

Quality report of European Union energy statistics

2023 edition



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1. INTRODUCTION

The present report contains summarised information as regards the third exercise on quality reporting in the field of energy statistics in the European Union. The main sources of information used for the report are the national quality reports that all 27 EU Member States sent to Eurostat in 2022 as well as the non-EU reporting countries that submitted their quality reports – Norway, Montenegro, North Macedonia, Serbia, Türkiye, Bosnia and Herzegovina, Moldova, Ukraine and Georgia. Other sources that have been consulted are metadata information, national websites of the individual countries and data from the public free data sets maintained by Eurostat. Unless stated otherwise, the report uses data available at the date of 1 December 2022.

According to Article 12 of Regulation (EC) No 223/2009 on European statistics, as amended by Regulation (EU) 2015/759, statistical quality depends on the following quality dimensions: relevance, accuracy, timeliness and punctuality, accessibility and clarity, comparability and coherence. Each of the quality components is explained shortly at the start of each section in the report¹. When discussing components under the responsibility of Eurostat (like timeliness or punctuality in the publication of EU energy statistics), it will refer to the data received during the latest available transmission period at the time when this report was drafted.

In some cases, it is difficult to present the data as prescribed by the standard Eurostat format (the instructions for which are laid down in the ESS Handbook for Quality and Metadata Reports), since energy statistical processes among countries are not homogeneous. For this reason, this report also shows the differences in organisation of statistical processes at country level.

Taking into account all these limitations, the main objective of this report is to analyse the main aspects of energy statistics data quality and detect areas to improve it in the future.

Eurostat wishes to thank the many experts in the countries participating in the conduct of the energy surveys and providing the data and the quality reports.

¹ Most of the introductory texts shortly explaining each quality component are taken from the 'ESS Handbook for Quality and Metadata Reports', available at: <u>bf98fd32-f17c-31e2-8c7f-ad41eca91783 (europa.eu)</u>

2. OVERVIEW

2.1. Coverage

This document covers all twenty-seven EU Member States in 2022 (the period in which the information for the elaboration of this report was gathered) as well as non-EU countries that transmitted quality reports to Eurostat.

The reference year that was selected for the information transmitted by the countries in their national quality reports is 2020. However, when more updated information is available, it has also been included in this report.

Given the complexity of the energy statistics domain and the heterogeneity of national energy statistics processes, it is impossible to include in this report all the detailed information provided by the countries in the quality reporting exercise. For this reason, Eurostat published national quality reports in the form of metadata available in Eurobase. This was one of the recommendations issued in the 2017 Quality report of European Union energy statistics, which recognised the need for all information provided in national quality reports to be available to users.

2.2. Legal basis

The main legal text in the area of energy statistics is Regulation (EC) No 1099/2008 of the European Parliament and of the Council of 22 October 2008 on energy statistics (and subsequent amendments), which provides for quality assessment and quality reports according to Article 6.

Specifically, Paragraph 3 lists the quality assessment dimensions that apply to the data:

- a) 'relevance' shall refer to the degree to which statistics meet current and potential needs of the users;
- *b)* 'accuracy' shall refer to the closeness of estimates to the unknown true values;
- *c)* 'timeliness' shall refer to the delay between the availability of the information and the event or phenomenon it describes;
- d) 'punctuality' shall refer to the delay between the date of the release of the data and the target date when it should have been delivered;
- e) 'accessibility' and 'clarity' shall refer to the conditions and modalities by which users can obtain, use and interpret data;
- f) 'comparability' shall refer to the measurement of the impact of differences in applied statistical concepts and measurement tools and

procedures where statistics are compared between geographical areas, sectoral domains or over time;

g) 'coherence' shall refer to the adequacy of the data to be reliably combined in different ways and for various uses.

Paragraph 4 lays down the requirement for countries to transmit quality reports to Eurostat every five years:

'Every five years, Member States provide the Commission (Eurostat) with a report on the quality of the data transmitted as well as on methodological changes that have been made.'

This requirement is further elaborated in Paragraph 5:

'Within 6 months of receipt of a request from the Commission (Eurostat), and in order to allow it to assess the quality of the data transmitted. Member States shall send to the Commission (Eurostat) a report containing any relevant information concerning the implementation of this Regulation.'

In addition to Regulation (EC) 1099/2008, several other EU legal acts impact energy data in different areas (biofuels, renewables, cogeneration, energy efficiency and oil stocks):

Council Directive 2009/119/EC of 14 September 2009, imposing an obligation on member states to maintain minimum stocks of crude oil and / or petroleum products.

Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast) (Text with EEA relevance).

Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC (Text with EEA relevance).

In addition to European regulations, many participating countries have their own national legislation in the field of energy statistics. **Error! Reference source not found.** includes information on applicable national laws or regulations in the field of energy statistics.



Country	Applicable legal texts at national level in the area of energy statistics		
BE	Royal Decree #2017040874; Royal Decree #1977042502; Ministerial Decree #1980061310; Law #2013011348; Law #2006011055; Royal Decree #2019010655; Royal Decree #2018031839		
BG	Statistics Act and National statistical programme		
CZ	Act No.89/1995 Coll., on the State Statistical Service, as amended and Decree on the Programme of Statistical Surveys		
DK	Act on Statistics Denmark; Act on electricity supply; Act on heat supply; Act on natural gas supply; Oil emergency preparedness/oil stock		
DE	Energiestatistikgesetz – EnStatG; Gesetz über die Erhebung von Meldungen in der Mineralölwirtschaft (Mineralöldatengesetz - MinÖlDatG); Biokraftstoff-Nachhaltigkeitsverordnung and Biomassestrom- Nachhaltigkeitsverordnung		
EE	Official Statistics Act		
IE	National Oil Reserves Agency Act 2007 (No. 7 of 2007) and associated Returns and Levy Regulations SI 567 of 2007 and SI220 of 2009; European Union (Energy Efficiency Obligation Scheme) Regulations 2014, (S.I. No. 131 of 2014); European Union (Greenhouse gas emission reductions, calculation methods and reporting requirements) Regulations 2017, (S.I. No. 160 of 2017); Statistics (Business energy use survey) Order 2018 (S.I. No. 509 of 2018)		
EL	Regulation 1099/08. National legal framework: L.3054/2002, L.3734/2009, L.3851/10, L.3832/10, L.4233/2014. Presidential decree 132/2017		
ES	Ley 12/1989, de 9 de mayo, de la Función Estadística Pública (BOE 11-05-1989); Royal Decree 1658/2012, 7 december, approving the National Statistcs Plan 2013-2016; Resolución de la Dirección General de Política Energética y Minas de 15 de diciembre de 2008 http://www.boe.es/buscar/doc.php?id=BOE-A-2009-1009; Resolución de la Dirección General de Política Energética y Minas, 29 de mayo de 2007 http://www.boe.es/buscar/doc.php?id=BOE-A-2007-12750;		
FR	Law n° 51-711 of 7 June 1951 on the obligation, coordination and secrecy of statistics; Energy Transition Law for Green Growth (LTECV) of 17 August 2015; French Energy Code; Order of 18 June 2002 on the collection of data as per Article 47 of Act n° 2000-108 of 10 February on modernisation and development of the public electricity service; Order of 6 November 2003 on the collection of data as per Article 10 of Act n° 2003-8 of 3 January 2003 on the gas and electricity markets and public energy service		
HR	The Official Statistics Act (Official Gazette, No 12/2013 – consolidated text). Its regular statistical surveys are based on the Programm of Statistical Activities of the Republic of Croatia 2013 – 2017 (the Official Gazette No. 69/13) Programme of Statistical Activities of the Republic of Croatia 2018-2020 (the Official Gazette No. 31/2018) and the Annual Implementation Plan of Statistical Activities of the Republic of Croatia.		

Table 1. Overview of national legal frameworks covering EU data requirements in the energy domain



Country	Applicable legal texts at national level in the area of energy statistics		
IT	National Statistical Program; Legislative Decree 28/2011; Italian Ministry Economic Development Decree 14/01/2012; Italian Ministry Economic Development Decree May 11, 2015; Legislative Decree 199/2021		
CY	Maintenance of Oil Stocks Laws of 2003 to 2020		
LV	Cabinet Regulations Nr. 767 "Regulations on the National Programme of Statistical Information"		
LT	Law on Statistics. Official Statistics Work Programme.		
LU	Law of December 23rd, 2004 transposing the directive 2003/87/CE; Law of August 1st, 2007 relating to the electricity market organization - Art 50 (2); Law of August 1st, 2007 relating to the natural gas market organization - Art 50 (2); Grand Duchy regulation of October 31st, 1973 transposing the directive 68/414/CEE		
HU	Government Decree 388/2017. (XII. 13.); Act XL of 2008 on natural gas supply; Act XVIII of 2005 on district heating supply; Act LXXXVI of 2007 on electricity; Government Decree 288/2009 (XII.5.); Act LXXXVI of 2007 on electricity; Act LV. of 2017 on amending Act CXVII. of 2010		
МТ	The Malta Statistics Authority (MSA) Act (LEGIZLAZZJONI MALTA (legislation.mt)) empowers the NSO to collect, compile, extract and release official statistics related to demographic, social, environment, economic and general activities and conditions of Malta.		
NL	Dutch statistical law; Dutch statistical law and dutch customs law; Dutch electricity and gas law; Regeling garanties van oorsprong voor energie uit hernieuwbare energiebronnen en HR-WKK-elektriciteit; National mining law; Wet Milieu Beheer Titel 9.7 Hernieuwbare Energie Vervoer; Dutch grid code for electricity as implementation of European Requirement for Generators (RfG)		
AT	Statistics act 2000 as amended; Electricity Act 2010; Natural Gas Act 2011; Erdölstatistik-Verordnung 2011; Oil Stockholding Act 2012; Short-term statistics Regulation; Handelsstatistisches Gesetz BGBI. 173/1995 idgF; Gütereinsatzstatistik-Verordnung, BGBI. II Nr. 349/2003 vom 29. Juli 2003, geändert durch BGBI. II Nr. 132/2009 vom 6. Mai 2009.		
PL	The law on the public statistics of 29 June 1995 (OJ 2020 item 443, as amended); Regulation of the Council of Ministers of 11 October 2019 on the program of statistical surveys for 2020; Regulation of the Minister of Energy of May 17, 2019 on the template of the report on the types and quantities of produced, imported and exported liquid fuels, as well as their destiny. The Act of April 10, 1997 - Energy Law; Regulation of the Minister of Energy of June 3, 2019 on the template of the quarterly report of the entity implementing the National Index Target in the field of liquid fuels, liquid biofuels and other renewable fuels. Act of August 25, 2006 on biocomponents and liquid biofuels.; Act of February 20, 2015 on renewable energy sources (Journal of Laws of 2021, item 610, as amended)		
PT	Decree Law no. 15/2022, January 14th; Decree Law no. 23/2010, March 25th; Decree-Law no. 162/2019, October 25th; Decree Law no 106/93, April 7th; Decree Law no. 230/2012, October 26th; Decree Law no. 231/2012, October 26th; Decree Law no. 244/2015, October 19th; Decree-Law no. 165/2013, December 16th		
RO	Yearly Program of Statistical Surveys		
SI	National Statistics Act (OJ RS, No. 45/95 and No. 9/01), Medium-term programme of statistical surveys (currently applicable for the period 2018-2022, OJ RS, No. 63/17) and Annual programme of statistical surveys (for the year 2020, OJ RS, No. 68/19, 106/20 and 161/20)		



Country	Applicable legal texts at national level in the area of energy statistics		
SK	Act. No. 540/2001, Programme of the State Statistical Surveys		
FI	Finnish Statistics Act (280/2004); Customs Act (1466/94, amendment 1299/2003) of Finland; The power plant register is based on Finnish act 588/2013 and 65/2009; The Act on Biofuels and Bioliquids (393/2013)		
SE	Official Statistics Act, SFS 2001:99; Official Statistics Ordinance, SFS 2001:100; Statistics Sweden's regulations on quality in official statistics, SCB-FS 2016:17; Regulation STEMFS 2020:5; Swedish Law regarding Oil Emergency Stock Obligations (2012:806)		
NO	The statistics act §10 and §12 and the act on the generation, transmission, trading, distribution and use of energy etc. (Energy Act) of June 29 1990, No. 50 § 5-5 §10-1 §9-2, third paragraph		
	Law on Statistics of Bosnia and Herzegovina (Official Gazette of BiH No. 26/04 and 42/04)		
	Statistical programme of Bosnia and Herzegovina (2021 – 2024) and Annual work plan of the Agency for Statistics of BiH		
BA	Agreement on implementation of harmonized methodologies and standards signed by statistical institutions in BiH		
	Memoranda of Understanding between the Agency for Statistics of Bosnia and Herzegovina (BHAS) and the State Electricity Regulatory Commission (SERC), April 2011.		
ME	Law on Official Statistics and Official Statistical System (Official Gazette of Montenegro No 018/12 from 30 March 2012, 047/19 from 12 August 2019)		
ME	The Programme of Official Statistics for the 2019-2023		
	Annual Plan of Official Statistics for 2022		
MD	Law on Official Statistics (no. 93 of 26 May 2017)		
мк	Law on state statistics		
MK	Five-Year Statistical Programme, 2018-2022		
	Official Statistics Law ("Official Gazette of RS", No 104/2009)		
	Resolution on the Programme of official statistics		
	Regulation on the Plan of official statistics for the current year		
RS	Energy Law (Official Gazete of RS No.40/2021)		
	Memorandum of cooperation between Ministry of Mining and Energy and Statistical office (SORS)		
	Regulation on the methodology for collecting and processing data and calculating the average daily net import, average daily consumption and the amount of mandatory reserves of oil and oil derivates		



Country	Applicable legal texts at national level in the area of energy statistics		
Petroleum Market Law Article 14., Natural Gas Market Law and Energy Market Data Reporting Regulations Official Statistics Programme Electricity Market Law (No:6446) Electricity Market Law (No:6446) Statistics Law of Türkiye (No:5429) Energy and Natural Resource Statistics Law on organization and duty (No: 3154)			
UA	https://zakon.rada.gov.ua/laws/show/2614-12		
GE	Law of Georgia on Official Statistics		

2.3. Developments in the area of EU energy statistics quality reporting

The first quality reporting exercise in energy statistics was launched in 2010. For the purpose of the exercise, a standard quality report template was presented to members of the Energy Statistics Working Group. A summary of the quality reports submitted by countries was presented to the Energy Statistics Working Group in June 2013.

The first quality reporting exercise revealed the difficulties in collecting all the information with the required level of detail, and in creating a clear link between national data collections and Eurostat datasets. The established system was unable to capture all the interrelations in the multi-dimensional area of energy statistics. Due to its complexity, energy statistics required a much more comprehensive approach. To implement this, in 2015, the Energy Statistics Working Group adopted a new template for quality reporting in energy statistics, to be used in the second quality reporting cycle.

The second quality reporting cycle was launched in December 2015. The innovative approach adopted helped to improve compliance with ESS quality reporting standards, to gather information that is more comparable and to establish a clear mapping between national data sources and EU data collections. The template used in the second quality reporting cycle enabled the countries to provide very detailed information on their national data collections. The Quality report of European Union energy statistics was published in 2017.

As mentioned above, the 2017 Quality Report recognised the need to provide users of energy data with more comprehensive metadata, such as the metadata received in the context of quality reporting. To achieve this, Eurostat transferred the information received in the MS Excel templates used for quality reports into the application ESS Metadata Handler. All the information present in the ESS Metadata Handler was then published as metadata in Eurobase. This enabled the users to easily access all the detailed information on national data collections and methods used to compile data for EU data collections in the energy domain.

The third quality reporting cycle started in January 2022. It builds on the developments of the previous exercise, by using the metadata created in the previous cycle as templates for the new national reports. The countries were asked to update the information directly in the ESS Metadata Handler, which significantly reduced the reporting burden for many countries where there had not been any significant changes in the area of energy statistics. The quality reports were then directly published as metadata in Eurobase. In this way, users are continuously able to access the full level of detail of the information provided in the national quality reports.

The use of ESS Metadata Handler for quality reporting enables the countries to re-use the information provided in previous quality reporting exercises and allows for the publication of full reports as metadata. Therefore, this approach should be applied in the upcoming reporting cycles as well. To keep the metadata as relevant as possible, countries should update their national metadata whenever major changes occur, and not only as part of the quality reporting exercise.

In the third quality reporting cycle, Eurostat decided to put more emphasis on the quantitative aspects of quality. To that purpose, Eurostat launched a project to define a set of quantitative indicators that would be used in the quality report. This set of indicators was reviewed and approved by the ESWG participants in April 2021. Several indicators were calculated by the countries, and others by Eurostat. Although many countries calculated the indicators, some were not able to do so and did not include this information in the national quality reports. Countries should complete their metadata with the requested indicators as soon as their calculation is feasible.

2.4. Brief description of the main European energy data collections

2.4.1. Periodicity

Eurostat collects, processes and publishes annual and monthly energy statistics on quantities of numerous energy commodities, both primary (e.g. crude oil, natural gas, hard coal, etc.) as well as secondary (e.g. motor gasoline, gas/diesel oil, coke, patent fuels, etc.). Statistics are also produced on end-user prices of electricity and natural gas.

A more detailed description of each data collection is shown below.

Annual energy statistics

Collected statistics (most are joint collections with the International Energy Agency, IEA) cover essentially the production, transformation and consumption of numerous energy commodities; details on external trade of energy commodities and structural characteristics of the energy industry are also included. The annual Energy Balances of the Member States and the EU are the key output of this data collection. This module provides valuable information on the structure of the energy systems across the EU; it allows for the monitoring of major EU and national energy policies and targets (energy dependency, penetration of renewable energy sources, energy efficiency) while it contributes significantly in assessing the carbon dioxide annual emission inventories. Disaggregation collections cover the detailed final energy consumption in households and industry. Competition indicators as well as price components and consumption volumes (both for gas and electricity) are also collected on annual basis; they are however not covered by this report as these collections are governed by a different legislative act.

Monthly and short-term monthly energy statistics

Monthly statistics can be classified as the so-called M-2 (monthly) or M-1 (short-term monthly) data collections, depending on their timeliness. All of



them are transmitted once per month, but M-2 data collections are transmitted to Eurostat 2 months (55 days in some cases) after the end of the reference period, while M-1 are transmitted only 1 month after the end of the reference period. Until 2019 and 2021, respectively, Eurostat was also collecting short-term monthly data electricity as well as on oil and petroleum products and natural gas. These collections are not covered by this report. Currently, the only short-term monthly collection is the one on crude oil imports and supply.

In contrast to the annual energy data collections, which cover the full spectrum of the overall energy flows in a given country (from supply, through transformation to final energy and non-energy consumption by sector and by fuel type), monthly data collections are limited to the supply and only partially to the transformation side. Renewables are covered to a limited extent. Nonetheless, monthly energy statistics, although not as complete (nor directly comparable to annual statistics), can provide a valuable insight into energy related trends before annual data can be made available. In addition, monthly energy data are also used for the early estimates of CO₂ emissions from fossil fuel combustion. Finally, monthly data also deliver valuable information on oil and petroleum products emergency stocks in response to security of supply considerations.

To better respond to policy needs and provide timelier annual energy statistics, in 2016 Eurostat launched a project on early estimates of energy balances. The purpose of the project was to collect, on a voluntary basis, simplified annual energy statistics only five months after the reference period. Thanks to an excellent response by the reporting countries, Eurostat has been publishing the supply side data since 2017. The present report does not cover this data collection since it was voluntary throughout the period to which this report refers. However, given the usefulness of these data, it is worth mentioning that the collection became mandatory as of May 2023 (for reference year 2022).

Table 2 shows the periodicity of data collections (annual and monthly) covered by the Energy Statistics Regulation. It includes only data collections that are mandatory at the time of drafting this report.

EDAMIS dataset name & Name of data collection	Annual (Annex B of ESR ²)	Monthly (M-2) (Annex C of ESR)	Monthly (M-1) (Annex D of ESR)
ENERGY_SOLID_A: Solid Fuels Statistics	x		
ENERGY_ELECT_A: Electricity and Heat Statistics	x		
ENERGY_NTGAS_A: Natural Gas Statistics	х		

Table 2. Periodicity of European energy statistics data collections

² Energy Statistics Regulation: Regulation (EC) No 1099/2008 of the European Parliament and of the Council of 22 October 2008 on energy statistics

ENERGY_PETRO_A: Oil and petroleum products	x		
ENERGY_RENEW_A: Renewable energy and wastes statistics	x		
ENERGY_NUCLEAR_A: Nuclear statistics	х		
ENERGY_ESH_A: Households - detailed annual statistics on final energy consumption	×		
ENERGY_ESIND_A: Industry - detailed annual statistics on final energy consumption ³	x		
ENERGY_SOLID_M: Solid Fuels - Monthly statistics		x	
ENERGY_ELEC3_M: Electricity – Monthly statistics		x	
ENERGY_MOSGAS_M: Natural gas – monthly Statistics		x	
ENERGY_MOSOIL_M: Oil and petroleum products – Monthly statistics		x	
ENERGY_COIR_M: Crude oil imports register - short term monthly statistics			x

2.4.2. Data collection and aggregation methods

In order to fill out the questionnaires of the EU data collections with the required data, countries use their own data collections, sources and aggregation methods. In their quality reports, countries reported which sources and methods they use for their monthly and annual data collections. Some of the methods used are:

- Census (without or with threshold)
- Sample surveys (using, for example, questionnaires, telephone interviews, household visits, etc.).
- Statistical compilation, especially in the case of aggregation of monthly data to obtain annual figures
- Use of administrative sources
- Modelling
- Estimations

The organisation of statistical processes varies considerably across countries. Some countries' internal data collections are structured according to the phase of the supply chain (production, imports, exports, consumption, etc.), whereas other countries use different data collection methods depending on

³ The first mandatory data transmission was in 2022, therefore this data collection is not covered by the national quality reports or this report.



the type of fuel (liquid, solid, electricity and heat, renewables, etc.). There are also countries that use a mixed approach.

During the previous cycle (second quality reporting exercise), the quality reporting template was prepared in a way that allowed for an easy identification of variables relating to Eurostat questionnaires and their connection to national surveys. As explained above, this information was then transferred to the ESS Metadata Handler, and used as a template in the third quality reporting cycle. Therefore, the national quality reports continue to provide a detailed overview of sources and methods used at the national level.

A mapping between the national data sources and the EU annual and monthly data collections can be found in the national metadata, in the Statistical Presentation section.

Error! Reference source not found. in Annex 1 shows an overview of the different data collection methods used in each country to provide data into the EU data collections.

2.4.3. Statistical Processes Using Administrative Source(s)

Given the rapid development in this area and the constraints linked to resource availability in Member States, the use of administrative data is growing in order to exploit data already available, e.g. in the form of registers, without direct data collection.

Administrative data have been used in several ESS statistical domains for many years. In the case of energy statistics, the use of administrative data is still restricted. However, as it is becoming more frequent, it is interesting to monitor which data come from administrative sources. For this reason, the following table displays the national data sources identified by countries as being administrative data (either in the name of the data source or in the main data collection method).

Country	National data source		
BE	Energy data collection at regional institutions		
BE	Annual gas data collection for transport		
BE	Bi-annual households data collection		
BG	Monthly oil and petroleum products questionnaire		
BG	Balance of Energy Transformation Processes - Oil and Petroleum products		
BG	Short assessment of renewable energy sources		
BG	Fuels and energy consumption		
IE	Electricity in Transport		
IE	Non Energy Fuels		
IE	Heat Pumps		
IE	Biofuels		
IE	Solar New Builds		

Table 3. Administrative data sources used at national level



Country	National data source	
IE	Solar Thermal Upgrades	
IE	Municipal and Other Waste	
IE	Annual Gas	
IE	Electricity Consumption	
IE	Electricity Supply	
IE	Biofuel feedstocks	
IE	Business energy end use	
FR	French Customs Statistics	
HR	Extrastat – Trade in goods with non-EU countries 2014	
IT	Data collection on renewable energy in heating sector - direct use and of derived heat (GSE-00001)	
IT	Data collection on renewable energy in heating sector - direct use and of derived heat (GSE-00001)	
IT	District Heating and District Cooling Network in Italy	
IT	Energy consumption (biofuels, fossil fuels) in Transport Sector in Italy (GSE-00003 e GSE-00007)	
CY	Electricity consumption - annual	
CY	National Stock Holding Entity (COSMOS)	
CY	Foreign Trade Statistics (annual)	
CY	Foreign Trade Statistics (monthly)	
LU	Biofuel statistics	
LU	Environmental primes	
LU	Survey with ETS	
HU	V534 Report on the non-licensed small-scale power plants connected to the grid in the given period	
HU	V533 Survey on small-scale power plants not subject to licence connected to the grid	
HU	V526 Heat pumps data	
HU	V516 Regional and sectoral report on the amount of electricity delivered to consumers	
HU	V510 electricity delivery via distribution network	
HU	V461 daily data of system load of hungarian electricity system	
HU	V433 Cross border electricity exchange	
HU	V410 electricity delivery via transmission network	
HU	V311 annual data of small-scale power plants	
HU	V310 monthly data of small-scale power plants	
HU	V214 electricity and heat data of large-scale power plants	
HU	T516a District heating supplier monthly report	
HU	T216a District heating producer monthly report	
HU	G511 Regional and sectoral report on the amount of natural gas delivered to consumers	
HU	G510 Monthly balance of natural gas DSO	
HU	G410 Monthly balance of natural gas TSO	
HU	G216 Monthly balance of natural gas storage	
MT	SHARES Tool – Biofuels and Heat pumps data	
MT	Final energy consumption in households	
MT	Renewable data	



Country	National data source	
MT	Natural gas data	
MT	Electricity consumption data	
MT	Electricity data	
NL	NEa register data on biofuels	
NL	CertiQ Registratie voor Garanties van Oorsprong van Hernieuwbare elektriciteit en warmte	
NL	CERES - register for energy systems	
PL	Administrative data on liquid fuels (URE)	
PL	Administrative data on the implementation of the National Index Target referred to in the Act of August 25, 2006 on biocomponents and liquid biofuels (URE)	
PL	Administrative data on raw materials used to produce agricultural biogas or to generate electricity from agricultural biogas, produced agricultural biogas, electricity produced from agricultural biogas (KOWR)	
PL	Administrative data on the biocomponent market (KOWR)	
PT	Oil data collection	
PT	Gas Natural data collection	
PT	Coal data collection	
PT	Monthly Electricity data collection	
PT	Annual Electricity and Heat and Renewables data collection	
RO	Monthly Administrative Sources (MAD)	
RO	Administrative Sources (AD)	
FI	Power plant register	
NO	Electricity, annually	
NO	Electricity, monthly	
NO	External trade statistics, annual	
NO	External trade statistics, monthly	
TR	Energy Market Database System	
TR	Energy Balance Data Collection	
GE	Annual information on oil products	
GE	Annual information on coal	
GE	Monthly information on electricity	
GE	Monthly information on coal	
GE	Monthly information on natural gas	
GE	Monthly information on oil	

Compared to the information collected in the context of the previous quality reporting cycle, there has been a slight increase in the use of administrative data for several countries. Nevertheless, it is not yet very common in energy statistics. However, some countries make frequent use of administrative data, e.g. Cyprus, Hungary, Ireland, Malta, Portugal and Georgia. The most frequent use of administrative data is in trade and electricity.

3. RELEVANCE

Relevance is the degree to which statistics meet current and potential user needs. It depends on whether all statistics that are needed are produced and the extent to which concepts used (definitions, classifications etc.) reflect user needs.

It can be assessed by analysing the different users, who they are, what needs they have, whether they are satisfied, what is done to meet their needs, etc.

EU energy statistics are compiled according to regulations (see chapter on legal basis above) containing a defined list of variables, which reflect in particular the most relevant institutional users' needs.

3.1. The users

Relevance is concerned with whether the available information sheds light on the issues that are important to users. Assessing relevance is subjective and depends upon the varying needs of users. The challenge is to weigh and balance the conflicting needs of current and potential users to produce statistics that satisfy the most important needs within given resource constraints. In assessing relevance, one approach is to gauge relevance directly, by polling users about the data. Indirect evidence of relevance may be found by ascertaining where there are processes in place to determine the uses of data and the views of their users or to use the data in house for research and other analysis.

3.1.1. Actions at national level

At national level, the efforts undertaken by countries to take into account user needs as regards their different data collections provide an interesting insight into what is being done to increase the relevance of energy statistics. The Relevance section in the national metadata gives an overview of different actions undertaken at national level to take into account users' needs.

As seen based on this information provided by the countries in their quality reports, most of the countries have a clear overview of the profile of their main users and carry out actions in order to take their needs into account. Most countries maintain regular contact with the main users. Additionally, several countries conduct periodic user satisfaction surveys: Estonia, Cyprus, Lithuania, Hungary, Malta, Austria, Slovenia, Slovakia, and Sweden. Germany and Italy analyse web page accesses and downloads.



3.1.2. Actions at Eurostat level

Apart from regular meetings with the main policy users of energy statistics, Eurostat launches regular general user satisfaction surveys, which also contain a section on energy statistics.

The most recent general user satisfaction survey was conducted in 2022. A summary of the results is available here. From a total of 1486 replies received, 315 (21.2%) were given by users of Energy statistics. The distribution of the main users is the following:

Category of user	Number of respondents using Energy statistics	Total number of respondents	Energy statistics (%)
Students, academic and private users	158	734	21.5%
Public administration and National Statistical Institutes	50	326	15.3%
Business users	48	181	26.5%
EU institutions and agencies	28	154	18.2%
Media	20	38	52.6%
International organisations, political parties and			
organisations	11	53	20.8%
Total	315	1486	21.2%

Table 4. Main users of energy statistics

Concerning the impression of users on the quality of energy statistics, the following results were obtained:

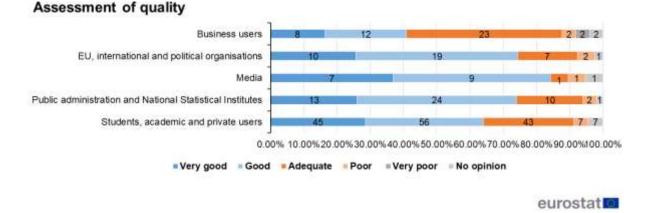
Table 5. Overall impression on the quality of energy statistics

Very Good	Good	Adequate	Poor	Very poor	No opinion	
26.3%	38.1%	26.7%	4.4%	0.6%	3.8%	

The above results show that almost 65% of the users find that the quality of statistics in the energy domain is good to very good. This result is of extreme importance, taking into account that 75% of energy statistics users answered that European statistics is essential or important for their work.

The following graph shows the assessment of the overall quality of energy statistics by type of user by different group of users.

Figure 1. Assessment of the quality of energy statistics by group of users



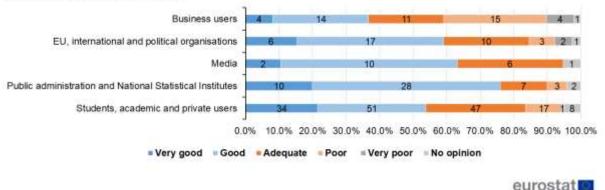
Timeliness is for users one of the most important criterion when assessing the usefulness of statistics. The table below shows the assessment of timeliness of energy statistics.

Table 6. Assessment of timeliness of energy statistics

Very good	56	17.8%
Good	120	38.1%
Adequate	81	25.7%
Poor	38	12.1%
Very poor	7	2.2%
No opinion	13	4.1%

The graph below shows the assessment of timeliness of energy statistics disaggregated by group of users.

Figure 2. Assessment of timeliness of energy statistics by group of user



However, the information about energy statistics obtained through the Eurostat general satisfaction surveys is not sufficiently detailed. For this reason, a dedicated user satisfaction survey targeting specific users of energy statistics was launched, with the aim of obtaining more detailed information about user satisfaction with the different energy data collections. This survey was advertised within the dedicated section for energy on the

Assessment of timeliness

Eurostat website and on social media. It was launched in December 2022 and remained accessible for one month. The main shortcoming of this survey is the very low number of respondents (36). For that reason, it is not possible to draw definitive conclusions from the specific user satisfaction survey beyond the fact that similar findings are observed in both surveys as regards user satisfaction with energy statistics.

Error! Reference source not found. shows the type of targeted users of energy statistics according to the specific user satisfaction survey.

Type of user	Percentage
Individual citizen	67%
Business: Commercial or industrial sector, private company	6%
Research: University, Think-tank, Research organization	8%
NGOs	0%
Press, Media and Journalists	0%
National statistical office	11%
Other national administration: Ministry, Federal/Local/Municipal administration	3%
European institution: European Commission, European Parliament, European Council or other	6%
Other international organisation	0%
Other, not specified above	0%

Table 7. Users of energy statistics

By far the highest number of respondents belong to the category of individual citizens. However, due to the low number of total respondents in this survey, we cannot make any definite conclusions on the type of users.

In this specific survey, users were asked on their opinion about metadata, methodology description and other supporting documentation for energy datasets available and published by Eurostat in the energy domain. The following answers were obtained:

Table 8. Users' opinion about metadata and other supporting documentation

Very good	19%
Good	42%
Adequate	6%
Poor	3%
Very poor	3%
No opinion	28%

Some specific complaints referred to the complexity of metadata and lack of clarity. However, most respondents find that it is of good quality.

In order to evaluate user's perception on the evolution of the quality of Eurostat energy statistics, users were asked about their overall impression of these statistics compared to the situation 5 years ago. The following answers were obtained:

Very good	22%
Good	25%
The same	3%
Poor	3%
Very poor	0%
No opinion	47%

Table 9. Eurostat energy statistics compared to 5 years ago

3.1.3. Use of Eurostat energy data and visits to the energy dedicated section

Another way to assess the relevance of energy statistics is analysing the number of times the data were accessed or the energy website was visited. The energy website is regularly among the top visited dedicated sections of Eurostat. For example, in January 2020 it was the fourth most visited dedicated section, in January 2021 it jumped to the third place, and in January 2022 it was the second most visited dedicated section (out of a total of 61 sections). In total, 10% of all visits to Eurostat dedicated sections were visits to the energy dedicated section in July 2022, when it was again the second most visited section.

The following graph shows the total number visits to Eurostat's energy dedicated section.

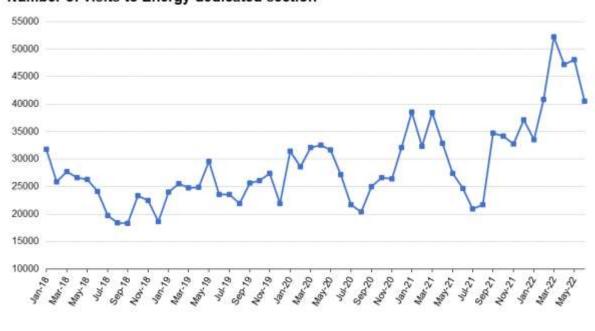


Figure 3. Number of visits to the Eurostat's Energy dedicated section, January 2018 – June 2022

Number of visits to Energy dedicated section

eurostat

As observed by the development of the number of visits, interest in energy data is increasing, emphasizing the importance of retaining relevance, in particular by continuing to provide accurate and as timely as possible data.



3.2. Completeness

Completeness is the extent to which all statistics that are needed are available.

If certain indicators, variables and/or domains foreseen by the ESS or regulations are not covered, the statistical outputs are incomplete. As regards energy statistics, the evaluation of completeness of the statistical outputs could be carried out by comparing published data with the requirements laid down in Regulation (EC) 1099/2008. Although this exercise is not included in this report, it is recommended to carry it out in the future.

Annexes B, C and D of Regulation (EC) 1099/2008 on energy statistics describes the scope, units, reported period, frequency and transmission modalities for, respectively, the annual, monthly and short-term monthly collections of energy statistics.

3.2.1. Completeness of national data sent to Eurostat

In their national quality reports, countries reported on the completeness of the questionnaires that they send to Eurostat. They were asked to specify how many missing data points there are in their submissions to Eurostat. It should be noted that a missing data point does not refer to confidential data points or to those with a true zero value, but rather to data points whose zero value is a result of insufficient information available to the statistical office. In general, energy data that Eurostat receives from the reporting countries has a very high level of completeness, with only very few countries reporting a small number of missing data points in some questionnaires. Detailed information on the completeness of national data sent to Eurostat can be found in national metadata in the Relevance section.

We can conclude that the completeness of energy data is very good and that there are very few missing data points in the annual and monthly collections covered by this quality report.

3.3. Confidentiality

Another aspect which is relevant to completeness concerns data that cannot be published for confidentiality reasons. While respecting the possibility of countries to declare their data as confidential, valid justification should be provided in these cases. Regulation (EC) No 223/2009 on European statistics (recital 24 and Article 20(4)) of 11 March 2009 (OJ L 87, p. 164), stipulates the need to establish common principles and guidelines ensuring the confidentiality of data used for the production of European statistics and the access to those confidential data with due account for technical developments and the requirements of users in a democratic society.

In energy statistics, most of the questionnaires used for data transmission do not have the option to signal that a certain value is missing due to confidentiality. Therefore, countries are encouraged to accompany the



transmission of questionnaires with confidentiality sheets, indicating the confidential values and the reasons for their confidential treatment. Currently, Eurostat is in the process of developing new questionnaires for all energy data collections. These new questionnaires are in use as of calendar year 2023 for some data collections and will eventually be deployed for all data collections. They will include the option to flag data as confidential, thus giving users a better understanding of the reasons why certain values are unavailable.

Confidentiality in energy statistics has been a recurring topic of discussion in the Energy Statistics Working Group. Eurostat is committed to protecting primary and secondary confidentiality and data of single statistical units. However, it is important to find the right balance and not to compromise the usefulness of the data. For Eurostat, confidentiality can present a problem particularly if it affects the publication of EU aggregates.

In general, the preferred method of treating confidential data in energy statistics is currently data suppression. It is especially important not to distort commodity balances by using simple data suppression, since commodity balances provide key energy information for individual countries.

For this reason, countries should also consider using alternative methods where appropriate, such as rounding or perturbation.

Once the new questionnaires for energy statistics are in use, it is recommended to analyse the extent of confidentiality in individual data collections across different reporting periods.

Confidentiality treatment should continue to be discussed in the context of the Energy Statistics Working Group, in order to ensure that energy statistics remains complete and relevant.

In their national quality reports, for each of the data collections covered by this report, countries specified whether any of the data points in the questionnaires they submit receive confidential treatment. Table 10 gives an overview of the countries' answers. Details on the specific data points concerned can be consulted in the national metadata in the section on Confidentiality.

	EU data collections - confidential data points Monthly oil												
COUNTRY	COIR	Monthly solid fossil fuels	Monthly electricity and heat	Monthly natural gas	and petroleum products	Annual nuclear	Annual electricity and heat	Annual natural gas	Annual oil and petroleum products	Annual renewables and wastes	Annual solid fossil fuels	SHARES	Disaggregate FEC in huoseholds
BE	YES	NO	NO	NO	NO	NO	NO	YES	YES	NO	YES	NO	NO
BG	YES	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	NO
CZ	YES	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO
DK	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
DE	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
EE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
IE	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	YES	NO	NO
EL	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
ES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
FR	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO
HR	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
IT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
CY	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
LV	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
LT	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
LU	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
HU	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
MT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
NL	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO
AT	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
PL	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
PT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
RO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
SI	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
SK	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
FI	YES	YES	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO
SE	YES	NO	NO	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
BA	N/A	NO	NO	N/A	N/A	N/A	NO	NO	NO	NO	NO	NO	NO
ME	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MD	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
MK	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
RS	N/A	NO	NO	NO	NO	N/A	NO	N/A	NO	NO	NO	NO	NO
TR	N/A N/A	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
UA	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GE	N/A N/A	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

Table 10. Confidentiality in EU data collections

4. ACCURACY AND RELIABILITY

Accuracy of data is the closeness of computations or estimates to the exact or true values that the statistics were intended to measure.

Reliability of data is defined as the closeness of the initial estimated value to the subsequent estimated value.

Statistics can be different from the true values because of random variability (the statistics change from implementation to implementation of the survey due to random effects) and/or bias (the average of the possible values of the statistics from implementation to implementation is not equal to the true value due to systematic effects).

Several types of error, stemming from all survey processes, contribute to the error of the statistics (their bias and variability). A certain typology of errors is widely adopted in statistics. **Sampling errors** affect only sample surveys; they are due to the fact that only a subset of the population, usually randomly selected, is surveyed. **Non-sampling errors** affect sample surveys and complete enumerations alike and comprise the following: 1. Coverage errors; 2. Measurement errors; 3. Processing errors; 4. Non-response errors.

The accuracy of the basic data depends on the quality of the national statistical systems and may vary from country to country. In several countries and for most energy commodities, data provision by the companies is required by law. However, the complex situation of the energy market in some countries poses a challenge as regards data accuracy in some cases (due to multiplication of data sources, for example).

Some problems are still observed in terms of accuracy of data provided by Member States, for example, relating to declarations of energy imports and exports or accuracy of monthly data.

As indicated above, accuracy (and, in general, quality of energy statistics) can be sometimes compromised as a consequence of a decrease in available resources (in Member States and Eurostat).

Based on the experience from the first and second quality reporting exercises on energy statistics, the questionnaire for this exercise was revised to cover more detailed quantitative information on the errors mentioned above. Member States were requested to convey, for each national data collection, both the collection method as well as a respective number for:

- target population,
- population frame,
- sample size,
- and non-response rate.

In addition, it was possible to indicate and give dedicated information on:

- measurement errors,
- processing errors,
- sampling errors,
- and classification errors.

A quantitative analysis was requested specifically for:

- common units proportion
- over-coverage rate
- unit non-response rate
- item non-response rate
- and measurement error rate

All this information is available in the national metadata in the sections on Accuracy and Statistical processing. It must be stated that both the qualitative and the quantitative information provided by several countries in the quality report is incomplete. These countries are expected to complete the missing information using the ESS Metadata Handler.

In the Accuracy section, countries defined the most common errors for specific data collections. Based on the answers, we can conclude that the most common errors in national energy data collections are measurement errors, processing errors and classification errors.

As observed, most of the countries are able to identify the main reasons for different type of errors in their data collections and are investing efforts to prevent and correct them.

Sections 4.1 and 4.2 provide more details on the sampling and non-sampling error. Section **Error! Reference source not found.** provides an analysis of the statistical difference in energy balances as retrieved from annual data, the presentation of the methods applied and general findings. As identified in the 2017 Quality report, it is also deemed extremely useful to calculate confidence intervals for certain variables of energy balances. Section 4.4 shows confidence intervals for gross inland consumption and final energy consumption for all reporting countries for reference year 2019 and 2020.

A quantitative analysis of accuracy as presented in this report should remain a standard part of quality reports on energy statistics. In addition, the accuracy of the main balance aggregates at European level would be possible if countries provide their confidence intervals for certain variables (e.g. production, imports, final energy consumption, etc.). A quantitative characterisation of this nature would be extremely useful in order to know how accurate energy statistics are. For the next quality reporting exercise, it is recommended that countries provide their calculation of the confidence intervals for the most important variables.

4.1. Sampling errors

Sampling errors affect only sample surveys and arise from the fact that not all units of the frame population are surveyed. The *frame* is a device that permits access to population units, such as a list of companies operating in a certain energy field. The *frame population* is the set of target population units which can be accessed through the frame and the survey's conclusions apply to this population.

For each national data collection, the target, frame and sample used when available can be found in the national metadata, in the section on Statistical processing, and for ease of access it is also available in Annex 2.

Several countries indicated that sampling errors are non-existent or negligible, such as Denmark, Greece, Lithuania, Portugal, Finland and Montenegro.

4.2. Non-sampling errors

4.2.1. Coverage errors

Coverage errors (or frame errors) appear in sample surveys. They are due to divergences between the target population and the frame population. Possible divergence types are undercoverage (i.e. the frame population does not include all units of the target population), overcoverage (i.e. the frame population includes units which do not belong to the target population) and misclassification (i.e. units in the frame population which belong to the target population but are wrongly classified). These errors can be estimated by comparing frame population with target population. Moreover, coverage errors in the broader sense can be introduced also in full-coverage surveys, namely when thresholds are applied. In this case, the specification of these thresholds but also a comparison of the sizes of target and frame populations can be done by consulting the section on Statistical Processing in the national metadata. Details on coverage errors with a calculation of the overcoverage rate can be found in the Accuracy section of national metadata.

In general, based on the national quality reports, we can conclude that coverage errors do not present a significant issue in national energy data collections. Many countries indicated that there were no coverage errors in their data collections, such as Bulgaria, Greece, France or Italy.

4.2.2. Measurement errors

Measurement errors are errors that occur during data collection and cause the recorded values of variables to be different from the true ones. Their causes are commonly categorised as:

- *Survey instrument*: the form, questionnaire or measuring device used for data collection may lead to the recording of wrong values.
- *Respondent*: respondents may, consciously or unconsciously, give erroneous information.
- *Interviewer*: interviewers may influence the answers given by respondents.

In the present quality reporting exercise countries were encouraged to report if these errors occur in particular data collections, and to calculate the measurement error rate for selected variables. As reported by the countries, measurement errors are relatively common and their main causes are inaccuracies linked to difficulties to report in the proposed units, differences in measured and registered data, misunderstanding of some questions by respondents, unwillingness of respondents to cooperate, etc.

4.2.3. Processing errors

Between data collection and the beginning of statistical analysis for the production of statistics, data must undergo a certain processing: coding, data entry, data editing, imputation, etc. Errors introduced at these stages are called *processing errors*. In the present quality reporting exercise, countries were encouraged to report if these errors occur in particular data collections. As reported in the quality countries, in some countries processing errors are relatively common and their main causes are inaccuracies linked to manual imputation errors (e.g. displaced digits when entering information, missing commas, missing updates in some data etc) or errors in source code and heavy reliance on MS Excel. On the other hand, several countries reported that they were unaware of any processing errors in their data or that these errors were extremely rare, such as Bulgaria, Denmark, Spain, Italy, Latvia, Lithuania, the Netherlands, Poland and Slovakia.

4.2.4. Non-response errors

Non-response is the failure of a survey to collect data on all survey variables, from all the population units designated for data collection in a sample or complete enumeration. The difference between the statistics computed from the collected data and those that would be computed if there were no missing values is the *non-response error*.

During this exercise, Member States were requested to systematically report unit non-response rates for each national data collection and item nonresponse rates for selected variables. The results are available in the national metadata, in the section on Accuracy.

4.3. Statistical difference in annual energy balances

Generally, an independent source of information on methodological quality may be obtained from nontrivial cross-checks between the values of the same indicator as inferred from *different* surveys resp. collection methods. In the context of energy balances, the statistical difference (SD) between the energy available for final consumption on one hand and the aggregate of final energy consumption and final non-energy consumption on the other hand represents a prime example for this. The SD is regularly calculated in the annual energy balances at EU level, and is therefore accessible from the reference year 1990 onwards.

4.3.1. Analysis method

In order to make the specific SD values comparable in the break-down by reference year, reporting country, and product or fuel, we compute the *relative* SD, defined as the absolute SD value normalised by the respective amount of energy available for final consumption. This calculation is done for "All products" (sum of all fuels) of the energy balance. Furthermore, in the time series between 1990 and the current reference year for annual data 2020, there are two statistical quantities which allow us to estimate systematic effects in the SD evolution:

- statistical pull: the number of sigma the point differs from the experimental central value. It is defined as the mean value divided by the standard deviation of a set of numbers (e.g. time series, disaggregation by products, etc.). In this case, it is a measure for the significance of a deviation of the SD to a certain direction, i.e. a systematic bias between the production and consumption side of the balance.
- *time correlation*: for example estimated by Pearson's product-moment correlation coefficient; it indicates linear trends in the time evolution of the SD.

Of course, there is ample reason for varying SD sizes among different Member States. Moreover, a large SD does not automatically indicate a problematic methodology; it might simply result from a well-understood discrepancy between the definitions of the compared indicators. Similarly, a particularly small SD does not immediately allow us to infer a solid methodology, because it could have been artificially lowered. This is why SDs which are exactly zero are treated here as not available.

Indeed, in complex collections when comparing top-down with bottom-up approaches, one should not expect to have zero statistical difference (SD). For each combustible fuel in the energy balance, a systematic zero means less statistical information available for data compilation. In other words, due to the lack of statistical input (data) the methodology applied inherently hides the SD within some other flow of the energy balance. If the SD over time shows regularly similar values this might indicate systematic problems and countries should check their different methodologies/survey samples etc. as this might indicate constant under or over reporting.

In summary, a small SD (not equal to zero) is usually preferable to a method which hides the SD in other flows (transport losses, stock changes etc.).

4.3.2. Break-down by countries

In order to get an impression of relative SD sizes in the annual energy balances, in the table below we show the value of the SD of all participating countries for selected reference years (statistical difference relative to the amount of energy available for final consumption), plus the mean magnitude (calculated from the absolute values of the SD) and Pearson correlation in the full time series from 1990 to 2021.

Table 11. Total relative SD in % in selected reference years (for all products), plus mean magnitude and Pearson correlation for all the years between 1990 – 2021, by reporting country

	1990	2000	2015	2017	2018	2019	2020	2021	mean magnitude	correlation
		-						-		
EU27	0.818	0.499	-0.344	0.405	0.556	0.483	0.086	0.502	0.302	0.108
BE	-1.728	0.448	0.312	0.419	0.134	0.515	0.398	0.477	0.736	0.210
BG	0.479	0.639	0.712	0.461	2.571	1.343	3.147	1.367	1.590	0.521
cz	4.972	1.074	1.176	- 0.182	0.036	- 0.159	- 0.501	0.203	1.654	-0.209
DK	-0.108	0.029	0.054	2.298	2.708	3.806	4.284	2.791	1.277	0.559
DE	-0.289	0.987	-0.209	0.593	0.728	1.335	0.518	- 2.676	0.883	-0.025
EE	16.981	1.515	- 15.865	3.567	1.851	0.558	1.853	1.719	5.945	-0.336
IE	-0.267	4.882	1.180	0.938	- 1.560	0.233	0.439	- 0.037	2.843	0.219
EL	-1.557	0.993	0.636	0.591	- 1.584	0.582	- 5.107	- 4.395	1.896	-0.205
ES	-0.146	0.501	-1.654	0.928	0.532	- 0.669	- 0.485	- 0.228	0.654	-0.353
FR	2.977	- 3.532	1.657	1.030	1.288	1.850	0.461	- 0.264	1.190	0.468
HR	0.011	0.003	0.001		0.015	- 0.040			0.021	0.477
IT	0.129	0.461	-0.922	- 0.240	- 1.313	- 1.227	- 0.503	- 0.323	0.649	-0.546
СҮ	8.457	0.773	-0.703	- 0.004	0.876	- 0.200	0.361	- 0.372	2.610	-0.293
LV	-0.062	- 1.447	-0.193	- 0.270	- 0.448	- 1.163	- 0.521	- 0.642	0.650	-0.063
LT		- 3.577		- 0.212	0.000	- 0.160	0.000	0.000	0.445	0.071
LU	0.004	0.162	-0.026	0.039	- 0.033	0.019	0.003	0.000	0.094	-0.450
HU	-0.833	- 0.037	-1.067	- 1.365	- 1.031	- 0.746	- 0.803	- 0.417	0.969	-0.527
мт			-1.634		0.052	0.054	0.012	0.135	3.823	0.835
NL	-2.229	- 0.670	-0.613	0.061	0.460	0.384	1.223	0.736	0.996	0.813
AT	0.055	0.196	0.004	0.008	- 0.001	0.002	0.003	0.006	0.048	-0.021
PL	6.171	- 1.410	-2.036	- 0.534	1.323	0.328	1.411	1.348	1.555	-0.397
РТ	3.726	- 0.491	-0.206	- 0.575	0.359	0.422	0.326	- 0.520	0.516	-0.323
RO	1.724	1.168	0.373	1.306	1.749	0.882	1.277	0.992	1.712	-0.208
SI	0.544	0.148	0.084	0.112	0.434	0.359	0.240	0.167	0.428	0.007
SK	-1.988	3.207	0.382	0.313	0.197	0.243	- 0.106	0.092	1.277	-0.337
FI	-3.522	- 2.477	-1.333	- 0.326	- 0.128	- 1.825	0.070	- 1.456	1.625	0.304

Accuracy and reliability

	1000	2000	2015	2017	2010	2010	2020	2024	mean	
	1990	2000	2015	2017	2018	2019	2020	2021	magnitude	correlation
SE	-2.165	- 1.445	-4.417	1.739	3.636	0.066	- 0.189	0.826	2.126	0.419
IS	3.908	0.807	-0.089	2.234	- 2.423	0.800	1.116	- 1.187	0.889	-0.418
NO	-0.879	5.309	- 12.389	1.859	3.794	- 2.794	- 0.921	1.104	5.588	0.134
ва			2.639	0.108	0.012	- 0.156		0.000	0.813	-0.772
ME			1.594	1.297	1.450	0.108	- 0.079		0.450	0.484
MD			-0.004	0.001	- 0.035	0.000	0.003	0.000	0.019	-0.419
мк	1.406	0.252	-1.251	0.750	- 1.291	0.717	- 0.088	- 0.738	0.723	-0.373
AL	0.385	1.025	0.035	0.039	0.000	0.036	5.912	0.000	1.909	0.408
RS	0.002	0.929	0.058	- 0.285	0.032	- 0.232	1.554	- 0.419	1.126	0.110
TR	-1.194	1.267	0.267	0.439	0.262	0.605	- 0.638	0.323	0.552	0.097
UA	-1.686	0.249	1.324	3.386	3.403	0.750	2.118		1.904	0.197
хк		- 0.206	-0.471	0.700	- 0.222	0.221	0.436	3.236	0.476	0.275
GE	0.818	- 0.499	-0.034	0.114	0.012	0.000		- 0.319	0.220	0.208

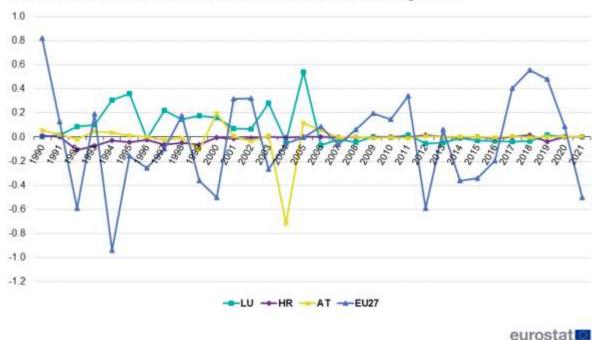
Most SD magnitudes vary between 0.1% and 2%. Moldova reported the smallest SDs (mean magnitude 0.019%), however for Moldova the timeseries starts only in 2010. For countries with a full time series, Croatia reported the smallest SDs (mean magnitude 0.021%), followed by Austria (0.048%) and Luxembourg (0.094%). These SDs are so small over the whole time series that it might be the inherent result of the methodology used. On the other side, Estonia reported the largest SD (5.945%), followed by Norway (5.588%), Malta (3.823%, although this is not comparable with the rest, due to only zeroes reported in several questionnaires for several years) and Ireland (2.843%).

Finally looking at the Pearson correlation coefficients in Table 11, the general message is that there are no conspicuous features, with values fluctuating between 0 and 0.6 for the vast majority of reporting countries. The only noticeable overshoots are Hungary (0.835) and The Netherlands (0.813).

For illustration, we show the relative SD as a function of the reference year for the three countries with the smallest mean magnitudes and an uninterrupted reporting history in Figure 4, and for those three countries with the largest mean magnitudes and an uninterrupted reporting history in

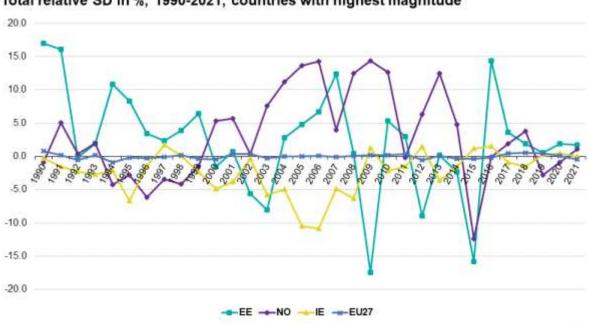
Figure 5. In each case, the EU aggregate is superimposed for reference.

Figure 4. Total relative SD in % in the period 1990 - 2021, for the three countries with the lowest mean magnitude plus EU



Total relative SD in %, 1990-2021, countries with lowest magnitude

Figure 5. Total relative SD in % in the period 1990 - 2021, for the three countries with the highest mean magnitude plus EU



Total relative SD in %, 1990-2021, countries with highest magnitude

eurostat

The statistical pull takes into account possible bias and computes how systematic are the statistical differences in being either consistently positive or negative. Coming to the pull analysis, it is instructive to split the available time frame 1990-2021 into several 10-year periods over which the pull is computed. This allows not only to quantify systematic biases over these periods, but also to identify any long-term trends if available. The results are presented in Table 12, where pulls with a magnitude of less than 1σ have

been flagged green ("consistent with zero"), magnitudes between 1σ and 3σ black ("indication for a bias"), and magnitudes above 3σ red ("significant bias").

Table 12. Statistical pull of the total relative SD over several 10-year periods, by reporting country

	1990-1999	2000-2009	2006-2015	2012-2021	1990-2021
EU27	-0.228	0.039	-0.158	-0.096	-0.075
BE	-0.328	-0.280	-0.285	-0.070	-0.169
BG	-0.695	0.666	1.804	1.165	-0.032
CZ	0.301	1.114	0.502	0.243	0.413
DK	-0.418	-0.974	-0.372	1.532	0.089
DE	-0.231	1.620	0.577	-0.208	0.294
EE	1.171	-0.058	-0.171	-0.038	0.282
IE	-0.797	-1.346	-0.690	-0.172	-0.730
EL	0.040	-0.837	-0.496	-0.121	-0.369
ES	0.377	-0.796	-0.798	-0.598	-0.275
FR	-0.460	-0.301	1.316	1.685	-0.004
HR	-1.213	-0.675	0.252	-0.173	-0.567
IT	0.230	-0.365	-1.162	-1.240	-0.533
СҮ	0.393	-0.436	-0.512	-0.331	0.019
LV	-0.133	-0.710	-0.418	-0.974	-0.417
LT	-0.078	-0.710		-0.719	-0.391
LU	1.121	0.507	-0.918	-0.911	0.479
HU	0.658	0.274	-0.452	-1.249	0.105
МТ			0.197	-0.181	-0.516
NL	-3.398	-1.200	-2.650	-0.057	-0.858
AT	0.051	-0.149	0.318	0.995	-0.073
PL	0.670	-0.059	-0.390	-0.196	0.236
РТ	0.425	1.056	0.494	-0.139	0.350
RO	0.480	0.456	0.124	0.124	0.402
SI	0.202	1.416	1.593	1.330	0.462
SK	1.100	-0.116	2.009	1.338	0.442
FI	-0.565	-0.350	-0.051	-0.620	-0.422
SE	-1.257	-1.898	-0.187	0.252	-0.420
IS	0.810	1.185	0.094	-0.016	0.425
NO	-0.471	1.786	0.815	0.216	0.465
BA				0.591	0.591
ME		0.040	0.319	0.844	0.578
MD			0.573	0.310	0.300
МК	0.406	0.026	-0.234	-0.167	0.141
AL	-0.487	-0.264	-0.634	0.246	-0.245
RS	-0.267	0.891	0.674	0.086	0.250
TR	-0.050	-0.174	-0.021	0.361	0.099
UA	0.329	-0.404	0.170	0.439	0.126
ХК		0.106	-0.507	0.151	0.134
GE				-0.372	-0.372

Based on the most recent ten-year period 2012–2021, we cannot identify any country with a significant bias. An indication of a bias is present in France (+1.6 σ), Denmark (+1.5 σ), Slovenia, Slovakia (both 1.3 σ), Italy and Hungary (both 1.2 σ). However, none of the countries show an indication for a long-term bias over the whole period 1990-2021.

4.3.3. Break-down by products

So far the statistical difference (SD) discussion resorted to the total aggregate of all fuels. One could now disaggregate this by fuel. Table 13 shows the absolute value of the SD relative to the energy available for final consumption (in percentage). SDs equal to zero have been removed from the table.

Table 13.	Total	relative	SD	in	%	for	2021,	by	reporting	country	and	fuel
family												

	Solid fossil fuels	Oil and petroleum products	Gas	Electricity	Renewables
EU	2.748	-1.288	-0.585	0.210	0.134
BE	-7.387	0.983	0.000	1.026	-0.001
BG	11.242	1.178	5.378	-1.271	
cz	-3.216	-0.342	-0.014	1.511	
DK	28.560	8.415	-8.139	0.073	1.199
DE	13.043	-5.647	-2.981		-0.048
EE			-0.056	6.125	-0.075
IE	0.718	-1.138	0.619	0.101	-2.728
EL	-0.637	-9.883	0.707	0.986	-0.089
ES	6.084	-0.662	0.335	0.037	0.042
FR	-33.540	0.013	-0.537	0.029	0.102
HR					
IT	-38.724	-0.731			
СҮ		-0.607		0.013	-0.233
LV		-1.864	0.040		
LT			0.001		
LU	0.002	0.000			-0.001
HU	0.574	-0.151	-2.078	1.054	
МТ			100.000		
NL	-1.441	0.644	0.698	1.378	0.236
AT	0.051	0.013			0.001
PL	3.738	0.787	4.004	0.000	
РТ	-0.539	-0.872	-1.495	0.155	0.020
RO	-17.339	3.772	0.497	1.244	-3.640
SI	0.099		0.006		
SK	3.525	-0.007	0.001		
FI	1.520	-4.830	-2.828	-0.002	0.018
SE	1.344	-1.125	2.325		2.944
IS	22.630	5.454			-519.036
NO	2.421	2.330	8.087	-0.068	-0.051
BA		0.007	-0.013		
ME				-0.009	
MD			0.000		
МК	-18.861		0.198		
AL		0.000			
RS	-11.068	-0.308		0.000	

	Solid fossil fuels	Oil and petroleum products	Gas	Electricity	Renewables
TR	-2.272	1.226	0.259		0.000
UA					
хк	5.199	5.108			
GE		-1.137	-0.013	1.802	0.800

<u>Solid fossil fuels</u>: Several countries have a very high relative SD for 2021: Italy, France, Denmark, Iceland, Romania. However, as described above, the statistical difference is divided here with energy available for final consumption, and a relatively low amount of solid fossil fuels goes into final energy consumption sectors (most of it is transformed into electricity in the transformation sector). Therefore, the SD refers to very small values and the high percentages shown here do not necessarily point to an accuracy issue.

<u>Oil and petroleum products</u>: The relative SD is in general very low, with the highest SD reported by Greece and Denmark.

<u>Gas</u>: In Malta, there is no final consumption of natural gas, as all the gas is used in the transformation sector. Therefore the 100% SD shown here does not provide a correct picture. The two other countries with a relatively high SD for natural gas are Denmark and Norway.

<u>Electricity</u>: The SD in electricity is on a very low level for all the countries, with the exception of Estonia in 2020.

<u>Renewables:</u> The SD in renewables is also very small if compared with the rest of energy commodities. In the case of Iceland, renewables are mostly used in the transformation sector and therefore the high SD is a result of a very small figure for energy available for final consumption.

In summary, the analysis of the SD shows that most of the countries keep their statistical differences within reasonable ranges (well below 5%), and in many cases the statistical difference is zero. However, in some cases they can be significantly higher. This is especially worrying when the average of the statistical difference over the whole period is high and the pull shows a clear bias.

In general, in case of large statistical differences, countries should investigate the causes and implement additional methods to improve accuracy of other variables.

In case the statistical difference is zero, countries should investigate if all the data is available for all the variables and if the statistical difference is hidden in a different flow.

4.4. Confidence intervals

In the 2017 Quality report it was recommended to calculate confidence intervals (CI) for certain variables of the energy balance, in an attempt to further quantify the accuracy of energy statistics. To this end, as part of a project on quantitative indicators of quality, Eurostat developed a methodology for calculating confidence intervals. As indicated in Section 2.3, the Energy Statistics Working Group approved the proposed indicators, albeit with certain concerns expressed by several countries regarding specifically the CI.

Energy statistics, especially at the highest levels of aggregation, are the result of statistical processes that comprise several operations and data sources. Therefore, one cannot use sampling theory or the theory that applies to independent, identically distributed observations from well-defined distributions to derive confidence intervals. The methodology applied for the calculation of CIs aims to produce CIs based only on the observed variability of published energy data and their revision history. In brief, the logic is that the revisions incurred on past data points can provide a measure of their uncertainty and of the 'expected' uncertainty of the most recent data points, even those published for the first time. At the same time, the methodology separates the uncertainty of estimates from the 'natural' variability of the energy estimates that is due to the temporal evolution of the energy quantities. Detailed methodology for the calculation of the confidence interval is available as part of the results of the project on quantitative indicators of quality, in the Quality section of the Energy website.

Table 14 and Table 15 show the confidence intervals, calculated based on the revision history, for two variables of the energy balance – Final energy consumption and Gross inland consumption – for the reference years 2019 and 2020. In line with the methodology adopted, the more mature the estimate, i.e. the earlier the reference year, the narrower the confidence band. This reflects the assumption that each revision improves an estimate. At the time of the calculation of CI, there were no revisions of the 2020 values, therefore the CI is typically bigger for that year.

	Reference year	Final energy consumption	95% CI Lower Limit	95% CI Higher Limit	Variation in percentage
BE	2020	31 039.2	28 347.6	33 730.8	31 039.2 ± 8.7%
DC	2019	32 579.8	32 577.3	32 582.3	32 579.8 ± 0.0%
BC	2020	9 512.7	9 375.7	9 649.8	9 512.7 ± 1.4%
BG	2019	9 706.8	9 705.7	9 707.9	9 706.8 ± 0.0%

Table 14. Confidence intervals for Final energy consumption for reference years 2019 and 2020

	Reference year	Final energy consumption	95% CI Lower Limit	95% CI Higher Limit	Variation in percentage
cz	2020	23 753.4	23 753.4 22 517.3 24 989.5		23 753.4 ± 5.2%
CZ	2020 23 733.4 22 317.3 2019 24 222.3 23 048.1		25 396.6	24 222.3 ± 4.8%	
DK	2020	13 130.8	12 539.9	13 721.7	13 130.8 ± 4.5%
DK	2019	13 546.7	13 322.4	13 771.0	13 546.7 ± 1.7%
DE	2020	193 617.0	179 916.7	207 317.2	193 617.0 ± 7.1%
DE	2019	200 804.3	190 591.4	211 017.3	200 804.3 ± 5.1%
EE	2020	2 726.8	2 693.9	2 759.7	2 726.8 ± 1.2%
CC	2019	2 823.3	2 812.1	2 834.5	2 823.3 ± 0.4%
IE	2020	10 840.2	10 044.3	11 636.1	10 840.2 ± 7.3%
10	2019	11 317.0	11 315.2	11 318.8	11 317.0 ± 0.0%
EL	2020	14 482.9	13 679.1	15 286.6	14 482.9 ± 5.5%
EL	2019	15 401.1	14 710.8	16 091.4	15 401.1 ± 4.5%
ES	2020	72 323.3	66 338.2	78 308.3	72 323.3 ± 8.3%
	2019	81 513.8	77 180.8	85 846.7	81 513.8 ± 5.3%
FR	2020	128 169.0	124 281.7	132 056.2	128 169.0 ± 3.0%
	2019	139 131.3	135 459.0	142 803.5	139 131.3 ± 2.6%
HR	2020	6 432.0	6 249.8	6 614.2	6 432.0 ± 2.8%
	2019	6 726.4	6 599.2	6 853.6	6 726.4 ± 1.9%
ІТ	2020	103 057.1	99 428.5	106 685.8	103 057.1 ± 3.5%
	2019	113 119.5	113 116.4	113 122.5	113 119.5 ± 0.0%
сү	2020	1 528.6	1 320.1	1 737.1	1 528.6 ± 13.6%
	2019	1 626.7	1 421.3	1 832.0	1 626.7 ± 12.6%
LV	2020	3 798.2	3 674.4	3 922.0	3 798.2 ± 3.3%
	2019	3 924.7	3 800.9	4 048.5	3 924.7 ± 3.2%
	2020	5 284.2	5 173.1	5 395.3	5 284.2 ± 2.1%
LT	2019	5 460.0	5 363.6	5 556.4	5 460.0 ± 1.8%
LU	2020	3 265.5	2 837.4	3 693.6	3 265.5 ± 13.1%

	Reference year	Final energy consumption	95% CI Lower Limit	95% CI Higher Limit	Variation in percentage
	2019	3 790.4	3 789.5	3 791.2	3 790.4 ± 0.0%
	2020	17 601.5	16 263.7	18 939.4	17 601.5 ± 7.6%
HU	2019 17 969.6 16 871.4		19 067.9	17 969.6 ± 6.1%	
	2020	499.9	343.2	656.5	499.9 ± 31.3%
МТ	2019	544.5	402.1	686.9	544.5 ± 26.2%
	2020	42 261.8	41 575.3	42 948.2	42 261.8 ± 1.6%
NL	2019	44 317.2	44 275.9	44 358.5	44 317.2 ± 0.1%
	2020	24 817.3	22 715.5	26 919.0	24 817.3 ± 8.5%
AT	2019	26 227.6	24 149.1	28 306.2	26 227.6 ± 7.9%
PL	2020	70 250.6	66 646.9	73 854.4	70 250.6 ± 5.1%
PL	2019	71 890.7	69 976.9	73 804.5	71 890.7 ± 2.7%
РТ	2020	15 215.2	14 249.3	16 181.0	15 215.2 ± 6.3%
PI	2019	16 356.3	16 166.6	16 546.1	16 356.3 ± 1.2%
RO	2020	23 472.4	23 118.1	23 826.7	23 472.4 ± 1.5%
ĸ	2019	23 712.7	23 367.0	24 058.3	23 712.7 ± 1.5%
SI	2020	4 428.8	4 359.0	4 498.7	4 428.8 ± 1.6%
51	2019	4 862.8	4 811.8	4 913.8	4 862.8 ± 1.0%
SK	2020	9 610.9	8 155.6	11 066.2	9 610.9 ± 15.1%
JK	2019	10 248.4	8 858.0	11 638.8	10 248.4 ± 13.6%
FI	2020	23 191.1	22 075.1	24 307.0	23 191.1 ± 4.8%
ГІ	2019	24 728.5	24 705.2	24 751.8	24 728.5 ± 0.1%
SE	2020	31 454.3	31 041.0	31 867.6	31 454.3 ± 1.3%
SE	2019	31 304.8	31 286.9	31 322.7	31 304.8 ± 0.1%
NO	2020	18 928.6	18 592.3	19 264.9	18 928.6 ± 1.8%
NO	2019	19 471.0	19 138.3	19 803.8	19 471.0 ± 1.7%
ME	2020	696.8	674.3	719.4	696.8 ± 3.2%
ME	2019	760.6	759.3	761.9	760.6 ± 0.2%

	Reference year	Final energy consumption	95% CI Lower Limit	95% CI Higher Limit	Variation in percentage
мк	2020	1 823.9	1 768.3	1 879.5	1 823.9 ± 3.0%
МК	2019	1 937.8	1 893.9	1 981.7	1 937.8 ± 2.3%
RS	2020	8 658.3	8 405.9	8 910.8	8 658.3 ± 2.9%
K5	2019	8 361.0	8 333.1	8 388.9	8 361.0 ± 0.3%
TR	2020	101 143.0	93 113.5	109 172.6	101 143.0 ± 7.9%
IK	2019	99 100.1	98 313.1	99 887.2	99 100.1 ± 0.8%
UA	2020	44 184.2	37 945.9	50 422.6	44 184.2 ± 14.1%
UA	2019	46 886.4	40 917.6	52 855.2	46 886.4 ± 12.7%

Table 15. Confidence intervals for Gross inland consumption for reference years 2019 and 2020 $\,$

	Reference year	Gross inland consumption	95% CI Lower Limit	95% CI Higher Limit	Variation in percentage
BE	2020	51 439.5	50 679.8	52 199.2	51 439.5 ± 1.5%
DE	2019	56 082.7	56 068.3	56 097.1	56 082.7 ± 0.0%
BG	2020	17 837.4	17 697.3	17 977.6	17 837.4 ± 0.8%
ВЧ	2019	18 846.4	18 846.3	18 846.6	18 846.4 ± 0.0%
cz	2020	40 210.7	39 648.9	40 772.5	40 210.7 ± 1.4%
CZ	2019	42 943.6	42 937.5	42 949.6	42 943.6 ± 0.0%
DK	2020	15 886.0	15 328.5	16 443.5	15 886.0 ± 3.5%
DK	2019	17 275.4	16 942.5	17 608.2	17 275.4 ± 1.9%
DE	2020	284 722.5	280 780.7	288 664.4	284 722.5 ± 1.4%
DE	2019	308 145.4	304 456.1	311 834.7	308 145.4 ± 1.2%
EE	2020	4 489.6	3 616.3	5 362.9	4 489.6 ± 19.5%
EC	2019	4 796.9	3 949.1	5 644.7	4 796.9 ± 17.7%
IE	2020	13 717.4	13 601.6	13 833.1	13 717.4 ± 0.8%
10	2019	14 977.9	14 930.8	15 024.9	14 977.9 ± 0.3%

	Reference year	Gross inland consumption	95% CI Lower Limit	95% CI Higher Limit	Variation in percentage	
F 1	2020	20 448.5	20 029.3	20 867.8	20 448.5 ± 2.1%	
EL			23 553.1	23 555.2	23 554.2 ± 0.0%	
ES	2019 23 554 2020 111 794		110 418.1	113 171.2	111 794.7 ± 1.2%	
25	2019	126 832.6	126 832.2	126 833.1	126 832.6 ± 0.0%	
FR	2020	223 721.7	215 275.6	232 167.8	223 721.7 ± 3.8%	
	2019	251 361.5	249 094.3	253 628.8	251 361.5 ± 0.9%	
HR	2020	8 306.6	8 264.2	8 349.0	8 306.6 ± 0.5%	
	2019	8 789.2	8 768.8	8 809.5	8 789.2 ± 0.2%	
ІТ	2020	141 595.4	140 589.7	142 601.1	141 595.4 ± 0.7%	
	2019	155 432.7	154 451.5	156 413.9	155 432.7 ± 0.6%	
сү	2020	2 285.8	2 285.8	2 285.8	2 285.8 ± 0.0%	
	2019	2 626.1	2 626.1	2 626.1	2 626.1 ± 0.0%	
LV	2020	4 361.3	4 355.4	4 367.1	4 361.3 ± 0.1%	
	2019	4 647.7	4 647.3	4 648.1	4 647.7 ± 0.0%	
LT	2020	7 632.6	7 429.0	7 836.3	7 632.6 ± 2.7%	
-	2019	7 802.2	7 802.0	7 802.4	7 802.2 ± 0.0%	
LU	2020	3 964.2	3 956.7	3 971.6	3 964.2 ± 0.2%	
	2019	4 544.0	4 543.9	4 544.0	4 544.0 ± 0.0%	
HU	2020	26 153.0	16 519.9	35 786.0	26 153.0 ± 36.8%	
	2019	26 705.5	26 655.7	26 755.3	26 705.5 ± 0.2%	
мт	2020	761.3	743.7	778.9	761.3 ± 2.3%	
	2019	901.1	893.1	909.2	901.1 ± 0.9%	
NI	2020	71 934.7	70 330.7	73 538.7	71 934.7 ± 2.2%	
NL	2019	76 062.7	76 038.0	76 087.5	76 062.7 ± 0.0%	
A.T.	2020	32 213.9	31 709.8	32 717.9	32 213.9 ± 1.6%	
AT	2019	34 764.5	34 303.6	35 225.4	34 764.5 ± 1.3%	
PL	2020	102 978.7	100 840.2	105 117.2	102 978.7 ± 2.1%	

	Reference year	Gross inland consumption	95% CI Lower Limit	95% CI Higher Limit	Variation in percentage
	2019	106 071.9	106 060.8	106 083.1	106 071.9 ± 0.0%
	2020	21 386.6	20 836.7	21 936.5	21 386.6 ± 2.6%
PT			23 557.1	24 224.2	23 890.7 ± 1.4%
	2020	32 210.5	31 436.9	32 984.1	32 210.5 ± 2.4%
RO	2019	33 205.2	32 451.0	33 959.4	33 205.2 ± 2.3%
	2020	6 321.0	6 167.4	6 474.5	6 321.0 ± 2.4%
SI	2019	6 724.4	6 724.2	6 724.5	6 724.4 ± 0.0%
CIV.	2020	16 446.6	16 053.1	16 840.2	16 446.6 ± 2.4%
SK	2019	17 023.9	16 791.1	17 256.7	17 023.9 ± 1.4%
	2020	32 116.7	31 359.9	32 873.6	32 116.7 ± 2.4%
FI	2019	34 219.2	33 588.1	34 850.3	34 219.2 ± 1.8%
	2020	45 207.9	43 947.8	46 467.9	45 207.9 ± 2.8%
SE	2019	49 721.9	49 720.9	49 723.0	49 721.9 ± 0.0%
	2020	28 462.2	25 956.5	30 968.0	28 462.2 ± 8.8%
NO	2019	29 130.1	26 624.4	31 635.9	29 130.1 ± 8.6%
ме	2020	1 022.5	1 001.4	1 043.6	1 022.5 ± 2.1%
ME	2019	1 112.2	1 091.1	1 133.3	1 112.2 ± 1.9%
	2020	2 599.4	2 534.4	2 664.5	2 599.4 ± 2.5%
мк	2019	2 861.9	2 861.0	2 862.9	2 861.9 ± 0.0%
	2020	15 913.6	15 820.7	16 006.6	15 913.6 ± 0.6%
RS	2019	15 420.4	15 420.4	15 420.4	15 420.4 ± 0.0%
TO	2020	148 064.4	142 036.2	154 092.6	148 064.4 ± 4.1%
TR	2019	150 123.3	145 353.7	154 892.8	150 123.3 ± 3.2%
	2020	86 582.7	83 923.5	89 241.8	86 582.7 ± 3.1%
UA	2019	89 641.5	87 520.5	91 762.4	89 641.5 ± 2.4%

Several members of the Energy Statistics Working Group contested the methodology for calculating confidence intervals based on an analysis of

revision history. However, revision history is the only information available to Eurostat for this calculation. A more accurate confidence interval can only be calculated by the countries, who are familiar with all the inherent issues present in different data collections that Eurostat is unaware of. It is recommended to continue calculating CI in the next quality reporting exercise; however, countries should also attempt to provide their own independent calculations of CI for the same variables.

4.5. Data revision

4.5.1. Data revision policy

In relation to reliability, it must be stated that sometimes it is unavoidable to revise initial data, because e.g. data providers did not send their data in time and therefore initial data contained estimates or because an improvement in the methodology is implemented following the availability of new information.

Although revisions are a normal phenomenon which can contribute to improve data quality, there are no specific guidelines on revisions in Regulation (EC) No 1099/2008 on energy statistics. The legal basis for the development of a revision policy stems from the Article 16 (4) of Regulation (EC) No 223/2009 on European Statistics.

According to the main ESS quality standards that deal with revisions (ESS Code of Practice and the ESS guidelines on revision policy for Principal European Economic Indicators (PEEIs)), revisions have to follow a standardised procedure, including an appropriate communication. Preannouncement of revisions is considered as one of the core principles of a revision policy. It contributes to transparency, better information and a better coordination of the workload.

For these reasons, the Energy Statistics Working Group approved in October 2015 the revision policy and the pre-announcement form for energy statistics. The relevant document is available here. This policy is still in place and has not been updated as neither the reporting countries nor Eurostat have considered it necessary.

In addition, the presence of revision policies or well-established revision practices at national level is an indicator for transparency and better information to the users.

As can be observed from what the countries' quality reports, the majority of countries apply a revision policy, covering either a part of the data sources used to complete the EU data collections or all of them. Most countries report that, in practice, data are revised when new information is available or if errors are detected. All the details are available in national metadata, in the section on Data revision.

In several countries there is no revision policy at all. A clear recommendation for these countries is to develop their revision policy that

should be consistent with the one adopted at European level.

4.5.2. Data revision analysis

The revision policy for energy statistics indicates that regular revision analysis on annual data will be carried out by Eurostat.

The first revision analysis was done on the EU-28 countries, taking into consideration all compliant transmissions received during two annual exercises (2013 and 2014 exercises). Three publishing dates were analysed: the first release of 2013 data, the second release of 2013 data and the first release of 2014 data.

The second revision analysis was also done on the EU-28 countries, taking into consideration all compliant transmissions received during the exercises of 2013, 2014, 2015, 2016 and 2017. Data for three different reference years were analysed: 2005, 2010 and 2013. More specifically, the versions which were published were analysed. Nevertheless, some limited analysis was carried out also for all compliant versions.

For each reference year, two publishing dates were analysed (except for the last reference year when only the first published date was analysed): the first release of the year (which usually take place according to the legal basis by end of January of each year), and the second release of the year (which usually takes place around May, when final data is being published). Therefore, data for nine releases were analysed.

The following elements were taken into account when doing the individual analysis per country:

- Type of questionnaire
- Country
- Reference year
- First compliant transmission for 2013 exercise
- First compliant transmission for 2014 exercise
- First compliant transmission for 2015 exercise
- First compliant transmission for 2016 exercise
- First compliant transmission for 2017 exercise
- First published version for 2013 exercise
- Second published version for 2013 exercise
- First published version for 2014 exercise
- Second published version for 2014 exercise

- First published version for 2015 exercise
- Second published version for 2015 exercise
- First published version for 2016 exercise
- Second published version for 2016 exercise
- First published version for 2017 exercise
- Total number of non-zero records in all compliant versions
- Number of changes compared to previous version (for all compliant versions)
- Average number of changes between all compliant versions
- Details on the changes between published versions
- Total number of non-zero records in published versions
- Number of changes compared to previous published version
- Average number of changes in all published versions
- Number of positive changes
- Percentage of positive changes
- Number of negative changes
- Percentage of negative changes
- Number of changes from zero/null to non-zero records
- Percentage of changes from zero/null to non-zero records

Based on this data, a further analysis has been done on the resulting differences in the published data:

• Percentage change between the published versions. The formula used is the following:

% = ABS ((Date Y - Date X) / ((Date Y + Date X) / 2))

- Absolute difference between the published versions
- Real difference (value) between the published versions
- Average difference of the published versions
- Standard deviation of the changes. The formula used is the following:

 $SQRT((1/2)*(((Date X - Mean change)^2)+((Date Y - Mean change)^2)+...+((Date Z - Mean change)^2)))$

- Number of green/orange/red changes (i.e. dependent on the thresholds) for percentage change
- Number of green/orange/red changes (i.e. dependent on the thresholds) for absolute value

Certain thresholds have been defined for the changes observed. The thresholds used in revision analysis are listed below.

Acceptance levels:

Green (small difference) Orange (medium difference) Red (high difference)

Percentage change: Less than 5% Between 5-10% Higher than 10%

Kilotonne:

Less than 50 kt Between 50-100 kt Higher than 100 kt

Terajoule:

Less than 5 000 TJ Between 5 000-10 000 TJ Higher than 10 000 TJ

Tonne and Tonne/year:

Less than 50 t Between 50-100 t Higher than 100 t

Gigawatt/hour:

Less than 500 GWh Between 500-1 000 GWh Higher than 1 000 GWh

Megawatt/hour:

Less than 50 000 MWh Between 50 000-100 000 MWh Higher than 100 000 MWh

Million cubic meters:

Less than 150 million cubic meters Between 150-300 million cubic meters Higher than 300 million cubic meters

Calorific values:

Less than 500 kJ/kg Between 500-1000 kJ/kg Higher than 1 000 kJ/kg Electrical capacity:

Less than 50 MWe Between 50-100 MWe Higher than 100 MWe

Solar collectors: Less than 50 1000 square meters Between 50-100 1000 square meters Higher than 100 1000 square meters

Based on this analysis, summary reports were created for each type of questionnaire analysed, consisting of the following elements:

- Type of questionnaire
- Reference year
- Country list
- For all versions:
 - Average number of non-zero records
 - Average number of changes
 - Ratio (%) between average number of changes and average non-zero records
- For published versions:
 - Average number of non-zero records
 - Average number of changes
 - Ratio (%) between average number of changes and average non-zero records
 - Average percentage of positive changes
 - Average percentage of negative changes
 - Average percentage of changes from zero/null to non-zero records
- Total number of valid transmissions in the 2013-2017 cycles
- Total number of revisions in the 2013-2017 cycles

These summary tables are presented in Annex 3. A questionnaire can be revised several times but modifying only one record, while another questionnaire can be revised only once, but modifying all its records.

In order to quantify the percentage of modified data points, the tables in Annex 3 show, for each joint annual questionnaire and each Member State,

the ratio between the average number of changes and the average number of non-zero records.

Revisions can, in principle, occur due to e.g. methodological improvements or problems linked to late transmission of data from data providers.

If the need to revise data is recurrent, countries should analyse their data collections, discover the underlying causes and take appropriate action to minimise the need for revisions after the transmission deadline.

4.5.2.1. Size of revised values

Another important indicator is the size of revisions undertaken by countries. A revision can affect several questionnaires and many data points, but have little impact on the actual reported value. Conversely, a revision can affect only one data point in one questionnaire, but the revision might drastically change the value, impacting high level aggregates of the energy balance.

For the purpose of the present report, Eurostat calculated the relative mean absolute revision (RMAR) of the main aggregates of the energy balance through several years, to assess the impact of revisions on the stability of energy statistics. The RMAR indicator facilitates international comparisons and comparisons over time periods and provides information on the stability of the estimates. It does not provide information on the direction of revisions, since absolute values of revisions are considered.

As a first example, the relative mean absolute revision of Gross Inland Consumption (GIC) of all fuels for reference years 2010-2020 (as published by Eurostat since 2015 until 2022) is displayed in the following table. Data used for the calculation for each country as well as the methodology for the calculation can be found in the Quality section of the Energy website.

COUNTRY	RMAR GIC	RMAR FEC
BE	0.8%	3.7%
BG	0.7%	0.8%
CZ	0.8%	2.2%
DK	1.8%	2.9%
DE	0.9%	3.2%
EE	10%	0.6%
IE	1%	3.5%
EL	1%	3.1%
ES	1%	3.4%
FR	2%	1.6%
HR	1%	2.2%
IT	0.3%	2.2%
CY	0.6%	8.8%
LV	0.03%	1.7%
LT	3.3%	0.8%
LU	0.1%	6.4%

Table 16. RMAR of Gross Inland Consumption and Final Energy Consumption of all fuels, ref. years 2010-2020

COUNTRY	RMAR GIC	RMAR FEC
HU	1.4%	2.4%
MT	1.2%	11.5%
NL	1.2%	5.9%
AT	0.8%	4.5%
PL	1%	2.5%
PT	1.3%	2.7%
RO	1.1%	0.7%
SI	1.1%	0.6%
SK	1.1%	7.1%
FI	0.9%	2.7%
SE	1.2%	0.8%
NO	2.2%	1.9%
ME	0.8%	2.7%
МК	1.1%	1.5%
RS	0.3%	1.8%
TR	3.3%	4.2%
UA	1.2%	25.7%

The revisions performed were important enough as to impact the high level aggregate of gross inland consumption significantly in Estonia (10%) and Lithuania (3.3%). On the other hand, the size of revisions was much bigger for final energy consumption, as much as and 25.7% in Ukraine. The revisions were substantial in some EU countries as well, for example 11.5% for Malta and 8.8% for Cyprus.

Taking into account that several Europe 2020 and Europe 2030 indicators use gross inland consumption as basis for their calculations, the stability of all supply side aggregates (thus including also gross available energy and total energy supply) is of particular importance to monitor the progress and evaluate the achievement of EU targets.

5. TIMELINESS AND PUNCTUALITY

Timeliness describes the length of time between data availability and the event or phenomenon they describe.

Punctuality is the time lag between the actual delivery of data and the target date on which they were scheduled for release as announced in an official release calendar, laid down by Regulations or previously agreed among partners.

In other words, timeliness sets the deadlines for the data transmission to Eurostat. Punctuality is calculated as the actual date of data delivery minus the scheduled date of transmission to Eurostat.

5.1. Timeliness

The following tables provide a detail on the timelines of the different European energy data collections (covered and not covered by a legal act), from the end of the reporting period until the required date of transmission by Member States to Eurostat.

Name of data collection	Timeliness
ENERGY_ELECT_A: Electricity and Heat Statistics	11 months
ENERGY_NTGAS_A: Natural Gas Statistics	11 months
ENERGY_PETRO_A: Oil Statistics	11 months
ENERGY_SOLID_A: Solid Fuels Statistics	11 months
ENERGY_RENEW_A: Renewable energy and wastes statistics	11 months
ENERGY_NUCLEAR_A: Nuclear statistics	11 months
ENERGY_SOLID_M: Monthly Solid Fuels Statistics	2 months
ENERGY_ELEC3_M: Monthly Electricity Statistics	2 months
ENERGY_MOSOIL_M: Monthly Oil Statistics	55 days
ENERGY_MOSGAS_M: Monthly Natural Gas Statistics	55 days
ENERGY_COIR_M: Crude oil imports register – short term monthly statistics	1 month
ENERGY_SHARES_A: SHort Assessment of Renewable Energy Sources	11 months
ENERGY_ESH_A: Households - detailed annual statistics on final energy consumption	15 months

Table 17. Timeliness of European energy statistics data collections

It must be highlighted that timeliness has been improved over the last years and that future improvements have already been agreed upon. The timeliness of the six annual questionnaires will improve by one month (from 11 months to 10 months) as of reference year 2022. As regards monthly collections, the timeliness of monthly electricity and monthly solid fossil fuels statistics was improved from three months to two months in 2019.

In addition to the well-established official release deadlines for different energy data collections, there is also a release calendar available on the Eurostat website. It helps to provide users with easily accessible information on the timeline for different data publication. It should be noted that the release calendar specifies exact dates for articles advertising data releases. In the energy domain, however, data releases are not tied to these particular dates. Data are published as soon as validated in order to provide users with as timely data as possible.

While everyone acknowledges that timely energy data are increasingly important for different EU policies, it should be emphasized that it is often not possible for the countries to provide data earlier. Timeliness is only one of the quality dimensions, and insisting only on improvements in timeliness can lead to a deterioration in other equally important quality aspects of statistics, such as accuracy and comparability.

Eurostat recognises the efforts invested by the countries to provide timely data without compromising other quality dimensions and wishes to thank the countries for all recent improvements regarding timeliness of annual and monthly energy statistics.

5.2. Punctuality

Punctuality is the time lag between the release date of data and the target date on which they were scheduled for release as announced in an official release calendar, laid down by Regulations or previously agreed among partners.

As regards annual energy data collections, the reception date, as established by the Regulation (EC) No 1099/2008 on energy statistics, is **30 November of the year x+1⁴.** The table below presents an overview in terms of punctuality of transmission of 2020 annual data collections to Eurostat, in days before (in green) or after (in red) the legal deadline (30/11/2021).

Table 18. Transmissions of 2020 annual data collections to Eurostat: number of days before (green) or after (red) the legal deadline

	ENERGY_ SOLID_A: Solid Fuels Statistics	ENERGY_ELECT _A: Electricity and Heat Statistics	ENERGY_ NTGAS_A: Natural Gas Statistics	ENERGY_ PETRO_A: Oil and petroleum products	ENERGY_ RENEW_A: Renewable energy and wastes statistics
BE	-6	-4	-4	-8	-7

⁴ As of reference year 2022, 30 October of the year x+1.

Timeliness and punctuality 5

	ENERGY_ SOLID_A: Solid Fuels Statistics	ENERGY_ELECT _A: Electricity and Heat Statistics	ENERGY_ NTGAS_A: Natural Gas Statistics	ENERGY_ PETRO_A: Oil and petroleum products	ENERGY_ RENEW_A: Renewable energy and wastes statistics
BG	-5	-5	-5	-5	-5
CZ	-39	-35	-36	-39	-57
DK	-4	-4	-4	-4	-4
DE	-62	-62	-62	-62	-62
EE	0	0	0	0	0
IE	-63	-63	-63	-62	-63
EL	-68	0	0	15	0
ES	-5	-5	-5	-5	-5
FR	-25	-25	-25	-14	-22
HR	-6	-6	-6	-6	-6
IT	0	0	0	0	0
CY	-4	-4	-4	-4	-4
LV	-61	-61	-61	-61	-61
LT	-57	-32	-57	-32	-31
LU	-36	-36	-36	-36	-36
HU	0	0	0	0	0
мт	-4	-4	-4	-4	-4
NL	0	0	0	0	0
AT	-61	-61	-61	-61	-61
PL	-61	-61	-61	-61	-61
РТ	-61	-61	-61	-61	-61
RO	-57	-57	-57	-57	-57
SI	0	0	0	0	0
SK	0	0	0	0	0
FI	0	0	0	0	0
SE	-4	-4	3	-4	-4
NO	-62	-57	0	0	-30
BA	79	80	79	80	80
ME	-1	-1	-1	-1	0
MD	-27	-27	-27	-27	-27
МК	-27	-28	-28	-4	-4
RS	-29	-29	-29	-29	-29
TR	-11	-63	0	0	-11
UA	-	-	-	-	-
GE	-4	-4	-6	-6	-4

As observed, almost all the countries transmitted the data within the deadline (green cells). The only delays for EU countries were observed for the natural gas questionnaire sent by Sweden and the oil and petroleum products questionnaire submitted by Greece (red cells). Out of non-EU countries, Bosnia and Herzegovina has a persistent issue with the punctuality of annual questionnaires, occurring also for reference year 2020. In general, in the past years there has been a significant improvement in the punctuality

of the first version of the five joint annual questionnaires. Eurostat highly appreciates the effort by the reporting countries to submit annual data on time.

The table below shows a summarised view of the punctuality for each questionnaire in the 2020 annual cycle, taking into account countries covered by this report.

Table 19. Punctuality of 2020 data transmissions per joint annual questionnaire

	Questionnaires that arrived punctually
ENERGY_SOLID_A: Solid Fuels Statistics	97%
ENERGY_ELECT_A: Electricity and Heat Statistics	97%
ENERGY_NTGAS_A: Natural Gas Statistics	94%
ENERGY_PETRO_A: Oil and petroleum products	94%
ENERGY_RENEW_A: Renewable energy and wastes statistics	97%

The annual nuclear energy questionnaire is not included in the statistics above since at the time of writing this report only 14 reporting countries have nuclear electricity production on their territory. The questionnaires from these countries are normally received on time. However, it should be noted that the transmission of the annual nuclear energy questionnaire is also expected from the countries without nuclear energy production (in which case the questionnaire, of course, contains only zeroes). Sometimes these "empty" questionnaires are submitted after the deadline, following a reminder by Eurostat. Countries without nuclear electricity production should keep in mind that they should nevertheless send the annual nuclear energy questionnaire and respect the usual deadline.

Sometimes countries transmit the first version of their questionnaires before the legal deadline, but containing lower quality data, which requires sending several new versions of the same questionnaires.

In the 2017 quality report, it was recommended to create clear instructions/procedures on the validation checks to be carried out at each level, so it would be known beforehand whether a certain aspect of data quality needs to be improved before submitting the questionnaire. For this purpose, an ESS validation manual for Energy statistics on quantities and prices was first published in 2017. It contains validation rules applied by Eurostat on different energy data collections.

Additionally, in order to reduce the number of required revisions, for the 2021 annual cycle Eurostat adapted its tool for checking the consistency of data across annual questionnaires (i.e. cross-questionnaire checks), so that it can also be used by the countries before data transmission.

A recommendation for the countries is to coordinate internally in case

different institutions are responsible for sending different annual questionnaires, and to use the tool for cross-questionnaire checks before annual data transmission.

Eurostat has also developed an IT tool for automatic content validation (ConVal). Currently, a relatively small number of validation rules as listed in the validation manual have been implemented in ConVal.

Eurostat should continue developing automatic content validation (ConVal) and implement all validation rules listed in the validation manual in ConVal.

Countries are encouraged to use test transmissions in Edamis to check whether their questionnaires respect all the validation rules.

6. ACCESSIBILITY AND CLARITY

According to the European Statistics Code of Practice, European statistics should be presented in a clear and understandable form, disseminated in a suitable and convenient manner, available and accessible on an impartial basis with supporting metadata and guidance.

Accessibility and **clarity** refer to the simplicity and ease, the conditions and modalities by which users can access, use and interpret statistics, with the appropriate supporting information and assistance: a global context which finally enables them to make optimum use of the statistics.

6.1. Accessibility

Accessibility is determined by the physical conditions by means of which users obtain data: where to go, how to order, delivery time, pricing policy, marketing conditions (copyright, etc.), availability of micro or macro data, various formats (paper, files, Internet, etc.).

It is important to highlight that all data published by Eurostat in the field of energy statistics are available in the Eurostat website and are free for noncommercial and commercial purposes, on the condition that Eurostat is properly referenced.

For experienced and professional users, the whole output as regards energy data collections can be accessed through the internet, using the open access Eurostat database (Eurobase). This tool allows for customised downloads, where users can select the required indicators, countries, time series, products, and units. Through direct queries, customised tabulations of energy statistics results are available to users in electronic format. Additionally, complete balance sheets for selected years in the MS Excel format are produced and published in an interactive tool. All these data can be consulted and downloaded free of charge.

For occasional users, articles with the most relevant information concerning the main energy data collections are published and kept up to date in electronic format in the Statistics Explained website. The Statistics Explained articles in the area of energy statistics can be consulted here: http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy. News items are also published when new relevant data becomes available.

In addition, the dissemination of energy statistics is increasingly relying on interactive products. In 2016, Eurostat started publishing a yearly digital publication on energy and a web tool to produce Sankey diagrams of energy balances. At the moment of writing the present report, several other visualisation tools are available on Eurostat website: Energy balances, Energy dashboard, Energy – monthly data, Energy prices, Energy trade. A single visualisation portal gives access to all these tools. Energy data are also

part of the European Statistical Recovery Dashboard, which includes several statistical domains. Eurostat is currently in the process of updating the visualisation tools so that they comply with all the accessibility standards of the European Commission.

6.2. Clarity

The **clarity** of statistical outputs is an attribute of statistics describing the extent to which easily comprehensible metadata are available, where these metadata are necessary to give a full understanding of statistical data. It is determined by the information environment within which the data are presented, whether the data are accompanied with appropriate metadata, whether use is made of illustrations such as graphs and maps, whether information on data accuracy are available (including any limitations on use) and the extent to which additional assistance is provided by the producer.

6.2.1. Documentation on methodology

Energy data are transmitted as outlined in Annexes B, C and D of the Energy Statistics Regulation. Documentation on methodology is available in a dedicated section of the Eurostat Energy website. This includes the templates used for different data collections, as well as the associated reporting instructions.

Moreover, there are several manuals in use for the main areas of energy statistics: Energy Statistics Manual, Manual for Statistics on Energy consumption in Households, Shares Tool Manual. In addition to these manuals, reporting guidelines also exist for the following areas: annual questionnaires for Electricity and Heat, Natural Gas, Oil, Coal, Nuclear, Renewables and Waste, monthly questionnaires for Oil and gas (MOS), Electricity, Coal, and Crude oil imports and supply.

As mentioned in the section 5.2, the ESS validation manual for Energy quantities and prices is also available and to provide important validation rules to the countries and help them send correct data. As of 2022, this is complemented by the tool for cross-questionnaire checks of annual questionnaires.

The methodology for creating energy balances as well as the energy balance builder tool can also be found on the Eurostat Energy website.

European energy statistics rely on data collected, processed and consolidated at national level. For this reason, the presence of national documentation on methodological and quality aspects is particularly important in this area. The national metadata provides an overview of the availability of national methodology documentation, as reported by countries in their national quality reports.

It can be observed that the majority of countries have very elaborated documentation on methodology and quality, while other countries have not provided any information or have declared that there is no quality or methodology documentation available (Cyprus and Luxembourg).

A recommendation is to develop appropriate quality/methodology documentation at national level in order to allow users to better understand the data. This documentation should be complemented by relevant metadata.

6.2.2. Metadata – completeness

As stated above, clarity depends upon the quality of statistical metadata that are disseminated alongside the statistical outputs. As regards energy data collections, the following table shows if dedicated metadata are available for each of the elements of the energy database in Eurobase (indicated by Yes) or if only higher-level metadata apply (indicated by No).

Title of data collection	Type of data collection and level in the navigation tree	Dedicated metadata
Energy (nrg)	Folder of databases and folders (Level 0)	No
Energy statistics – quantities (nrg_quant)	Folder of databases and folders (Level 1)	Yes
Energy statistics - quantities, annual data (nrg_quanta)	Folder of databases and folders (Level 2)	No
Energy balances (nrg_bal)	Folder of databases and folders (Level 3)	Yes
Simplified energy balances (nrg_bal_s)	Database (Level 4)	No
Complete energy balances (nrg_bal_c)	Database (Level 4)	No
Calorific values (nrg_bal_cv)	Database (Level 4)	No
Production of electricity and derived heat by type of fuel (nrg_bal_peh)	Database (Level 4)	No
Energy flow – Sankey diagram data (nrg_bal_sd)	Database (Level 4)	No
Supply, transformation and consumption – commodity balances (nrg_cb)	Folder of databases and folders (Level 3)	Yes
Supply, transformation and consumption of solid fossil fuels - annual data (nrg_cb_sff)	Database (Level 4)	No
Supply, transformation and consumption of gas (nrg_cb_gas)	Database (Level 4)	No
Supply, transformation and consumption of oil and petroleum products (nrg_cb_oil)	Database (Level 4)	No
Supply, transformation and consumption of renewables and wastes (nrg_cb_rw)	Database (Level 4)	No
Supply, transformation and consumption of electricity (nrg_cb_e)	Database (Level 4)	No
Supply, transformation and consumption of derived heat (nrg_cb_h)	Database (Level 4)	No
Disaggregated final energy consumption	Folder of databases and folders (Level 3)	No
Disaggregated final energy consumption in households – quantities (nrg_d_hhq)	Database (Level 4)	No
Disaggregated final energy consumption in households – calorific values (nrg_d_hhcv)	Database (Level 4)	No
Energy indicators (nrg_ind)	Folder of databases and folders (Level 3)	No

Table 20. Availability of dedicated metadata in the EU energy database⁵

⁵ Only for datasets linked to the data collections covered by the present report.

Title of data collection	Type of data collection and	Dedicated
Title of data collection	level in the navigation tree	metadata
Gross and net production of electricity and derived heat by type of plant and operator (nrg_ind_peh)	Database (Level 4)	No
Gross production of electricity and derived heat from combustible fuels by type of plant and operator (nrg_ind_pehcf)	Database (Level 4)	No
Gross production of electricity and derived heat from non-combustible fuels by type of plant and operator (nrg_ind_pehnf)	Database (Level 4)	No
Production of electricity and heat by autoproducers, by type of plant (nrg_ind_pehap)	Database (Level 4)	No
Energy efficiency (nrg_ind_eff)	Database (Level 4)	Yes
Energy intensity (nrg_ind_ei)	Database (Level 4)	Yes
Energy productivity (nrg_ind_ep)	Database (Level 4)	Yes
Available energy, energy supply and final energy consumption per capita (nrg_ind_esc)	Database (Level 4)	No
Energy imports dependency (nrg_ind_id)	Database (Level 4)	Yes
Import dependency on third countries by fuel type (nrg_ind_id3cf)	Database (Level 4)	Yes
Natural gas import dependency by country of origin (nrg_ind_idogas)	Database (Level 4)	Yes
Oil and petroleum products import dependency by country of origin (nrg_ind_idooil)	Database (Level 4)	Yes
Share of fossil fuels in gross available energy (nrg_ind_ffgae)	Database (Level 4)	Yes
Share of fuels in final energy consumption (nrg_ind_fecf)	Database (Level 4)	Yes
Share of energy from renewable sources (nrg_ind_share)	Folder of databases and folders (Level 3)	Yes
Share of energy from renewable sources (nrg_ind_ren)	Database (Level 4)	No
Use of renewables for transport - details (nrg_ind_urtd)	Database (Level 4)	No
Use of renewables for electricity - details (nrg_ind_ured)	Database (Level 4)	No
Use of renewables for heating and cooling - details (nrg_ind_urhcd)	Database (Level 4)	No
Calculation of overall target - details (nrg_ind_cotd)	Database (Level 4)	No
Heat pumps - technical characteristics by technology and climate (nrg_ind_hptctc)	Database (Level 4)	No
Heat pumps - ambient heat captured by technology and climate (nrg_ind_ahbtc)	Database (Level 4)	No
Statistical transfers, joint projects and joint support schemes (nrg_ind_stjpjss)	Database (Level 4)	No
Energy infrastructure and capacities (nrg_inf)	Folder of databases and folders (Level 3)	No
Electricity production capacities by main fuel groups and operator (nrg_inf_epc)	Database (Level 4)	Yes
Electricity production capacities for renewables and wastes (nrg_inf_epcrw)	Database (Level 4)	No
Electricity production capacities for combustible fuels by technology and operator (nrg_inf_epct)	Database (Level 4)	No
Liquid biofuels production capacities (nrg_inf_lbpc)	Database (Level 4)	Yes
		Yes

Title of data collection	Type of data collection and level in the navigation tree	Dedicated metadata
Heat pumps - technical characteristics by technologies (nrg_inf_hptc) Database (Level 4)	Database (Level 4)	Yes
Nuclear energy facilities (nrg_inf_nuc)	Database (Level 4)	Yes
Stocks (nrg_stk)	Folder of databases and folders (Level 2)	No
Stock levels for oil products (nrg_stk_oil)	Database (Level 4)	No
Stock levels for gaseous and liquefied natural gas (nrg_stk_gas)	Database (Level 4)	No
Trade by partner country (nrg_t)	Folder of databases and folders (Level 2)	Yes
Imports (nrg_ti)	Folder of databases and folders (Level 3)	No
Imports of solid fossil fuels by partner country (nrg_ti_sff)	Database (Level 4)	No
Imports of oil and petroleum products by partner country (nrg_ti_oil)	Database (Level 4)	No
Imports of natural gas by partner country (nrg_ti_gas)	Database (Level 4)	No
Imports of biofuels by partner country (nrg_ti_bio)	Database (Level 4)	No
Imports of electricity and derived heat by partner country (nrg_ti_eh)	Database (Level 4)	No
Exports (nrg_te)	Folder of databases and folders (Level 3)	No
Exports of solid fossil fuels by partner country (nrg_te_sff)	Database (Level 4)	No
Exports of oil and petroleum products by partner country (nrg_te_oil)	Database (Level 4)	No
Exports of natural gas by partner country (nrg_te_gas)	Database (Level 4)	No
Exports of biofuels by partner country (nrg_te_bio)	Database (Level 4)	No
Exports of electricity and derived heat by partner country (nrg_te_eh)	Database (Level 4)	No
Energy statistics – quantities, monthly data (nrg_quantm)	Folder of databases and folders (Level 2)	No
Supply, transformation and consumption – commodity balances – monthly data (nrg_cb_m)	Folder of databases and folders (Level 3)	No
Supply and transformation of solid fossil fuels - monthly data (nrg_cb_sffm)	Database (Level 4)	No
Supply and transformation of oil and petroleum products - monthly data (nrg_cb_oilm)	Database (Level 4)	No
Crude oil supply - monthly data (nrg_cb_cosm)	Database (Level 4)	No
Supply, transformation and consumption of gas - monthly data (nrg_cb_gasm)	Database (Level 4)	No
Supply, transformation and consumption of electricity - monthly data (nrg_cb_em)	Database (Level 4)	No
Electricity available to internal market (nrg_cb_eim)	Database (Level 4)	No
Net electricity generation by type of fuel - monthly data (nrg_cb_pem)	Database (Level 4)	No
Trade by partner country (nrg_t_m)	Folder of databases and folders (Level 3)	No
Imports (nrg_ti_m)	Folder of databases and folders (Level 4)	No
Imports of oil and petroleum products by partner country - monthly data (nrg_ti_oilm)	Database (Level 5)	No

Title of data collection	Type of data collection and level in the navigation tree	Dedicated metadata
Imports of natural gas by partner country - monthly data (nrg_ti_gasm)	Database (Level 5)	No
Crude oil imports by field of production - monthly data (nrg_ti_coifpm)	Database (Level 5)	No
Exports (nrg_te_m)	Folder of databases and folders (Level 4)	No
Exports of oil and petroleum products by partner country - monthly data (nrg_te_oilm)	Database (Level 5)	No
Exports of natural gas by partner country - monthly data (nrg_te_gasm)	Database (Level 5)	No
Stocks (nrg_stk_m)	Folder of databases and folders (Level 3)	No
Stock levels for oil products - monthly data (nrg_stk_oilm)	Database (Level 4)	No
Oil stocks held for other countries - monthly data (nrg_stk_oom)	Database (Level 4)	No
Oil stocks held abroad - monthly data (nrg_stk_oam)	Database (Level 4)	No
Emergency oil stocks in days equivalent - monthly data (nrg_stk_oem)	Database (Level 4)	No
Stock levels for gas products - monthly data (nrg_stk_gasm)	Database (Level 4)	No

Although not all datasets are covered at the highest possible level of detail, often the metadata associated with the main folder is detailed enough. The coverage of metadata has also been significantly improved by publishing all national quality reports as metadata, as recommended in the 2017 quality report.

To provide more detailed information to the users, it is recommended to create dedicated metadata on the European level for the monthly commodity balances datasets as well as for datasets on disaggregated final energy consumption.

As proven by a relatively large number of related user requests, it would be very useful to include in the European metadata for each dataset an explanation of all the dimensions (e.g. flows and products) and the relationships between individual elements (e.g. A+B=C), as well as to provide the links between Europase codes and questionnaire labels.

European energy statistics rely on data collected, processed and consolidated at national level. Regardless of the amount of metadata published at European level, a complete understanding of the data is sometimes not possible without the national perspective. For this reason, the presence of national metadata is particularly important in this area. The section on Accessibility and Clarity in the national metadata offers an overview of the availability of national metadata, as reported by countries in their national quality reports.

It can be observed that metadata is available for energy statistics in most countries, while only very few of them did not report any metadata available.

7. COMPARABILITY AND COHERENCE

Coherence measures the adequacy of the statistics to be combined in different ways and for various uses.

Comparability is a measurement of the impact of differences in applied statistical concepts, measurement tools and procedures where statistics are compared between geographical areas or over time.

Eurostat carries out quality tests, mainly on the coherence and comparability of the provided information, in particular in the context of the data validation cycle and the construction of energy balances. In addition, the questionnaires used for data transmission also have built-in coherence tests. Countries are contacted if problems are detected, like sharp variations across time series or inconsistencies among questionnaires, for example. Specific actions targeted to selected items - including time series - are regularly carried out to improve the methodology. Several additional analyses are spread over this report and are referenced in points a) to f) below, which are the categories in which the concepts of coherence and comparability are further broken down:

A) Coherence - cross domain

The extent to which statistics are reconcilable with those obtained through other data sources or statistical domains. Comparisons of energy data with other domains are carried out in section 7.1.

B) Coherence - sub annual and annual statistics

The extent to which statistics of different frequencies are reconcilable. Coherence between sub-annual and annual statistical outputs is a natural expectation but the statistical processes producing them are often quite different. This point is addressed in section 7.2.

C) Coherence - National Accounts

The extent to which statistics are reconcilable with National Accounts. This is necessarily an approximative comparison as it is affected by the prices of commodities. The comparison was done for the previous quality report and not repeated in this exercise. We believe the results would be roughly the same.

D) Coherence - internal

The extent to which statistics are consistent within a given data set. This check is consistently carried out within the framework of the normal data validation cycle, as explained above. Certain additional aspects of this are explained in 7.3.

E) Comparability - geographical

The extent to which statistics are comparable between geographical areas. Asymmetries for statistical mirror flows should be described. A comparison of asymmetries in energy trade is carried out in section 7.4.

F) Comparability - over time

The extent to which statistics are comparable or reconcilable over time. An brief analysis of comparability over time of the main energy aggregates is carried out in section 7.5.

7.1. Coherence – cross domain

External consistency is related to the coherence between energy data and similar statistics belonging to different statistical frameworks.

When originating from different sources, and in particular from statistical surveys of different nature and/or frequencies, statistics may not be completely coherent in the sense that they may be based on different approaches, classifications and methodological standards. For this reason, it is very interesting to assess the coherence of Eurostat energy data with data collections from organisations which do not use the same reporting tools.

An analysis of the plausibility or consistency checks between separate domains available in the same institution is carried out. The availability implies a certain level of "control" over the methodologies by the concerned institution. Checks could also be made between results from correlated micro-data and macro-data sources. Other plausibility checks could be based on known correlations between different phenomena.

Essentially these checks are based on the plausibility of results describing the "same" phenomenon within different statistical domains. One example is energy trade figures in both the energy statistics and the trade statistics. Another example is the correlation between fuel consumption in road transport in the energy statistics and transport activity reported in the transport statistics.

The data source selected for this exercise are the data from Industrial Production Indices (IPI), which are compared to energy data. The industrial production indices show the output and activity of the industry sector. It measures changes in the volume of output on a monthly basis. Using the monthly data, annual indices are computed. For this exercise, the manufacture of food beverages and tobacco was selected because it has the same coverage in the industry production dataset as it does in energy statistics. However, industrial production indices data is not available for several countries for this sector due to confidentiality reasons. Therefore the geographical coverage is limited.

For the manufacture of food, beverages and tobacco, the final energy consumption was against the Industrial Production Indices.

Table 21 shows the energy consumption in ktoe, the IPI in %, both NSA (Unadjusted data i.e. neither seasonally adjusted nor calendar adjusted

data) and CA (Calendar adjusted data, not seasonally adjusted data), only for those countries for which data are available in both datasets.

Country		2015	2016	2017	2018	2019	2020
	ktoe	1 464.8	1 476.5	1 516.1	1 610.1	1 641.7	1 575.8
BE	%NSA	100.0	103.8	106.1	107.7	109.4	105.5
	%CA	100.0	103.7	106.4	107.7	108.3	105.2
	ktoe	248.6	237.2	227.7	250.7	241.6	249.7
BG	%NSA	100.0	101.0	100.1	99.6	102.7	99.1
	%CA	100.0	100.9	100.6	100.0	103.2	99.1
	ktoe	572.8	588.6	607.6	612.9	610.8	616.1
DK	%NSA	100.0	105.0	107.8	109.6	110.1	109.6
	%CA	100.0	104.5	107.6	109.8	110.2	109.4
	ktoe	4 892.6	5 070.1	5 104.4	5 182.8	5 098.8	5 077.6
DE	%NSA	100.0	101.3	102.1	101.7	102.2	99.9
	%CA	99.8	100.9	102.3	102.0	102.6	99.4
	ktoe	64.4	66.9	56.8	56.4	65.6	70.8
EE	%NSA	100.0	101.0	101.8	104.1	107.2	104.6
	%CA	100.0	100.8	101.6	104.0	107.3	104.8
	ktoe	523.0	445.2	423.6	457.5	455.8	478.8
EL	%NSA	100.0	101.5	101.4	101.6	103.1	100.1
	%CA	100.0	101.4	101.2	101.4	102.9	100.0
	ktoe	5 232.4	5 364.2	5 208.8	5 434.2	5 114.3	5 126.7
FR	%NSA	100.0	99.4	98.9	99.2	99.0	97.8
	%CA	100.0	99.2	99.1	99.3	99.3	97.7
	ktoe	76.5	78.5	78.0	83.4	78.1	80.3
LV	%NSA	100.0	101.8	107.0	103.9	103.2	101.4
	%CA	100.0	101.0	106.6	104.0	103.2	101.1
17	ktoe	185.3	190.8	194.2	192.9	180.3	188.9
LT	%NSA	100.0	102.5	102.1	104.8	108.8	109.9

Table 21. Manufacture of food, beverages and tobacco

Comparability and coherence

Country		2015	2016	2017	2018	2019	2020
	%CA	100.0	102.0	101.8	104.8	108.8	109.5
	ktoe	585.8	586.0	618.5	659.2	664.2	689.9
HU	%NSA	100.0	101.0	102.1	106.6	111.9	112.7
	%CA	100.0	100.7	102.2	107.3	112.6	112.3
	ktoe	1 949.3	1 972.3	1 989.8	2 048.2	1 993.1	1 964.6
NL	%NSA	100.0	103.1	103.8	105.4	104.1	102.5
	%CA	100.0	103.1	104.0	105.5	104.1	102.3
	ktoe	550.5	528.0	520.7	515.4	525.0	535.4
AT	%NSA	100.0	100.7	102.3	104.2	106.7	102.0
	%CA	100.0	100.7	102.7	104.5	107.0	101.5
	ktoe	1 856.7	1 959.0	2 050.3	2 251.3	2 222.2	2 131.4
PL	%NSA	100.0	105.1	111.8	116.8	121.2	122.5
	%CA	100.0	105.6	112.4	117.3	121.9	122.5
	ktoe	559.3	570.6	585.3	537.0	575.4	553.1
RO	%NSA	100.0	107.7	111.4	113.3	114.7	111.3
	%CA	100.0	107.6	112.1	114.5	115.5	112.1
	ktoe	391.2	408.5	414.1	425.5	407.5	409.3
FI	%NSA	100.0	101.5	102.7	103.6	103.7	101.4
	%CA	100.0	101.5	103.0	103.6	103.7	101.0
	ktoe	353.8	363.3	339.1	346.9	349.6	428.8
SE	%NSA	100.0	99.3	99.4	100.4	100.3	98.9
	%CA	100.0	98.8	99.4	100.7	100.6	98.7

Figure 6 below shows the time series by country (energy consumption and industrial production). The two times series have similar evolutions for most countries, except for the occasional divergent points. Prime examples of consistency are Belgium, Denmark, the Netherlands and Poland.

Overall, based on the example shown here, energy consumption data and industrial production data seem to be highly consistent.





Figure 6. Food, beverages and tobacco: Industrial production index and energy consumption, 2015-2020

7.2. Coherence – sub-annual versus annual

An interesting exercise is the comparison of aggregated Eurostat energy monthly data against Eurostat energy annual data for the flow and the same year.

Short-term statistics are not usually as accurate as annual ones. The reason is that timeliness typically plays against accuracy. For M-2 monthly data, Member States only have up to 2 months to collect and to process the requested information, while for annual statistics they have up to 11 months.

For annual statistics many Member States collect data from a very big proportion of the statistical population, often even covering 100%. Sometimes, this cannot be done for monthly statistics because of time and financial restraints. Therefore, it is often unavoidable that aggregated monthly statistics differ from annual statistics for those countries which do not build up annual statistics by aggregating monthly data.

Despite the above-mentioned facts, it is interesting to compare both data sets to establish the level of agreement between the two. If a good agreement is given, no action is necessary; in case of big differences, the reason has to be found and corrective action should be implemented.

The level of consistency between the two datasets depends on different factors:

- The way annual statistics are produced: if annual statistics are not based on separate surveys, but are based on the compilation of monthly data collections, then the agreement of the two data sets should be high.
- The number of providers: if it is small, then under-coverage in monthly surveys can be easily avoided. On the other hand, if this number is high, the level of agreement will be lower. There is no harmonised fixed acceptable maximum difference for the agreement between monthly and annual data.

This comparison between monthly and annual data is already carried out for several flows of all fossil fuels within the framework of the early CO_2 estimates annual exercise.

The following table shows a comparison of aggregated monthly data [nrg_cb_gasm] against annual data [nrg_cb_gas] for the year 2021 for indigenous production of natural gas in EU countries. Even though the inland consumption of natural gas could be seen as a more important variable, it was not used here because of differences between annual and monthly natural gas collections in the definitions of imports and exports, affecting inland consumption.

Country	2021 annual data (A)	2021 aggregated monthly data (B)	Relative difference = [(B-A)/A*100]
EU	1 762 642.43	1 753 933.95	-0.49%
BE	185.40	184.90	-0.27%
BG	1 228.14	1 178.36	-4.05%
CZ	7 764.26	7 840.99	0.99%
DK	58 827.75	50 076.39	-14.88%
DE	179 901.46	169 004.00	-6.06%
EE	0.00	0.00	-
IE	58 755.47	58 410.99	-0.59%
EL	188.83	188.83	0.00%
ES	1 583.82	1 583.82	0.00%
FR	929.92	929.92	0.00%
HR	29 007.22	31 161.01	7.43%
IT	121 318.17	127 046.00	4.72%
CY	0.00	0.00	-
LV	0.00	0.00	-
LT	0.00	0.00	-
LU	0.00	0.00	-
HU	54 819.00	53 864.00	-1.74%
МТ	0.00	0.00	-
NL	721 817.38	724 048.58	0.31%
AT	26 498.50	26 615.59	0.44%
PL	155 370.92	154 809.23	-0.36%
PT	0.00	0.00	-
RO	341 973.19	343 927.00	0.57%
SI	202.01	201.99	-0.01%
SK	2 271.00	2 862.36	26.04%
FI	0.00	0.00	-
SE	0.00	0.00	-
NO	4 689 683.31	4 644 455.17	-0.97%
MD	1.80	0.00	-100%-
МК	0.00	0.00	-
RS	13 413.80	13 407.00	-0.05%
TR	15 108.17	15 076.60	-0.21%
GE	640.87	671.70	4.6%

Table 22. Indigenous production of natural gas (TJ - GCV) - aggregated monthly data against annual data for 2021

As observed, the annual and monthly data for natural gas shown here are overall very coherent, with only some small differences, usually under 5%. Only Slovakia (26.04%), Denmark (-14.88%), Croatia (7.43%) and Germany (-6.06%) show higher differences (as well as Moldova, but with very small figures).

As noted above, there is a difference in the definitions of import and export between the monthly gas and the annual gas collections. In the monthly natural gas questionnaire, countries should report as imports/exports all natural gas volumes which have physically crossed the national boundaries of the country, whether customs clearance has taken place or not. Contrary to the annual natural gas questionnaire, this includes quantities transiting the country: transit volumes should be included as an import and as an export.

Several countries show exactly the same number in the cumulated monthly and annual data (a 0.00% difference). This could be the result of using monthly statistics to build up annual statistics (because the country produces reliable monthly statistics, which wouldn't require in principle any improvement measures). But it could also be the result of retrospectively correcting monthly statistics with annual data (because national monthly statistics are not good enough). In the latter case, actions should be taken at national level to improve monthly statistics.

The following table repeats the exercise for crude oil.

Table 23. Calculated refinery intake of crude oil (thousand tonnes) - aggregated monthly data against annual data for 2021

Country	2021 annual data (A)	2021 aggregated monthly data (B)	Relative difference = [(B-A)/A*100]
EU	464 378.730	465 195.947	0.18%
BE	28 733.400	28 732.7000	0.00%
BG	4 212.644	4 206.205	-0.15%
CZ	7 110.000	7 110.000	0.00%
DK	7 635.548	7 444.000	-2.51%
DE	83 773.000	83 793.864	0.02%
EE	0.000	0.000	-
IE	3 024.764	3 024.765	0.00%
EL	23 719.034	23 712.269	-0.03%
ES	56 922.124	56 922.124	0.00%
FR	34 723.355	34 712.671	-0.03%
HR	1 861.500	1 851.208	-0.55%
IT	61 753.114	62 678.667	1.50%
CY	0.000	0.000	-
LV	0.000	0.000	-
LT	7 954.000	7 953.900	0.00%
LU	0.000	0.000	-
HU	6 723.000	6 693.000	-0.45%
MT	0.000	0.000	-
NL	51 758.936	51 763.172	0.01%
AT	8 242.883	8 254.364	0.14%
PL	24 761.311	24 761.311	0.00%
PT	9 498.639	9 498.588	0.00%
RO	10 075.457	10 037.000	-0.38%
SI	0.000	0.000	-
SK	5 507.000	5 507.318	0.01%
FI	7 948.000	8 097.000	1.87%
SE	18 441.021	18 441.821	0.00%
NO	11 773.953	13 296.386	12.93%
MD	0.500	0.400	-20.00%

Country	2021 annual data (A)	2021 aggregated monthly data (B)	Relative difference = [(B-A)/A*100]
МК	0.000	0.000	-
RS	3 584.986	3 610.816	0.72%
TR	34 515.659	34 515.659	0.00%
GE	34.868	46.412	33.11%

As observed, annual and monthly data for crude oil are very coherent, with only some small differences in data, usually under 1%. The only countries with a big difference are Georgia (33.11%) and Norway (12.93%) (as well as Moldova but with very small figures). Other countries with a difference above 1% are Italy, Finland and Denmark, but in these cases the percentage is also rather low. As with natural gas indigenous production, we observe that several countries show exactly the same number (a 0.00% difference). If this is the result of retrospectively correcting monthly statistics to match annual data (because national monthly statistics are not good enough), actions should be taken at national level to improve monthly statistics.

The next analysis focuses on lignite/brown coal, as shown in the following table.

Country	2021 annual data (A)	2021 aggregated monthly data (B)	Relative difference = [(B-A)/A*100]
EU	278 816	276 776	-0.73%
BE	136	0.2	-99.85%
BG	28 527	28 301	-0.79%
CZ	29 675	28 949	-2.45%
DK	0	0	-
DE	126 182	126 350	0.13%
EE	0	0	-
IE	0	0	-
EL	13 214	12 935	-2.11%
ES	0	0	-
FR	46	45	-1.79%
HR	6	4	-28.57%
IT	1	0	-100.00%
СҮ	0	0	-
LV	0	0	-
LT	0	2	-
LU	0	0	-
HU	5 035	5 052	0.33%
МТ	0	0	-
NL	9	36	280.62%
AT	60	61	1.74%
PL	52 615	52 614	0.00%
РТ	0	0	-
RO	18 872	17 833	-5.50%
SI	3 132	3 227	3.03%

Table 24. Calculated inland consumption of lignite + sub-bituminous coal (in thousand tonnes) - aggregated monthly data against annual data for 2021.

Country	2021 annual data (A)	2021 aggregated monthly data (B)	Relative difference = [(B-A)/A*100]
SK	1 306	1 367	4.67%
FI	0	0	-
SE	0	0	-
NO	0	0	
ВА	13 227	12 833	-3.07%
ME	1 403	1 400	-0.23%
MD	0	0	-
мк	4 349	4 502	3.41%
RS	37 017	36 920	-0.26%
TR	86 527	73 627	-17.52%
GE	150	148	-2.05%

As observed, annual and monthly data for lignite/brown coal are not as coherent as was the case with natural gas and crude, but the differences still remain in an acceptable range. Importantly, cases where differences are very high are not significant in terms of quantities. For example, for the particular cases of the Netherlands or Italy, the flow of brown coal is virtually irrelevant in their overall statistics.

As shown in Table 10 in Section 3.3, several countries transmit questionnaires with confidential data points in these collections. This is another reason why monthly and annual data can appear inconsistent for some countries, especially in the case of solid fossil fuels.

We can conclude that annual-monthly coherence is overall very good. However, if this is the result of retrospectively correcting monthly statistics with annual data (because national monthly statistics are not good enough), actions should be taken at national level to improve monthly statistics. Eurostat also noticed that some countries may be using average annual statistics from the previous year divided by 12 in order to estimate data points in monthly collections. This method of estimating monthly data should be avoided.

Annex 4 displays a table with a more detailed analysis of monthly versus annual data for 2021 including more fuels and more flows.

7.3. Coherence – internal consistency

When originating from a single source, statistics are normally coherent in the sense that elementary results derived from the concerned survey can be reliably combined in numerous ways to produce more complex results. For this reason, checks of coherence in the area of energy statistics are difficult, since there is a high degree of normalisation among the energy data producers. More particularly, Eurostat collaborates on methodological issues with the following international organisations: IEA (International Energy Agency), International Energy Forum (IEF), the Energy Community, UN Statistical Commission, IRENA (International Renewable Energy Agency), Asia Pacific Economic Cooperation (APEC), Latin-American Energy Organisation (OLADE), Organization of Petroleum Exporting Countries

(OPEC) and United Nations Statistics Division (UNSD). This means that in most of the cases data are fully comparable and in the most important cases joint questionnaires between Eurostat, IEA and UN are used. Eurostat verifies to the extent possible if the reported data respect the prescribed methodology. The underlying data collection methods are however the responsibility of countries providing data. The methodology is harmonised for all EU and OECD countries, thus including major world economies such as Australia, Canada, Japan, Korea and United States.

7.4. Comparability – geographical

When different countries report on the same statistical variable, it is very interesting to observe how close the observations are. In the energy domain, the most significant possibility to assess geographical comparability is the trade mirroring exercise, where flows of an energy commodity reported by the importing country can be compared with its counterpart reported by the exporting country. In the Energy Statistics Regulation (Annex A, 2.1.4), "[u]nless otherwise specified, 'imports' refer to ultimate origin (the country in which the energy product was produced) for use in the country and 'exports' refer to the ultimate country of consumption of the produced energy product." The table below presents the 20 most important asymmetries (in TJ GCV – absolute value) for statistical mirror flows on imports/exports of natural gas for the year 2021, indicating the related pairs of countries.

Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference
NL	DE	246 093	0	246 093
DK	DK	0	96 400	96 400
NL	IT	44 796	10 958	33 839
BE	NL	87 783	54 269	33 514
FR	ES	103 976	72 808	31 168
AT	SI	0	30 516	30 516
RO	HU	26 546	0	26 546
FR	NL	0	26 218	26 218
DK	NL	39 924	14 030	25 894
BG	RO	0	24 424	24 424
EE	FI	0	22 588	22 588
NL	FR	112 403	133 849	21 446
ES	FR	50 726	31 354	19 372
BE	DE	18 424	0	18 424
ES	PT	18 222	0	18 222
IT	SI	17 966	72	17 894
BE	FR	170	17 466	17 296
IT	AT	16 216	0	16 216

Table 25. Most important asymmetries (including missing partners) in the natural gas trade mirroring exercise for reference year 2021

Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference
LV	EE	0	16 116	16 116
CZ	PL	0	15 847	15 847

The most important cases naturally concern bigger countries, with bigger natural gas production and/or consumption. A clear recommendation to countries is to put in place better bilateral communication mechanisms to improve trade reporting. However, it is clear that sometimes confidentiality agreements prevent countries from revealing import origins.

The last time a comprehensive trade mirroring exercise was conducted was in 2019, for annual data of reference year 2017. The results of this exercise for selected products are presented in Annex 5.

7.5. Comparability – over time

As mentioned above, plausibility checks and validation of time series are one of the key components of the normal data validation cycle and Eurostat frequently requests corrections, clarifications and further explanations from reporting countries in relation to the plausibility of time series. Eurostat assesses the evolution of each variable for each fuel and each single country when performing the validation checks and selecting the content of the communication and requests for clarifications/corrections exchanged with countries within the framework of the regular data validation cycles.

Energy data is in general comparable over time, and any breaks in series should be well documented in the metadata. As already indicated, countries can update their national metadata at any time, regardless of the quality report cycle, and should document any new breaks in series as soon as they occur.

8. CONCLUSIONS AND RECOMMENDATIONS

The various analyses carried out in this report allow us to draw some conclusions and propose recommendations at different levels:

For Eurostat:

- Analyse the extent of confidentiality in individual data collections across different reporting periods.
- Improve and extend the availability of metadata for monthly and annual energy statistics, in particular by including for each dataset an explanation of all the dimensions and the relationships between individual elements, as links between Eurobase codes and questionnaire labels.
- Further develop automatic content validation (ConVal) and implement all the rules listed in the Validation manual in ConVal so as to assist the countries in transmitting correct data and avoiding unnecessary revisions.

For countries:

- Complete missing information (e.g. quantitative accuracy indicators) through the ESS Metadata Handler.
- Update the national metadata whenever a major change in the national energy statistics processes occurs, rather than wait for the next quality reporting cycle to do so.
- For treating confidential data, consider using methods alternative to data suppression where appropriate, such as rounding or perturbation.
- In case of different institutions sending annual data, coordinate internally to ensure the consistency of transmitted data. Use all the tools available to check data consistency, such as the tool for cross-questionnaire checks.
- For the next quality reporting cycle, analyse the possibility of providing an estimate of the accuracy of certain variables of the energy balance with standard confidence intervals.

In summary, the third energy statistics quality reporting exercise aimed at obtaining comparable information on the way statistics are collected and compiled by Member States, as well as how they are used and linked to the statistical processes at European level. All the information provided by the countries was made publicly available in the form of metadata, that can and should be modified by the countries whenever an important change occurs. The exercise also focused on a more quantitative evaluation of the quality of statistical outputs at European level, providing indicators such as the confidence interval or relative mean average size of revision.

Annex 1. Information on national data collection methods and administrative data

Table 26. Data collections (data sources) at national level and methods used in 2020

Country	List of national data sources	Main method of data collection
Belgium	Monthly oil questionnaire	Business survey with threshold - 25000 tonnes
Belgium	Crude oil imports and prices	Business survey without threshold
Belgium	Refinery capacities	Business survey without threshold
Belgium	Biobalance	Business survey without threshold
Belgium	Data collection CSO tickets and strategic stocks	Not available
Belgium	Monthly electricity data collection	Business survey without threshold
Belgium	External database about trade and production of liquid biofuels	Online database
Belgium	Annual data collection nuclear industry	Business survey without threshold
Belgium	Monthly coal questionnaire	Business survey without threshold
Belgium	Annual manufactured gases questionnaire	Other sectoral survey (industry, agriculture, etc.): producers and users of coke derived gases
Belgium	Monthly gas data collection	Internet portal of the TSO Direct data transfer from TSO Direct data transfer from producer
Belgium	Annual fuel data collection for transport	Business survey without threshold: 1) All public stations 2) CNG / LNG stations
Belgium	Energy data collection at regional institutions	Use of administrative data (e.g. customs data or business registers): administrative data from business and households surveys
Belgium	Annual gas administrative data collection	Use of administrative data (e.g. customs data or business registers): administrative data from port authorities, national regulator, national bank, interregional governmental institution, TSO
Belgium	Bi-annual households data collection	Use of administrative data (e.g. customs data or business registers): administrative data from the "Household Budget Survey"
Bulgaria	Monthly Solid Fuels Questionnaire	Business survey without threshold
Bulgaria	Crude oil imports register	Business survey without threshold
Bulgaria	Monthly Oil and Petroleum Products Questionnaire	Business survey without threshold + Administrative data
Bulgaria	Monthly Natural Gas Questionnaire	Business survey without threshold



Bulgaria	Monthly Electricity Questionnaire	Business survey without threshold
Bulgaria	Questionnaire for electricity and heat production	Business survey without threshold
Bulgaria	Balance of Energy Transformation Processes - Oil and Petroleum products	Business survey without threshold + Administrative data
Bulgaria	Balance of Energy Transformation Processes - Solid fuels	Business survey without threshold
Bulgaria	Statistics on nuclear energy	Business survey without threshold
Bulgaria	Fuels and energy consumption	Business survey without threshold + Administrative data
Bulgaria	Supply of liquid biofuels	Business survey without threshold
Bulgaria	Electricity, heat, natural gas and lubricants, supplied to end-users	Business survey without threshold
Bulgaria	Short assessment of renewable energy sources (SHARES)	Statistical compilation (National data collections + Administrative data)
Bulgaria	Households - detailed annual statistics on final energy consumption	Household survey
Czechia	Annual Statistical form on Fuels Sources and Fuels Distribution (EP 7-01)	Sample survey according their activity (activity related to coal and gas exploitation, production and processing of gaseous and solid fuels, with wholesale activities including foreign trade and other economic subjects with their main or secondary activity related to sale of fuels, subjects with retail activities)
Czechia	Annual Statistical form on Production and Distribution of Electrical Energy and Heat (EP 10-01)	Sample Survey - subjects with main a secondary activity related to electricity and heat generation
Czechia	Annual Statistical form on Fuels and Energy Consumption and Fuels Stocks (EP 5-01)	Census of economic subjects selected from the RES with their principal activity related to NACE from 01 to 96. The selected sample depends on the NACE codes: economic subjects with 20 and more employees in sectors of agriculture, industry, transport and construction, in other sectors they are selected from subjects with 100 and more employees. Sample of economic subjects with 20 to 100 employees for survey in other sectors is ranging between 27% to 39% and afterwards it is performed data imputation to 100%. Then data imputation to non-response is performed as well.
Czechia	Annual Statistical Form on Fuels Refining Energy Processes (EP 8-01)	Census - There are reporting economic subjects, selected from RES (Business Register – which is maintained by the CzSO), with activity related to production of briquettes (brown coal briquetting), coke (high-temperature carbonization in coking plants), gasification under pressure of coal, production of metals (blast furnace gas production in blast furnaces), crude oil processing (liquid fuels production from crude oil) and further (blast-furnace gas production in blast furnaces and producers of gas works gas at gasification in industrial generating stations)
Czechia	Annual Statistical form on Fuels and Energy Consumption for the Production of Selected Products (EP 9-01)	Sample survey of economic subjects with their activity according to the list of selected products. Respondents: economic subjects, selected from RES (Business Register – which is maintained by the CzSO),
Czechia	Monthly Statistical form on Crude Oil, Petroleum Products and Biofuels for Refineries and Petroleum Products Manufacturers (EPR 1-12)	Sample survey of economic subjects selected according to their activity. Respondents: economic subjects, selected from RES (Business Register – which is maintained by the CzSO), with main/prevailing activity related to oil exploitation, refinery production,



		petroleum products recycling
Czechia	Monthly Statistical form on Crude Oil, Petroleum Products and Biofuels for Commercial and Storage Operators and End-users (EPS 1-12)	Sample survey of economic subjects selected according to their activity. Respondents: economic subjects, selected from RES (Business Register – which is maintained by the CzSO), with main/prevailing activity related to business activity: business activity with crude oil and petroleum products, significant stockkeeping organizations and petroleum products consumers and petrochemical production.
Czechia	Eng (MPO) 1–12, Monthly form – Solid fuels	Business survey without threshold
Czechia	Eng (MPO) 4–01, Annual form – Renewables and wastes	Business survey without threshold
Czechia	Eng (MPO) 5–01, Annual form – Production and supply of electricity, heat and gases	Business survey without threshold
Czechia	Eng (MPO) 6–12 Monthly form – Liquid biofuels	Business survey without threshold
Denmark	Fire wood survey	Household survey
Denmark	Wood pellet survey	Business survey with threshold: For plants: 3 kt
Denmark	Survey of energy consumption for manufacturing companies	Business survey with threshold: Min. 20 employees
Denmark	Monthly oil survey	Census
Denmark	Oil end use survey	Census
Denmark	Monthly natural gas survey supply	Measured data are transmitted in fixed questionnaire
Denmark	Monthly natural gas, North Sea	Census
Denmark	Annual natural gas end use survey	Census
Denmark	Monthly coal and coke survey	Census
Denmark	Annual coal and coke end use survey	Census
Denmark	Monthly electricity survey	Statistical compilation
Denmark	Annual electricity and heat survey (delivering to grid)	Business survey without threshold
Denmark	Annual electricity end use survey	Census
Denmark	Monthly gas works gas survey	Business survey without threshold
Denmark	Annual survey on biodiesel	Census
Denmark	Annual survey on solar heat	Estimations
Denmark	Biannual survey on heat pumps	Business survey
Denmark	Annual consumption of straw and wood chips outside the transformation sector	Estimations
Denmark	Annual production and consumption of biogas outside the transformation sector (and autoproducers	Census



	delivering to grid)	
Denmark	Consumption at power plants	Census
Denmark	Consumption of electricity by usage in residential sector: ElModelBolig	Household survey
Denmark	Crude oil imports by field of production	Business survey
Germany	(066N) Monatserhebung über die Stromein und - ausspeisung bei Netzbetreibern	Business survey without threshold
Germany	(066K) Monatserhebung über die Elektrizitäts- und Wärmeerzeugung zur allgemeinen Versorgung	Business survey with threshold: > 1 MW
Germany	BDEW-Schnellstatistik	Business census and mixture of different data sources (EEX, TSO's, other institutions), estimations, modelling
Germany	(068) Monatsbericht über die Gasversorgung	Business survey without threshold
Germany	(064) Jahreserhebung über Erzeugung und Verwendung von Wärme sowie über den Betrieb von Wärmenetzen	Business survey with threshold: 2 MWth
Germany	(060) Jahreserhebung über die Energieverwendung im Verarbeitenden Gewerbe, im Bergbau und in der Gewinnung von Steinen und Erden	Business survey with threshold > 20 employees
Germany	(062) Jahreserhebung über Wärme- und Elektrizitätserzeugung aus Geothermie	Business survey without threshold
Germany	(063) Jahreserhebung über die Erzeugung von Biokraftstoffen	Business survey without threshold
Germany	(067) Jahreserhebung über die Elektrizitätsund Wärmeerzeugung im Verarbeitenden Gewerbe, im Bergbau und in der Gewinnung von Steinen und Erden	Business survey with threshold >1MW
Germany	(061) Erhebung über die Einfuhr von Kohle	Business survey without threshold
Germany	(073) Jahreserhebung über Gewinnung, Verwendung und Abgabe von Klärgas	Business survey with threshold: Municipal sewage treatment plants
Germany	(075) Jahreserhebung über die Abgabe von Flüssiggas	Business survey with threshold: Enterprises with a delivery of more than 100t LPG
Germany	(082) Jahreserhebung über Gasabsatz und Erlöse in der Gasversorgung	Business survey without threshold
Germany	(083) Jahreserhebung über Stromabsatz und Erlöse in der Elektrizitätsversorgung	Business survey without threshold
Germany	BDEW-Strombilanz	Statistical compilation
Germany	Der Kohlenbergbau in der Energiewirtschaft der Bundesrepublik Deutschland	Business survey without threshold
Germany	Amtliche Mineralöldaten für die Bundesrepublik Deutschland	Business survey without threshold
Germany	"Systemic Wood Resource Monitoring": Empirical Consumer Surveys and subsequent modelling to	Household survey; Business survey (sample for Commercial and public services with solid biomass



	derive reliable time series	installation up to 1 MW rated thermal input)
Germany	EEG-Jahresabrechnung (EEG-Mengentestat) / "EEG in Zahlen"	Statistical compilation
Germany	Statistische Zahlen der deutschen Solarwärmebranche	Business survey without threshold
Germany	Monatserhebungen in der Kohlenwirtschaft	Business survey without threshold
Germany	BLE Evaluationsbericht	Statistical analysis of sustainability certifying system
Germany	BDH/BWP-Absatzstatistik	Aggregated sales data
Germany	More than 1 year after the end of the reference period	Statistical compilation
Estonia	Energy consumption and production, short term statistics	Other (measurement, mixture of several sources).
Estonia	Energy consumption and production, annual statistics	Other (measurement, mixture of several sources).
Ireland	Electricity Supply	Use of administrative data (e.g. customs data or business registers)
Ireland	Solid Fuel	Sample census (e.g. use of a threshold): Only large suppliers surveyed
Ireland	Oil	Sample census (e.g. use of a threshold): All companies liable for NORA levy
Ireland	Monthly Gas	Census
Ireland	Electricity Generation	Census
Ireland	Electricity Consumption	Use of administrative data (e.g. customs data or business registers)
Ireland	Annual Gas	Use of administrative data (e.g. customs data or business registers)
Ireland	Combined Heat and Power	Census
Ireland	Wood Fuel Suppliers	Census
Ireland	Wood Waste	Sample census (e.g. use of a threshold)
Ireland	Municipal and Other Waste	Use of administrative data (e.g. customs data or business registers)
Ireland	Solar Thermal Upgrades	Use of administrative data (e.g. customs data or business registers)
Ireland	Solar New Builds	Use of administrative data (e.g. customs data or business registers)
Ireland	Wind Autoproducers	Census
Ireland	Biofuels	Use of administrative data (e.g. customs data or business registers)
Ireland	Landfill Gas	Census
Ireland	Other Biogas	Census
Ireland	Heat Pumps	Use of administrative data (e.g. customs data or business registers)
Ireland	Non Energy Fuels	Use of administrative data (e.g. customs data or business registers)

Annex 1

Ireland	Solar PV	Estimations
Ireland	Electricity in Transport	Use of administrative data (e.g. customs data or business registers)
Ireland	Crude Oil Imports	Census
Ireland	Biofuel feedstocks	Use of administrative data (e.g. customs data or business registers)
Ireland	Residential End Use	Excel Model
Ireland	Business Energy End Use	Use of administrative data (e.g. customs data or business registers)
Greece	Monthly electricity	Statistical compilation
Greece	Monthly solid	Statistical compilation
Greece	Monthly natural gas	Statistical compilation
Greece	Annual electricity	Statistical compilation
Greece	Annual solid	Statistical compilation
Greece	Annual natural gas	Statistical compilation
Greece	Annual renewables	Statistical compilation
Greece	Short term monthly natural gas	Statistical compilation
Spain	RESOLUCION GAS NATURAL (information that feed into SHARES)	Census
Spain	RESOLUCION PRODUCTOS PETROLIFEROS (information that feed into SHARES)	Census
Spain	AOS (information that feed into SHARES)	Modelling
Spain	Nuclear Energy Statistics	Census
Spain	Estadística de destilación de carbones (anual) (information that feed into SHARES)	Census
Spain	Estadística de destilación de carbones (mensual)	Survey
Spain	ESTADÍSTICA DE PRODUCTORAS (anual) DE LA INDUSTRIA DE LA ENERGÍA ELÉCTRICA (information that feed into SHARES)	Census
Spain	ESTADÍSTICA DE PRODUCTORAS (MENSUAL) DE LA INDUSTRIA DE LA ENERGÍA ELÉCTRICA	Census
Spain	ESTADÍSTICA DE COMERCIALIZADORAS DE LA INDUSTRIA DE LA ENERGÍA ELÉCTRICA (anual) (information that feed into SHARES)	Census
Spain	Estadística de la Industria de Gas Natural (anual) (information that feed into SHARES)	Census
Spain	Thermal renewable energy statistics (information that feed into SHARES)	Census



	Statistics of coal production (Appund) (information	
Spain	Statistics of coal production (Annual) (information that feed into SHARES)	Census
Spain	Annual foreign trade (information that feed into SHARES)	Census
Spain	Statistics of coal production (Monthly)	Census
Spain	Monthly foreign trade	Census
France	Enquête annuelle sur la production d'électricité (EAPE)	Business survey without threshold, For some sectors (wind, hydro) we use the register of electrical installations to know the electrical production injected to limit the load
France	Collecte annuelle de données locales électricité et gaz (article 179)	Collection from all gas and electricity suppliers, transporters and distributors
France	Collecte annuelle de données locales chaleur (article 179)	Collection from all heat networks with a threshold (not mandatory for the smallest networks)
France	Enquête annuelle sur les réseaux de chaleur et de froid (EARCF)	Business survey without threshold
France	Enquête annuelle sur la consommation de combustibles et d'énergie non électrique dans l'industrie sidérurgique	Business survey with threshold , 3 local units represent more than 95% of coal consumption
France	Enquête annuelle sur les consommations d'énergie dans l'industrie	Business survey with threshold > 20 employees
France	Enquête sur les consommations d'énergie dans le tertiaire	Business survey without threshold
France	French Customs Statistics	Use of administrative data (e.g. customs data or business registers): Customs data
France	Enquête annuelle sur l'activité de la pétrochimie	Business survey without threshold
France	Enquête annuelle sur les ventes de produits pétroliers	Business survey without threshold
France	Enquête annuelle sur les ventes de GPL	Business survey without threshold
France	Enquête mensuelle "Combustibles minéraux solides"	Business survey without threshold, , 3 local units represent more than 95% of coal consumption
France	Collecte mensuelle auprès des acteurs du secteur de l'électricité	Business survey with threshold: See section 3.1 Data description - "List of variables included"
France	Collecte mensuelle auprès des acteurs du secteur du gaz	Business survey with threshold - see item 3.1 Data description - "List of variables included"
France	Collecte annuelle relative aux données des obligations d'achat dans le secteur de l'électricité	Business survey without threshold
France	Enquête Logement	Household survey
France	Collecte mensuelle auprès des raffineries	Business survey without threshold
France	Collecte mensuelle sur les stocks et la production de pétrole brut	Business survey without threshold
France	Collecte mensuelle sur les livraisons de produits pétroliers	Business survey without threshold



France	Collecte annuelle sur l'industrie nucléaire	Business survey without threshold
France	Collecte annuelle sur les consommations de produits pétroliers dans les armées	Census
Croatia	The PRODCOM Survey on Industry (IND- 21/PRODCOM)	Industry survey with threshold
Croatia	The Monthly Survey on Industrial Production and Persons Employed (IND-1/KPS/M)	Industry survey with threshold
Croatia	Annual Survey on the Consumption of Raw Materials and Energy Products in Industry (IND-21/REPRO/G)	Industry survey with threshold
Croatia	Disaggregated final energy consumption in households	Survey and method of estimation based on the results of the previous survey
Croatia	The Monthly Survey on Power Stations (ERG-1/EL)	Census
Croatia	The Monthly Survey on Oil Refineries (ERG-1/N)	Census
Croatia	The Monthly Survey on Imports, Exports and Stocks of Crude Oil and Petroleum Products (ERG-2/N)	Other sectorial survey (industry, agriculture, etc.): Energy survey with threshold
Croatia	Monthly Survey on Imports, Exports, stocks and Deliveries of Natural Gas (ERG-1/P)	Census
Croatia	The Monthly Survey on Imports, Exports, Stocks and Deliveries, and consumption of coal and coke (ERG- 1/U)	Other sectorial survey (industry, agriculture, etc.): Energy survey with threshold
Croatia	The Annual Survey on the production of biogas and biomass and production of electricity and heat from biogas and biomass (ERG-10B)	Census
Croatia	The Annual Survey on the Production of Pellets and Briquettes from Biomass, Wood Chips and Charcoal (ERG-2OB)	Census
Croatia	The Annual Survey on Biofuels Production and Market (ERG-30B)	Census
Croatia	SHARES	Sectorial survey, industry survey, transport survey
Croatia	The Annual Report on Construction Works (GRAĐ-12 form)	Other sectorial survey (industry, agriculture, etc.): Annual Implementation Plan of Statistical Activities of the Republic of Croatia
Croatia	Intrastat - Trade in goods between EU Member States 2014	Business survey with threshold: more than 1 200 000 kn
Croatia	Extrastat – Trade in goods with non- EU countries 2014	Use of administrative data (e.g. customs data or business registers): Single administrative document
Croatia	The Annual Report on railway transport (PŽ/G-11)	Other sectorial survey (industry, agriculture, etc.): Transport survey
Croatia	The Quarterly Report on Road LineTransport of Passengers (PA/M-11)	Other sectorial survey (industry, agriculture, etc.): Transport survey
Croatia	The Quarterly Report on urban transport (PG/T-11)	Other sectorial survey (industry, agriculture, etc.): Transport survey
Croatia	Quarterly Report of Maritime and Coastal Transport	Other sectorial survey (industry, agriculture, etc.): Transport survey



	(PP/T-11)	
Croatia	The Annual Report on Air Transport (PZ/G-11)	Other sectorial survey (industry, agriculture, etc.): Transport survey
Croatia	Annual Report on Inland Waterways Transport (PR/G- 11)	Other sectorial survey (industry, agriculture, etc.): Transport survey
Croatia	The Annual Report on Airports (PZ/G-21)	Other sectorial survey (industry, agriculture, etc.): Transport survey
Croatia	The Statistical Survey on Road Transport of Goods (PA/T-11)	Other sectorial survey (industry, agriculture, etc.): Transport survey
Italy	Data collection on renewable energy in heating sector - direct use and of derived heat (GSE-00001)	Surveys, Administrative data elaboration, market data analysis, etc
Italy	Developing and managing a national system for the statistical monitoring of the development of renewable sources in Italy (SIMERI) (GSE-00002)	Administrative data elaboration, market data analysis, other national statistics etc
Italy	District Heating and District Cooling Network in Italy (GSE-00006)	Surveys, Administrative data elaboration, market data analysis, etc
Italy	Energy consumption (biofuels, fossil fuels) in Transport Sector in Italy (GSE-00003 e GSE-00007)	Use of administrative data
Italy	Annual statistics of electricity production and consumption in Italy (TER-00001)	Statistical compilation. Data are based on a total survey and, partly, on other sources (capacity and photovoltaic sector).
Italy	Annual Statistics of heat production and consumption in CHP plants in Italy (TER-00007)	Statistical compilation. Data are based on a total survey.
Italy	Import, export and consumption of coal products (MSE 00005)	Statistical compilation. Data are based on a total survey
Italy	Questionnaire on natural gas	Statistical compilation. Data are based on a total survey
Italy	Import, export and consumption of crude oil products (MSE 00009)	Statistical compilation. Data are based on a total survey
Italy	Production of the petrochemical industry (MSE-00014)	Statistical compilation. Data are based on a total survey
Cyprus	Foreign Trade Statistics (monthly)	Use of administrative data (e.g. customs data or business registers): Customs data
Cyprus	Foreign Trade Statistics (annual)	Use of administrative data (e.g. customs data or business registers): Customs data
Cyprus	Local Petroleum Trading Companies' Imports, Sales and Stocks	Census
Cyprus	National Stock Holding Entity (COSMOS)	Use of administrative data (e.g. customs data or business registers)
Cyprus	Electricity Authority of Cyprus: Imports, Consumption and Stocks of Fuels	Statistical compilation
Cyprus	Vassiliko Cement Works Public Company Ltd: Imports, Consumption and Stocks of Fuels	Statistical compilation
Cyprus	Vassiliko Cement Works Public Company Ltd: Alternative Fuels	Statistical compilation
Cyprus	Electricity Production monthly (Transmission System Operator)	Statistical compilation



Cyprus	Electricity Production from Renewable Sources monthly	Statistical compilation
Cyprus	Electricity autoproducers (combustible fuels)	Other (measurement, mixture of several sources).
Cyprus	Other information on renewable sources	Other (measurement, mixture of several sources).
Cyprus	Fuel consumption and allocation by economic activity	Business survey without threshold
Cyprus	Electricity consumption - annual	Use of administrative data (e.g. customs data or business registers)
Cyprus	Households – detailed annual statistics on final energy consumption	Statistical compilation / modelling based on a relevant survey results from 2018
Cyprus	Data on compliant biofuels (SHARES)	Census (Compiled by the Energy Service and not by Statistical Service of Cyprus)
Latvia	Survey "Purchase and Consumption of Energy Resources" (2-EK)	Business survey with threshold: 5 employees
Latvia	Survey "Heat and Electricity Production" (1-energy with annexes)	Census
Latvia	Survey on consumption of natural gas (1-GAS)	Census
Latvia	Survey on electricity production and fuel consumption (1-energetics)	Census
Latvia	Survey on consumption of natural gas (2-gas)	Census
Latvia	Survey on oil delivery to ships and aircrafts (2- bunkering)	Census
Latvia	Survey on work of cogeneration plants (2- cogeneration)	Census
Latvia	Survey on electricity production and fuel consumption (2-energetics)	Census
Latvia	Survey on import, production and sale of solid fuel (2-solid fuels)	Census
Latvia	Household energy consumption survey (1-EPM)	Sample census (e.g. use of a threshold): households
Lithuania	Fuel and energy balance annual statistical survey (EN- 01)	Business survey with threshold: The source for determining the general sampling frame is the Statistical Business Register. The population of the statistical survey is sampled from the list of operating economic entities on the basis of information on the number of employees and economic activity of the unit. The survey is conducted applying purposive and cut-off methods. The purposive method is applied for fuel/energy producers and suppliers: (1) extracting oil, producing solid fuel, renewable energy, electricity and heat, (2) importing/exporting a larger amount of specific energy products, (3) bunkering ships and aircraft. The cut-off method is applied for all energy consumers with 50 or more persons employed from activities C (Manufacturing), D (Electricity, gas, steam supply), F (Construction) and with 20 or more persons employed from activities A (Agriculture, forestry and fishing) and B (Mining and quarrying). Moreover, all companies producing

Lithuania	Fuel and energy consumption annual statistical survey (EN-10)	electricity and heat sold to third parties (public system and autoproducer) are obliged to fill in two annexes to the report EN-01 (i.e. Annex EN-001 for CHP plants and Annex EN- 002 for heat plants). The annexes collect comprehensive information on electricity generation, heat production, capacity by type of CHP units, fuel inputs. Sample census (e.g. use of a threshold): Sample survey. The survey population is comprised of economic entities in operation with the main activity falling within Section C, divisions 10–32 (Manufacturing), and Section F, divisions 41–43 (Construction), of NACE Rev. 2. The enterprises sampled are those having 5–49 employees. The source for determining the general sampling frame is the Statistical Business Register, the sampling design – simple random stratified sample.
Lithuania	Crude oil and petroleum products balance survey (EN- 06)	Census
Lithuania	Statistical survey on fuel and energy supply (EN-11)	 Sample census (e.g. use of a threshold): The source for determining the general sampling frame is the Statistical Business Register. The survey is conducted applying a purposive sampling method. Units which are sampled are as follows: extracting oil, importing/exporting fuel (the threshold for sampling depends on specific energy products), bunkering ships and aircraft, larger consumers of specific energy products, units obliged to maintain minimum stocks of crude oil and/or petroleum products,
Lithuania	Statistical survey on the production and distribution of electricity (EN-12)	Census
Lithuania	Statistical survey on natural gas (EN-15)	Census
Lithuania	Statistical survey on crude oil and petroleum products (EN-16)	Census
Lithuania	Electricity distribution survey (EN-17)	Census
Luxembourg	Intra- Extrastat Survey	Business survey with threshold: imports > $150\ 000\ EUR$
Luxembourg	Survey with ETS	Use of administrative data (e.g. customs data or business registers): ETS
Luxembourg	Monthly oil survey	Census
Luxembourg	Monthly survey with electricity distributor	Census
Luxembourg	Monthly survey with gas network operator	Census
Luxembourg	Survey on households' expenditures	Household survey
Luxembourg	Structural Business Survey	Business survey without threshold
Luxembourg	Annual survey with electricity distributor	Census
Luxembourg	Annual survey with gas network operator	Census



Luxembourg	Environmental primes	Use of administrative data (e.g. customs data or business registers): env. primes requested
Luxembourg	Biofuel statistics	Use of administrative data (e.g. customs data or business registers): Biofuel register
Luxembourg	Energy sector survey	Other sectorial survey (industry, agriculture, etc.): energy sector
Hungary	OSAP 1321 Energy balance, Industry sector	Industry energy end-use survey
Hungary	OSAP 1329 Monthly energy statistics	Business survey without threshold
Hungary	OSAP 1335a Survey on energy use, Commercial and public services sector	Commercial and public services energy end-use survey
Hungary	OSAP 1335b Survey on energy use, Agriculture sector	Other sectorial survey (industry, agriculture, etc.): Agriculture Forestry and Fishing energy end-use survey
Hungary	OSAP 1335c Survey on energy use, Transport sector	Other sectorial survey (industry, agriculture, etc.): Transport energy end-use survey
Hungary	OSAP 2221 Energy balance of energy sector, energy commodities	Business survey without threshold
Hungary	OSAP 2261 Crude oil and petroleum products flows	Census
Hungary	G216 Monthly balance of natural gas storage	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	G410 Monthly balance of natural gas TSO	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	G510 Monthly balance of natural gas DSO	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	G511 Regional and sectoral report on the amount of natural gas delivered to consumers	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	T216a District heating producer monthly report	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	T516a District heating supplier monthly report	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	V214 electricity and heat data of large-scale power plants	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	V310 monthly data of small-scale power plants	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	V311 annual data of small-scale power plants	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by



		the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	V410 electricity delivery via transmission network	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	V433 Cross border electricity exchange	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	V461 daily data of system load of hungarian electricity system	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	V510 electricity delivery via distribution network	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	V516 Regional and sectoral report on the amount of electricity delivered to consumers	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	V526 Heat pumps data	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation
Hungary	V533 Survey on small-scale power plants not subject to licence connected to the grid	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	V534 Report on the non-licensed small-scale power plants connected to the grid in the given period	Use of administrative data (e.g. customs data or business registers): Within its scope of supervisory activities, by using the data of administrative data collections carried out by the Authority for statistical purposes, as defined in relevant sectoral legislation.
Hungary	HKÉF Household Budget Survey - energy module	
Hungary	International Trade in Goods Statistics	Sample census (e.g. use of a threshold): Annual trade above 100 million HUF for Intrastat
Hungary	NAV BIO01 report of motor fuels distributors on liquid biofuels delivered for transport purpose	
Malta	Oil Balance and Sectoral consumption	Data is collected from all the operators through the Regulator for Energy and Water Services. For the consumption by sector, a survey is done by the NSO every four years and also expert estimates are used.
Malta	Electricity data	Use of administrative data (Electricity data from Enemalta and the Regulator for Energy and Water Services)
Malta	Electricity consumption data	Use of administrative data (Electricity consumption data from Enemalta)
Malta	Natural Gas data	Use of administrative data (Natural gas data from the Regulator for Energy and Water Services)
Malta	Renewable data	Use of administrative data (Renewables data from the Energy and Water Agency)
Malta	Fuels Imports and Exports data	Data from an internal unit within NSO.



Netherlands 0 Netherlands 5 Netherlands 1 Netherlands 1	Final Energy Consumption in Households CertiQ Registratie voor Garanties van Oorsprong van Hernieuwbare elektriciteit en warmte Survey on household wood use NEa register data on biofuels Survey on sold wood boilers for heat >18 kW to enterprises	Use of administrative data (Energy Consumption in households data from the Energy and Water Agency) Use of administrative data (e.g. customs data or business registers): Data underlying Guarantees of Origin and renewable energy subsidy Household survey Use of administrative data (e.g. customs data or business registers)
Netherlands Netherlands Netherlands S	Hernieuwbare elektriciteit en warmte Survey on household wood use NEa register data on biofuels Survey on sold wood boilers for heat >18 kW to	Guarantees of Origin and renewable energy subsidy Household survey
Netherlands	NEa register data on biofuels Survey on sold wood boilers for heat >18 kW to	
Netherlands	Survey on sold wood boilers for heat >18 kW to	Use of administrative data (e.g. customs data or business registers)
Nornarianne	,	
		Census
	Annual average burnup of definitively discharged irradiated fuel elements	Census
Netherlands F	Production, transformation & consumption of energy	Sample census (e.g. use of a threshold): Electrical capacity of about 10 MW
Netherlands (Crude oil and petroleum products	Sample census (e.g. use of a threshold): Depends impact on relevant variables and alternative information sources
Netherlands	Energy consumption in Industry	Business survey with threshold: size class 5 (20-50) employees is the smallest size class that is included.
Nerneriands	Supply of electricity and natural gas via the national grid	Census
Netherlands S	Supply of natural gas	Census
Netherlands S	Supply of electricity	Census
Netherlands F	Production of oil	Census
Netherlands I	Natural gas stocks	Census
Netherlands I	International trade statistics of goods	Sample census (e.g. use of a threshold): 1.500,000 euro annual imports/exports
Netherlands F	Production of biofuels	Census
Netherlands E	Enrichment capacity	Census
Netherlands (CERES - register for energy systems	Use of administrative data (e.g. customs data or business registers)
	Disaggregated final energy consumption in households	Modelling
Austria E	Energy consumptions of households	Household survey
	Energy consumptions in the service sector	Business survey without threshold
	Energy consumption of small to medium sized industries	Business survey with threshold: more than three full-time employees
Austria l	Useful energy analysis in industries	Business survey without threshold
Austria S	Short term statistics in industry and construction	Business survey with treshold



Austria	Material Input Statistics (including energetic input)	Business survey with treshhold
Austria	International Trade in Goods Statistics	Census
Poland	G-02o - report on heat from renewable sources	Statistical compilation
Poland	G-02a Questionnaire on Energy Comodities Balances	Statistical compilation
Poland	G-02b Questionnaire on Energy Commodities Balances and Heating Infrastructure	Statistical compilation
Poland	G-03 Questionnaire on energy commodities consumption	Statistical compilation
Poland	MG-15 Production and sale in coke oven industry	Other sectorial survey (industry, agriculture, etc.): Coke oven industry
Poland	G-09.1 Report on hard coal trade	statistical reporting - full scale survey
Poland	G-09.2 Report on the mechanical coal processing	statistical reporting - full scale survey
Poland	G-09.3 Report on production and sale of coal lignite	statistical reporting - full scale survey
Poland	G-09.4 Report on import and intra-EU acquisition of black coal	statistical reporting - full scale survey
Poland	G-09.5 Report on revenues, costs and results of operations in black coal mining	statistical reporting - full scale survey
Poland	G-09.6 Report on employment, productivity, remuneration and fulfilled working time in black coal mining	statistical reporting - full scale survey
Poland	G-09.7 Report on investment in black coal mining	statistical reporting - full scale survey
Poland	G-09.8 Report on the public law and civil law payments implemented by black coal mining	statistical reporting - full scale survey
Poland	G-09.9 Report on the black coal resources	statistical reporting - full scale survey
Poland	G-09.10 Report on the environmental effects of black coal mining activity	statistical reporting - full scale survey
Poland	G-09.11 Report on demethanization and management of methane from black coal mines	statistical reporting - full scale survey
Poland	G-10.2 - report on thermal power plant operation	Other (measurement, mixture of several sources): Sample constructed by purpose
Poland	G-10.3 - report on capacity and production of electricity and heat by the CHP autoproducers	Other (measurement, mixture of several sources).
Poland	G-10.5 report on the condition of electrical devices	Other sectorial survey (industry, agriculture, etc.): Sample constructed by purpose
Poland	G-10.6 - report on capacity and production of hydro power plants, wind power plants and other renewable sources	Other sectorial survey (industry, agriculture, etc.): Sample constructed by purpose
Poland	G-10.8 - report on sales/supply and consumption of electricity according to administrative division units	Other sectorial survey (industry, agriculture, etc.): Sample constructed by purpose
Poland	G-10.m - monthly data on electricity	Other sectorial survey (industry, agriculture, etc.): Sample constructed by purpose



Poland	G-10.7 (P) -report on electricity flows (according to voltage) in the highest tension system	Other (measurement, mixture of several sources): complete method
Poland	G-10.7 - report of electricity flows (according to voltage) in the network of electrical enterprises dealing with electricity distribution	Other sectorial survey (industry, agriculture, etc.): Sample constructed by purpose
Poland	G-10.1k - Report on thermal power plant operation	Other sectorial survey (industry, agriculture, etc.): Sample constructed by purpose
Poland	G-10.1(w)k - report on operation of hydro power plants/wind power plants	Other sectorial survey (industry, agriculture, etc.): Sample constructed by purpose
Poland	G-10.4(D)k - report on energy enterprise dealing with distribution of electricity	Other sectorial survey (industry, agriculture, etc.): Sample constructed by purpose
Poland	G-10.4(P)k - report on the activity of operator of electricity transmission system	Other sectorial survey (industry, agriculture, etc.): Sample constructed by purpose
Poland	G-10.4(Ob)k - report of enterprise dealing with trading in electricity	Other sectorial survey (industry, agriculture, etc.): Sample constructed by purpose
Poland	RAF-1 - report on the transformation process in companies producing and processing the oil products	Ot4her (measurement, mixture of several sources): complete method
Poland	RAF-2 - report on production, trade, stocks and infrastructure for crude oil and oil products	Other (measurement, mixture of several sources): Sample constructed by purpose (all producers, importers, exporters etc.)
Poland	GAZ-3 - report on activities of gas companies	Other (measurement, mixture of several sources): complete method
Poland	GAZ-1 - report on trading with coke oven gas	Other (measurement, mixture of several sources): complete method
Poland	GAZ-2 - report on natural gas trade from methane discharge from mines	Other (measurement, mixture of several sources): complete method
Poland	G-11g - report on natural gas prices according to standard categories of end-users	Other sectorial survey (industry, agriculture, etc.): sample constructed by purpose
Poland	G-11e - report on electricity prices according to the category of standard end-users	Other sectorial survey (industry, agriculture, etc.): sample constructed by purpose
Poland	G-11n - report on the prices of petroleum products	Other sectorial survey (industry, agriculture, etc.): sample constructed by purpose
Poland	Administrative data on liquid fuels (URE),	Reporting of data by reporting units
Poland	Administrative data on the implementation of the National Index Target referred to in the Act of August 25, 2006 on biocomponents and liquid biofuels (URE),	Reporting of data by reporting units
Poland	Administrative data on raw materials used to produce agricultural biogas or to generate electricity from agricultural biogas, produced agricultural biogas, electricity produced from agricultural biogas (KOWR),	Quarterly reports
Poland	Administrative data on raw materials used to produce liquid biofuels and liquid biofuels produced and used for their own use (KOWR),	Annual report
Poland	Administrative data on the biocomponent market (KOWR),	Quarterly reports



Portugal	Annual Electricity and Heat data collection	Use of administrative data (e.g. customs data or business registers): DGEG data, APA/EU-ETS, INE (excluding descentralized production)				
Portugal	Monthly Electricity data collection	Use of administrative data (e.g. customs data or business registers)				
Portugal	Coal data collection	Use of administrative data (e.g. customs data or business registers): DGEG data, company registers				
Portugal	Gas Natural data collection	Use of administrative data (e.g. customs data or business registers): DGEG data, company registers				
Portugal	Oil data collection	Use of administrative data (e.g. customs data or business registers): DGEG data, company registers				
Romania	E01_energy resources and consumption in year	Business survey; this survey is a combination of census and sample.				
Romania	Administrative Sources (AD)	Other sectorial survey (industry, agriculture, etc.): Foreign trade statistics, Family Budget Survey, Agriculture Surveys				
Romania	P_inputs/outputs of refineries in year	Census				
Romania	GTS - Natural gas resources and their destinations in the month the year	Census				
Romania	CTS _ Coal resources and their uses in the month year	Statistical compilation				
Romania	PTS_ Crude oil balance processing in the month the year	Census				
Romania	ELTS_Energy resources used to produce electricity in month the year	Census				
Romania	Monthly Administrative Sources (MAD)	Other sectorial survey (industry, agriculture, etc.): Foreign trade statistics, Monthly Industrial Production				
Romania	E02_production of electricity and heat	Census				
Slovenia	Household energy consumption survey	Household sample survey				
Slovenia	Monthly solid, liquid, gaseous fuels collection survey	Census				
Slovenia	Annual solid, liquid, gaseous fuels collection survey	Census				
Slovenia	Annual statistical survey on the consumption of energy, fuels and selected petroleum products	Business survey with threshold: 20 employees and more				
Slovenia	Annual Electricity and Heat Survey	Census				
Slovenia	Monthly Electricity and heat Survey	Census				
Slovakia	ROPA (SŠHR SR) 1-12 Monthly report on crude oil, petroleum products and natural gas	Business survey without threshold				
Slovakia	Energ 7-12 Monthly Questionnaire on Electricity and Heat Production	Business survey with threshold: heat producers if operating at least one source with installed capacity 0,35 MW and higher, electricity producers and units dealing with electricity and heat distribution				
Slovakia	Energ 2-01 Annual Questionnaire on Production of Fuels from Crude Oil	Business survey without threshold				



Slovakia	Energ 3-01 Annual Questionnaire on Renewable Sources of Fuels and Energy	Business survey without threshold
Slovakia	Energ 4-01 Annual Questionnaire on Electricity and Heat Production	Business survey with threshold: heat producers if operating at least one source with installed capacity of 0,35 MW and higher, CHP producers if operating at least one cogeneration unit with installed electrical capacity of 0,10 MW and higher, electricity producers, electricity and heat sellers and operators of distribution and transmission systems of electricity and heat
Slovakia	Energ 5-01 Annual Questionnaire of Solid Fuels Retail	Business survey without threshold
Slovakia	Energ 6-01 Annual Questionnaire on Sources and Distribution of Fuels and Energy	Business survey with threshold: Enterprises with more than 20 employees registered in the Business Register and registered in the SO SR register of organisations with main activity according to the Statistical classification of the selected economical activities
Slovakia	Energ 8-12 Monthly Questionnaire on Solid Fuels and Selected Gaseous Fuels	Business survey with threshold: Enterprises with more than 20 employees registered in the Business Register and registered in the SO SR register of organisations with main activity according to the Statistical classification of the selected economical activities
Finland	Foreign trade statistics	Business survey with threshold - Thresholds concerning internal trade statistics for 2020 acquisitions or deliveries: EUR 500 000 euro and concerning external trade statistics: EUR 1 000
Finland	Production of electricity and heat	Business survey with threshold: Data collections cover all grid-connected electricity producers, heat producers with total heat capacity of 5 MW or heat produced 10 GWh per year
Finland	Energy use in manufacturing	Large industrial energy consumers: 100% (census); Medium size energy consumers: stratified random sample; Small-scale energy consumers (enterprises employing under 10 persons): stratified random sample, which is conducted every 5th year. In addition, all known establishments using unusual fuels are covered by direct data collections.
Finland	Hard coal consumption and stocks	Business survey with threshold: Data collection covers at least 95% of hard coal consumption.
Finland	Estimation model for space and water heating	Modelling
Finland	Agriculture and horticulture energy consumption	Statistical compilation
Finland	Dedicated energy enquiry to iron and steel industry	Sample census (e.g. use of a threshold): Data collection covers only the one industrial site having coke oven, blast furnace and/or ferrochrome furnace.
Finland	Peat production and sales	Sample census (e.g. use of a threshold): Data collection covers appr. 50% of peat sales.
Finland	Electricity consumption by sector	Business survey without threshold
Finland	Calculation model for home appliances	Modelling
Finland	Power plant register	Use of administrative data (e.g. customs data or business registers): The register information is based on the statutory notifications given by the owners of the power plants to Energy Authority.
Finland	Small scale power installations	Business survey without threshold
Finland	Average burnup of definitively discharged irradiated fuel elements	Census



Finland	Imports of natural gas (incl. biogas injected to natural gas pipeline)	Census
Finland	Monthly electricity statistics: production by types and fuels, imports and exports, gross consumption	Statistical compilation
Finland	Solid wood fuels in heating and power plants	Other sectorial survey (industry, agriculture, etc.): mainly energy, forest industries, other industries
Finland	Biogas survey	Census
Finland	Oil refinery intake and output	Census
Finland	Domestic sales and stocks of petroleum products	Business survey without threshold
Finland	Specific survey on heat values, densities and production capacities for petroleum products and biofuels.	Other sectorial survey (industry, agriculture, etc.)
Finland	Heat pump stock and heat generation and electricity consumption of heat pump	Census
Finland	District heat sales by sector	Business survey with threshold
Finland	LIPASTO (calculation system for transport exhaust emissions and energy use in Finland)	Modelling
Finland	Aviation calculation system (domestic, international)	Modelling
Finland	Data on sustainable biofuels	Business survey with threshold
Finland	Crude oil imports volymes and prices by crude oil types	
Sweden	Arel - Electricity Supply, Districy heating, and supply of natural gas	Web enquiry
Sweden	Isen - Energy consumption in the mining and manufacturing industry	Web enquiry
Sweden	Måbra - Monthly fuel, gas and inventory statistics	Web enquiry
Sweden	Stock report	Web enquiry
Sweden	KVBR - Quarterly Fuel Statistics	Web enquiry
Sweden	Statistics on nuclear energy	-
Sweden	Foreign trade of goods	Web enquiry
Sweden	Monthly electricity	Web enquiry
Sweden	Fordonsgas - Vehicle gas survey	Web enquiry

Annex 2. Target, frame and sample of national data collections

Table 27. Target, frame and sample used per national data collection when available (based on the information provided by countries in their quality reports) and if applicable (i.e. in sample surveys and surveys where not all the population is surveyed)

Country	National data source	Target	Frame	Sample
CZ	ENERGO - Household Energy Consumption Sample Survey	4 400 000	10 000	10 000
CZ	Annual Statistical form on Fuels and Energy Consumption and Fuels Stocks (EP 5-01)	32 000	19 967	19 967
DK	Annual electricity and heat survey (delivering to grid)	766	623	623
DK	Wood pellet survey	161	161	52
DK	Fire wood survey	2 800 000	2 800 000	40 000
DK	Survey of energy consumption for manufacturing companies	30 000	3 800	3 800
DK	Annual survey on biodiesel	2	1	1
DK	Consumption of electricity by usage in residential sector: ElModelBolig	2 800 000	2 800 000	2 000
DE	"Systemic Wood Resource Monitoring": Empirical Consumer Surveys and subsequent modelling to derive reliable time series	3 740 100 0 43 029	N/A	120 00 2 755
DE	(075) Jahreserhebung über die Abgabe von Flüssiggas	140	140	130
DE	(073) Jahreserhebung über Gewinnung, Verwendung und Abgabe von Klärgas	1 400	1 400	1 300
EE	Energy consumption and production, annual statistics	96 000	96 000	7 200
IE	Landfill Gas	23	4	4
IE	Combined Heat and Power	463	25	25
IE	Other biogas	23	19	19
FR	Enquête annuelle sur la production d'électricité (EAPE)	6 000	3 000	3 000
FR	Collecte annuelle de données locales chaleur (article 179)	600	600	200
FR	Enquête annuelle sur la consommation de combustibles et d'énergie non électrique dans l'industrie sidérurgique	47	47	5
FR	Enquête mensuelle "Combustibles minéraux solides"	47	47	3
FR	Enquête Logement	2.8E+07	2.8E+07	42 000
FR	Collecte mensuelle auprès des acteurs du secteur du gaz	200	200	15
FR	Enquête sur les consommations d'énergie dans le tertiaire	3 100 000	3 100 000	20 000
HR	The Statistical Survey on Road Transport of Goods (PA/T-11)	53	21	21



Country	National data source	Target	Frame	Sample
HR	The Annual Report on Airports (PZ/G-21)	22	10	10
HR	The Annual Report on Air Transport (PZ/G-11)	29	6	6
HR	Quarterly Report of Maritime and Coastal Transport (PP/T-11)	1 346	24	24
HR	The Quarterly Report on urban transport (PG/T-11)	65	16	16
HR	The Quarterly Report on Road LineTransport of Passengers (PA/M-11)	384	98	98
HR	The Annual Report on Construction Works (GRAĐ-12 form)	4 593	4 593	2 588
HR	The Monthly Survey on Imports, Exports, Stocks and Deliveries, and consumption of coal and coke (ERG-1/U	28	28	7
HR	The Monthly Survey on Imports, Exports and Stocks of Crude Oil and Petroleum Products (ERG-2/N)	417	417	19
HR	Disaggregated final energy consumption in households	10 000	10 000	5 000
HR	Annual Survey on the Consumption of Raw Materials and Energy Products in Industry (IND-21/REPRO/G)	21 100	21 100	3 501
HR	The Monthly Survey on Industrial Production and Persons Employed (IND-1/KPS/M)	21 100	21 100	1 917
HR	The PRODCOM Survey on Industry (IND-21/PRODCOM)	21 100	21 100	3 501
CY	Fuel consumption and allocation by economic activity	5 386	5 386	917
LV	Household energy consumption survey (1-EPM)	834 700	834 700	11 003
LV	Survey "Purchase and Consumption of Energy Resources" (2-EK)	119 553	21 606	4 997
LT	Statistical survey on fuel and energy supply (EN-11)	474	474	130
LT	Fuel and energy consumption annual statistical survey (EN-10)	13 345	6 810	1 003
LT	Fuel and energy balance annual statistical survey (EN-01)	5 120	5 120	2 051
LU	Energy sector survey	6	6	2
LU	Structural Business Survey	28 000	28 000	4 000
LU	Survey on households' expenditures	210 000	210 000	4 500
LU	Intra- Extrastat Survey	4 500	4 500	3 800
HU	HKÉF Household Budget Survey - energy module	4 120 000	10 000	5 504
HU	OSAP 1335c Survey on energy use, Transport sector	13 657	2 479	1 135
HU	OSAP 1335b Survey on energy use, Agriculture sector	13 881	1 907	728
HU	OSAP 1335a Survey on energy use, Commercial and public services sector	257 116	17 371	2 409
HU	OSAP 1321 Energy balance, Industry sector	73 345	13 058	4 107
NL	Energy consumption in Industry	110 000	5 000	2 500
NL	Crude oil and petroleum products	460	90	90
NL	Survey on household wood use	8 000 000	8 000 000	5 000



Country	National data source	Target	Frame	Sample
AT	Useful energy analysis in industries	65 000	65 000	3 000
AT	Energy consumption of small to medium sized industries	66 000	66 000	9 433
AT	Energy consumptions in the service sector	350 000	350 000	26 511
AT	Energy consumptions of households	3 969 000	3 969 000	12 229
PL	G-02o - report on heat from renewable sources	6 531	6 056	6 056
PL	MG-15 Production and sale in coke oven industry	6	5	5
PL	G-10.2 - report on thermal power plant operation	182	181	181
PL	G-11n - report on the prices of petroleum products	185	120	120
PL	G-11e - report on electricity prices according to the category of standard end-users	69	65	65
PL	GAZ-3 - report on activities of gas companies	160	158	158
PL	RAF-2 - report on production, trade, stocks and infrastructure for crude oil and oil products	929	398	398
PL	G-10.4(Ob)k - report of enterprise dealing with trading in electricity	185	94	94
PL	G-10.1(w)k - report on operation of hydro power plants/wind power plants	164	161	161
PL	G-10.m - monthly data on electricity	713	540	540
PL	G-10.6 - report on capacity and production of hydro power plants, wind power plants and other renewable sources	230	227	227
PL	G-10.8 - report on sales/supply and consumption of electricity according to administrative division units	58	57	57
PL	G-10.1k - Report on thermal power plant operation	182	178	178
PL	G-11g - report on natural gas prices according to standard categories of end-users	94	88	88
RO	E02_production of electricity and heat	1 629	1 629	1 471
RO	E01_energy resources and consumption in year	66 015	66 015	14 652
SI	Annual statistical survey on the consumption of energy, fuels and selected petroleum products	44 000	28 400	1 769
SI	Household energy consumption survey	2 028 084	1 489 171	7 000
FI	Specific survey on heat values, densities and production capacities for petroleum products and biofuels	13	5	3
FI	Data on sustainable biofuels	10	5	5
FI	Biogas survey	129	129	114
FI	Power plant register	500	444	444
FI	Calculation model for home appliances	2 954 429	2 954 429	4 566
FI	Peat production and sales	350	100	7
FI	Hard coal consumption and stocks	41	41	22
FI	Energy use in manufacturing	33 000	32 000	2 000



Country	National data source	Target	Frame	Sample
FI	Foreign trade statistics	33 000	6 743	6 743
SE	KvBr - Quarterly Fuel Statistics	8 000	8000	820
NO	Energy use in the manufacturing sector, annually	20 000	20 000	2 800
NO	Fuel wood use, annually	2 300 000	2 300 000	2 000
ME	Quarterly survey on expenditures and production of agricultural holdings (PO-RP)	48870	17 000	531
ME	The quarterly survey on urban transport (SG/K-11)	20	12	12
ME	Transport goods by road SA_T-11	3 502	3 502	511
ME	HOUSEHOLD BUDGET SURVEY (HBS)	620 029	620 029	1 824
ME	Turnover index in services (STS-24)	10 026	8191	844
ME	Consumption of construction and propulsion materials (GRADJ-13)	2 769	342	100
ME	Industrial production-PRODCOM (IND-21)	288	187	187
ME	Index of production and turnover in industry (IND-1)	288	187	187
MD	Consumption of energy products in households	1 200 000	1 200 000	3 500
MD	Annual data	55 000	55 000	21 000
МК	Consumption of energy products in households	500 000	3 500	3 500
MK	Consumption of energy products in industry sector	10 000	10 000	800
RS	Final energy consumption in Industry	16 977	1 405	1 405
TR	Monthly Solid Fuel Statistics Survey	374	124	124
TR	Energy Balance Data Collection	72 067	3 500	2 200
GE	Annual information on natural gas	129 000	15 600	6 500
GE	Energy consumption in households	1 100 000	1 100 000	4 320
GE	Annual information on oil products	129 000	15 600	6 500
GE	Annual information on coal	129 000	15 600	6 500
GE	Annual information on electricity	129 000	15 600	6 500
GE	Annual information on renewable energy	129 000	15 600	6 500



Annex 3. Revision analysis

Table 28. Revision analysis – Annual coal questionnaire, reference year 2005

2005	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
	in	n all versio	ns		1	in pub	lished version	าร	Γ		
Austria	254.3	32.3	12.7	255.1	45.9	18.0	50.3	49.7	10.5	13	0
Belgium	259.1	4.1	1.6	260.3	4.9	1.9	35.6	24.4	28.3	11	2
Cyprus	25.6	0.7	2.6	25.4	0.3	1.0	0.0	40.0	0.0	7	0
Finland	180.1	4.9	2.7	179.2	6.8	3.8	43.6	16.4	13.1	12	1
France	217.1	4.5	2.1	217.0	3.8	1.7	10.8	29.2	7.7	14	2
Hungary	227.6	2.0	0.9	227.0	1.0	0.4	12.5	47.5	12.5	9	0
Ireland	124.6	14.5	11.6	124.9	13.9	11.1	20.6	39.4	0.0	9	0
Lithuania	117.2	0.2	0.2	117.0	-	-	-	-	-	11	0
Luxembourg	60.4	7.2	12.0	54.6	6.1	11.2	20.4	19.6	11.4	10	0
Netherlands	243.4	21.1	8.7	249.6	28.5	11.4	18.0	42.0	8.5	12	0



2005	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Poland	358.1	9.0	2.5	357.8	6.1	1.7	28.6	31.4	8.8	17	2
Portugal	53.0	0.1	0.3	53.0	0.4	0.7	0.0	20.0	0.0	22	7
Romania	198.7	0.3	0.1	199.4	0.3	0.1	0.0	40.0	0.0	9	0

Table 29. Revision analysis – Annual coal questionnaire, reference year 2010

2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
	ir	all versio	ns			in pub	lished version	าร			
Austria	240.8	29.7	12.3	241.7	42.6	17.6	45.5	34.5	9.2	13	0
Belgium	233.6	7.3	3.1	235.0	9.1	3.9	39.0	21.0	17.9	11	2



2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Bulgaria	169.0	1.6	0.9	169.0	1.0	0.6	20.0	20.0	0.0	6	0
Croatia	107.4	1.2	1.1	107.3	0.8	0.7	0.0	40.0	0.0	11	1
Cyprus	25.6	0.7	2.6	25.4	0.3	1.0	0.0	40.0	0.0	7	0
Czechia	369.2	42.6	11.5	368.9	33.0	8.9	45.8	34.2	6.8	18	6
Denmark	94.3	5.9	6.3	94.2	2.6	2.8	18.8	41.2	0.0	14	2
Finland	220.3	4.4	2.0	219.7	6.0	2.7	41.8	18.2	10.7	12	1
France	218.9	4.3	2.0	218.7	3.6	1.7	11.2	28.8	6.4	14	2
Hungary	216.3	2.5	1.2	216.0	0.8	0.3	13.3	46.7	13.3	9	0
Ireland	113.7	16.6	14.6	113.4	16.0	14.1	33.3	46.7	1.4	9	0
Italy	190.7	1.0	0.5	178.0	1.8	1.0	0.0	40.0	0.0	14	0
Luxembourg	57.2	5.2	9.1	53.4	5.9	11.0	31.5	8.5	11.1	10	0
Netherlands	229.3	17.7	7.7	235.0	23.9	10.2	16.0	44.0	8.1	12	0
Poland	389.4	10.8	2.8	389.2	7.1	1.8	17.1	42.9	11.2	17	2
Portugal	51.5	1.3	2.5	50.9	0.4	0.7	6.7	13.3	6.7	22	7
Romania	195.7	0.8	0.4	196.6	0.8	0.4	6.7	33.3	0.0	9	0
Slovakia	235.3	1.5	0.6	236.0	-	-	-	-	-	9	0



2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Slovenia	102.3	0.8	0.8	102.1	1.0	1.0	40.0	0.0	20.0	11	1
Spain	210.3	1.1	0.5	210.9	0.5	0.2	0.0	40.0	0.0	16	3

Table 30. Revision analysis – Annual coal questionnaire, reference year 2013

2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes		Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
	ir	n all versio	ns			in pub	lished versio	าร	<u> </u>		
Austria	239.2	35.4	14.8	240.6	50.6	21.0	46.7	53.3	12.1	13	0
Belgium	225.8	18.2	8.1	229.3	21.9	9.5	59.9	40.1	29.7	11	2



2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes		Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Bulgaria	151.8	0.8	0.5	152.0	0.4	0.2	40.0	0.0	0.0	6	0
Croatia	97.8	6.0	6.1	97.9	2.0	2.0	22.5	37.5	22.5	11	1
Cyprus	11.7	0.7	5.7	12.0	-	-	-	-	-	7	0
Czechia	335.4	46.1	13.7	332.7	36.8	11.0	46.9	33.1	14.8	18	6
Denmark	87.8	14.9	16.9	89.1	9.1	10.2	58.8	41.2	4.9	14	2
Estonia	127.0	0.5	0.4	127.0	-	-	-	-	-	16	0
Finland	214.7	6.3	2.9	215.3	8.1	3.8	47.1	32.9	11.4	12	1
France	258.0	53.9	20.9	259.1	45.6	17.6	62.0	38.0	22.7	14	2
Germany	393.6	2.3	0.6	394.0	0.4	0.1	26.7	13.3	0.0	10	0
Hungary	224.1	6.5	2.9	225.0	3.0	1.3	38.3	41.7	33.3	9	0
Ireland	110.9	17.3	15.6	110.3	16.6	15.1	38.6	41.4	5.0	9	0
Italy	196.1	1.6	0.8	183.0	2.8	1.5	0.0	40.0	0.0	14	0



2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Latvia	95.2	1.0	1.1	94.8	1.3	1.3	24.0	16.0	20.0	11	3
Lithuania	145.0	0.4	0.3	145.0	-	-	-	-	-	11	0
Luxembourg	60.6	8.0	13.2	54.6	6.0	11.0	31.7	8.3	11.7	10	0
Netherlands	231.5	20.0	8.6	236.2	27.0	11.4	14.8	45.2	7.8	12	0
Poland	380.4	3.8	1.0	380.4	2.5	0.7	22.0	38.0	13.0	17	2
Portugal	41.9	1.3	3.1	41.0	0.1	0.3	0.0	20.0	0.0	22	7
Romania	183.1	4.5	2.5	181.7	2.8	1.5	29.0	31.0	8.3	9	0
Slovakia	235.3	3.3	1.4	236.0	-	-	-	-	-	9	0
Slovenia	107.6	1.2	1.1	107.6	1.5	1.4	40.0	0.0	10.0	11	1
Spain	238.8	4.9	2.1	239.7	1.8	0.7	22.9	17.1	2.9	16	3
Sweden	178.4	0.7	0.4	178.6	0.5	0.3	40.0	0.0	10.0	12	1

2005	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
	in	all versio	ns		1	in pub	lished versio	ns	1		
Austria	504.5	96.9	19.2	502.8	102.1	20.3	42.2	57.8	1.4	15	1
Belgium	314.7	0.2	0.0	314.6	0.3	0.1	0.0	40.0	0.0	14	2
Croatia	241.1	2.0	0.8	240.8	3.4	1.4	44.6	15.4	0.0	16	1
Cyprus	90.8	4.9	5.4	90.1	-	-	-	-	-	11	1
Czechia	523.8	0.7	0.1	523.8	1.1	0.2	42.0	18.0	0.0	17	4
Denmark	411.8	10.2	2.5	411.8	8.3	2.0	35.5	24.5	3.9	20	1
Finland	504.1	14.2	2.8	503.0	19.3	3.8	39.8	20.2	5.5	12	2
France	406.2	41.0	10.1	411.8	45.9	11.1	48.8	51.2	17.1	16	3
Germany	545.2	1.8	0.3	545.9	0.6	0.1	10.7	49.3	0.0	11	1
Greece	220.2	0.2	0.1	220.3	-	-	-	-	-	21	4

Table 31. Revision analysis – Annual electricity questionnaire, reference year 2005



2005	Average number of non- zero records	Average number of changes	of changes	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Hungary	365.5	0.4	0.1	366.3	-	-	-	-	-	15	2
Ireland	168.8	7.0	4.1	168.7	11.3	6.7	37.1	42.9	6.9	16	0
Italy	495.7	10.8	2.2	496.1	4.4	0.9	21.2	38.8	1.2	13	0
Luxembourg	191.9	18.5	9.7	190.4	25.0	13.1	33.9	46.1	3.6	12	0
Malta	34.5	3.4	9.9	34.7	2.5	7.2	12.5	47.5	2.5	18	6
Netherlands	434.6	68.0	15.6	384.3	35.3	9.2	38.4	41.6	1.9	8	2
Poland	460.5	32.0	6.9	459.2	32.8	7.1	27.3	32.7	14.8	25	3
Portugal	300.0	16.2	5.4	299.0	5.1	1.7	35.4	44.6	1.2	13	0
Spain	212.6	1.1	0.5	212.6	0.4	0.2	0.0	40.0	0.0	15	7
Sweden	370.9	2.0	0.6	369.7	0.5	0.1	20.0	20.0	20.0	25	8

2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisior in th 2013- 2017 cycles
	ir	all versio	ns		1	in pub	lished versio	ns	1		
Austria	492.4	94.9	19.3	490.9	106.8	21.7	31.6	68.4	0.7	15	1
Belgium	365.1	9.0	2.5	366.1	10.0	2.7	32.1	27.9	10.1	14	2
Bulgaria	346.0	0.4	0.1	346.3	-	-	-	-	-	11	2
Croatia	237.2	2.1	0.9	236.9	3.6	1.5	49.2	30.8	0.0	16	1
Cyprus	150.5	5.2	3.5	150.7	-	-	-	-	-	11	1
Czechia	538.8	41.9	7.8	538.3	70.9	13.2	58.4	41.6	10.5	17	4
Denmark	411.7	7.5	1.8	412.6	5.8	1.4	20.4	39.6	0.0	20	1
Finland	568.1	24.1	4.2	567.0	32.5	5.7	51.4	48.6	5.9	12	2
France	436.9	76.0	17.4	452.1	88.4	19.5	56.1	43.9	23.9	16	3
Germany	578.2	2.7	0.5	578.9	1.0	0.2	35.2	24.8	0.0	11	1

Table 32. Revision analysis – Annual electricity questionnaire, reference year 2010



2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Greece	218.5	0.1	0.0	218.6	-	-	-	-	-	21	4
Hungary	417.3	5.4	1.3	417.3	1.0	0.2	20.0	20.0	0.0	15	2
Ireland	170.9	17.8	10.4	169.2	31.5	18.6	66.7	33.3	24.1	16	0
Italy	546.2	12.1	2.2	546.8	4.9	0.9	51.5	28.5	0.0	13	0
Latvia	302.0	1.4	0.5	302.8	0.8	0.2	20.0	20.0	0.0	14	4
Luxembourg	196.1	20.6	10.5	194.6	26.9	13.8	46.3	33.7	2.1	12	0
Malta	66.9	12.6	18.9	67.2	11.4	16.9	26.4	53.6	10.5	18	6
Netherlands	417.5	65.4	15.7	368.9	33.8	9.1	33.6	46.4	1.9	8	2
Poland	493.3	32.8	6.7	495.3	33.3	6.7	38.2	21.8	11.4	25	3
Portugal	327.0	17.8	5.5	326.0	5.5	1.7	66.5	13.5	1.0	13	0
Romania	429.8	0.7	0.2	430.4	-	-	-	-	-	14	1
Slovenia	327.0	5.3	1.6	327.4	4.0	1.2	35.0	5.0	0.0	7	1



2010	Average number of non- zero records	number	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Spain	269.6	1.3	0.5	269.6	0.5	0.2	0.0	60.0	0.0	15	7
Sweden	362.4	3.7	1.0	359.3	2.8	0.8	42.7	17.3	27.4	25	8

Table 33. Revision analysis – Annual electricity questionnaire, reference year 2013

2013	Average number of non- zero records Average number of changes	of changes	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
	in all versio		1							



2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Austria	476.7	105.1	22.1	473.9	125.4	26.5	51.8	48.2	2.0	15	1
Belgium	378.1	35.8	9.5	378.0	43.5	11.5	43.6	36.4	1.7	14	2
Bulgaria	358.7	2.1	0.6	359.6	1.8	0.5	17.1	22.9	0.0	11	2
Croatia	244.8	2.1	0.8	244.7	3.8	1.5	62.7	37.3	0.0	16	1
Cyprus	150.4	6.0	4.0	149.9	0.5	0.3	0.0	40.0	0.0	11	1
Czechia	519.2	47.6	9.2	519.3	78.1	15.0	53.1	46.9	9.9	17	4
Denmark	408.4	50.7	12.4	408.8	50.4	12.3	37.6	42.4	1.5	20	1
Estonia	315.7	2.6	0.8	315.1	0.3	0.1	20.0	20.0	0.0	13	0
Finland	562.8	31.5	5.6	561.9	40.6	7.2	61.4	38.6	6.3	12	2
France	492.9	108.7	22.1	503.6	153.6	30.5	61.0	39.0	9.7	16	3
Germany	568.9	14.1	2.5	568.9	4.0	0.7	49.9	50.1	0.0	11	1
Greece	230.2	1.1	0.5	230.3	1.5	0.7	20.0	20.0	0.0	21	4



2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Hungary	409.4	29.6	7.2	409.9	18.0	4.4	68.1	31.9	2.5	15	2
Ireland	184.1	22.0	12.0	184.3	37.0	20.1	57.0	43.0	8.5	16	0
Italy	562.8	38.9	6.9	563.7	5.0	0.9	39.1	40.9	5.7	13	0
Latvia	312.3	6.8	2.2	313.2	3.8	1.2	33.6	26.4	1.4	14	4
Luxembourg	202.0	28.5	14.1	199.1	39.0	19.6	42.7	57.3	4.5	12	0
Malta	107.8	14.6	13.5	108.4	17.0	15.7	19.0	61.0	7.8	18	6
Netherlands	406.6	72.4	17.8	358.6	39.4	11.0	39.5	40.5	3.0	8	2
Poland	502.5	14.3	2.8	503.1	14.5	2.9	43.5	56.5	11.4	25	3
Portugal	336.8	31.1	9.2	335.4	9.9	2.9	52.5	27.5	2.8	13	0
Romania	439.6	7.6	1.7	440.9	1.3	0.3	0.0	40.0	0.0	14	1
Slovakia	506.7	5.8	1.2	506.4	0.5	0.1	0.0	40.0	0.0	19	2
Slovenia	325.0	4.3	1.3	325.4	3.3	1.0	33.8	6.2	0.0	7	1



2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Spain	271.3	41.9	15.4	270.0	26.4	9.8	28.0	32.0	6.2	15	7
Sweden	360.0	2.6	0.7	358.3	4.0	1.1	33.6	26.4	18.7	25	8

Table 34. Revision analysis – Annual gas questionnaire, reference year 2005

2005	Average number of non- zero records	ber of changes	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
	in all ve	ersions		1	in pub	lished versio	ns	1		



2005	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Austria	76.7	16.4	21.3	76.1	20.4	26.8	48.9	51.1	4.4	12	1
Belgium	67.0	4.2	6.2	67.1	4.3	6.3	44.2	15.8	2.4	12	0
Bulgaria	66.4	1.7	2.6	66.1	1.8	2.6	37.5	22.5	10.0	8	0
Croatia	68.5	0.5	0.8	68.3	0.9	1.3	37.1	22.9	0.0	14	1
Czechia	80.3	3.1	3.9	81.7	0.1	0.2	40.0	0.0	0.0	10	0
Denmark	65.9	1.9	2.9	65.3	2.1	3.3	35.7	24.3	0.0	10	1
Estonia	41.6	1.0	2.4	41.7	0.1	0.3	0.0	40.0	0.0	10	0
Finland	47.2	3.4	7.2	46.7	2.9	6.2	21.8	38.2	0.0	14	2
France	91.5	1.0	1.1	91.1	1.5	1.6	24.6	55.4	0.0	13	0
Germany	79.3	1.3	1.6	79.3	0.6	0.8	51.0	9.0	0.0	12	2
Greece	64.6	0.1	0.2	64.0	0.1	0.2	0.0	40.0	0.0	10	0
Hungary	79.2	0.4	0.5	79.1	0.6	0.8	8.0	32.0	4.0	14	3



2005	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Ireland	50.3	4.1	8.2	50.2	5.4	10.7	50.5	9.5	0.0	18	0
Italy	97.9	0.1	0.1	87.3	0.1	0.1	0.0	40.0	0.0	10	0
Latvia	57.2	0.1	0.2	51.0	0.1	0.2	0.0	40.0	0.0	10	0
Lithuania	54.8	1.8	3.3	55.0	0.6	1.1	42.0	18.0	0.0	13	0
Luxembourg	37.0	5.0	13.5	35.8	6.3	17.5	66.1	33.9	1.2	11	0
Netherlands	95.4	7.8	8.2	93.2	12.3	13.1	36.8	43.2	9.8	14	5
Poland	98.9	1.9	1.9	97.2	1.9	1.9	39.2	40.8	8.9	16	1
Portugal	64.2	0.1	0.1	63.0	0.1	0.2	40.0	0.0	0.0	13	0
Romania	67.2	0.1	0.2	67.3	0.1	0.2	0.0	40.0	0.0	9	0
Slovakia	80.8	0.2	0.2	80.2	0.1	0.2	0.0	40.0	0.0	11	0
Slovenia	54.9	0.2	0.3	53.9	0.1	0.2	40.0	0.0	0.0	7	1
Spain	98.2	0.1	0.1	98.0	0.1	0.1	0.0	40.0	0.0	14	2



2005	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Sweden	40.9	0.2	0.4	40.7	0.1	0.3	40.0	0.0	0.0	7	0

Table 35. Revision analysis – Annual gas questionnaire, reference year 2010

2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
	ir	n all versio	ns			in pub	lished versio	ns			
Austria	76.4	14.5	18.9	75.9	18.0	23.7	42.9	57.1	3.1	12	1



2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Belgium	97.0	9.5	9.7	97.4	10.8	11.0	49.1	30.9	2.7	12	0
Bulgaria	69.3	1.4	2.1	69.0	1.5	2.2	26.7	33.3	0.0	8	0
Croatia	78.5	0.5	0.7	78.3	0.9	1.1	60.0	0.0	0.0	14	1
Czechia	87.9	6.0	6.8	88.2	2.8	3.1	39.8	60.2	2.8	10	0
Denmark	75.3	1.9	2.5	74.4	2.1	2.9	38.2	21.8	0.0	10	1
Estonia	39.8	2.6	6.4	40.2	0.9	2.2	38.0	42.0	18.0	10	0
Finland	47.2	4.5	9.4	46.7	3.9	8.3	46.4	33.6	0.0	14	2
France	106.5	2.8	2.7	106.8	4.0	3.7	53.4	26.6	3.1	13	0
Germany	78.3	1.8	2.3	78.3	0.9	1.1	35.2	24.8	0.0	12	2
Greece	67.0	0.1	0.2	66.2	0.1	0.2	0.0	40.0	0.0	10	0
Hungary	83.0	2.0	2.4	83.6	3.3	3.9	56.4	23.6	20.3	14	3
Ireland	51.5	7.4	14.3	51.2	11.1	21.7	40.2	39.8	0.0	18	0



2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Italy	117.7	0.1	0.1	105.3	0.1	0.1	40.0	0.0	0.0	10	0
Latvia	55.0	0.1	0.2	49.0	0.1	0.3	0.0	40.0	0.0	10	0
Lithuania	56.5	2.1	3.7	57.0	0.6	1.1	18.0	42.0	0.0	13	0
Luxembourg	44.6	5.1	11.4	43.7	6.4	14.6	68.3	31.7	0.0	11	0
Netherlands	99.5	8.5	8.6	97.2	13.1	13.5	36.8	43.2	10.0	14	5
Poland	96.4	2.5	2.6	95.0	2.3	2.4	38.0	22.0	0.0	16	1
Portugal	68.2	0.1	0.1	67.0	0.1	0.2	0.0	40.0	0.0	13	0
Romania	74.2	0.1	0.2	74.3	0.1	0.2	40.0	0.0	0.0	9	0
Slovakia	75.0	0.2	0.2	74.3	0.1	0.2	40.0	0.0	0.0	11	0
Slovenia	54.9	0.2	0.3	53.9	0.1	0.2	0.0	40.0	0.0	7	1
Spain	121.6	0.1	0.1	121.3	0.1	0.1	40.0	0.0	0.0	14	2
Sweden	44.9	0.2	0.4	44.7	0.1	0.3	0.0	40.0	0.0	7	0

2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Austria	76.8	19.9	25.9	76.3	20.9	27.3	67.6	32.4	2.5	12	1
Belgium	89.5	8.2	9.1	89.7	8.5	9.5	47.2	32.8	1.0	12	0
Bulgaria	68.8	5.3	7.7	69.0	3.9	5.6	57.7	22.3	12.5	8	0
Croatia	82.1	0.7	0.8	82.0	1.1	1.4	45.6	34.4	0.0	14	1
Czechia	85.9	7.8	9.1	86.2	3.9	4.5	46.5	53.5	2.3	10	0
Denmark	77.5	5.4	7.0	76.6	6.1	8.0	32.5	47.5	10.7	10	1
Estonia	41.8	1.4	3.5	42.2	0.6	1.5	18.0	42.0	18.0	10	0
Finland	61.9	7.6	12.3	62.6	6.3	10.0	50.2	29.8	10.4	14	2
France	111.1	29.1	26.2	114.8	37.9	33.0	54.8	45.2	12.0	13	0



2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Germany	84.3	7.9	9.4	84.0	2.4	2.8	51.1	8.9	13.3	12	2
Greece	69.0	0.1	0.2	68.2	0.1	0.2	0.0	40.0	0.0	10	0
Hungary	92.7	7.8	8.4	92.4	7.4	8.0	58.1	41.9	2.2	14	3
Ireland	51.5	8.9	17.4	51.2	12.3	23.9	34.8	45.2	0.0	18	0
Italy	113.3	0.1	0.1	101.3	0.1	0.1	40.0	0.0	0.0	10	0
Latvia	57.2	0.1	0.2	51.0	0.1	0.2	0.0	40.0	0.0	10	0
Lithuania	59.9	2.3	3.9	60.2	0.6	1.0	18.0	42.0	0.0	13	0
Luxembourg	49.3	11.9	24.2	47.7	9.6	20.2	67.8	32.2	3.1	11	0
Netherlands	128.6	10.8	8.4	126.7	16.3	12.8	46.6	33.4	7.1	14	5
Poland	103.4	2.0	1.9	101.8	2.0	2.0	54.7	5.3	2.7	16	1
Portugal	86.0	1.2	1.4	84.8	0.6	0.7	42.0	18.0	9.0	13	0
Romania	75.2	1.8	2.3	75.3	1.8	2.3	44.6	15.4	0.0	9	0



2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Slovakia	92.2	5.9	6.4	91.1	2.3	2.5	2.4	57.6	0.0	11	0
Slovenia	57.0	1.8	3.2	55.8	1.4	2.5	5.5	54.5	0.0	7	1
Spain	161.2	8.4	5.2	160.6	7.0	4.4	41.4	18.6	0.0	14	2
Sweden	42.9	0.8	1.9	42.7	0.6	1.5	18.0	42.0	0.0	7	0

Table 37. Revision analysis – Annual oil questionnaire, reference year 2005



2005	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
	ir	all versio	ns			in pub	lished versio	ns	1		
Austria	1 296.0	161.8	12.5	1 293.1	304.6	23.6	41.6	38.4	7.4	17	0
Belgium	1 524.5	40.5	2.7	1 527.2	55.0	3.6	63.3	16.7	4.9	13	1
Croatia	1 108.2	5.8	0.5	1 110.1	2.1	0.2	37.4	22.6	0.0	18	1
Cyprus	519.1	0.4	0.1	521.0	-	-	-	-	-	11	1
Czechia	1 182.3	0.1	0.0	1 183.1	0.1	0.0	0.0	40.0	0.0	18	0
Denmark	1 201.2	23.9	2.0	1 201.2	20.9	1.7	34.5	25.5	1.7	24	1
Estonia	581.6	4.0	0.7	580.8	6.0	1.0	40.0	0.0	5.0	13	0
Finland	1 236.5	14.3	1.2	1 236.3	27.3	2.2	54.3	45.7	45.6	24	4
France	2 165.7	43.2	2.0	2 164.8	22.6	1.0	45.6	34.4	4.2	16	5
Germany	1 880.7	6.5	0.3	1 880.4	3.0	0.2	22.7	37.3	0.0	14	1
Hungary	1 223.9	0.2	0.0	1 224.0	0.5	0.0	0.0	40.0	0.0	20	7



2005	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Ireland	806.6	19.3	2.4	808.9	15.3	1.9	36.3	43.7	8.7	25	1
Luxembourg	482.1	54.1	11.2	462.8	65.4	14.1	28.9	11.1	7.9	21	0
Malta	280.3	16.5	5.9	275.0	34.1	12.4	21.7	18.3	13.7	18	3
Netherlands	1 936.1	291.4	15.0	1 934.2	316.0	16.3	40.7	59.3	10.6	25	9
Poland	1 479.7	7.7	0.5	1 480.2	9.8	0.7	41.8	38.3	69.9	25	2
Romania	1 523.0	14.2	0.9	1 522.7	9.9	0.6	24.4	15.6	8.3	12	0
Slovakia	1 048.6	1.9	0.2	1 049.1	2.9	0.3	9.2	30.8	9.2	14	1
Sweden	1 229.5	16.7	1.4	1 229.3	5.8	0.5	40.0	0.0	0.9	11	2



2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
	ir	all versio	ns		I	in pub	lished versio	ns			
Austria	1 330.3	134.3	10.1	1 327.4	250.1	18.8	51.9	48.1	37.1	17	0
Belgium	1 491.3	68.4	4.6	1 496.3	85.0	5.7	47.5	32.5	7.5	13	1
Bulgaria	991.6	2.0	0.2	991.8	1.5	0.2	3.3	36.7	0.0	13	0
Croatia	1 093.7	7.3	0.7	1 093.9	2.5	0.2	38.0	42.0	0.0	18	1
Cyprus	594.8	2.8	0.5	597.2	2.4	0.4	12.6	27.4	12.6	11	1
Czechia	1 169.5	22.2	1.9	1 169.6	40.6	3.5	33.0	27.0	3.9	18	0
Denmark	1 246.9	21.8	1.8	1 246.9	19.5	1.6	28.7	31.3	0.0	24	1
Estonia	584.9	4.0	0.7	584.4	6.0	1.0	11.7	28.3	2.5	13	0
Finland	1 312.7	29.7	2.3	1 312.1	62.0	4.7	57.0	43.0	8.0	24	4
France	2 166.3	89.5	4.1	2 162.7	54.4	2.5	38.1	61.9	8.4	16	5

Table 38. Revision analysis – Annual oil questionnaire, reference year 2010



2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Germany	1 917.4	5.6	0.3	1 917.0	3.1	0.2	13.4	46.6	1.7	14	1
Greece	1 296.0	10.6	0.8	1 295.9	12.4	1.0	21.2	38.8	18.1	22	6
Hungary	1 098.2	19.1	1.7	1 098.1	31.9	2.9	36.9	23.1	6.6	20	7
Ireland	767.8	24.2	3.1	772.2	20.5	2.7	54.1	25.9	7.7	25	1
Italy	1 845.5	2.2	0.1	1 845.4	2.3	0.1	20.0	20.0	4.4	19	1
Latvia	777.6	0.2	0.0	778.0	0.1	0.0	40.0	0.0	0.0	19	1
Luxembourg	477.9	81.7	17.1	446.1	99.8	22.4	24.9	15.1	8.2	21	0
Malta	421.1	39.5	9.4	442.2	79.1	17.9	60.8	19.2	13.8	18	3
Netherlands	2 234.4	327.2	14.6	2 234.4	354.0	15.8	40.9	59.1	9.6	25	9
Poland	1 535.2	16.6	1.1	1 535.6	18.6	1.2	44.8	35.2	108.3	25	2
Portugal	1 205.8	3.2	0.3	1 206.1	1.4	0.1	10.9	29.1	10.9	17	3
Romania	1 605.9	35.1	2.2	1 604.6	24.3	1.5	29.2	10.8	9.2	12	0



2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Slovakia	933.3	2.6	0.3	933.9	3.9	0.4	10.0	30.0	10.0	14	1
Slovenia	794.6	30.5	3.8	797.3	26.8	3.4	6.4	33.6	0.0	14	1
Sweden	1 227.9	29.1	2.4	1 227.7	10.0	0.8	3.5	36.5	1.0	11	2

Table 39. Revision analysis – Annual oil questionnaire, reference year 2013

2013	Average number of non- zero records	r of changes	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
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2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
	ir	n all versio	ns		1	in pub	lished versio	ns	1		
Austria	1 286.1	150.3	11.7	1 281.6	278.4	21.7	40.7	59.3	12.8	17	0
Belgium	1 570.8	69.3	4.4	1 576.2	84.0	5.3	47.4	32.6	6.9	13	1
Bulgaria	966.7	63.4	6.6	967.8	2.1	0.2	4.7	35.3	2.4	13	0
Croatia	1 030.9	6.1	0.6	1 030.6	5.1	0.5	37.1	42.9	4.2	18	1
Cyprus	594.4	23.1	3.9	596.8	27.0	4.5	30.5	29.5	5.0	11	1
Czechia	1 166.4	23.1	2.0	1 166.3	42.8	3.7	32.6	27.4	2.3	18	0
Denmark	1 209.6	86.5	7.2	1 210.4	68.6	5.7	30.6	49.4	7.1	24	1
Estonia	680.6	27.9	4.1	679.0	6.0	0.9	30.0	10.0	6.7	13	0
Finland	1 319.3	76.8	5.8	1 328.4	127.5	9.6	60.4	39.6	9.0	24	4
France	2 087.4	201.0	9.6	2 072.8	163.5	7.9	59.7	40.3	14.3	16	5
Germany	1 884.6	120.5	6.4	1 884.0	3.1	0.2	21.7	38.3	1.7	14	1



2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Greece	1 554.5	29.0	1.9	1 557.9	11.8	0.8	27.9	52.1	15.9	22	6
Hungary	1 174.8	67.5	5.7	1 175.1	83.4	7.1	40.2	39.8	13.7	20	7
Ireland	817.3	56.0	6.8	822.8	20.9	2.5	57.6	22.4	6.8	25	1
Italy	1 895.3	49.8	2.6	1 896.8	9.5	0.5	36.9	23.1	4.7	19	1
Latvia	790.0	14.9	1.9	790.0	4.5	0.6	20.7	19.3	8.3	19	1
Lithuania	1 036.0	1.1	0.1	1 037.0	1.6	0.2	17.1	22.9	5.7	15	0
Luxembourg	489.5	96.5	19.7	455.8	129.3	28.4	51.4	28.6	15.9	21	0
Malta	505.2	70.6	14.0	514.9	103.1	20.0	63.0	37.0	8.6	18	3
Netherlands	2 164.8	308.2	14.2	2 162.2	336.5	15.6	46.6	53.4	10.0	25	9
Poland	1 610.2	52.3	3.3	1 612.9	30.4	1.9	38.0	42.0	9.0	25	2
Portugal	1 235.1	26.8	2.2	1 235.9	12.1	1.0	36.3	23.7	35.3	17	3
Romania	1 445.8	30.3	2.1	1 447.3	9.8	0.7	28.2	11.8	1.0	12	0



2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Slovakia	964.7	7.7	0.8	965.9	3.9	0.4	10.0	30.0	10.0	14	1
Slovenia	804.9	38.6	4.8	807.4	33.0	4.1	10.4	49.6	0.3	14	1
Spain	2 048.5	10.4	0.5	1 877.6	8.1	0.4	30.5	29.5	1.0	11	0
Sweden	1 153.5	71.3	6.2	1 152.8	25.6	2.2	43.6	36.4	4.4	11	2



2005	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
	ir	all versio	ns			in pub	lished versio	ns	1		
Austria	262.0	44.7	17.1	259.6	41.3	15.9	41.9	58.1	6.7	14	0
Belgium	157.1	0.2	0.1	157.1	0.3	0.2	40.0	0.0	20.0	17	1
Croatia	57.7	4.0	6.9	59.3	2.8	4.6	46.2	33.8	25.4	15	1
Cyprus	42.7	0.3	0.7	42.2	-	-	-	-	-	11	2
Czechia	191.1	0.9	0.5	190.1	1.0	0.5	60.0	0.0	0.0	10	1
Denmark	186.2	12.3	6.6	182.1	6.3	3.4	58.0	22.0	1.2	27	1
Finland	182.7	3.1	1.7	182.6	4.0	2.2	17.5	22.5	7.5	15	1
France	202.5	28.5	14.1	202.0	17.5	8.7	56.6	43.4	1.3	18	0
Germany	266.3	34.5	13.0	260.7	16.6	6.4	32.9	27.1	4.8	9	0
Greece	78.3	2.8	3.5	78.9	0.3	0.3	0.0	40.0	0.0	30	5

Table 40. Revision analysis – Annual renewables/wastes questionnaire, reference year

2005



2005	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Hungary	135.3	0.9	0.7	135.1	1.6	1.2	76.0	4.0	47.7	15	3
Ireland	89.5	4.1	4.6	89.8	5.0	5.6	31.0	9.0	2.0	15	0
Italy	182.8	2.4	1.3	183.1	0.6	0.3	24.0	36.0	24.0	11	0
Latvia	0.0	2.0	0.0	113.2	-	-	-	-	-	0	2
Lithuania	121.4	1.4	1.1	122.9	0.5	0.4	20.0	20.0	20.0	17	0
Luxembourg	104.3	6.0	5.8	98.9	9.4	9.5	34.4	25.6	19.1	14	1
Malta	6.4	1.1	17.5	6.0	-	-	-	-	-	18	8
Netherlands	162.8	13.5	8.3	144.1	7.6	5.3	19.0	21.0	5.2	11	3
Poland	180.3	5.8	3.2	179.2	5.3	2.9	40.4	39.6	30.2	20	1
Portugal	117.2	2.4	2.0	117.4	0.4	0.3	0.0	40.0	0.0	17	1
Slovakia	166.0	1.0	0.6	165.8	0.4	0.2	26.7	33.3	26.7	23	3
Slovenia	- 744.0	4.0	- 0.5	83.6	-	-	-	-	-	- 1	1



2005	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Spain	146.4	5.6	3.8	145.3	0.4	0.3	0.0	40.0	0.0	17	6
Sweden	157.8	10.4	6.6	148.4	7.5	5.1	47.8	32.2	45.1	27	9

Table 41. Revision analysis – Annual renewables/wastes questionnaire, reference year 2010

2010	Average number of non- zero records Aver num of chan	ber of changes	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
	in all ve	ersions		1	in pub	lished versio	าร			



2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Austria	296.6	47.2	15.9	294.9	43.6	14.8	45.1	54.9	9.9	14	0
Belgium	199.2	6.8	3.4	199.8	6.9	3.4	43.6	36.4	15.2	17	1
Croatia	113.9	3.7	3.3	114.9	1.9	1.6	43.3	36.7	11.3	15	1
Cyprus	80.5	0.6	0.7	79.6	-	-	-	-	-	11	2
Czechia	240.1	5.8	2.4	240.4	3.1	1.3	46.7	13.3	20.1	10	1
Denmark	203.1	15.9	7.8	199.4	8.5	4.3	52.7	27.3	1.5	27	1
Estonia	84.4	1.4	1.6	84.6	0.8	0.9	40.0	0.0	0.0	14	2
Finland	256.3	5.8	2.3	256.2	6.1	2.4	35.3	44.7	5.1	15	1
France	241.9	49.8	20.6	239.8	35.6	14.9	61.8	38.2	10.8	18	0
Germany	326.9	47.8	14.6	315.4	22.9	7.3	37.4	22.6	12.0	9	0
Greece	103.8	2.7	2.6	103.9	0.3	0.2	0.0	40.0	0.0	30	5
Hungary	189.7	1.6	0.9	189.3	2.9	1.5	52.5	27.5	57.0	15	3



2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Ireland	114.5	6.6	5.7	114.2	9.5	8.3	46.4	33.6	10.6	15	0
Italy	334.3	7.1	2.1	334.7	1.0	0.3	40.0	40.0	5.8	11	0
Latvia	196.4	6.4	3.3	198.4	5.5	2.8	35.2	4.8	34.3	16	2
Lithuania	137.0	2.6	1.9	137.9	0.5	0.4	0.0	40.0	20.0	17	0
Luxembourg	106.9	7.0	6.6	101.2	11.0	10.9	41.2	38.8	14.0	14	1
Malta	28.6	5.2	18.1	31.0	5.5	17.7	30.9	49.1	25.0	18	8
Netherlands	183.5	13.8	7.5	162.4	7.5	4.6	20.7	19.3	5.3	11	3
Poland	203.7	8.3	4.1	201.0	8.3	4.1	40.6	39.4	13.3	20	1
Portugal	140.4	4.9	3.5	141.0	1.4	1.0	30.2	29.8	4.3	17	1
Romania	162.0	0.4	0.3	163.7	0.9	0.5	60.0	20.0	40.0	18	4
Slovakia	207.0	1.0	0.5	206.8	0.4	0.2	13.3	26.7	13.3	23	3
Slovenia	124.0	10.3	8.3	124.4	6.9	5.5	27.9	52.1	13.5	9	1



2010	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Spain	193.2	7.1	3.7	191.7	1.8	0.9	30.0	30.0	10.0	17	6
Sweden	179.3	14.1	7.9	163.9	10.8	6.6	57.6	22.4	57.1	27	9

Table 42. Revision analysis – Annual renewables/wastes questionnaire, reference year 2013

2013	Average number of non- zero records Average number of change	of changes	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
	in all vers	ions			in pub	lished versio	าร			



2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Austria	364.5	76.7	21.0	369.6	65.4	17.7	57.7	42.3	6.1	14	0
Belgium	241.4	15.2	6.3	242.3	20.6	8.5	46.4	33.6	10.0	17	1
Bulgaria	197.8	1.6	0.8	197.4	1.0	0.5	25.5	34.5	13.0	12	0
Croatia	142.9	4.9	3.4	143.9	2.6	1.8	65.0	35.0	11.0	15	1
Cyprus	99.2	3.2	3.2	98.9	3.5	3.5	30.0	30.0	30.0	11	2
Czechia	252.1	2.6	1.0	250.2	2.9	1.1	69.1	10.9	10.9	10	1
Denmark	197.4	33.7	17.1	193.0	27.1	14.1	44.0	56.0	2.8	27	1
Estonia	105.1	6.7	6.4	105.2	1.6	1.5	40.0	0.0	0.0	14	2
Finland	257.6	13.4	5.2	257.1	16.5	6.4	44.0	56.0	6.9	15	1
France	282.1	62.8	22.3	278.7	68.3	24.5	63.0	37.0	5.9	18	0
Germany	335.1	52.1	15.6	322.6	23.4	7.2	40.5	19.5	14.1	9	0
Greece	149.6	3.1	2.1	149.9	0.5	0.3	15.0	45.0	15.0	30	5



2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Hungary	207.3	7.6	3.7	207.0	10.6	5.1	83.6	16.4	28.2	15	3
Ireland	138.1	14.5	10.5	139.7	20.8	14.9	61.5	38.5	6.4	15	0
Italy	392.7	0.8	0.2	393.2	0.9	0.2	12.4	47.6	6.2	11	0
Latvia	199.3	2.4	1.2	199.4	0.8	0.4	13.3	26.7	0.0	16	2
Lithuania	236.4	0.9	0.4	237.1	0.3	0.1	0.0	40.0	0.0	17	0
Luxembourg	122.0	11.8	9.6	117.7	17.1	14.6	52.8	27.2	4.3	14	1
Malta	50.3	5.1	10.1	50.8	7.5	14.8	67.3	32.7	11.6	18	8
Netherlands	201.5	17.1	8.5	178.7	10.0	5.6	23.2	36.8	8.4	11	3
Poland	230.0	8.0	3.5	225.8	5.9	2.6	50.1	49.9	18.0	20	1
Portugal	177.2	24.2	13.7	174.3	10.5	6.0	45.6	54.4	14.1	17	1
Romania	261.9	2.8	1.1	266.1	0.6	0.2	20.0	60.0	0.0	18	4
Slovakia	221.0	6.2	2.8	220.7	0.4	0.2	0.0	60.0	0.0	23	3



2013	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average number of non- zero records	Average number of changes	Ratio (%) between average number of changes and average non- zero records	Average percentage of positive changes	Average percentage of negative changes	Average percentage of changes from zero/null to non- zero records	Total number of valid transmissions in the 2013- 2017 cycles	Total number of revisions in the 2013- 2017 cycles
Slovenia	138.1	12.6	9.1	138.6	8.1	5.9	38.2	41.8	9.8	9	1
Spain	200.2	19.1	9.6	202.9	22.0	10.8	27.2	32.8	4.0	17	6
Sweden	214.2	19.4	9.1	204.7	11.4	5.6	43.0	37.0	39.8	27	9

Annex 4. Detailed analysis monthly vs annual

The following annex presents a detailed comparison of the main aggregates and fuels for the 4 monthly (and M-2) data collections⁶.

Country	Fuel	2021 data	Monthly cumulated data	Annual data	Variation
BE	Crude oil	Indigenous production	0	0	0.0%
BE	Crude oil	Imports	28 685	28 686	0.0%
BE	Crude oil	Exports	192	192	0.0%
BE	Crude oil	Refinery intake - observed	28 736	28 736	0.0%
BE	Motor gasoline	Imports	833	875	5.1%
BE	Motor gasoline	Exports	3 443	3 622	5.2%
BE	Motor gasoline	Gross inland deliveries - calculated	2 019	2 021	0.1%
BE	Gas oil and diesel oil	Imports	6 777	6 806	0.4%
BE	Gas oil and diesel oil	Exports	10 812	11 032	2.0%
BE	Gas oil and diesel oil	Gross inland deliveries - calculated	9 382	9 439	0.6%
BG	Crude oil	Indigenous production	0	0	0.0%
BG	Crude oil	Imports	4 147	4 153	0.2%
BG	Crude oil	Exports	0	0	0.0%
BG	Crude oil	Refinery intake - observed	4 227	4 168	1.4%
BG	Motor gasoline	Imports	253	252	0.4%
BG	Motor gasoline	Exports	746	746	0.0%
BG	Motor gasoline	Gross inland deliveries - calculated	500	531	6.2%
BG	Gas oil and diesel oil	Imports	908	941	3.6%
BG	Gas oil and	Exports	549	537	2.2%

 Table 43.
 Monthly oil vs annual oil

⁶ Please note that comparison between imports and exports might differ in several cases due to the difference in the definition at monthly and annual reporting.

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			Monthly	Annual	
Country	Fuel	2021 data	cumulated data	data	Variation
	diesel oil				
BG	Gas oil and diesel oil	Gross inland deliveries - calculated	2 353	2 521	7.1%
CZ	Crude oil	Indigenous production	84	84	0.0%
CZ	Crude oil	Imports	6 841	6 841	0.0%
CZ	Crude oil	Exports	0	0	0.0%
CZ	Crude oil	Refinery intake - observed	7 110	7 110	0.0%
CZ	Motor gasoline	Imports	570	569	0.2%
CZ	Motor gasoline	Exports	630	630	0.0%
CZ	Motor gasoline	Gross inland deliveries - calculated	1 516	1 515	0.1%
CZ	Gas oil and diesel oil	Imports	2 662	2 654	0.3%
CZ	Gas oil and diesel oil	Exports	1 030	1 032	0.2%
CZ	Gas oil and diesel oil	Gross inland deliveries - calculated	5 137	5 127	0.2%
DK	Crude oil	Indigenous production	3 239	3 237	0.1%
DK	Crude oil	Imports	5 186	5 184	0.0%
DK	Crude oil	Exports	855	854	0.1%
DK	Crude oil	Refinery intake - observed	7 493	7 492	0.0%
DK	Motor gasoline	Imports	331	335	1.1%
DK	Motor gasoline	Exports	1 194	1 208	1.2%
DK	Motor gasoline	Gross inland deliveries - calculated	1 270	1 287	1.4%
DK	Gas oil and diesel oil	Imports	1 731	1 720	0.7%
DK	Gas oil and diesel oil	Exports	1 734	1 716	1.0%
DK	Gas oil and diesel oil	Gross inland deliveries - calculated	3 659	3 430	6.3%
DE	Crude oil	Indigenous production	1 824	1 805	1.0%
DE	Crude oil	Imports	81 298	81 296	0.0%
DE	Crude oil	Exports	0	0	0.0%
DE	Crude oil	Refinery intake - observed	84 139	84 155	0.0%
DE	Motor	Imports	2 298	2 298	0.0%

Country	Fuel	2021 data	Monthly cumulated data	Annual data	Variation
	gasoline				
DE	Motor gasoline	Exports	5 942	5 949	0.1%
DE	Motor gasoline	Gross inland deliveries - calculated	19 171	19 144	0.1%
DE	Gas oil and diesel oil	Imports	16 542	16 541	0.0%
DE	Gas oil and diesel oil	Exports	9 239	9 238	0.0%
DE	Gas oil and diesel oil	Gross inland deliveries - calculated	47 314	47 275	0.1%
EE	Crude oil	Indigenous production	0	0	0.0%
EE	Crude oil	Imports	0	0	0.0%
EE	Crude oil	Exports	0	0	0.0%
EE	Crude oil	Refinery intake - observed	0	0	0.0%
EE	Motor gasoline	Imports	361	510	41.4%
EE	Motor gasoline	Exports	170	329	93.5%
EE	Motor gasoline	Gross inland deliveries - calculated	207	197	4.6%
EE	Gas oil and diesel oil	Imports	846	812	4.1%
EE	Gas oil and diesel oil	Exports	4	49	1125.0%
EE	Gas oil and diesel oil	Gross inland deliveries - calculated	763	691	9.4%
IE	Crude oil	Indigenous production	0	0	0.0%
IE	Crude oil	Imports	3 050	2 967	2.7%
IE	Crude oil	Exports	82	0	100.0%
IE	Crude oil	Refinery intake - observed	3 025	3 025	0.0%
IE	Motor gasoline	Imports	222	202	8.8%
IE	Motor gasoline	Exports	307	307	0.0%
IE	Motor gasoline	Gross inland deliveries - calculated	615	593	3.5%
IE	Gas oil and diesel oil	Imports	2 922	2 865	1.9%
IE	Gas oil and diesel oil	Exports	93	74	21.1%
IE	Gas oil and	Gross inland deliveries	3 683	3 644	1.1%

Country	Fuel	2021 data	Monthly cumulated data	Annual data	Variation
	diesel oil	- calculated			
EL	Crude oil	Indigenous production	59	59	0.0%
EL	Crude oil	Imports	23 408	23 407	0.0%
EL	Crude oil	Exports	56	56	0.0%
EL	Crude oil	Refinery intake - observed	23 711	23 711	0.0%
EL	Motor gasoline	Imports	419	420	0.3%
EL	Motor gasoline	Exports	4 785	4 798	0.3%
EL	Motor gasoline	Gross inland deliveries - calculated	2 034	2 012	1.1%
EL	Gas oil and diesel oil	Imports	1 341	1 336	0.4%
EL	Gas oil and diesel oil	Exports	8 516	8 532	0.2%
EL	Gas oil and diesel oil	Gross inland deliveries - calculated	4 125	4 101	0.6%
ES	Crude oil	Indigenous production	6	6	0.0%
ES	Crude oil	Imports	56 172	56 172	0.0%
ES	Crude oil	Exports	0	0	0.0%
ES	Crude oil	Refinery intake - observed	56 922	56 922	0.0%
ES	Motor gasoline	Imports	504	504	0.0%
ES	Motor gasoline	Exports	4 600	4 565	0.8%
ES	Motor gasoline	Gross inland deliveries - calculated	5 188	5 158	0.6%
ES	Gas oil and diesel oil	Imports	6 622	6 641	0.3%
ES	Gas oil and diesel oil	Exports	6 337	6 377	0.6%
ES	Gas oil and diesel oil	Gross inland deliveries - calculated	28 369	28 219	0.5%
FR	Crude oil	Indigenous production	649	658	1.4%
FR	Crude oil	Imports	33 832	33 832	0.0%
FR	Crude oil	Exports	76	76	0.3%
FR	Crude oil	Refinery intake - observed	34 014	34 014	0.0%
FR	Motor gasoline	Imports	2 571	2 565	0.2%
FR	Motor	Exports	2 087	2 093	0.3%

Country	Fuel	2021 data	cumulated data	Annual data	Variation
	gasoline				
FR	Motor gasoline	Gross inland deliveries - calculated	9 462	9 187	2.9%
FR	Gas oil and diesel oil	Imports	24 527	24 680	0.6%
FR	Gas oil and diesel oil	Exports	1 513	1 512	0.1%
FR	Gas oil and diesel oil	Gross inland deliveries - calculated	40 641	40 671	0.1%
HR	Crude oil	Indigenous production	559	566	1.2%
HR	Crude oil	Imports	1 768	1 762	0.4%
HR	Crude oil	Exports	490	473	3.6%
HR	Crude oil	Refinery intake - observed	1 851	1 862	0.6%
HR	Motor gasoline	Imports	167	167	0.2%
HR	Motor gasoline	Exports	317	328	3.6%
HR	Motor gasoline	Gross inland deliveries - calculated	448	445	0.7%
HR	Gas oil and diesel oil	Imports	1 683	1 743	3.5%
HR	Gas oil and diesel oil	Exports	833	927	11.3%
HR	Gas oil and diesel oil	Gross inland deliveries - calculated	2 019	1 967	2.5%
IT	Crude oil	Indigenous production	5 170	4 831	6.6%
IT	Crude oil	Imports	56 720	57 023	0.5%
IT	Crude oil	Exports	173	174	0.3%
ІТ	Crude oil	Refinery intake - observed	60 925	60 925	0.0%
ІТ	Motor gasoline	Imports	300	327	9.0%
ІТ	Motor gasoline	Exports	7 705	7 599	1.4%
ІТ	Motor gasoline	Gross inland deliveries - calculated	7 245	7 147	1.3%
ІТ	Gas oil and diesel oil	Imports	4 796	4 769	0.6%
ІТ	Gas oil and diesel oil	Exports	8 254	8 027	2.7%
ІТ	Gas oil and diesel oil	Gross inland deliveries - calculated	26 418	25 702	2.7%
СҮ	Crude oil	Indigenous production	0	0	0.0%

Monthly

Annex 4

Country	Fuel	2021 data	Monthly cumulated data	Annual data	Variation
СҮ	Crude oil	Imports	0	0	0.0%
CY	Crude oil	Exports	0	0	0.0%
СҮ	Crude oil	Refinery intake - observed	0	0	0.0%
СҮ	Motor gasoline	Imports	300	295	1.6%
СҮ	Motor gasoline	Exports	25	0	100.0%
СҮ	Motor gasoline	Gross inland deliveries - calculated	305	300	1.6%
СҮ	Gas oil and diesel oil	Imports	854	848	0.7%
СҮ	Gas oil and diesel oil	Exports	33	33	0.0%
СҮ	Gas oil and diesel oil	Gross inland deliveries - calculated	748	743	0.7%
LV	Crude oil	Indigenous production	0	0	0.0%
LV	Crude oil	Imports	0	0	0.0%
LV	Crude oil	Exports	0	0	0.0%
LV	Crude oil	Refinery intake - observed	0	0	0.0%
LV	Motor gasoline	Imports	167	167	0.2%
LV	Motor gasoline	Exports	20	19	5.0%
LV	Motor gasoline	Gross inland deliveries - calculated	160	169	6.2%
LV	Gas oil and diesel oil	Imports	1 244	1 344	8.0%
LV	Gas oil and diesel oil	Exports	171	171	0.0%
LV	Gas oil and diesel oil	Gross inland deliveries - calculated	1 057	1 093	3.5%
LT	Crude oil	Indigenous production	29	29	0.3%
LT	Crude oil	Imports	8 007	8 0 08	0.0%
LT	Crude oil	Exports	25	27	5.5%
LT	Crude oil	Refinery intake - observed	7 954	7 954	0.0%
LT	Motor gasoline	Imports	103	101	2.1%
LT	Motor gasoline	Exports	2 308	2 307	0.0%
LT	Motor gasoline	Gross inland deliveries - calculated	257	253	1.6%

Country	Fuel	2021 data	Monthly cumulated data	Annual data	Variation
LT	Gas oil and diesel oil	Imports	670	650	3.0%
LT	Gas oil and diesel oil	Exports	1 965	1 963	0.1%
LT	Gas oil and diesel oil	Gross inland deliveries - calculated	1 885	1 843	2.3%
LU	Crude oil	Indigenous production	0	0	0.0%
LU	Crude oil	Imports	0	0	0.0%
LU	Crude oil	Exports	0	0	0.0%
LU	Crude oil	Refinery intake - observed	0	0	0.0%
LU	Motor gasoline	Imports	334	334	0.1%
LU	Motor gasoline	Exports	0	0	0.0%
LU	Motor gasoline	Gross inland deliveries - calculated	339	337	0.7%
LU	Gas oil and diesel oil	Imports	1 696	1 696	0.0%
LU	Gas oil and diesel oil	Exports	0	0	0.0%
LU	Gas oil and diesel oil	Gross inland deliveries - calculated	1 698	1 697	0.0%
HU	Crude oil	Indigenous production	883	881	0.2%
HU	Crude oil	Imports	6 004	6 008	0.1%
HU	Crude oil	Exports	162	134	17.3%
HU	Crude oil	Refinery intake - observed	6 696	6 723	0.4%
HU	Motor gasoline	Imports	537	554	3.2%
HU	Motor gasoline	Exports	164	201	22.6%
HU	Motor gasoline	Gross inland deliveries - calculated	1 480	1 458	1.5%
HU	Gas oil and diesel oil	Imports	1 848	1 889	2.2%
HU	Gas oil and diesel oil	Exports	1 206	1 189	1.4%
HU	Gas oil and diesel oil	Gross inland deliveries - calculated	3 798	3 881	2.2%
MT	Crude oil	Indigenous production	0	0	0.0%
MT	Crude oil	Imports	0	0	0.0%
MT	Crude oil	Exports	0	0	0.0%

Country	Fuel	2021 data	Monthly cumulated data	Annual data	Variation
MT	Crude oil	Refinery intake - observed	0	0	0.0%
MT	Motor gasoline	Imports	80	79	0.3%
MT	Motor gasoline	Exports	0	0	0.0%
MT	Motor gasoline	Gross inland deliveries - calculated	76	76	0.4%
MT	Gas oil and diesel oil	Imports	589	578	2.0%
MT	Gas oil and diesel oil	Exports	41	42	2.4%
MT	Gas oil and diesel oil	Gross inland deliveries - calculated	181	180	0.5%
NL	Crude oil	Indigenous production	749	749	0.0%
NL	Crude oil	Imports	52 499	52 499	0.0%
NL	Crude oil	Exports	315	316	0.1%
NL	Crude oil	Refinery intake - observed	51 763	51 759	0.0%
NL	Motor gasoline	Imports	7 937	8 322	4.8%
NL	Motor gasoline	Exports	24 440	24 510	0.3%
NL	Motor gasoline	Gross inland deliveries - calculated	3 820	3 820	0.0%
NL	Gas oil and diesel oil	Imports	8 812	8 876	0.7%
NL	Gas oil and diesel oil	Exports	27 238	27 267	0.1%
NL	Gas oil and diesel oil	Gross inland deliveries - calculated	6 141	6 136	0.1%
AT	Crude oil	Indigenous production	562	550	2.0%
AT	Crude oil	Imports	7 567	7 567	0.0%
AT	Crude oil	Exports	0	0	0.0%
AT	Crude oil	Refinery intake - observed	8 271	8 243	0.3%
AT	Motor gasoline	Imports	548	548	0.0%
AT	Motor gasoline	Exports	996	996	0.0%
AT	Motor gasoline	Gross inland deliveries - calculated	1 440	1 440	0.0%
AT	Gas oil and diesel oil	Imports	4 827	4 827	0.0%

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Country	Fuel	2021 data	Monthly cumulated data	Annual data	Variation
AT	Gas oil and diesel oil	Exports	1 263	1 263	0.0%
AT	Gas oil and diesel oil	Gross inland deliveries - calculated	7 448	7 687	3.2%
PL	Crude oil	Indigenous production	888	888	0.0%
PL	Crude oil	Imports	23 620	23 620	0.0%
PL	Crude oil	Exports	181	181	0.0%
PL	Crude oil	Refinery intake - observed	24 755	24 755	0.0%
PL	Motor gasoline	Imports	844	844	0.0%
PL	Motor gasoline	Exports	52	52	0.0%
PL	Motor gasoline	Gross inland deliveries - calculated	4 802	4 877	1.6%
PL	Gas oil and diesel oil	Imports	5 466	5 466	0.0%
PL	Gas oil and diesel oil	Exports	96	96	0.0%
PL	Gas oil and diesel oil	Gross inland deliveries - calculated	18 784	18 810	0.1%
PT	Crude oil	Indigenous production	0	0	0.0%
PT	Crude oil	Imports	9 366	9 366	0.0%
PT	Crude oil	Exports	0	0	0.0%
PT	Crude oil	Refinery intake - observed	9 499	9 499	0.0%
PT	Motor gasoline	Imports	254	202	20.2%
PT	Motor gasoline	Exports	1 430	1 424	0.4%
PT	Motor gasoline	Gross inland deliveries - calculated	936	984	5.1%
PT	Gas oil and diesel oil	Imports	1 492	1 500	0.5%
PT	Gas oil and diesel oil	Exports	1 378	1 377	0.0%
PT	Gas oil and diesel oil	Gross inland deliveries - calculated	4 633	4 762	2.8%
RO	Crude oil	Indigenous production	3 199	3 196	0.1%
RO	Crude oil	Imports	6 823	6 823	0.0%
RO	Crude oil	Exports	34	8	77.3%
RO	Crude oil	Refinery intake - observed	9 989	9 983	0.1%

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Country	Fuel	2021 data	Monthly cumulated data	Annual data	Variation
RO	Motor gasoline	Imports	98	101	3.3%
RO	Motor gasoline	Exports	1 599	1 668	4.3%
RO	Motor gasoline	Gross inland deliveries - calculated	1 401	1 541	10.0%
RO	Gas oil and diesel oil	Imports	1 905	1 916	0.6%
RO	Gas oil and diesel oil	Exports	802	890	11.0%
RO	Gas oil and diesel oil	Gross inland deliveries - calculated	6 770	6 489	4.1%
SI	Crude oil	Indigenous production	0	0	0.0%
SI	Crude oil	Imports	0	0	0.0%
SI	Crude oil	Exports	0	0	0.0%
SI	Crude oil	Refinery intake - observed	0	0	0.0%
SI	Motor gasoline	Imports	467	465	0.5%
SI	Motor gasoline	Exports	98	97	1.4%
SI	Motor gasoline	Gross inland deliveries - calculated	370	367	0.8%
SI	Gas oil and diesel oil	Imports	2 669	2 770	3.8%
SI	Gas oil and diesel oil	Exports	1 233	1 205	2.3%
SI	Gas oil and diesel oil	Gross inland deliveries - calculated	1 511	1 627	7.7%
SK	Crude oil	Indigenous production	5	5	9.7%
SK	Crude oil	Imports	5 467	5 467	0.0%
SK	Crude oil	Exports	5	5	4.8%
SK	Crude oil	Refinery intake - observed	5 507	5 507	0.0%
SK	Motor gasoline	Imports	180	188	4.4%
SK	Motor gasoline	Exports	795	813	2.3%
SK	Motor gasoline	Gross inland deliveries - calculated	553	542	2.0%
SK	Gas oil and diesel oil	Imports	711	860	20.9%
SK	Gas oil and diesel oil	Exports	1 723	1 785	3.6%

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Country	Fuel	2021 data	Monthly cumulated data	Annual data	Variation
SK	Gas oil and diesel oil	Gross inland deliveries - calculated	1 889	1 972	4.4%
FI	Crude oil	Indigenous production	0	0	0.0%
FI	Crude oil	Imports	7 969	7 820	1.9%
FI	Crude oil	Exports	0	0	0.0%
FI	Crude oil	Refinery intake - observed	7 916	7 917	0.0%
FI	Motor gasoline	Imports	544	597	9.7%
FI	Motor gasoline	Exports	2 390	2 445	2.3%
FI	Motor gasoline	Gross inland deliveries - calculated	1 314	1 476	12.3%
FI	Gas oil and diesel oil	Imports	1 451	1 534	5.7%
FI	Gas oil and diesel oil	Exports	2 213	2 276	2.8%
FI	Gas oil and diesel oil	Gross inland deliveries - calculated	3 614	4 038	11.7%
SE	Crude oil	Indigenous production	0	0	0.0%
SE	Crude oil	Imports	17 953	17 953	0.0%
SE	Crude oil	Exports	894	0	100.0%
SE	Crude oil	Refinery intake - observed	18 247	18 247	0.0%
SE	Motor gasoline	Imports	829	845	1.9%
SE	Motor gasoline	Exports	3 788	3 742	1.2%
SE	Motor gasoline	Gross inland deliveries - calculated	2 100	2 246	6.9%
SE	Gas oil and diesel oil	Imports	2 638	2 657	0.7%
SE	Gas oil and diesel oil	Exports	6 653	6 653	0.0%
SE	Gas oil and diesel oil	Gross inland deliveries - calculated	5 372	5 526	2.9%
NO	Crude oil	Indigenous production	87 381	87 414	0.0%
NO	Crude oil	Imports	2 418	2 470	2.2%
NO	Crude oil	Exports	77 426	78 909	1.9%
NO	Crude oil	Refinery intake - observed	12 771	11 034	13.6%
NO	Motor gasoline	Imports	362	443	22.3%

Fuel	2021 data	Monthly cumulated data	Annual data	Variation
Motor gasoline	Exports	3 787	3 929	3.8%
Motor gasoline	Gross inland deliveries - calculated	764	793	3.8%
Gas oil and diesel oil	Imports	2 632	2 623	0.3%
Gas oil and diesel oil	Exports	3 440	3 439	0.0%
Gas oil and diesel oil	Gross inland deliveries - calculated	4 316	4 439	2.8%
Crude oil	Indigenous production	5	5	0.0%
Crude oil	Imports	0	0	0.0%
Crude oil	Exports	5	5	4.1%
Crude oil	Refinery intake - observed	0	1	25.0%
Motor gasoline	Imports	181	185	2.1%
Motor gasoline	Exports	0	0	0.0%
Motor gasoline	Gross inland deliveries - calculated	184	188	1.9%
Gas oil and diesel oil	Imports	673	645	4.1%
Gas oil and diesel oil	Exports	0	0	100.0%
Gas oil and diesel oil	Gross inland deliveries - calculated	683	655	4.0%
Crude oil	Indigenous production	0	0	0.0%
Crude oil	Imports	0	0	0.0%
Crude oil	Exports	0	0	0.0%
Crude oil	Refinery intake - observed	0	0	0.0%
Motor gasoline	Imports	96	96	0.1%
Motor gasoline	Exports	11	11	0.0%
Motor gasoline	Gross inland deliveries - calculated	85	85	0.3%
Gas oil and diesel oil	Imports	750	751	0.2%

87

666

87

666

0.0%

0.1%

Exports

- calculated

Gross inland deliveries

Gas oil and

diesel oil Gas oil and

diesel oil

Country

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Country	Fuel	2021 d ata	Monthly cumulated data	Annual data	Variation
RS	Crude oil	Indigenous production	808	808	0.0%
RS	Crude oil	Imports	2 719	2 693	1.0%
RS	Crude oil	Exports	0	0	0.0%
RS	Crude oil	Refinery intake - observed	3 615	3 590	0.7%
RS	Motor gasoline	Imports	69	69	0.0%
RS	Motor gasoline	Exports	130	130	0.0%
RS	Motor gasoline	Gross inland deliveries - calculated	443	443	0.0%
RS	Gas oil and diesel oil	Imports	615	614	0.2%
RS	Gas oil and diesel oil	Exports	334	348	4.4%
RS	Gas oil and diesel oil	Gross inland deliveries - calculated	2 080	2 098	0.9%
TR	Crude oil	Indigenous production	3 442	3 442	0.0%
TR	Crude oil	Imports	31 418	31 418	0.0%
TR	Crude oil	Exports	0	0	0.0%
TR	Crude oil	Refinery intake - observed	34 413	34 453	0.1%
TR	Motor gasoline	Imports	4	5	18.8%
TR	Motor gasoline	Exports	1 673	1 673	0.0%
TR	Motor gasoline	Gross inland deliveries - calculated	3 029	3 030	0.0%
TR	Gas oil and diesel oil	Imports	10 945	10 945	0.0%
TR	Gas oil and diesel oil	Exports	2 417	2 417	0.0%
TR	Gas oil and diesel oil	Gross inland deliveries - calculated	25 252	25 252	0.0%
GE	Crude oil	Indigenous production	37	35	0.0%
GE	Crude oil	Imports	0	0	0.0%
GE	Crude oil	Exports	0	0	0.0%
GE	Crude oil	Refinery intake - observed	45	50	12.3%
GE	Motor gasoline	Imports	589	589	0.0%
GE	Motor gasoline	Exports	1	1	0.1%

Country	Fuel	2021 data	Monthly cumulated data	Annual data	Variation
GE	Motor gasoline	Gross inland deliveries - calculated	595	596	0.1%
GE	Gas oil and diesel oil	Imports	562	561	0.0%
GE	Gas oil and diesel oil	Exports	4	4	0.0%
GE	Gas oil and diesel oil	Gross inland deliveries - calculated	585	584	0.0%

Table 44. Monthly gas vs annual gas⁷

Country	2021 data	Monthly cumulated data	Annual data	Variation
BE	Indigenous production	184.90	185.40	0.3%
BE	Imports	1 574 112.30	823 298.80	47.7%
BE	Exports	875 160.70	117 538.10	86.6%
BE	Inland consumption - calculated	699 764.20	706 552.00	1.0%
BG	Indigenous production	1 178.36	1 228.14	4.2%
BG	Imports	493 242.22	127 189.71	74.2%
BG	Exports	366 401.96	0.00	100.0%
BG	Inland consumption - calculated	131 731.46	132 160.65	0.3%
CZ	Indigenous production	7 840.99	7 764.26	1.0%
CZ	Imports	1 753 172.02	334 153.24	80.9%
CZ	Exports	1 419 018.83	0.00	100.0%
CZ	Inland consumption - calculated	362 777.12	362 743.51	0.0%
DK	Indigenous production	50 076.39	58 827.75	17.5%
DK	Imports	96 400.36	96 488.79	0.1%
DK	Exports	65 661.71	71 521.38	8.9%
DK	Inland consumption - calculated	114 091.05	111 800.74	2.0%
DE	Indigenous production	169 004.00	179 901.46	6.4%
DE	Imports	6 023 973.86	3 256 078.88	45.9%
DE	Exports	2 780 813.89	0.00	100.0%

⁷ Please note that for some small flows (e.g. Slovenia for indigenous production), the amount per month can be equal so small that is reported as zero (because it is less than 0.5 million m³, unit used at monthly level). However, at annual level a certain amount is reported. For that reason, the comparison in this table for small flows does not allow sometimes to draw accurate conclusions. In addition, in the monthly questionnaire (MOS GAS) trade includes transit, whereas in the annual questionnaire transit should de excluded both from imports and exports.

Country	2021 data		Monthly cumulated data	Annual data	Variation
DE	Inland consumption calculated	-	3 633 109.97	3 670 536.76	1.0%
EE	Indigenous production		0.00	0.00	0.0%
EE	Imports		18 347.00	19 453.87	6.0%
E	Exports		0.00	0.00	0.0%
EE	Inland consumption calculated	-	18 347.00	18 347.00	0.0%
E	Indigenous production		58 410.99	58 755.47	0.6%
E	Imports		144 907.00	144 855.67	0.0%
E	Exports		0.00	0.00	0.0%
E	Inland consumption calculated	-	203 317.99	203 629.10	0.2%
EL	Indigenous production		188.83	188.83	0.0%
- L	Imports		529 586.95	252 594.48	52.3%
L	Exports		275 619.83	622.07	99.8%
Ľ	Inland consumption calculated	-	255 465.93	253 471.22	0.8%
S	Indigenous production		1 583.82	1 583.82	0.0%
S	Imports		1 496 289.69	1 496 249.72	0.0%
5	Exports		122 160.03	122 261.05	0.1%
5	Inland consumption calculated	-	1 368 971.28	1 368 828.28	0.0%
R	Indigenous production		929.92	929.92	0.0%
R	Imports			1 878 358.32	0.0%
R	Exports		241 710.99	223 334.55	7.6%
R	Inland consumption calculated	-	1 718 451.68	1 737 273.54	1.1%
IR	Indigenous production		31 161.01	29 007.22	6.9%
R	Imports		88 978.33	89 078.89	0.1%
R	Exports		2 955.20	4 907.78	66.1%
IR	Inland consumption calculated	-	116 449.93	113 007.22	3.0%
т	Indigenous production		127 046.00	121 318.17	4.5%
	Imports		2 770 943.00	2 781 129.66	0.4%
-	Exports		58 864.00	58 807.24	0.1%
г	Inland consumption calculated	-	2 899 704.00	2 910 615.15	0.4%
CY	Indigenous production		0.00	0.00	0.0%
Υ	Imports		0.00	0.00	0.0%
Y	Exports		0.00	0.00	0.0%
СҮ	Inland consumption calculated	-	0.00	0.00	0.0%
.V	Indigenous production		0.00	0.00	0.0%

Country	2021 data		Monthly cumulated data	Annual data	Variation
LV	Imports		77 153.24	44 843.31	41.9%
LV	Exports		49 578.44	0.00	100.0%
_V	Inland consumption calculated	-	45 769.27	44 857.86	2.0%
LT	Indigenous production		0.00	0.00	0.0%
LT	Imports		192 400.00	93 171.00	51.6%
LT	Exports		102 554.00	5 168.00	95.0%
LT	Inland consumption calculated	-	89 127.00	87 284.00	2.1%
LU	Indigenous production		0.00	0.00	0.0%
LU	Imports		31 159.23	31 159.23	0.0%
LU	Exports		0.00	0.00	0.0%
U	Inland consumption calculated	-	31 351.61	31 357.48	0.0%
HU	Indigenous production		53 864.00	54 819.00	1.8%
ΗU	Imports		328 335.00	290 618.00	11.5%
IU	Exports		37 718.00	0.00	100.0%
łU	Inland consumption calculated	-	431 668.89	432 625.00	0.2%
МТ	Indigenous production		0.00	0.00	0.0%
ΛT	Imports		15 361.89	15 361.89	0.0%
1T	Exports		0.00	0.00	0.0%
1T	Inland consumption calculated	-	14 845.33	14 845.33	0.0%
NL	Indigenous production		724 048.58	721 817.38	0.3%
IL	Imports		1 914 498.49	1 035 961.55	45.9%
L	Exports		1 442 856.83	562 698.21	61.0%
NL	Inland consumption calculated	-	1 409 561.42	1 411 503.65	0.1%
λΤ	Indigenous production		26 615.59	26 498.50	0.4%
т	Imports		1 585 679.80	183 498.44	88.4%
Г	Exports		1 404 110.48	0.00	100.0%
T	Inland consumption calculated	-	355 960.08	360 174.60	1.2%
۲L	Indigenous production		154 809.23	155 370.92	0.4%
L	Imports		1 513 731.87	713 103.27	52.9%
L	Exports		808 233.14	4 389.14	99.5%
۶L	Inland consumption calculated	-	844 314.27	848 091.37	0.4%
т	Indigenous production		0.00	0.00	0.0%
т	Imports		237 674.54	230 624.00	3.0%
т	Exports		7 894.48	0.00	100.0%

Country	2021 data		Monthly cumulated data	Annual data	Variation
РТ	Inland consumption calculated	-	229 672.74	230 521.13	0.4%
RO	Indigenous production		343 927.00	341 973.19	0.6%
RO	Imports		137 707.00	132 121.92	4.1%
RO	Exports		28 197.00	27 682.83	1.8%
RO	Inland consumption calculated	-	465 603.00	458 130.69	1.6%
SI	Indigenous production		201.99	202.01	0.0%
51	Imports		43 212.00	35 859.10	17.0%
51	Exports		6 587.00	0.00	100.0%
51	Inland consumption calculated	-	36 826.99	36 061.11	2.1%
бК	Indigenous production		2 862.36	2 271.00	20.7%
к	Imports		1 577 384.05	198 621.00	87.4%
К	Exports		1 432 672.88	52 453.00	96.3%
SK	Inland consumption calculated	-	216 618.98	211 715.00	2.3%
:	Indigenous production		0.00	0.00	0.0%
1	Imports		100 750.00	98 689.00	2.0%
I	Exports		8 829.00	0.00	100.0%
	Inland consumption calculated	-	92 797.00	99 542.00	7.3%
SE	Indigenous production		0.00	0.00	0.0%
E	Imports		55 535.81	49 903.65	10.1%
	Exports		2 239.87	2 263.06	1.0%
Ξ	Inland consumption calculated	-	51 260.63	48 289.22	5.8%
10	Indigenous production		4 644 455.17	4 689 683.31	0.0%
0	Imports		1 456.94	6 294.65	332.0%
0	Exports		4 342 908.65	4 454 252.15	2.6%
0	Inland consumption calculated	-	300 115.63	233 283.80	22.3%
/ID	Indigenous production		0.00	1.80	0.0%
1D	Imports		41 932.60	41 145.00	1.9%
ID	Exports		0.00	0.00	0.0%
/ID	Inland consumption calculated	-	41 794.50	41 076.80	1.7%
ЛК	Indigenous production		0.00	0.00	0.0%
ЛК	Imports		16 356.69	16 455.00	0.6%
1K	Exports		0.00	0.00	0.0%
МК	Inland consumption calculated	-	16 357.54	16 459.47	0.6%
S	Indigenous production		13 407.00	13 413.80	0.1%

Monthly Country 2021 data Annual data Variation cumulated data 104 459.00 RS Imports 87 606.22 16.1% RS Exports 0.00 0.00 0.0% Inland consumption RS 111 393.48 13.1% 128 238.00 calculated Indigenous production TR 15 076.60 15 108.17 0.2% TR Imports 2 248 525.73 2 248 584.01 0.0% TR Exports 14 652.31 14 665.33 0.1% Inland consumption _ TR 2 284 872.82 2 284 949.65 0.0% calculated GE Indigenous production 640.87 4.6% 671.70 GE 101 507.35 111 504.62 9.8% Imports GE **Exports** 0.00 0.00 0.0% Inland consumption GE 102 179.05 112 145.49 9.8% calculated

Annex 4



			Month	ly cumulate	ed data				Annual data	1			١	Variation		Sands Coke 0.00% 30.57% 0.00% 2.94% 0.00% 222.73% 0.00% 0.00% 8.49% 0.00% 0.00% 2.62%	
Country	2021 data	Hard Coal	Lignite/ Brown Coal	Peat	Oil Shale and Oil Sands	Coke Oven Coke	Hard Coal	Lignite/ Brown Coal	Peat	Oil Shale and Oil Sands	Coke Oven Coke	Hard Coal	Lignite/ Brown Coal	Peat		Oven	
BE	Indigenous production	0.0	0.0	0.0	0.0	971.5	0.0	0.0	0.0	0.0	1 268.5	0.00%	0.00%	0.00%	0.00%	30.57%	
BE	Imports	3 485.5	0.1	0.0	0.0	180.2	2 938.1	1.1	0.0	0.0	185.5	15.71%	1000.00%	0.00%	0.00%	2.94%	
BE	Exports	588.8	0.0	0.0	0.0	13.2	61.2	0.2	0.0	0.0	42.6	89.61%	0.00%	0.00%	0.00%	222.73%	
BE	Inland consumption - calculated	3 107.0	0.2	0.0	0.0	1 475.3	3 083.6	136.0	0.0	0.0	1 475.3	0.75%	67900.00%	0.00%	0.00%	0.00%	
BG	Indigenous production	0.0	28 289.2	0.0	54.2	0.0	0.0	28 289.2	0.0	49.6	0.0	0.00%	0.00%	0.00%	8.49%	0.00%	
BG	Imports	766.6	0.0	0.0	0.0	54.5	858.3	0.0	0.0	0.0	55.9	11.96%	0.00%	0.00%	0.00%	2.62%	
BG	Exports	0.0	0.0	0.0	0.0	0.0	0.0	8.4	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%	
BG	Inland consumption - calculated	783.8	28 301.0	0.0	30.1	59.5	858.2	28 527.4	0.0	0.0	57.4	9.49%	0.80%	0.00%	100.00%	3.44%	
CZ	Indigenous production	2 205.9	29 279.4	0.0	0.0	2 579.4	2 178.9	29 279.4	0.0	0.0	2 577.4	1.23%	0.00%	0.00%	0.00%	0.08%	
CZ	Imports	4 543.0	49.0	0.0	0.0	228.0	4 613.7	37.7	0.0	0.0	306.0	1.56%	23.06%	0.00%	0.00%	34.23%	
CZ	Exports	1 396.0	424.0	0.0	0.0	652.0	1 446.6	336.5	0.0	0.0	654.7	3.62%	20.63%	0.00%	0.00%	0.41%	

Table 45. Monthly coal vs annual coal⁸

⁸ Results must be interpreted with caution, since monthly reporting had in the past a different grouping of coal products than annual reporting (e.g. in the category lignite/brown coal). In addition, big percentage differences could be the result of comparing 2 very small figures, in which case the deviation might be misleading.



Country	2021 data		Month	y cumulate	d data			Annual data					Variation				
CZ	Inland consumption - calculated	5 567.6	28 949.4	0.0	0.0	2 148.4	5 955.2	29 675.2	0.0	0.0	2 186.9	6.96%	2.51%	0.00%	0.00%	1.79%	
DK	Indigenous production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%	
DK	Imports	774.3	0.0	0.0	0.0	11.6	774.3	0.0	0.0	0.0	11.6	0.00%	0.00%	0.00%	0.00%	0.01%	
DK	Exports	583.2	0.0	0.0	0.0	0.0	583.2	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%	
DK	Inland consumption - calculated	1 834.1	0.0	0.0	0.0	11.5	1 834.1	0.0	0.0	0.0	11.5	0.00%	0.00%	0.00%	0.00%	0.01%	
DE	Indigenous production	0.0	126 401.9	0.0	0.0	6 193.4	0.0	126 257.0	0.0	0.0	8 247.4	0.00%	0.11%	0.00%	0.00%	33.16%	
DE	Imports	37 250.8	37.3	0.0	0.0	2 857.3	38 417.8	27.0	0.0	0.0	2 326.1	3.13%	27.61%	0.00%	0.00%	18.59%	
DE	Exports	0.0	0.0	0.0	0.0	0.0	918.7	0.0	0.0	0.0	640.9	0.00%	100.00%	0.00%	0.00%	0.00%	
DE	Inland consumption - calculated	37 250.8	126 349.9	0.0	0.0	9 050.7	37 372.6	126 182.1	0.0	0.0	9 932.6	0.33%	0.13%	0.00%	0.00%	9.74%	
EE	Indigenous production	0.0	0.0	0.0	12 280.0	0.0	0.0	0.0	35.4	11 742.8	16.3	0.00%	0.00%	0.00%	4.37%	0.00%	
EE	Imports	5.7	0.0	0.0	0.0	0.0	5.3	0.0	0.0	0.0	0.0	6.36%	0.00%	0.00%	0.00%	0.00%	
EE	Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.2	0.00%	0.00%	0.00%	0.00%	0.00%	
EE	Inland consumption - calculated	5.7	0.0	0.0	13 741.4	0.0	3.5	0.0	19.8	13 186.2	0.0	38.16%	0.00%	0.00%	4.04%	0.00%	
IE	Indigenous production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	408.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%	
IE	Imports	1 631.5	0.0	0.0	0.0	0.0	1 559.7	0.0	0.0	0.0	0.0	4.40%	0.00%	0.00%	0.00%	0.00%	
IE	Exports	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%	0.00%	0.00%	0.00%	0.00%	



Country	2021 data		Month	ly cumulate	d data			Annual data					Variation				
IE	Inland consumption - calculated	1 653.6	0.0	0.0	0.0	0.0	1 478.8	0.0	1 122.5	0.0	0.0	10.57%	0.00%	0.00%	0.00%	0.00%	
EL	Indigenous production	0.0	12 095.2	0.0	0.0	0.0	0.0	12 398.0	0.0	0.0	0.0	0.00%	2.50%	0.00%	0.00%	0.00%	
EL	Imports	266.4	0.0	0.0	0.0	0.0	266.4	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%	
EL	Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%	
EL	Inland consumption - calculated	287.3	12 934.7	0.0	0.0	0.0	287.3	13 213.7	0.0	0.0	0.0	0.00%	2.16%	0.00%	0.00%	0.00%	
ES	Indigenous production	0.0	0.0	0.0	0.0	1 145.0	0.0	0.0	0.0	0.0	1 137.0	0.00%	0.00%	0.00%	0.00%	0.70%	
ES	Imports	5 277.0	0.0	0.0	0.0	800.0	5 275.0	0.0	0.0	0.0	800.0	0.04%	0.00%	0.00%	0.00%	0.00%	
ES	Exports	626.0	0.0	0.0	0.0	102.0	627.0	0.0	0.0	0.0	102.0	0.16%	0.00%	0.00%	0.00%	0.00%	
ES	Inland consumption - calculated	3 751.0	0.0	0.0	0.0	1 858.0	4 378.0	0.0	0.0	0.0	1 815.0	16.72%	0.00%	0.00%	0.00%	2.31%	
FR	Indigenous production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%	
FR	Imports	8 704.5	44.9	0.0	0.0	0.0	7 775.4	44.9	0.0	0.0	1 507.0	10.67%	0.03%	0.00%	0.00%	0.00%	
FR	Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4	0.00%	0.00%	0.00%	0.00%	0.00%	
FR	Inland consumption - calculated	9 508.6	44.9	0.0	0.0	3 599.1	8 832.4	45.7	0.0	0.0	3 872.5	7.11%	1.82%	0.00%	0.00%	7.60%	
HR	Indigenous production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%	
HR	Imports	669.0	4.0	0.0	0.0	29.0	669.6	5.6	0.0	0.0	29.6	0.09%	40.00%	0.00%	0.00%	2.07%	
HR	Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%	



Country	2021 data	Monthly cumulated data					ŀ	Annual data	l.		Variation					
HR	Inland consumption - calculated	669.0	4.0	0.0	0.0	29.0	664.7	5.6	0.0	0.0	29.5	0.64%	40.00%	0.00%	0.00%	1.72%
ІТ	Indigenous production	0.0	0.0	0.0	0.0	1 576.6	0.0	0.0	0.0	0.0	1 346.4	0.00%	0.00%	0.00%	0.00%	14.60%
IT	Imports	7 923.3	0.0	0.0	0.0	707.1	7 912.8	1.3	0.0	0.0	631.7	0.13%	0.00%	0.00%	0.00%	10.67%
IT	Exports	10.5	0.0	0.0	0.0	248.7	0.0	0.0	0.0	0.0	248.9	100.00%	0.00%	0.00%	0.00%	0.06%
іт	Inland consumption - calculated	8 158.6	0.0	0.0	0.0	2 046.4	8 158.6	1.3	0.0	0.0	1 740.6	0.00%	0.00%	0.00%	0.00%	14.94%
СҮ	Indigenous production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
СҮ	Imports	64.8	0.0	0.0	0.0	0.0	64.8	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
СҮ	Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
СҮ	Inland consumption - calculated	66.4	0.0	0.0	0.0	0.0	66.4	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
LV	Indigenous production	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
LV	Imports	36.8	0.0	0.0	0.0	0.0	36.7	0.0	0.0	0.0	0.0	0.39%	0.00%	0.00%	0.00%	70.59%
LV	Exports	8.8	0.0	0.4	0.0	0.0	8.8	0.0	0.4	0.0	0.0	0.01%	0.00%	0.00%	0.00%	0.00%
LV	Inland consumption - calculated	32.2	0.0	2.9	0.0	0.0	30.1	0.0	5.0	0.0	0.0	6.69%	0.00%	70.22%	0.00%	88.24%
LT	Indigenous production	0.0	0.0	13.0	0.0	0.0	0.0	0.0	16.8	0.0	0.0	0.00%	0.00%	29.27%	0.00%	0.00%
LT	Imports	223.9	1.1	0.0	0.0	16.6	225.1	0.0	0.0	0.0	17.2	0.52%	100.00%	0.00%	0.00%	3.80%
LT	Exports	0.0	0.0	2.7	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.00%	0.00%	37.36%	0.00%	0.00%



Country	2021 data	Monthly cumulated data					,	Annual data	l.		Variation					
LT	Inland consumption - calculated	242.5	1.6	25.7	0.0	16.5	246.8	0.0	23.3	0.0	17.2	1.77%	100.00%	9.27%	0.00%	3.93%
LU	Indigenous production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
LU	Imports	55.4	0.0	0.0	0.0	0.1	59.4	0.0	0.0	0.0	0.2	7.09%	0.00%	0.00%	0.00%	100.00%
LU	Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
LU	Inland consumption - calculated	55.4	0.0	0.0	0.0	0.1	61.2	0.0	0.0	0.0	0.2	10.30%	0.00%	0.00%	0.00%	100.00%
HU	Indigenous production	0.0	4 987.7	0.0	0.0	767.4	0.0	4 988.0	0.0	0.0	767.0	0.00%	0.01%	0.00%	0.00%	0.06%
HU	Imports	1 132.3	78.4	0.0	0.0	8.0	1 132.0	70.0	0.0	0.0	10.0	0.02%	10.77%	0.00%	0.00%	25.36%
HU	Exports	0.0	5.3	0.0	0.0	440.3	0.0	3.0	0.0	0.0	439.0	0.00%	43.76%	0.00%	0.00%	0.30%
HU	Inland consumption - calculated	1 148.9	5 051.7	0.0	0.0	428.8	1 149.0	5 035.0	0.0	0.0	430.0	0.01%	0.33%	0.00%	0.00%	0.28%
MT	Indigenous production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
MT	Imports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
MT	Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
MT	Inland consumption - calculated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
NL	Indigenous production	0.0	0.0	0.0	0.0	1 885.1	0.0	0.0	0.0	0.0	1 885.1	0.00%	0.00%	0.00%	0.00%	0.00%
NL	Imports	8 735.1	36.0	0.0	0.0	71.2	8 848.3	9.4	0.0	0.0	76.7	1.30%	73.73%	0.00%	0.00%	7.73%
NL	Exports	0.0	0.0	0.0	0.0	11.6	0.0	0.0	0.0	0.0	12.2	0.00%	0.00%	0.00%	0.00%	4.87%



Country	2021 data	Monthly cumulated data				Annual data				Variation						
NL	Inland consumption - calculated	8 861.6	36.0	0.0	0.0	1 872.3	8 974.8	9.4	0.0	0.0	1 876.9	1.28%	73.73%	0.00%	0.00%	0.25%
AT	Indigenous production	0.0	0.0	0.0	0.0	1 318.5	0.0	0.0	0.0	0.0	1 318.5	0.00%	0.00%	0.00%	0.00%	0.00%
AT	Imports	2 750.1	60.7	0.0	0.0	1 038.5	2 770.9	59.7	0.0	0.0	920.5	0.76%	1.70%	0.00%	0.00%	11.36%
AT	Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
AT	Inland consumption - calculated	2 775.9	60.7	0.0	0.0	2 356.2	2 749.9	59.6	0.0	0.0	2 251.1	0.94%	1.71%	0.00%	0.00%	4.46%
PL	Indigenous production	55 006.4	52 355.5	0.0	0.0	9 311.6	55 006.4	52 355.5	0.0	0.0	9 283.7	0.00%	0.00%	0.00%	0.00%	0.30%
PL	Imports	13 372.3	127.8	0.0	0.0	230.9	12 382.3	129.5	0.0	0.0	221.5	7.40%	1.32%	0.00%	0.00%	4.04%
PL	Exports	6 895.6	7.7	0.0	0.0	6 943.4	6 429.3	9.5	0.0	0.0	7 268.5	6.76%	22.51%	0.00%	0.00%	4.68%
PL	Inland consumption - calculated	65 919.5	52 614.5	0.0	0.0	2 610.3	69 981.7	52 614.8	0.0	0.0	2 264.9	6.16%	0.00%	0.00%	0.00%	13.23%
РТ	Indigenous production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
РТ	Imports	3.1	0.0	0.0	0.0	8.5	3.1	0.0	0.0	0.0	9.0	0.10%	0.00%	0.00%	0.00%	5.44%
РТ	Exports	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	100.00%	0.00%	0.00%	0.00%	100.00%
РТ	Inland consumption - calculated	318.0	0.0	0.0	0.0	9.9	318.1	0.0	0.0	0.0	10.6	0.00%	0.00%	0.00%	0.00%	7.00%
RO	Indigenous production	0.0	17 733.0	0.0	0.0	0.0	0.0	17 733.0	6.5	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
RO	Imports	792.0	2.0	0.0	0.0	832.0	123.5	597.4	78.5	0.0	891.0	84.41%	29767.65%	0.00%	0.00%	7.10%
RO	Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	34.6	0.00%	0.00%	0.00%	0.00%	0.00%



Country	2021 data	ata Monthly cumulated data					1	Annual data	1		Variation					
RO	Inland consumption - calculated	889.0	17 833.0	0.0	0.0	810.0	120.3	18 871.9	84.6	0.0	827.8	86.47%	5.83%	0.00%	0.00%	2.20%
SI	Indigenous production	0.0	2 612.0	0.0	0.0	0.0	0.0	2 612.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
SI	Imports	10.6	167.2	0.0	0.0	21.2	6.2	168.9	0.0	0.0	29.9	41.60%	1.02%	0.00%	0.00%	41.42%
SI	Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
SI	Inland consumption - calculated	10.4	3 227.0	0.0	0.0	21.3	6.0	3 132.1	0.0	0.0	29.1	42.53%	2.94%	0.00%	0.00%	36.22%
SK	Indigenous production	0.0	1 075.0	0.0	0.0	1 626.0	0.0	1 074.0	0.0	0.0	1 626.0	0.00%	0.09%	0.00%	0.00%	0.00%
SK	Imports	3 234.0	294.0	0.0	0.0	155.0	3 327.0	234.0	0.0	0.0	166.0	2.88%	20.41%	0.00%	0.00%	7.10%
SK	Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.00%	0.00%	0.00%	0.00%	0.00%
SK	Inland consumption - calculated	3 281.0	1 367.0	0.0	0.0	1 714.0	3 497.0	1 306.0	0.0	0.0	1 725.0	6.58%	4.46%	0.00%	0.00%	0.64%
FI	Indigenous production	0.0	0.0	1 329.0	0.0	835.0	0.0	0.0	981.0	0.0	835.0	0.00%	0.00%	26.19%	0.00%	0.00%
FI	Imports	2 153.0	0.0	27.0	0.0	249.0	2 217.0	0.0	35.0	0.0	249.0	2.97%	0.00%	29.63%	0.00%	0.00%
FI	Exports	0.0	0.0	0.0	0.0	29.0	113.0	0.0	0.0	0.0	28.0	0.00%	0.00%	0.00%	0.00%	3.45%
FI	Inland consumption - calculated	3 038.0	0.0	3 558.0	0.0	1 139.0	2 995.0	0.0	3 661.0	0.0	1 106.0	1.42%	0.00%	2.89%	0.00%	2.90%
SE	Indigenous production	0.0	0.0	180.0	0.0	923.0	0.0	0.0	203.0	0.0	955.0	0.00%	0.00%	12.78%	0.00%	3.47%
SE	Imports	1 806.0	0.0	12.0	0.0	170.0	2 113.0	0.0	7.0	0.0	168.0	17.00%	0.00%	41.67%	0.00%	1.18%
SE	Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.0	0.00%	0.00%	0.00%	0.00%	0.00%



Country	2021 data		Month	ly cumulate	d data			ļ	Annual data	1			۷	Variation		
SE	Inland consumption - calculated	1 774.0	0.0	192.0	0.0	1 275.0	2 080.0	0.0	210.0	0.0	1 281.0	17.25%	0.00%	9.38%	0.00%	0.47%
NO	Indigenous production	115.2	0.0	0.0	0.0	0.0	121.3	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
NO	Imports	882.2	0.0	0.0	0.0	337.3	882.2	0.0	0.0	0.0	322.6	0.00%	0.00%	0.00%	0.00%	4.36%
NO	Exports	81.6	0.0	0.0	0.0	0.0	81.6	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
NO	Inland consumption - calculated	922.0	0.0	0.0	0.0	333.9	928.1	0.0	0.0	0.0	319.1	0.66%	0.00%	0.00%	0.00%	4.41%
ВА	Indigenous production	0.0	12 790.7	0.0	0.0	952.4	0.0	12 831.5	0.0	0.0	960.9	0.00%	0.00%	0.00%	0.00%	0.89%
BA	Imports	1 447.0	36.8	0.0	0.0	1.5	1 562.8	37.5	0.0	0.0	10.8	8.00%	0.00%	0.00%	0.00%	608.77%
BA	Exports	0.0	152.4	0.0	0.0	434.9	0.0	160.8	0.0	0.0	446.1	0.00%	0.00%	0.00%	0.00%	0.00%
BA	Inland consumption - calculated	1 407.8	12 833.4	0.0	0.0	517.6	1 500.9	13 227.1	0.0	0.0	522.8	6.61%	0.00%	0.00%	0.00%	1.01%
ME	Indigenous production	0.0	1 548.6	0.0	0.0	0.0	0.0	1 548.6	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
ME	Imports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
ME	Exports	0.0	148.6	0.0	0.0	0.0	0.0	148.4	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
ME	Inland consumption - calculated	0.0	1 400.0	0.0	0.0	0.0	0.0	1 403.2	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
MD	Indigenous production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
MD	Imports	127.3	0.0	0.0	0.0	0.0	125.0	0.0	0.0	0.0	0.0	1.80%	0.00%	0.00%	0.00%	0.00%
MD	Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%



Country	2021 data	Monthly cumulated data						Annual data			Variation					
MD	Inland consumption - calculated	157.2	0.0	0.0	0.0	0.0	153.0	0.0	0.0	0.0	0.0	2.70%	0.00%	0.00%	0.00%	0.00%
МК	Indigenous production	0.0	4 259.8	0.0	0.0	0.0	0.0	4 125.5	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
МК	Imports	46.6	374.8	0.0	0.0	0.4	46.2	355.7	0.0	0.0	0.4	0.89%	0.00%	0.00%	0.00%	0.24%
МК	Exports	0.1	0.5	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
МК	Inland consumption - calculated	40.3	4 501.9	0.0	0.0	0.5	39.4	4 348.6	0.0	0.0	0.6	2.13%	0.00%	0.00%	0.00%	17.53%
RS	Indigenous production	0.0	36 417.5	0.0	0.0	0.0	0.0	36 417.5	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
RS	Imports	104.9	541.7	0.0	0.0	573.0	302.4	386.0	0.0	0.0	575.7	188.27%	0.00%	0.00%	0.00%	0.48%
RS	Exports	0.0	38.8	0.0	0.0	0.2	0.0	40.4	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
RS	Inland consumption - calculated	104.9	36 920.3	0.0	0.0	572.8	275.2	37 016.9	0.0	0.0	569.2	162.33%	0.00%	0.00%	0.00%	0.63%
TR	Indigenous production	1 236.3	72 736.4	0.0	0.0	4 622.9	1 236.3	85 230.1	0.0	0.0	4 134.2	0.00%	0.00%	0.00%	0.00%	10.57%
TR	Imports	36 189.8	0.0	0.0	0.0	1 076.3	37 189.0	0.0	0.0	0.0	1 170.3	2.76%	0.00%	0.00%	0.00%	8.74%
TR	Exports	301.0	32.9	0.0	0.0	15.7	304.3	32.9	0.0	0.0	17.4	0.00%	0.00%	0.00%	0.00%	11.27%
TR	Inland consumption - calculated	37 195.0	73 628.6	0.0	0.0	5 791.6	38 080.5	86 527.2	0.0	0.0	5 375.6	2.38%	0.00%	0.00%	0.00%	7.18%
GE	Indigenous production	0.0	147.9	0.0	0.0	0.0	0.0	147.9	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%
GE	Imports	100.2	0.0	0.0	0.0	147.1	100.2	0.0	0.0	0.0	147.7	0.00%	0.00%	0.00%	0.00%	0.37%
GE	Exports	0.0	1.5	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.00%	0.00%	0.00%	0.00%	0.00%



Country	2021 data		Month	ly cumulate	d data				Annual data				Ň	Variation		
GE	Inland consumption - calculated	108.2	147.8	0.0	0.0	141.3	106.8	150.8	0.0	0.0	141.8	1.35%	0.00%	0.00%	0.00%	0.39%

Country	2021 data	Monthly cumulated data	Annual data	Variation
BE	Net electricity production	94 702	96 625	2.0%
BE	Imports	15 194	15 194	0.0%
BE	Exports (Balance)	23 070	23 070	0.0%
BE	Available for final consumption	81 737	83 912	2.7%
BG	Net electricity production	43 566	43 458	0.2%
BG	Imports	1 857	1 857	0.0%
BG	Exports (Balance)	10 635	10 635	0.0%
BG	Available for final consumption	31 799	31 700	0.3%
CZ	Net electricity production	79 296	78 543	1.0%
CZ	Imports	15 153	15 153	0.0%
CZ	Exports (Balance)	26 228	26 228	0.0%
CZ	Available for final consumption	62 996	62 224	1.2%
DK	Net electricity production	31 917	31 912	0.0%
DK	Imports	20 072	20 120	0.2%
DK	Exports (Balance)	15 249	15 251	0.0%
DK	Available for final consumption	35 477	33 626	5.2%
DE	Net electricity production	520 709	558 488	7.3%
DE	Imports	51 725	51 731	0.0%
DE	Exports (Balance)	70 306	70 306	0.0%
DE	Available for final consumption	468 098	505 175	7.9%
EE	Net electricity production	6 450	6 461	0.2%
EE	Imports	7 333	7 332	0.0%
EE	Exports (Balance)	4 703	4 703	0.0%
EE	Available for final consumption	9 080	8 649	4.7%
IE	Net electricity production	30 102	31 020	3.0%
IE	Imports	2 447	2 451	0.2%
IE	Exports (Balance)	863	863	0.0%
IE	Available for final consumption	28 769	29 689	3.2%
EL	Net electricity production	52 790	53 056	0.5%
EL	Imports	7 581	7 581	0.0%
EL	Exports (Balance)	3 898	3 897	0.0%
EL	Available for final consumption	54 906	51 045	7.0%
ES	Net electricity production	259 476	265 331	2.3%
ES	Imports	17 388	17 411	0.1%
ES	Exports (Balance)	16 506	16 559	0.3%
ES	Available for final consumption	231 643	235 109	1.5%
FR	Net electricity production	529 812	532 497	0.5%
FR	Imports	23 656	24 334	2.9%
FR	Exports (Balance)	68 808	69 227	0.6%
FR	Available for final consumption	440 283	442 447	0.5%
HR	Net electricity production	14 685	14 728	0.3%

Table 46. Monthly electricity vs annual electricity

Country	2021 data	Monthly cumulated data	Annual data	Variation
HR	Imports	11 345	11 505	1.4%
HR	Exports (Balance)	7 506	7 544	0.5%
HR	Available for final consumption	16 688	16 854	1.0%
IT	Net electricity production	278 109	280 045	0.7%
IT	Imports	46 564	46 572	0.0%
IT	Exports (Balance)	3 771	3 782	0.3%
IT	Available for final consumption	318 075	300 887	5.4%
CY	Net electricity production	4 879	4 881	0.0%
CY	Imports	0	0	0.0%
CY	Exports (Balance)	0	0	0.0%
CY	Available for final consumption	4 879	4 657	4.6%
LV	Net electricity production	5 608	5 544	1.1%
LV	Imports	4 667	4 666	0.0%
LV	Exports (Balance)	2 893	2 894	0.0%
LV	Available for final consumption	7 382	6 930	6.1%
LT	Net electricity production	4 347	4 810	10.7%
LT	Imports	12 479	12 479	0.0%
LT	Exports (Balance)	3 435	3 435	0.0%
LT	Available for final consumption	11 493	11 954	4.0%
LU	Net electricity production	2 270	2 180	4.0%
LU	Imports	6 758	6 758	0.0%
LU	Exports (Balance)	1 037	1 037	0.0%
LU	Available for final consumption	6 473	6 393	1.2%
HU	Net electricity production	33 934	34 148	0.6%
HU	Imports	19 967	19 967	0.0%
HU	Exports (Balance)	7 212	7 213	0.0%
HU	Available for final consumption	43 657	43 838	0.4%
MT	Net electricity production	2 148	2 160	0.6%
MT	Imports	547	547	0.0%
MT	Exports (Balance)	36	36	0.0%
MT	Available for final consumption	2 659	2 583	2.9%
NL	Net electricity production	118 037	118 390	0.3%
NL	Imports	20 885	20 885	0.0%
NL	Exports (Balance)	20 632	20 632	0.0%
NL	Available for final consumption	113 558	113 846	0.3%
AT	Net electricity production	67 175	68 084	1.4%
AT	Imports	26 436	26 436	0.0%
AT	Exports (Balance)	18 893	18 893	0.0%
AT	Available for final consumption	66 070	66 861	1.2%
PL	Net electricity production	163 252	166 801	2.2%
PL	Imports	15 100	15 100	0.0%
PL	Exports (Balance)	14 212	14 212	0.0%
PL	Available for final consumption	154 438	157 314	1.9%
PT	Net electricity production	49 362	50 362	2.0%

Country	2021 data	Monthly cumulated data	Annual data	Variation
РТ	Imports	9 544	9 544	0.0%
PT	Exports (Balance)	4 791	4 791	0.0%
PT	Available for final consumption	46 915	48 190	2.7%
RO	Net electricity production	53 702	54 636	1.7%
RO	Imports	8 687	8 697	0.1%
RO	Exports (Balance)	6 498	6 499	0.0%
RO	Available for final consumption	55 891	50 203	10.2%
SI	Net electricity production	14 688	15 048	2.5%
SI	Imports	8 387	8 387	0.0%
SI	Exports (Balance)	8 658	8 658	0.0%
SI	Available for final consumption	13 189	13 550	2.7%
SK	Net electricity production	27 712	27 458	0.9%
SK	Imports	13 882	13 884	0.0%
SK	Exports (Balance)	13 095	13 110	0.1%
SK	Available for final consumption	28 105	26 457	5.9%
FI	Net electricity production	68 365	69 323	1.4%
FI	Imports	23 937	24 492	2.3%
FI	Exports (Balance)	6 709	6 724	0.2%
FI	Available for final consumption	82 738	83 301	0.7%
SE	Net electricity production	168 982	168 623	0.2%
SE	Imports	8 340	8 341	0.0%
SE	Exports (Balance)	33 911	33 909	0.0%
SE	Available for final consumption	133 461	131 028	1.8%
NO	Net electricity production	157 093	157 247	0.1%
NO	Imports	8 235	8 235	0.0%
NO	Exports (Balance)	25 819	25 819	0.0%
NO	Available for final consumption	129 296	128 361	0.7%
BA	Net electricity production	16 603	17 380	4.7%
BA	Imports	3 259	3 259	0.0%
BA	Exports (Balance)	8 014	8 014	0.0%
BA	Available for final consumption	11 335	11 147	1.7%
MD	Net electricity production	917	1 007	9.9%
MD	Imports	3 167	3 607	13.9%
MD	Exports (Balance)	0	0	100.0%
MD	Available for final consumption	3 763	4 179	11.0%
MK	Net electricity production	5 193	5 199	0.1%
MK	Imports	7 407	7 407	0.0%
MK	Exports (Balance)	4 929	4 930	0.0%
MK	Available for final consumption	6 631	6 636	0.1%
RS	Net electricity production	35 785	35 352	1.2%
RS	Imports	6 984	6 984	0.0%
RS	Exports (Balance)	6 333	6 333	0.0%
RS	Available for final consumption	35 483	30 570	13.8%
TR	Net electricity production	315 000	319 540	1.4%

Country	2021 data	Monthly cumulated data	Annual data	Variation
TR	Imports	2 329	2 334	0.2%
TR	Exports (Balance)	4 187	4 186	0.0%
TR	Available for final consumption	313 142	286 691	8.4%
GE	Net electricity production	12 434	12 432	0.0%
GE	Imports	3 190	3 190	0.0%
GE	Exports (Balance)	1 575	1 575	0.0%
GE	Available for final consumption	13 753	13 155	4.3%

Annex 5. Trade mirroring

Table 47. Trade mirroring checks – Other bituminous co	al, reference year 2017
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Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage ⁹	Production Value
Netherlands	Germany	:	1 017.000	1 017.000	200.00%	:
Poland	Austria	504.170	1 102.760	598.590	74.50%	52 999.306
Latvia	Sweden	:	346.000	346.000	200.00%	:
Poland	Slovakia	428.750	175.000	253.750	84.06%	52 999.306
Czechia	Slovakia	285.461	85.000	200.461	108.22%	2 502.813
Belgium	Spain	:	196.000	196.000	200.00%	:
Poland	Czechia	1 468.648	1 643.787	175.139	11.25%	52 999.306
Ukraine	Türkiye	:	142.165	142.165	200.00%	18 932.900
Belgium	Germany	24.000	151.000	127.000	145.14%	:
Norway	Germany	64.000	171.000	107.000	91.06%	131.000
Netherlands	Austria	:	105.155	105.155	200.00%	:
Ukraine	Bulgaria	:	88.206	88.206	200.00%	18 932.900
Poland	Ukraine	249.618	166.000	83.618	40.24%	52 999.306

⁹ Difference in percentage set to 200% when the value reported by the importing or exporting country is zero.



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage ⁹	Production Value
Czechia	Poland	194.667	115.727	78.940	50.86%	2 502.813
Poland	Türkiye	:	72.824	72.824	200.00%	52 999.306
Latvia	Türkiye	:	72.157	72.157	200.00%	:
Germany	Austria	1.000	72.309	71.309	194.54%	527.000
Ukraine	Italy	:	62.500	62.500	200.00%	18 932.900
Poland	Germany	1 258.986	1 198.000	60.986	4.96%	52 999.306
Spain	Croatia	59.000	:	59.000	200.00%	791.000
Netherlands	France	:	57.476	57.476	200.00%	:
Germany	Netherlands	50.000	:	50.000	200.00%	527.000
Poland	Bulgaria	38.486	:	38.486	200.00%	52 999.306
Netherlands	Sweden	:	38.000	38.000	200.00%	:
Czechia	Bosnia-Herzegovina	36.940	:	36.940	200.00%	2 502.813
Poland	Finland	26.253	59.000	32.747	76.82%	52 999.306
Czechia	Serbia	30.000	57.050	27.050	62.15%	2 502.813
Netherlands	Spain	:	26.000	26.000	200.00%	:
Spain	Belgium	25.000	:	25.000	200.00%	791.000
Ireland	Spain	:	22.000	22.000	200.00%	:
Germany	Poland	25.000	3.097	21.903	155.91%	527.000



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage ⁹	Production Value
Norway	Poland	:	21.900	21.900	200.00%	131.000
Czechia	Austria	222.799	200.971	21.828	10.30%	2 502.813
Poland	Romania	21.391	:	21.391	200.00%	52 999.306
Netherlands	Finland	:	20.000	20.000	200.00%	:
Belgium	Austria	:	19.421	19.421	200.00%	:
Italy	Spain	:	19.000	19.000	200.00%	:
Spain	France	20.000	1.759	18.241	167.66%	791.000
Spain	Italy	21.000	38.762	17.762	59.44%	791.000
Poland	Sweden	32.281	48.000	15.719	39.16%	52 999.306
Germany	Czechia	1.000	15.633	14.633	175.95%	527.000
Finland	Sweden	:	14.000	14.000	200.00%	:
Malta	Sweden	:	14.000	14.000	200.00%	:
Germany	Romania	13.000	:	13.000	200.00%	527.000
Lithuania	Sweden	:	12.000	12.000	200.00%	:
Slovakia	Poland	:	11.452	11.452	200.00%	:
Ukraine	Moldova	11.000	:	11.000	200.00%	18 932.900
Poland	Norway	37.362	47.000	9.638	22.85%	52 999.306
Czechia	Hungary	6.007	15.000	8.993	85.62%	2 502.813



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage ⁹	Production Value
Italy	Slovenia	:	8.772	8.772	200.00%	:
Germany	Norway	:	8.000	8.000	200.00%	527.000
Czechia	Germany	166.552	159.000	7.552	4.64%	2 502.813
Slovakia	Czechia	:	7.280	7.280	200.00%	:
Poland	Hungary	150.860	158.000	7.140	4.62%	52 999.306
Belgium	Sweden	:	7.000	7.000	200.00%	:
Germany	Belgium	:	6.700	6.700	200.00%	527.000
Portugal	Spain	:	6.000	6.000	200.00%	:
Spain	Portugal	6.000	0.311	5.689	180.29%	791.000
Greece	Cyprus	:	5.500	5.500	200.00%	:
Denmark	Sweden	:	5.000	5.000	200.00%	:
Italy	Austria	:	4.508	4.508	200.00%	:
Latvia	Lithuania	4.146	:	4.146	200.00%	:
Germany	Spain	:	4.000	4.000	200.00%	527.000
Germany	France	:	3.885	3.885	200.00%	527.000
Türkiye	Georgia	3.830	:	3.830	200.00%	469.888
Poland	Bosnia-Herzegovina	3.639	:	3.639	200.00%	52 999.306
Belgium	France	3.000	:	3.000	200.00%	:



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage ⁹	Production Value
Belgium	Luxembourg	3.000	:	3.000	200.00%	:
Germany	Denmark	11.000	13.291	2.291	18.86%	527.000
Belgium	Netherlands	0.400	2.496	2.096	144.75%	:
Bosnia-Herzegovina	Козоvо	:	1.666	1.666	200.00%	:
Czechia	Slovenia	0.199	1.780	1.581	159.78%	2 502.813
Norway	France	:	1.296	1.296	200.00%	131.000
Czechia	Sweden	1.188	:	1.188	200.00%	2 502.813
Poland	Spain	7.840	9.000	1.160	13.78%	52 999.306
Austria	Poland	1.102	:	1.102	200.00%	:
Netherlands	Belgium	:	1.000	1.000	200.00%	:
Romania	Norway	:	1.000	1.000	200.00%	:
Latvia	Estonia	0.971	:	0.971	200.00%	:
Lithuania	Latvia	:	0.964	0.964	200.00%	:
Hungary	Austria	:	0.804	0.804	200.00%	:
Poland	Ireland	22.671	23.437	0.766	3.32%	52 999.306
Latvia	Poland	0.531	:	0.531	200.00%	:
Ukraine	Poland	:	0.525	0.525	200.00%	18 932.900
Poland	Belgium	0.435	:	0.435	200.00%	52 999.306



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage ⁹	Production Value
Ukraine	Козоvо	:	0.427	0.427	200.00%	18 932.900
Norway	Denmark	11.000	10.621	0.379	3.51%	131.000
Germany	Slovenia	:	0.374	0.374	200.00%	527.000
Lithuania	Poland	:	0.258	0.258	200.00%	:
Estonia	Latvia	:	0.208	0.208	200.00%	:
Belgium	Hungary	0.200	:	0.200	200.00%	:
Romania	Poland	:	0.134	0.134	200.00%	:
Latvia	Germany	0.096	:	0.096	200.00%	:
Italy	Poland	:	0.045	0.045	200.00%	:
Austria	France	:	0.026	0.026	200.00%	:
Poland	Latvia	:	0.026	0.026	200.00%	52 999.306
Poland	Greece	0.025	:	0.025	200.00%	52 999.306
Latvia	Finland	0.024	:	0.024	200.00%	:
Poland	Slovenia	0.024	:	0.024	200.00%	52 999.306
Albania	Kosovo	:	0.020	0.020	200.00%	138.788
Bosnia-Herzegovina	Poland	:	0.020	0.020	200.00%	:
Poland	Kosovo	:	0.020	0.020	200.00%	52 999.306
North Macedonia	Albania	0.019	:	0.019	200.00%	:



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage ⁹	Production Value
Spain	Latvia	:	0.015	0.015	200.00%	791.000
Poland	France	0.098	0.112	0.014	13.33%	52 999.306
Poland	Lithuania	0.010	:	0.010	200.00%	52 999.306
Greece	Kosovo	:	0.009	0.009	200.00%	:
Austria	Czechia	:	0.001	0.001	200.00%	:
Czechia	France	:	0.001	0.001	200.00%	2 502.813
Germany	Latvia	:	0.001	0.001	200.00%	527.000
Germany	Sweden	2.000	2.000	0.000	0.00%	527.000
Poland	Denmark	5.376	5.376	0.000	0.00%	52 999.306
Poland	Serbia	0.085	0.085	0.000	0.00%	52 999.306

Table 48. Trade mirroring checks – electricity, reference year 2017

Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Denmark	Germany	5 411.216	:	5 411.216	200.00%	31 039.306
Germany	Denmark	:	4 029.141	4 029.141	200.00%	653 737.000
Slovakia	Ukraine	3 055.000	:	3 055.000	200.00%	27 738.000



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Bulgaria	North Macedonia	2 448.517	:	2 448.517	200.00%	45 612.786
Romania	Bulgaria	1 137.331	3 571.433	2 434.102	103.39%	64 296.019
Romania	Hungary	2 770.621	359.000	2 411.621	154.12%	64 296.019
Sweden	Germany	2 179.000	:	2 179.000	200.00%	164 250.000
Germany	Luxembourg	4 312.000	6 146.796	1 834.796	35.09%	653 737.000
Romania	Serbia	3 817.542	2 092.898	1 724.644	58.36%	64 296.019
North Macedonia	Greece	:	1 718.000	1 718.000	200.00%	5 600.189
Greece	Albania	1 692.000	:	1 692.000	200.00%	55 266.089
Bosnia-Herzegovina	Montenegro	1 829.000	214.100	1 614.900	158.08%	16 438.000
Ukraine	Hungary	2 976.000	4 563.000	1 587.000	42.10%	156 035.600
Estonia	Latvia	3 944.000	2 397.156	1 546.844	48.79%	12 903.000
Luxembourg	Germany	1 336.934	:	1 336.934	200.00%	2 235.067
Norway	Sweden	10 383.000	9 091.000	1 292.000	13.27%	149 359.000
Sweden	Norway	2 232.000	3 466.000	1 234.000	43.31%	164 250.000
Hungary	Romania	908.000	2 086.323	1 178.323	78.70%	32 871.000
Bulgaria	Romania	464.933	1 513.682	1 048.749	106.01%	45 612.786
Austria	Germany	3 221.019	4 008.000	786.981	21.77%	71 324.485
Sweden	Denmark	5 103.000	5 758.173	655.173	12.06%	164 250.000



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Denmark	Sweden	2 858.004	2 203.000	655.004	25.88%	31 039.306
Serbia	Romania	138.289	768.672	630.383	139.01%	37 045.359
Serbia	Montenegro	443.188	1 072.000	628.812	83.00%	37 045.359
Germany	Czechia	8 430.000	9 043.400	613.400	7.02%	653 737.000
Serbia	North Macedonia	605.083	:	605.083	200.00%	37 045.359
Georgia	Türkiye	:	493.948	493.948	200.00%	11 531.200
Croatia	Bosnia-Herzegovina	2 056.000	1 630.000	426.000	23.11%	11 983.500
Greece	North Macedonia	421.000	:	421.000	200.00%	55 266.089
Ukraine	Romania	116.000	473.077	357.077	121.23%	156 035.600
Montenegro	Bosnia-Herzegovina	54.600	311.000	256.400	140.26%	2 482.800
Latvia	Estonia	147.555	403.000	255.445	92.80%	7 531.189
Germany	Sweden	:	251.000	251.000	200.00%	653 737.000
Albania	Montenegro	:	250.800	250.800	200.00%	4 526.179
Estonia	Finland	1 071.000	840.000	231.000	24.18%	12 903.000
Finland	Estonia	1 656.000	1 878.000	222.000	12.56%	67 522.000
Germany	Austria	17 711.000	17 509.117	201.883	1.15%	653 737.000
Norway	Netherlands	5 169.000	4 980.789	188.211	3.71%	149 359.000
Germany	Poland	7 483.000	7 341.000	142.000	1.92%	653 737.000



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Ukraine	Slovakia	148.000	9.000	139.000	177.07%	156 035.600
North Macedonia	Serbia	:	135.458	135.458	200.00%	5 600.189
Slovenia	Italy	5 984.358	5 894.338	90.020	1.52%	16 326.225
Albania	Greece	:	80.000	80.000	200.00%	4 526.179
Sweden	Finland	15 209.000	15 285.000	76.000	0.50%	164 250.000
Montenegro	Albania	74.900	:	74.900	200.00%	2 482.800
Montenegro	Serbia	287.200	358.774	71.574	22.16%	2 482.800
Finland	Norway	40.000	103.000	63.000	88.11%	67 522.000
Ukraine	Moldova	1 084.000	1 134.000	50.000	4.51%	156 035.600
Luxembourg	Belgium	51.713	26.100	25.613	65.83%	2 235.067
Belgium	France	5 490.200	5 465.000	25.200	0.46%	86 607.900
Belgium	Luxembourg	507.500	531.680	24.180	4.65%	86 607.900
Hungary	Ukraine	23.000	:	23.000	200.00%	32 871.000
Italy	France	1 058.032	1 040.000	18.032	1.72%	295 830.011
Bulgaria	Türkiye	2 085.154	2 072.993	12.161	0.58%	45 612.786
Romania	Ukraine	9.886	:	9.886	200.00%	64 296.019
Austria	Italy	1 322.946	1 332.448	9.502	0.72%	71 324.485
France	Germany	6 988.000	6 996.000	8.000	0.11%	562 143.210



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Germany	France	2 940.000	2 932.000	8.000	0.27%	653 737.000
Spain	France	3 099.000	3 091.000	8.000	0.26%	275 726.000
France	Spain	15 557.000	15 564.000	7.000	0.04%	562 143.210
Ukraine	Poland	902.000	895.000	7.000	0.78%	156 035.600
Türkiye	Greece	3 204.909	3 198.000	6.909	0.22%	297 277.524
France	Luxembourg	882.000	888.214	6.214	0.70%	562 143.210
Norway	Denmark	5 437.000	5 430.795	6.205	0.11%	149 359.000
Denmark	Norway	2 386.174	2 392.000	5.826	0.24%	31 039.306
Finland	Sweden	83.000	88.000	5.000	5.85%	67 522.000
Italy	Malta	901.743	897.066	4.677	0.52%	295 830.011
Netherlands	Norway	113.525	109.000	4.525	4.07%	117 260.034
France	Belgium	3 918.000	3 913.700	4.300	0.11%	562 143.210
Türkiye	Bulgaria	98.005	101.832	3.827	3.83%	297 277.524
Bulgaria	Serbia	2 124.455	2 122.179	2.276	0.11%	45 612.786
North Macedonia	Bulgaria	:	2.200	2.200	200.00%	5 600.189
Czechia	Poland	375.800	374.000	1.800	0.48%	87 050.264
Netherlands	Belgium	10 251.343	10 249.600	1.743	0.02%	117 260.034
France	Italy	13 715.000	13 716.589	1.589	0.01%	562 143.210



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Sweden	Lithuania	3 041.000	3 042.500	1.500	0.05%	164 250.000
Lithuania	Sweden	114.400	113.000	1.400	1.23%	4 187.200
Germany	Netherlands	15 117.000	15 115.734	1.266	0.01%	653 737.000
Bosnia-Herzegovina	Croatia	2 909.000	2 910.100	1.100	0.04%	16 438.000
Malta	Italy	35.699	34.630	1.069	3.04%	1 644.517
Poland	Sweden	151.000	150.000	1.000	0.66%	170 465.352
Sweden	Poland	3 124.000	3 125.000	1.000	0.03%	164 250.000
Serbia	Bosnia-Herzegovina	1 404.021	1 405.000	0.979	0.07%	37 045.359
Poland	Czechia	5 946.000	5 945.100	0.900	0.02%	170 465.352
Türkiye	Georgia	0.759	:	0.759	200.00%	297 277.524
Spain	Portugal	5 505.000	5 505.732	0.732	0.01%	275 726.000
Lithuania	Poland	1 536.700	1 536.000	0.700	0.05%	4 187.200
Italy	Greece	1 637.615	1 637.000	0.615	0.04%	295 830.011
Poland	Lithuania	494.000	494.600	0.600	0.12%	170 465.352
Greece	Türkiye	1.000	0.479	0.521	70.45%	55 266.089
Serbia	Hungary	305.525	306.000	0.475	0.16%	37 045.359
Greece	Bulgaria	20.000	20.467	0.467	2.31%	55 266.089
Italy	Austria	119.986	120.412	0.426	0.35%	295 830.011



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Hungary	Austria	134.000	134.420	0.420	0.31%	32 871.000
Hungary	Serbia	971.000	970.656	0.344	0.04%	32 871.000
Belgium	Netherlands	2 170.100	2 170.434	0.334	0.02%	86 607.900
Greece	Italy	325.000	324.680	0.320	0.10%	55 266.089
Serbia	Bulgaria	9.793	9.491	0.302	3.13%	37 045.359
Netherlands	Germany	1 362.301	1 362.000	0.301	0.02%	117 260.034
Czechia	Slovakia	11 176.300	11 176.000	0.300	0.00%	87 050.264
Slovenia	Croatia	3 534.202	3 534.500	0.298	0.01%	16 326.225
Portugal	Spain	8 189.704	8 190.000	0.296	0.00%	59 431.721
Bulgaria	Greece	2 062.735	2 063.000	0.265	0.01%	45 612.786
Austria	Hungary	5 085.212	5 085.000	0.212	0.00%	71 324.485
Hungary	Croatia	4 883.000	4 883.200	0.200	0.00%	32 871.000
Bosnia-Herzegovina	Serbia	449.000	448.930	0.070	0.02%	16 438.000
Croatia	Slovenia	3 001.200	3 001.152	0.048	0.00%	11 983.500
Lithuania	Latvia	721.000	720.967	0.033	0.00%	4 187.200
Serbia	Croatia	830.073	830.100	0.027	0.00%	37 045.359
Austria	Czechia	62.476	62.500	0.024	0.04%	71 324.485
Czechia	Austria	11 005.800	11 005.785	0.015	0.00%	87 050.264



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Latvia	Lithuania	3 952.210	3 952.200	0.010	0.00%	7 531.189
Croatia	Serbia	116.000	115.990	0.010	0.01%	11 983.500
Luxembourg	France	0.001	:	0.001	200.00%	2 235.067
Austria	Slovenia	5 979.937	5 979.937	0.000	0.00%	71 324.485
Croatia	Hungary	31.000	31.000	0.000	0.00%	11 983.500
Czechia	Germany	5 551.000	5 551.000	0.000	0.00%	87 050.264
Hungary	Slovakia	6.000	6.000	0.000	0.00%	32 871.000
Italy	Slovenia	151.443	151.443	0.000	0.00%	295 830.011
Norway	Finland	287.000	287.000	0.000	0.00%	149 359.000
Poland	Germany	21.000	21.000	0.000	0.00%	170 465.352
Poland	Slovakia	4 372.000	4 372.000	0.000	0.00%	170 465.352
Slovakia	Czechia	21.000	21.000	0.000	0.00%	27 738.000
Slovakia	Hungary	9 459.000	9 459.000	0.000	0.00%	27 738.000
Slovenia	Austria	129.632	129.632	0.000	0.00%	16 326.225

Table 49. Trade mirroring checks – natural gas (m3), reference year 2017

Country of export	Country of import	• •		Absolute difference	Difference in percentage	Production Value
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Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Norway	Germany	47 454.000	11 111.404	36 342.596	124.11%	128 216.000
Norway	Netherlands	604.000	26 322.873	25 718.873	191.03%	128 216.000
Netherlands	Germany	25 586.058	:	25 586.058	200.00%	46 280.553
Norway	Belgium	15 534.000	5 227.000	10 307.000	99.29%	128 216.000
Germany	Netherlands	:	8 225.823	8 225.823	200.00%	8 247.525
Netherlands	Italy	8 762.557	1 212.354	7 550.203	151.38%	46 280.553
Germany	Ukraine	:	3 645.000	3 645.000	200.00%	8 247.525
Germany	Poland	:	3 572.638	3 572.638	200.00%	8 247.525
Spain	Portugal	2 663.000	:	2 663.000	200.00%	27.000
Norway	Spain	894.000	3 433.000	2 539.000	117.36%	128 216.000
Netherlands	Belgium	10 329.049	7 899.000	2 430.049	26.66%	46 280.553
Norway	Italy	172.000	2 599.254	2 427.254	175.17%	128 216.000
Hungary	Ukraine	2 786.000	755.000	2 031.000	114.71%	1 821.000
Netherlands	France	7 440.829	5 475.433	1 965.396	30.43%	46 280.553
Norway	France	18 675.000	20 322.542	1 647.542	8.45%	128 216.000
France	Spain	:	1 384.000	1 384.000	200.00%	15.756
Belgium	France	384.200	1 681.052	1 296.852	125.59%	:
Germany	Belgium	:	1 236.100	1 236.100	200.00%	8 247.525



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
France	Ukraine	:	1 000.000	1 000.000	200.00%	15.756
Austria	Slovenia	:	676.875	676.875	200.00%	:
Austria	Croatia	:	629.900	629.900	200.00%	:
Norway	Luxembourg	:	506.000	506.000	200.00%	128 216.000
Germany	France	:	439.425	439.425	200.00%	8 247.525
Denmark	Germany	354.028	:	354.028	200.00%	4 845.342
Hungary	Croatia	659.000	959.500	300.500	37.13%	1 821.000
Denmark	Netherlands	1 128.558	1 414.016	285.458	22.45%	4 845.342
Czechia	Ukraine	:	248.000	248.000	200.00%	229.000
Poland	Ukraine	1 237.537	1 469.000	231.463	17.10%	5 746.656
Slovenia	Croatia	3.599	227.200	223.601	193.76%	8.393
Slovakia	Ukraine	:	218.000	218.000	200.00%	140.000
Lithuania	Latvia	206.000	:	206.000	200.00%	:
Belgium	Netherlands	183.100	:	183.100	200.00%	:
Luxembourg	Ukraine	:	176.000	176.000	200.00%	:
Norway	Türkiye	618.000	758.000	140.000	20.35%	128 216.000
Czechia	Poland	:	116.946	116.946	200.00%	229.000
Denmark	Italy	:	104.799	104.799	200.00%	4 845.342



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Germany	Denmark	:	101.270	101.270	200.00%	8 247.525
Netherlands	Spain	:	101.000	101.000	200.00%	46 280.553
Netherlands	Türkiye	:	86.000	86.000	200.00%	46 280.553
Norway	Portugal	86.000	:	86.000	200.00%	128 216.000
Belgium	Germany	85.700	:	85.700	200.00%	:
Italy	Austria	82.287	:	82.287	200.00%	5 538.353
Italy	Slovenia	79.715	:	79.715	200.00%	5 538.353
Hungary	Serbia	77.000	:	77.000	200.00%	1 821.000
Norway	Lithuania	958.000	884.000	74.000	8.03%	128 216.000
Norway	Czechia	:	72.000	72.000	200.00%	128 216.000
Italy	Ukraine	:	66.000	66.000	200.00%	5 538.353
Spain	France	115.000	55.522	59.478	69.76%	27.000
Netherlands	Sweden	:	59.000	59.000	200.00%	46 280.553
Austria	Ukraine	:	48.000	48.000	200.00%	:
Belgium	Sweden	:	43.000	43.000	200.00%	:
Romania	Hungary	26.094	:	26.094	200.00%	10 581.902
Norway	Sweden	222.000	196.000	26.000	12.44%	128 216.000
Belgium	Luxembourg	20.800	:	20.800	200.00%	:



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Bulgaria	Greece	20.597	:	20.597	200.00%	80.092
Türkiye	Greece	630.000	609.820	20.180	3.26%	354.000
Croatia	Italy	199.100	188.063	11.037	5.70%	1 483.500
Finland	Sweden	:	11.000	11.000	200.00%	:
Slovenia	Italy	:	10.960	10.960	200.00%	8.393
France	Belgium	:	10.000	10.000	200.00%	15.756
Norway	Denmark	407.000	416.018	9.018	2.19%	128 216.000
Netherlands	Malta	:	8.203	8.203	200.00%	46 280.553
Sweden	Norway	5.000	:	5.000	200.00%	:
Norway	Greece	56.000	53.076	2.924	5.36%	128 216.000
Spain	Italy	5.000	2.237	2.763	76.36%	27.000
Belgium	Poland	:	2.451	2.451	200.00%	:
France	Italy	:	2.212	2.212	200.00%	15.756
Portugal	Spain	:	2.000	2.000	200.00%	:
Norway	Poland	86.000	84.174	1.826	2.15%	128 216.000
Bulgaria	Romania	11.334	12.600	1.266	10.58%	80.092
Netherlands	Poland	:	0.903	0.903	200.00%	46 280.553
Croatia	Slovenia	0.600	:	0.600	200.00%	1 483.500



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Lithuania	Poland	:	0.224	0.224	200.00%	:
Denmark	Sweden	752.934	753.000	0.066	0.01%	4 845.342

Table 50. Trade mirroring checks – crude oil, reference year 2017

Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Norway	Netherlands	14 051.000	5 844.414	8 206.586	82.50%	78 413.000
Norway	Germany	6 739.000	10 303.000	3 564.000	41.83%	78 413.000
Norway	Belgium	98.000	2 622.400	2 524.400	185.59%	78 413.000
Norway	France	4 133.000	5 383.000	1 250.000	26.27%	78 413.000
Norway	Finland	1 509.000	529.000	980.000	96.17%	78 413.000
Norway	Sweden	4 428.000	5 016.000	588.000	12.45%	78 413.000
Norway	Italy	909.000	1 293.208	384.208	34.89%	78 413.000
Denmark	Netherlands	586.263	215.703	370.560	92.41%	6 736.967
Denmark	Germany	242.843	612.000	369.157	86.37%	6 736.967
Norway	Spain	2 343.000	2 637.000	294.000	11.81%	78 413.000
Norway	Ireland	1 714.000	1 931.000	217.000	11.91%	78 413.000



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Norway	Lithuania	115.000	330.300	215.300	96.70%	78 413.000
Italy	Spain	:	179.000	179.000	200.00%	4 138.000
Denmark	Sweden	1 723.393	1 861.000	137.607	7.68%	6 736.967
Norway	Portugal	214.000	78.828	135.172	92.32%	78 413.000
Hungary	Slovakia	109.000	:	109.000	200.00%	714.000
Norway	Denmark	3 641.000	3 749.296	108.296	2.93%	78 413.000
Denmark	Italy	85.000	:	85.000	200.00%	6 736.967
Italy	Germany	232.135	316.000	83.865	30.60%	4 138.000
Ukraine	Italy	83.000	:	83.000	200.00%	1 505.000
Ireland	Netherlands	79.000	:	79.000	200.00%	:
Norway	Poland	465.000	386.419	78.581	18.46%	78 413.000
Georgia	Spain	:	71.000	71.000	200.00%	32.000
Ireland	Belgium	70.000	:	70.000	200.00%	:
Türkiye	Netherlands	:	65.426	65.426	200.00%	2 553.000
Denmark	Norway	435.677	497.000	61.323	13.15%	6 736.967
Slovakia	Hungary	50.000	:	50.000	200.00%	6.000
Netherlands	Germany	409.232	440.000	30.768	7.25%	951.970
Sweden	Germany	:	30.000	30.000	200.00%	:



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Italy	Greece	22.316	49.480	27.164	75.67%	4 138.000
Romania	Serbia	24.315	0.086	24.229	198.59%	3 538.345
Italy	Türkiye	113.982	127.000	13.018	10.80%	4 138.000
Hungary	Poland	:	10.287	10.287	200.00%	714.000
Romania	Italy	8.147	:	8.147	200.00%	3 538.345
Georgia	Bulgaria	7.000	:	7.000	200.00%	32.000
Latvia	Lithuania	:	5.700	5.700	200.00%	:
Lithuania	Poland	37.400	32.192	5.208	14.97%	55.900
Estonia	Lithuania	:	3.700	3.700	200.00%	:
Romania	Ukraine	3.049	:	3.049	200.00%	3 538.345
France	Germany	:	3.000	3.000	200.00%	758.000
Hungary	Czechia	13.000	16.000	3.000	20.69%	714.000
Germany	Austria	:	2.888	2.888	200.00%	2 217.000
Lithuania	Latvia	2.500	:	2.500	200.00%	55.900
Lithuania	Estonia	2.000	:	2.000	200.00%	55.900
Netherlands	Denmark	31.018	32.679	1.661	5.22%	951.970
Romania	Moldova	1.176	:	1.176	200.00%	3 538.345
Georgia	Romania	:	1.023	1.023	200.00%	32.000



Country of export	Country of import	Value reported by the country of export	Value reported by the country of import	Absolute difference	Difference in percentage	Production Value
Germany	Finland	:	1.000	1.000	200.00%	2 217.000
Greece	Türkiye	163.000	162.000	1.000	0.62%	141.573
Denmark	Finland	247.160	248.000	0.840	0.34%	6 736.967
Italy	France	204.610	204.000	0.610	0.30%	4 138.000
Poland	Germany	219.539	219.000	0.539	0.25%	996.049
Slovakia	Austria	6.000	5.737	0.263	4.48%	6.000
Slovenia	Hungary	0.241	:	0.241	200.00%	0.245
Italy	Netherlands	29.487	29.646	0.159	0.54%	4 138.000
Italy	Bulgaria	28.842	28.726	0.116	0.40%	4 138.000
Czechia	Austria	24.000	23.903	0.097	0.40%	108.000
Denmark	Poland	85.064	85.113	0.049	0.06%	6 736.967
Denmark	France	84.997	85.000	0.003	0.00%	6 736.967