3 BUILDING AND ENERGY MANAGEMENT

3.1 Fossil fuel consumption in the healthcare sector (ENV-8)

3.1.1 Documentation sheet

Description	**Primary indicator**: A. Annual fossil energy consumption of the healthcare sector (gigajoules per capita) **Secondary indicator:** B. Absolute annual fossil energy consumption of the healthcare sector (terajoules) C. Annual fossil energy consumption of the healthcare sector (% total energy consumption of the healthcare sector) D. Annual fossil energy consumption of the healthcare sector (% fossil energy consumption in Belgium, all sectors)
Rationale	Fossil fuel combustion is a key driver of healthcare's climate footprint, accounting for the majority of energy-related emissions. [1] Measuring fossil fuel use provides a clear indicator of the sector's reliance on non-renewable energy and its contribution to global warming. Belgium's commitment to a climate neutral health system by 2050 requires tracking this dependency to guide the transition toward renewable energy and sustainable operations. [2]
Calculation	**Primary indicator (A)**: • Numerator: Annual fossil fuel consumption in the healthcare sector • Denominator: / **Secondary indicators:** Indicator B: • Numerator: Annual fossil fuel consumption in the healthcare sector • Denominator: Population of the corresponding year (calculated as mean of population at beginning and end of year) Indicator C: • Numerator: Annual fossil fuel consumption in the healthcare sector • Denominator: Annual energy consumption of the healthcare sector Indicator D: • Numerator: Annual fossil fuel consumption in the healthcare sector • Denominator: All-sector annual fossil energy consumption
Data source	Federal Planning Bureau Eurostat energy supply and use by NACE Rev.2 activity database [3] Eurostat Population (national level) [4] Finhosta (compulsory financial hospital registrations, including accounting data)
Technical definitions	For this indicator, Physical Energy Flow Accounts (PEFA) were used, conceptually rooted in the System of Environmental-Economic Accounting (SEEA) framework, the international statistical standard. PEFA are part of the European environmental-economic accounts framework [5], structured under Regulation (EU) 691/2011 [6]. They track energy flows in terajoules across three main stages: from the environment to the

	economy (natural inputs), within the economy (products), and back to the environment (residuals). These flows are organized using physical supply and use tables, aligning fully with national accounts principles to support integrated environmental-economic analysis. The data is broken down by supply and use types, energy products, economic activities, indicators, geopolitical entities, time (annual), and unit (terajoules). For this indicator, table B was consulted, covering energy use including both transformation use and end use. As for the determination of the sector, NACE R2 code Q86 corresponding to human health activities (excluding residential care facilities) was utilized. The following products were considered to be fossil fuels: fossil non-renewable natural energy inputs (N01); hard coal (P08); brown coal and peat (P09); derived gases (manufactured gases excl. biogas) (P10); secondary coal products (coke, coal tar, parent fuel, BKB and peat products) (P11); crude oil, NGL, and other hydrocarbons (excl. bio) (P12); natural gas (without bio) (P13); motor spirit (without bio) (P14); kerosenes and jet fuels (without bio) (P15); naphtha (P16); transport diesel (without bio) (P17); heating and other gasoil (without bio) (P18); residual fuel oil (P19); refinery gas, ethane and LPG (P20); other petroleum products incl. additives/oxygenates and refinery feedstocks (P21). Other (non-fossil) fuels considered in the PEFA classification are: natural energy inputs (N00); nuclear non-renewable natural energy inputs (N01); hydro based renewable natural energy inputs (N03); wind based renewable natural energy inputs (N04); solar based renewable natural energy inputs (N05); biomass based renewable natural energy inputs (N06); other renewable natural energy inputs (N07); nuclear fuel (P22); wood, wood waste and other solid biomass, charcoal (P23); liquid biofuels (P24); biogas (P25); electrical energy (P26); heat (P27). For the Finhosta data, we based ourselves on accounts for coal (C60400 and C60410), gas (C60403 and C60412), fuel oil (C60403 and C60413) and vehicle fuel (C60415).
International comparability	Statistical Classification of Economic Activities in the European Community (NACE) https://ec.europa.eu/eurostat/web/nace/overview) allows European comparison. For a description of NACE-Bel, see: https://statbel.fgov.be/sites/default/files/Over_Statbel_FR/Nomenclaturen/NACE-BEL%202008_FR.pdf (pp. 465-474) [7] However, comparability between countries is not guaranteed. Differences across countries in the allocation of fuel consumption linked to road transport among NACE activities can for example have a noticeable effect and may affect cross-country comparability. A study performed by Eurostat has showed important variations between countries regarding the share of CO2 emissions from road transport by economic activity, with coefficients of variance greater than 40% for each of the NACE activities, suggesting that the comparability across countries is most likely not given. [8] PEFA data is annually compiled by Eurostat for EU Member States, EFTA countries, and EU candidate or potential candidate countries, depending on data availability. This broad geographical scope allows for comparative analysis across national economies, while maintaining consistency with the residence principle—meaning energy flows are attributed to resident units regardless of where the activity physically occurs. Given substantial differences in methodologies, data sources and underlying assumptions, international comparisons should be interpreted with caution.
Limitations	The PEFA data come from a model based on activity, not on measurements. Residential care activities and social work activities without accommodation (Q87–Q88) were aggregated, making it impossible to isolate data for Q87 alone. Consequently, only human health activities (Q86) are considered as a proxy for the health care system, while residential care activities were excluded. Differences with other EU countries and jumps observed in data (in 2015 and 2021) can partly be explain by methodological factors: • In Wallonia, a new and more accurate method has been applied since 2021 to estimate energy consumption, using data directly from distribution network operators. Nevertheless, previous years were not retroactively modified, which can partly explain a jump in data in 2021 in Wallonia.

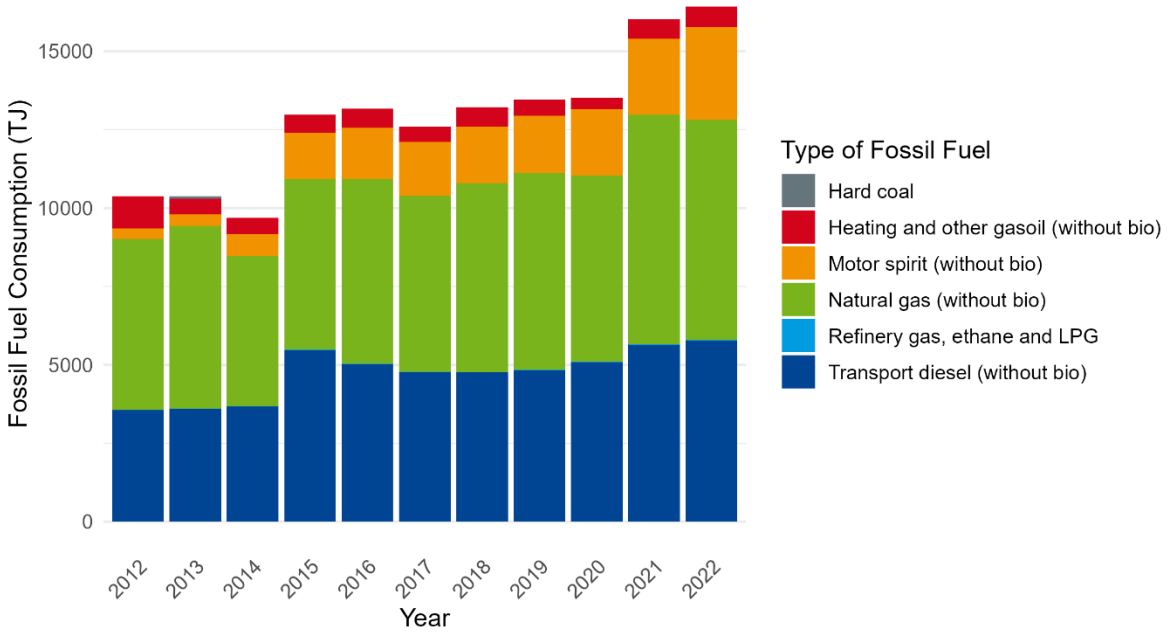
	• Fuel consumption linked to road transport are based on the COPERT 5 model and allocation keys among NACE sectors vary between countries. In Belgium the allocation key is based on excise duties for Eurostat 2025 data, whereas previous estimates (e.g. 2024 data) relied on vehicle registrations. Excise duties are considered more reliable; however, this new approach appears to have an important impact for Q86 emissions: GHG emissions in human health activities in Eurostat version released in 2024 are quite stable across the years while an important increase is observed in Eurostat version released in 2025 (see details in "data sources comparison"). Because of the methodological heterogeneity between countries, road transport data were excluded from international comparisons where possible. Excise duties are calculated on a five-year basis (2010, 2015, 2020) using an "structural survey" of the National Bank of Belgium while intermediate years are based on less detailed surveys and extrapolations. As 2014 is based on an extrapolation of 2010 data, a jump in excise data is observed in 2015, which can partly explain the 2015 jump in GHG emissions.
Dimension	Environmental sustainability
Related indicators	ENV-1 GHG emission footprint in the healthcare sector, ENV-4 Annual direct GHG emissions
Supervisor	Helena Van Deynse
Reviewers	Jehan Charlier

3.1.2 Results

BELGIUM

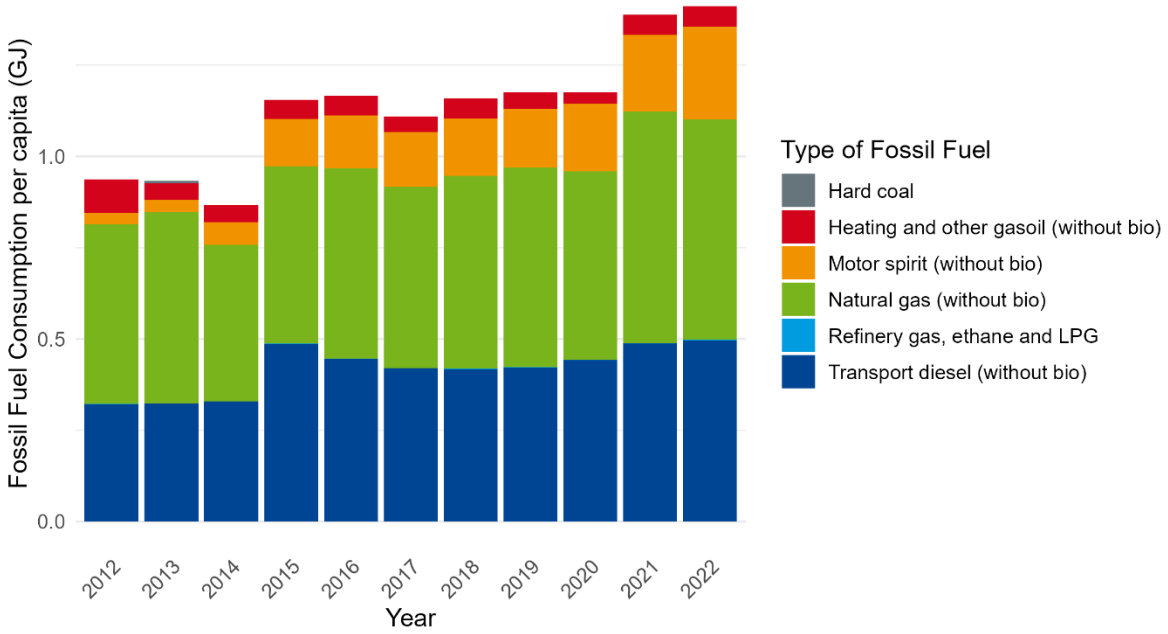
A total of 16 428 terajoules (TJ) of fossil fuels were consumed by the healthcare sector in Belgium during the year 2022, which is the equivalent of 1.4 GJ per capita. This corresponds to 76% of all energy used in Belgian human health activities (21 679.7 TJ). When considering total all-sector Belgian fossil fuel consumption, 0.7% can be attributed to healthcare. An upward trend over time can be noticed in Figure 1, which persists when accounting for population size (Figure 2). In the healthcare sector, fossil fuels are consumed primarily for transportation (diesel and motor spirits) and for heating purposes (natural gas and oil products), as shown in Figure 1 and Figure 2.

Figure 1 – Fossil fuel consumption by type (2012-2022)



Source: Federal Planning Bureau (PEFA) 2025

Figure 2 – Fossil fuel consumption per capita by type (2012 - 2022)



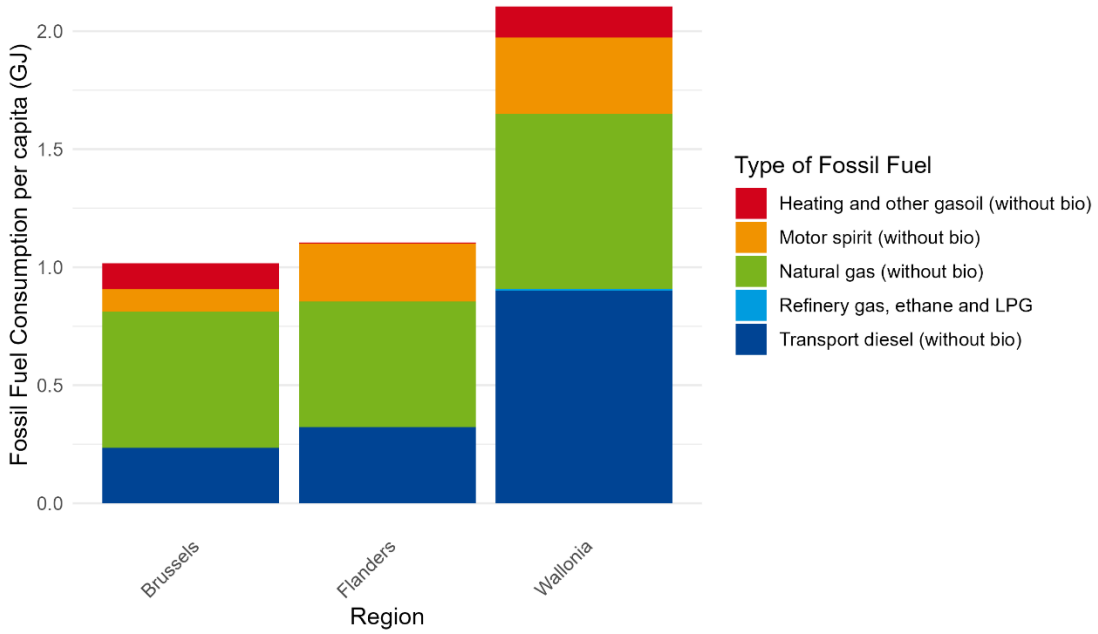
Source: Federal Planning Bureau (PEFA) 2025

REGIONAL COMPARISON

Regional comparison of per capita fossil fuel consumption in Figure 3 shows similar total consumptions in Brussels and Flanders (1 GJ per capita), while Wallonia has double this amount (2 GJ per capita). This difference can largely be attributed to transportation, mostly diesel but also motor spirits (petrol).

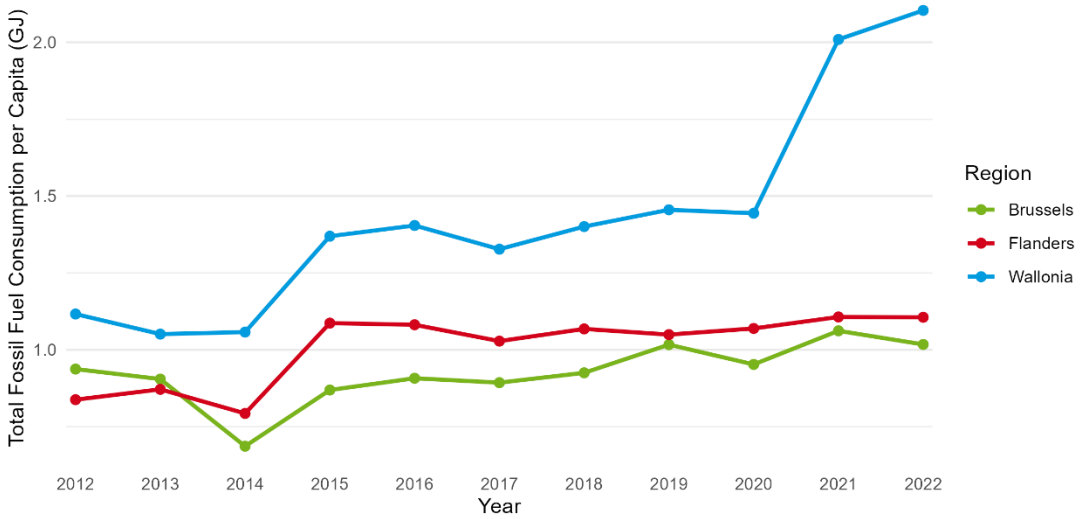
When looking at the regional evolution over time in Figure 4, a considerable increase in fossil fuel consumption can be observed in 2021, but this can be explained by a change in methodology in the Walloon region.

Figure 3 – Fossil fuel consumption by region (2012 - 2022)



Source: Federal Planning Bureau (PEFA) 2025

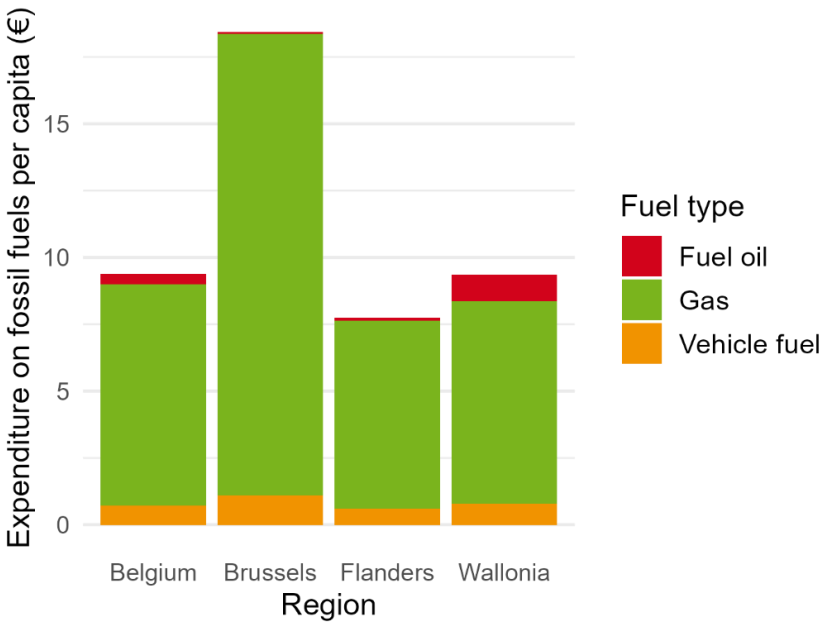
Figure 4 – Evolution of fossil fuel consumption over time by region (2012 - 2022)



Source: Federal Planning Bureau (PEFA) 2025

Finhosta provides a different data source that allows comparison between regions. While these data capture expenditure rather than usage and only concern hospitals, they are not confronted with the inherent methodological differences between regions and therefore represents an interesting complementary data source for comparison among regions. Figure 5 shows that hospitals in Brussels clearly have the largest fossil fuel expenditure per capita. It must be noted, however, that hospitals in Brussels likely serve patients from Flanders and Wallonia as well. Furthermore, hospital expenditure on fuel oil is clearly higher in Wallonia than in Flanders or Brussels. Finally, expenditure on vehicle fuel was largest in Brussels.

Figure 5 – Fossil fuel expenditure in hospitals by region and type of fuel (2024)



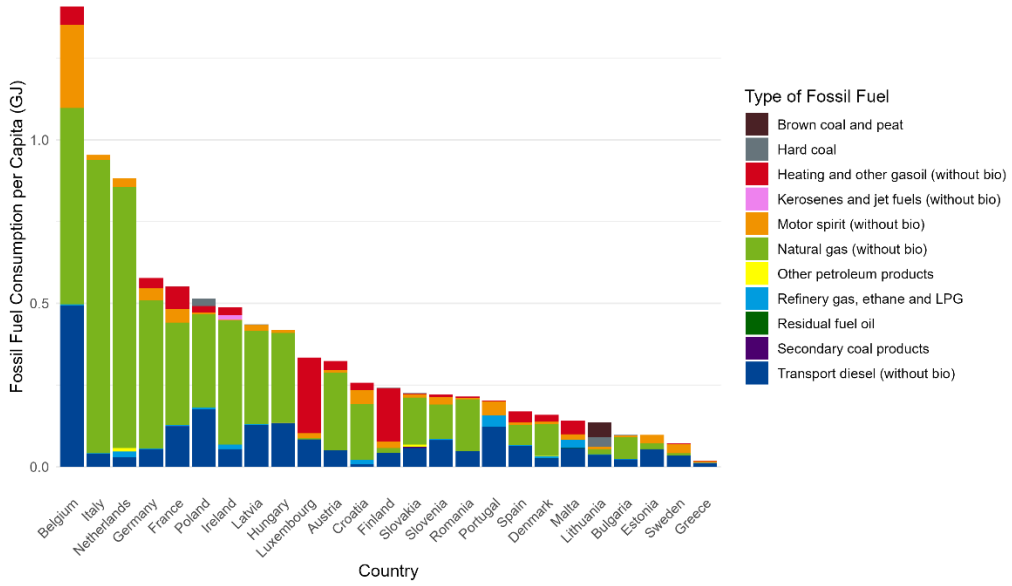
Source: Finhosta 2026

INTERNATIONAL COMPARISON

In most countries, natural gas accounts for the majority of fossil fuel use. In Belgium, however, this share is noticeably smaller. Instead, transport fuels make up a proportionally larger share of healthcare's fossil fuel consumption. As shown in Figure 6, Belgium has the highest healthcare-related per capita fossil fuel consumption in the European Union, which is largely driven by its substantially higher per capita use of transport fuels. Given the methodological heterogeneity for the estimation of transport fuels, this should be interpreted with caution. Therefore, for the longitudinal comparison, Figure 7 shows data with and without the inclusion of transport fuels. While Belgium is either way above both the EU14 and the EU27 average, the gap is much closer when transport is excluded.

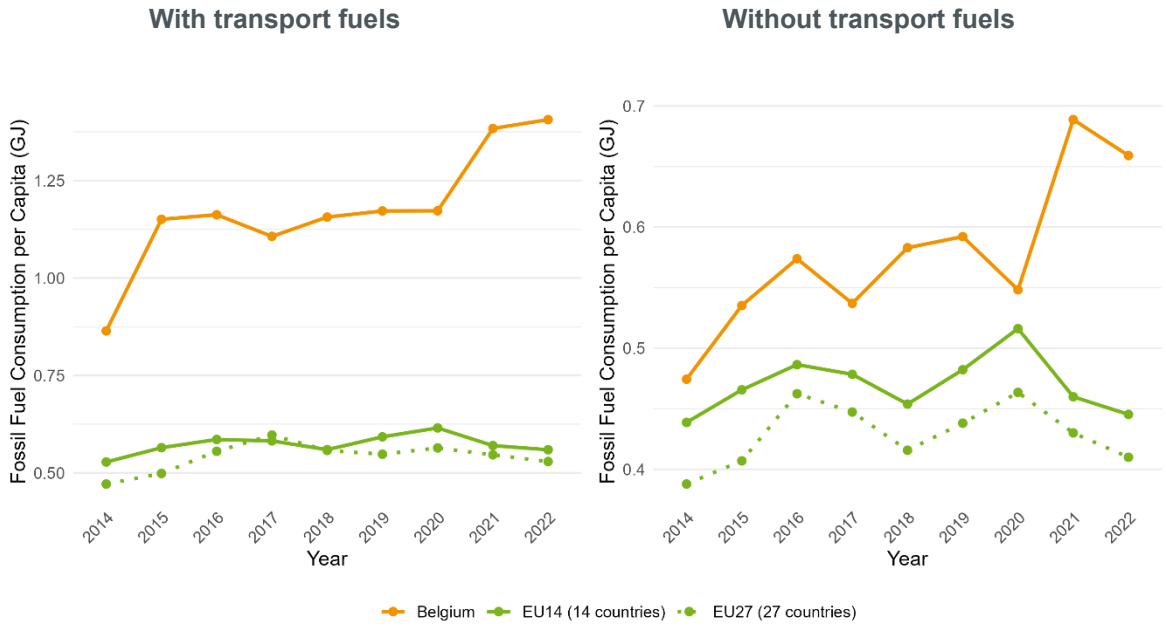
With 25%, Belgium also has the largest proportion of energy consumption derived from fossil fuels in healthcare (see Figure 8), where the average of the European Union is only 18%. Finally, as for the proportion of all-sector fossil fuel consumption attributable to healthcare, Belgium ranks substantially above the European Union average of 0.4% (Figure 9).

Figure 6 – Fossil fuel consumption per capita by type and country (2022)



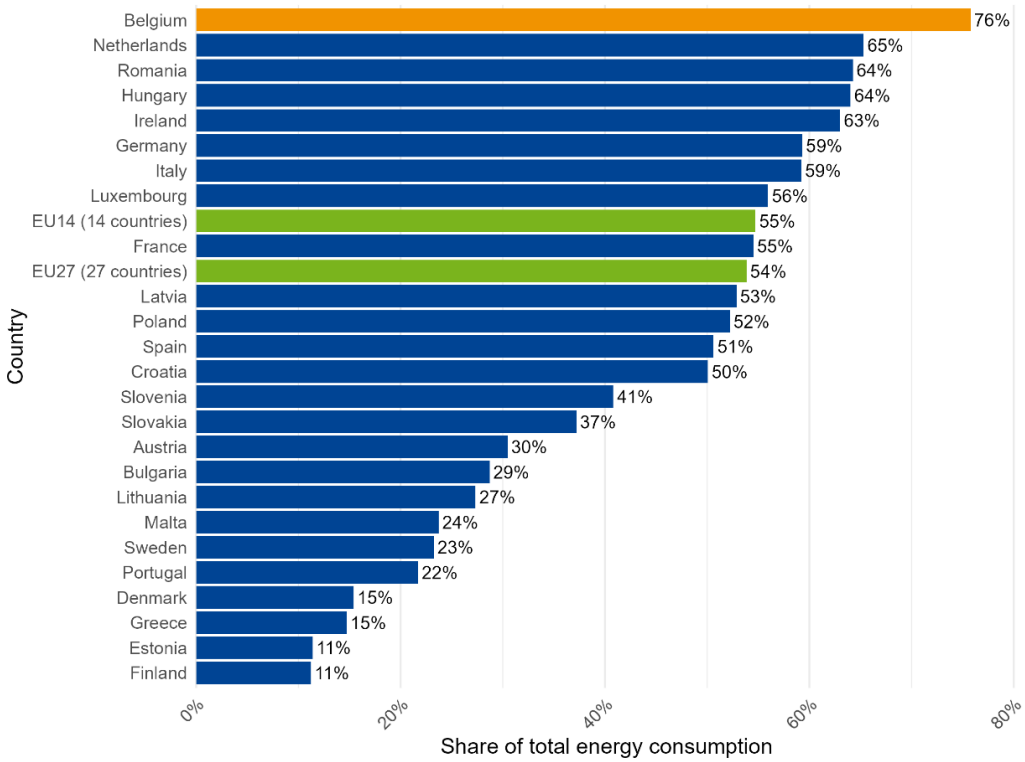
Source: Eurostat energy supply and use by NACE Rev.2 activity database 2025

Figure 7 – Fossil fuel consumption per capita and year with and without transport fuels



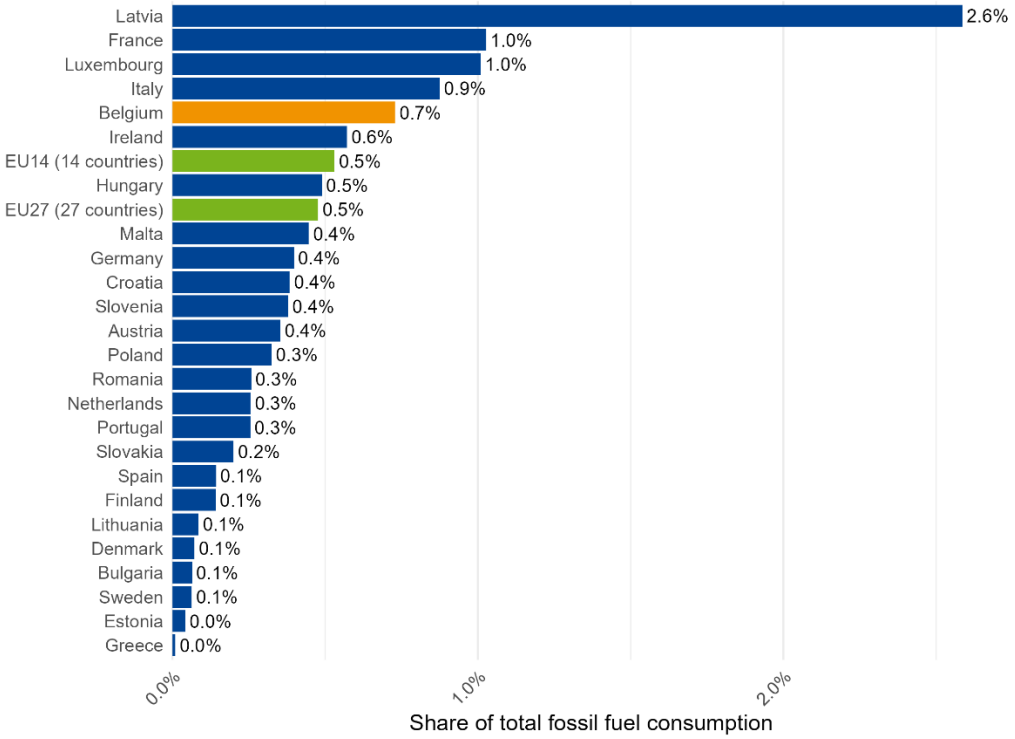
Source: Eurostat energy supply and use by NACE Rev.2 activity database 2025

Figure 8 – Share of fossil fuel among total energy consumption in the healthcare sector (2022)



Source: Eurostat energy supply and use by NACE Rev.2 activity database 2025

Figure 9 – Healthcare share of all-sector fossil fuel consumption, excluding transport (2022)



Source: Eurostat energy supply and use by NACE Rev.2 activity database 2025

KEY POINTS

- A total of 16 428 terajoules (TJ) of fossil fuels, corresponding to 1.4 gigajoules (GJ) per capita were consumed in the human health activities sector in Belgium during the year 2022. This represents 76% of healthcare's total energy consumption. When excluding transport, human health activities represent 0.7% of Belgium's all-sector fossil fuel use.
- There is an upward trend of fossil fuel usage over time, even when adjusting for population size.
- In the Belgian healthcare sector, fossil fuels are mainly used for transport and heating purposes.
- Wallonia has larger per capita usage of transport fuels and fuel oil than Brussels and Flanders.
- Belgium's fossil fuel consumption is above the EU-average, both with and without inclusion of transport fuels and the largest share of fossil fuel among total energy consumption in the healthcare sector.

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