*" in the other annual energy questionnaires (Solid fossil fuels, Natural gas, Electricity and heat, Oil and petroleum products and Renewables and wastes).

Collective residences which can be permanent (e.g. prisons) or temporary (e.g. hospitals) should be excluded as these are covered by final energy consumption in the *Services sector*. Energy used in all transport activities should be excluded from the *Households sector* and reported in the *Transport sector*.

Energy consumption associated with significant economic activities of households should also be excluded from the total household energy consumption. These activities include agricultural economic activities on small farms and other economic activities carried out in a household’s residence and should be reported in the corresponding sector.

In the case of buildings featuring multiple activities differentiating between *Services* and *Households* (for example: service in the premises of a household; mixed-use building), Eurostat recommends to apply the following cascade system:

- If the data can be disaggregated between one *Service* and one *Household*, or within a premise with the potential of acting both as a *Service* and a *Household*, then the data should be disaggregated accordingly according to *Household* end use, *Service* NACE category, or *Service* activity (when relevant).
- If the data cannot be disaggregated, it should be estimated via other means (for example, floor area, number of employees, etc.)
- If the data cannot be disaggregated or estimated, the rule of the largest/main user can apply. In the case of a service in the premise of a household, the data can be attributed to *Service* or *Household* if it cannot be estimated otherwise, depending on the best analysis possible. In the case of an apartment complex with a large plurality of *Households*, the data can be attributed to *Households*, with *Services* being disaggregated or estimated if possible (for example, commercial activities on the ground floor of a city block).

In the case of residential rented premises, energy consumption should in the large majority of cases be attributed to *Households* (NOT to NACE Section L in *Services*). Specific cases, such as short-term rentals, can be attributed to the *Services sector*. NACE Section L should exclude *Households*.

The total figures (total for each fuel or energy, as well as for each relevant sector) should be equal to what is reported under *Final energy consumption* for *Other sectors – Residential* in the respective annual questionnaires.

2. End uses to be reported

Countries should report the final energy consumption **by end use**. The following specific **definitions** apply for this **questionnaire**:

- ***Energy used for space heating.*** *This energy service refers to the use of energy to provide heat in an interior area of a dwelling.*
  It includes central steam/hot water space-heating systems, central warm-air space-heating systems, heat pumps, solar heating systems, built-in electric systems, stoves, fireplaces, electric storage heaters, portable electric heaters, cooking stove (only the shares of fuels used for space heating), portable kerosene / liquefied petroleum gas heaters, and reversible heat pumps.

- ***Energy used for space cooling.*** *This energy service refers to the use of energy for cooling in a dwelling by a refrigeration system and/or unit. Fans, blowers and other appliances not connected to a refrigeration unit are excluded from this section and should be covered under "Energy used for lighting and electrical appliances (electricity only)".*
  It includes central air conditioning systems, wall air conditioners, split systems, swamp coolers, district cooling, and reversible heat pumps (used in reverse mode to cool air), etc.

- ***Energy used for water heating.*** *This energy service refers to the use of energy to heat water for hot running water, bathing, cleaning and other non-cooking applications. Swimming pool heating is excluded from this section and should be covered under "Other end uses".*

- ***Energy used for cooking.*** *This energy service refers to the use of energy to prepare meals. Appliances for auxiliary cooking (microwave ovens, kettles, coffee makers, etc.) are excluded from this section and they should be covered under "Energy used for lighting and electrical appliances (electricity only)".*

- ***Energy used for lighting and electrical appliances (electricity only).*** *Use of electricity for lighting and any other electrical appliances in a dwelling not considered within other end uses.*
  It includes lighting, white appliances (e.g. refrigerators, freezers, washing machines, dryers and dish washers) and brown appliances (e.g. TV, computers, audio and video equipment, vacuum cleaners, microwave ovens, irons, fans and blowers, microwave ovens, kettles, coffee makers).

- ***Other end uses:*** *Any other energy consumption in households such as use of energy for the outdoor and any other activities not included into the five energy end uses mentioned above (e.g. lawn mowers, energy for the outdoor, swimming pool heating, outdoor heaters, outdoor barbecues, saunas etc.).*

- ***Total Residential / Households:*** *This aggregate is the sum of all end uses detailed above: it represents the consumption of the respective fuel in the households sector (for space heating, space cooling, water heating, cooking, lighting and*

electrical appliances and other end uses). This figure should be equal (for each fuel or energy product) to what is reported under Final energy consumption for "Other sectors – Residential" in the respective annual questionnaires.

3. Energy products to be reported

- **ELECTRICAL ENERGY.** Electricity covers electrical energy generated by all types of facilities (e.g. in nuclear, thermal, hydro, wind, photovoltaic or other plants) to be distributed to consumers through the grid or consumed locally. It also includes the quantities generated by auto-producers.
- **DERIVED HEAT.** Derived heat covers the total heat production in heating plants and in combined heat and power plants. It includes the heat used by the auxiliaries of the installation which use hot fluid (space heating, liquid fuel heating, etc.) and losses in the installation/network heat exchanges.
  For auto producing entities (= entities generating electricity and/or heat wholly or partially for their own use as an activity which supports their primary activity) the heat used by the undertaking for its own processes is not included.
- **GAS.** This category mainly covers the natural gas used by households - either as GNG (Gaseous Natural Gas) or as LNG (Liquefied Natural Gas). It can include derived gases (coke oven gas, blast furnace gas, gas works gas and other recovered gases) or biogases (bio-methane) when these gases are blended with natural gas and the blend is delivered to households for final use.
  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) and used directly by households (without being blended with natural gas) should be reported under Renewables and wastes.
- **SOLID FOSSIL FUELS.** Solid fossil fuels cover hard coal and derivatives (patent fuels, anthracite, coking coal, other bituminous coal, coke oven coke, gas coke, coal tar), brown coal and derivatives (lignite/brown coal, sub-bituminous coal, BKB (brown coal briquettes)), peat and peat products and oil shale and oil sands.
- **OIL AND PETROLEUM PRODUCTS.** Oil and petroleum products (blended with biofuels) cover mainly the following petroleum products: Liquefied petroleum gas, Motor gasoline, Kerosene, Gas/diesel oil and Residual fuel oil.
  It can also include other products such as crude oil, Natural Gas Liquids (NGL), additives-oxygenates and other hydrocarbons as well as refinery gas, ethane, naphtha, white spirit & SBP, lubricants, bitumen, petroleum coke, paraffin waxes or any other oil products.
    - **LPG.** Liquefied petroleum gases (LPG) are light paraffinic hydrocarbons derived from the refinery processes, crude oil stabilisation and natural gas processing plants. They consist mainly of propane (C3H8) and butane (C4H10) or a combination of the two. They could also include propylene, butylene, isobutene and isobutylene. LPG are normally liquefied under pressure for transportation and storage.

- **Other kerosene.** Other kerosene comprises refined petroleum distillate and is used in sectors other than aircraft transport. It distils between 150°C and 300°C.
- **Total Gas/Diesel oil.** This category covers gas/diesel oil used in the Industrial sector. It mainly consits of heating gasoil.

  Gas/Diesel oil (distillate fuel oil) is primarily a medium distillate distilling between 180°C and 380°C. Several grades are available depending on uses:

  - *Road diesel*: on-road diesel oil for diesel compression ignition (cars, trucks, etc.), usually of low sulphur content;
  - *Heating and other gasoil*: light heating oil for industrial uses;
  - *Marine diesel and diesel used in rail traffic*;
  - *Other gas oil* including heavy gas oils which distil between 380°C and 540°C and which are used as petrochemical feedstocks.

  In principle, households mainly use the light heating oil for various purposes, of which the most important are heating of space and water.

  This category includes blending components.

  Biodiesels. This category includes biodiesel (a methyl–ester produced from vegetable or animal oil, of diesel quality), biodimethylether (dimethylether produced from biomass), Fischer Tropsch (Fischer Tropsch produced from biomass), cold pressed bio-oil (oil produced from oil seed through mechanical processing only) and all other liquid biofuels which are added to, blended with Gas/diesel oil.

  Non-bio Gas/Diesel oil. This category consists of gas diesel oil as defined above excluding *Biodiesel*.
- Note: The sum of products listed above does not have to sum up to the total of the category *Oil and petroleum products* as other energy products are part of this category without being reported here (*Motor gasoline, Petroleum coke*, etc.).

- **RENEWABLES AND WASTES.** Renewable energies cover hydropower, wind energy, solar energy, tide, wave and ocean, biomass and renewable wastes and geothermal energy.
  - **Solar thermal.** Solar thermal covers solar thermal-electric plants, or equipment for the production of domestic hot water or for the seasonal heating of swimming pools (e.g. flat plate collectors, mainly of the thermosiphon type.
  - **Solid biofuels (excluding Charcoal).** Solid biofuels (excluding charcoal) or solid biomass cover organic, non-fossil material of biological origin which may be used as fuel for heat production or electricity generation (charcoal covers the solid residue of the destructive distillation and pyrolysis of wood and other vegetal material).

    It includes fuel wood, wood residues and by-products which consists of firewood (in log, brushwood, pellet or chip form) obtained from natural or managed forests or isolated trees and wood residues used as fuel and in which the original composition of wood is retained. Charcoal and black liquor are excluded.

    Wood pellets is a subcategory of fuel wood, wood residues and by-products. It is a cylindrical product that has been agglomerated from wood residues by compression with or without the addition of a small quantity of binder. The

pellets have a diameter not exceeding 25 mm and a length not exceeding 45 mm.

- **Biogas.** Gases composed principally of methane and carbon dioxide produced by anaerobic fermentation of biomass, or by thermal processes.
  - *Landfill gas*: formed by the anaerobic digestion of landfill waste. The quantity of fuel used should be reported on a net calorific value basis.
  - *Sewage sludge gas*: produced from the anaerobic fermentation of sewage sludge. The quantity of fuel used should be reported on a net calorific value basis.
  - *Other biogases from anaerobic digestion*: such as biogases produced from the anaerobic fermentation of animal slurries and of waste in abattoirs, breweries and other agro-food industries. The quantity of fuel used should be reported on a net calorific value basis.
  - *Biogases from thermal processes*: biogases produced from thermal processes (by gasification or pyrolysis) of biomass.

  Blended gas in the gas grid should be reported in "Natural gas".
- **Ambient heat.** Heat energy at a useful temperature level extracted (captured) by means of heat pumps that need electricity or other auxiliary energy to function. This heat energy can be stored in the ambient air, beneath the surface of solid earth or in surface water. The reported values shall be on the basis of the same methodology as used for the reporting heat energy captured by heat pumps pursuant to Directive 2009/28/EC; however, all heat pumps should be included regardless their performance level.

  Heat pump types should be accurate according to the end use. An air-air heat pump cannot be used for water heating; instead water-air heat pumps can be used, and air-air heat pumps can be used for space heating.
- Note: The sum of products listed above does not have to sum up to the total of the category *Renewable and Wastes* as other energy products are part of this category without being reported here (*Liquid biofuels, Municipal/Industrial wastes*, etc.).

4. Calorific values (CV)

***Net** Calorific values* (NCV) should be reported for the following:

- Solid fossil fuels
- Total Oil and petroleum products
- LPG
- Other kerosene
- Gas/Diesel oil

For aggregates representing totals made up of several energy products (*Total Oil and petroleum products* and *Solid fossil fuels*), **weighted average NCV** should be reported, based on the quantities consumed. If minor energy products which do not have their individual NCV or sheet are reported in the aggregate, their NCVs should be taken into account in the weighted average NCV of the aggregate.

5. Reporting units

- **GWh** Gigawatt-hour
- **kt** Kilotonne
- **MJ/t** Megajoule per tonne
- **TJ** Terajoule
- **GCV** Gross Calorific Value
- **NCV** Net Calorific Value

STRUCTURE OF THE QUESTIONNAIRE

1. New reporting template

The questionnaire uses a new template introduced in 2022. When opening this questionnaire, a *Cover* page and an *Instructions* page are visible. **Technical instructions on how to use the new questionnaire are included in the *Instructions* sheet of the questionnaire.**

The new reporting template adds the possibility to flag data for various states ('estimated', 'not available', etc.). **Countries are encouraged to get acquainted with the flags in the *Instructions* sheet and to use them accurately for their data.**

2. Tables

The Tables specific to the *Households* questionnaire are the following:

- **Table 1:** a derived pivot table, summarising in a dynamic way the data reported in the time series (TS) sheets.
- **Calorific values:** a data input sheet for reporting the calorific values for the relevant energy products. For aggregates representing totals, weighted average calorific values should be reported. For your convenience, the calorific values representing totals are already calculated based on the reporting of each product, however, those formulas can be overwritten. (Please take into account that a country not able to report the consumption of the sub-fuels may report the total consumption per fuel)
- **TS:** the time series sheets include the following end uses, the totals and the calorific values:
    - 1a. Space heating
    - 1b. Space cooling (only source is electricity)
    - 1c. Water heating
    - 1d. Cooking
    - 1e. Lighting and appliances (only source is electricity)
    - 1f. Other end uses
    - Total Residential/Households
    - Calorific values

  Please report in these tables by different final energy consumption, all the energy consumption, energy products (Electricity, Derived Heat, Gas, Solid fossil fuels, Total Oil and petroleum products and Renewables and wastes) or the families of fuels (sum of several products, e.g. 'Oil and petroleum products'), where data should be entered in specific reporting units (i.e. kt for oil products, GWh for electricity...). You are encouraged to report an individual fuel if it takes up a significant portion of the whole of your Households sector.

MANUAL FOR STATISTICS ON ENERGY CONSUMPTION IN HOUSEHOLDS

https://ec.europa.eu/eurostat/documents/3859598/5935825/KS-GQ-13-003-EN.PDF/baa96509-3f4b-4c7a-94dd-feb1a31c7291