



**NUCLEAR ENERGY
ANNUAL QUESTIONNAIRE
2016
AND HISTORICAL REVISIONS**

September 2017

The annual questionnaire for nuclear energy allows for data transmission of 2016 data and historical revisions 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 30 November 2017. 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_NUCLEAR_A and indicating the submission year.

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

NOTE

For questions regarding the questionnaire, contact Mr Fernando Diaz Alonso
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REPORTING INSTRUCTIONS

Data should be reported for calendar years from 2009 onwards. If fiscal year data have to be used, please state this clearly in the "Remarks" sheet and specify the period covered.

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

Where data are not available or they are calculated using a different methodology than the methodology recommended in the reporting instructions, estimates should be given and necessary clarifications included in the "Remarks" sheet.

SCOPE

Nuclear energy data reported in the questionnaire only concern the civil use of nuclear energy in reactors whose aim is to produce energy in the form of electricity or other useful applications of heat. It **excludes** reactors used for military purposes, research, demonstration, and other similar types of experimental reactors.

DEFINITIONS AND INSTRUCTIONS FOR COMPLETING THE NUCLEAR ENERGY QUESTIONNAIRE

1. Enrichment capacity

Enrichment refers to the isotopic separation or concentration of the Uranium-235 isotope, from 0.7 % to around 3-5 % for civil use of nuclear energy. This operation is necessary in order to obtain suitable nuclear fuel. Report in the annual separative work capacity of operational enrichment plants, measured in tSWU (tonnes of separative work units).

2. Production capacity of fresh fuel elements

Report the annual production capacity of fuel fabrication plants, measured in tHM/year (tonnes of heavy metal per year). MOX fuel fabrication plants are excluded.

3. Production capacity of MOX fuel fabrication plants

Report the annual production capacity of MOX fuel fabrication plants, measured in tHM/year. MOX (Mixed Oxide) fuel contains a mixture of Plutonium and Uranium.

4. Production of fresh fuel elements

It refers to the step following enrichment in the nuclear fuel cycle, in other words, the process in which the nuclear fuel is manufactured in order to be utilized in nuclear power reactors. Report the production of finished fresh fuel elements in nuclear fuel fabrication plants, measured in tHM. Rods or other partial products are not included. Fabrication plants producing MOX fuel are also excluded.

5. Production of MOX fuel elements

Report the production of finished fresh fuel elements in MOX fuel fabrication plants, measured in tHM. Rods or other partial products are not included.

6. Production of nuclear heat

Report the total amount of heat generated by nuclear reactors (heat content of the steam leaving the reactor) for the production of electricity or for other useful applications of heat, measured in ktoe (thousand tonnes of oil equivalent). Estimation of the heat content of the steam from the reactor is used when actual values are not available. When estimation is needed, the primary heat production value for nuclear plants is derived from the gross electricity generation, using a thermal efficiency of 33%. Where some of the steam direct from the reactor is used for purposes other than electricity generation, the estimated primary production value must be adjusted to include it. Please ensure that the reported value is consistent with Table 1 of the electricity and heat questionnaire.

7. Annual average burnup of definitively discharged irradiated fuel elements

Burnup refers to the extent to which nuclear fuel is consumed in a reactor and is a measure of how much energy is extracted from a primary nuclear fuel source. Report the calculated average of the burnup of the fuel elements which have been definitively discharged from the nuclear reactors during the concerned reference year, measured in GWd/tHM (gigawatt-day per tonne of heavy metal). Exclude fuel elements which are temporarily discharged and are likely to be reloaded again later.

Use the following calculation method to weight the contribution of different nuclear reactors to the annual average burnup:

- The weighting factor is the mass of the fuel assemblies definitively discharged (do not use the electricity production or other variables as weighting factors).
- Only fuel assemblies definitively discharged during the reference year are taken into account (no yearly average is used).

Should your calculation methodology be different for any reason, please provide appropriate justification in the "Remarks" sheet of the questionnaire.

8. Production of Uranium and Plutonium in reprocessing plants

Reprocessing consists of recovering fissile and fertile materials from used nuclear fuel in order to provide fresh fuel for existing and future nuclear power plants. The process of reprocessing used nuclear fuel allows the recovery of unused uranium and plutonium from the original fuel and reduces the volume of material to be disposed of as high-level waste.

Report the amount of Uranium and Plutonium produced during the reference year in reprocessing plants, measured in tHM.

9. Capacity (Uranium and Plutonium) of reprocessing plants

Report the annual reprocessing capacity of Uranium and Plutonium, measured in tHM/year.

GEOGRAPHICAL NOTES

Denmark excludes the Danish Faroes and Greenland;

France includes Monaco and excludes the French overseas territories Guadeloupe, Martinique, Guyane, Reunion, St.-Pierre and Miquelon, New Caledonia and French Polynesia

Italy includes San Marino and the Vatican;

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

CONFIDENTIALITY

Confidential data points should be indicated by letter "c" in this questionnaire. Please include in the "Remarks" sheet the reasons (justification) for this confidentiality.

While actual confidential values are not to be included in this questionnaire, all data should be transmitted to Eurostat (even those that are confidential). Please contact Eurostat to arrange appropriate modalities for transmission of confidential data points. Please take note of Chapter V "Statistical confidentiality" (Articles 20-26) in Regulation (EC) No 233/2009 on European statistics.

LIST OF ABBREVIATIONS

EFTA	European Free Trade Association
EU	European Union
GWd	Gigawatt-day
Ktoe	Thousand tonnes of oil equivalent
MOX	Mixed Oxide
tHM	Tonnes of heavy metal
tSWU	Tonnes of separative work units