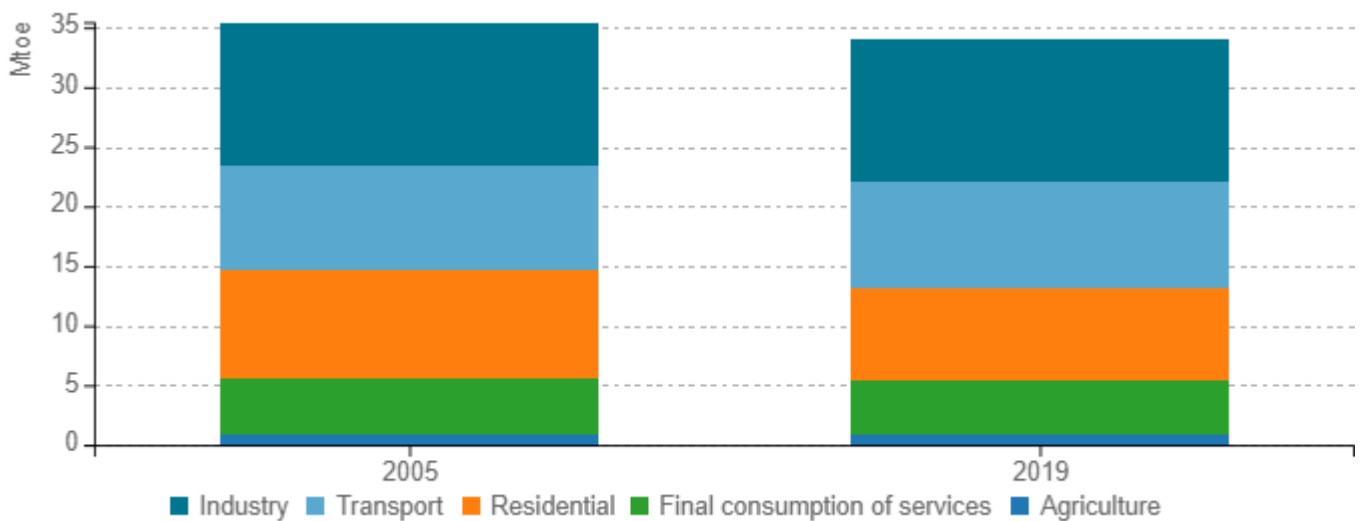


Energy efficiency trends and policies

Overview

Due to data quality issues, comparisons are made with 2005 data, rather than 2000 data. In 2019, the final energy consumption in Belgium was 34 Mtoe, 3.9% lower than its 2005 level (35.3 Mtoe). Industry, the largest consumption sector in Belgium, recorded a 1.5 percentage points increase in its share in total final energy consumption since 2005, reaching 35.1% in 2019. Over the same period, the transport sector increased its share in the Belgian total final energy consumption by 1.4 percentage points to 25.9% and the services sector increased its share by 0.3 percentage points to 13.4%, while the residential sector slightly decreased its share to 23% (- 2.9 percentage points).

Figure 1: Final energy consumption by sector

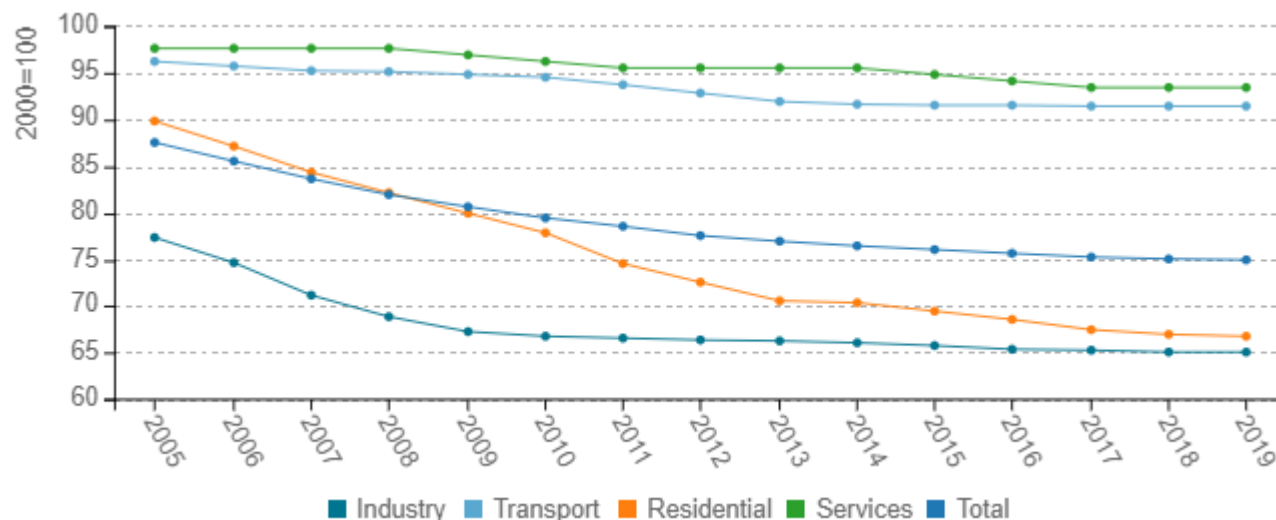


Source: ODYSSEE

Energy efficiency for final consumers improved by an average of 1.1% per year from 2005 to 2019 or 14.4% over the period. This improvement was mainly driven by the residential sector (25.7% over the period) and the industrial sector (15.9% over the period). In transport, energy efficiency improvements have been steady, with an average of 0.4% per year since 2005.



Figure 2: Technical Energy Efficiency Index



Source: ODYSSEE

Belgium is a federal state, in which energy efficiency is a competence of the three Regions (Flanders, Wallonia and Brussels-Capital), with supporting measures from the federal government. Within the framework of Art. 3 of the EED (directive 2012/27/EU), Belgium has set an indicative energy efficiency target of 18% reduction in primary energy consumption by 2020 relative to the 'Primes 2007' baseline. This produces a saving of 9.6 Mtoe. The corresponding final energy saving is 7.1 Mtoe (82.6 TWh). Disclaimer: the measures listed below are currently under review and will be updated as soon as possible.

Table 1: Sample of cross-cutting measures

Measures	NEEAP measures	Description	Impact	More information available
EU-related: Energy Efficiency Directive (EED) - Directive 2012/27/EU - Federal government - Procurement rules for the 'central administrations'	yes	For energy related products, office equipment and tyres, central authorities are to only purchase products satisfying high energy efficiency criteria. In public procurement contracts, central governments shall also require that service providers only purchase products meeting the same energy efficiency criteria. Central governments may only purchase buildings satisfying the minimum energy performance criteria applicable to building construction or renovation.		https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/12

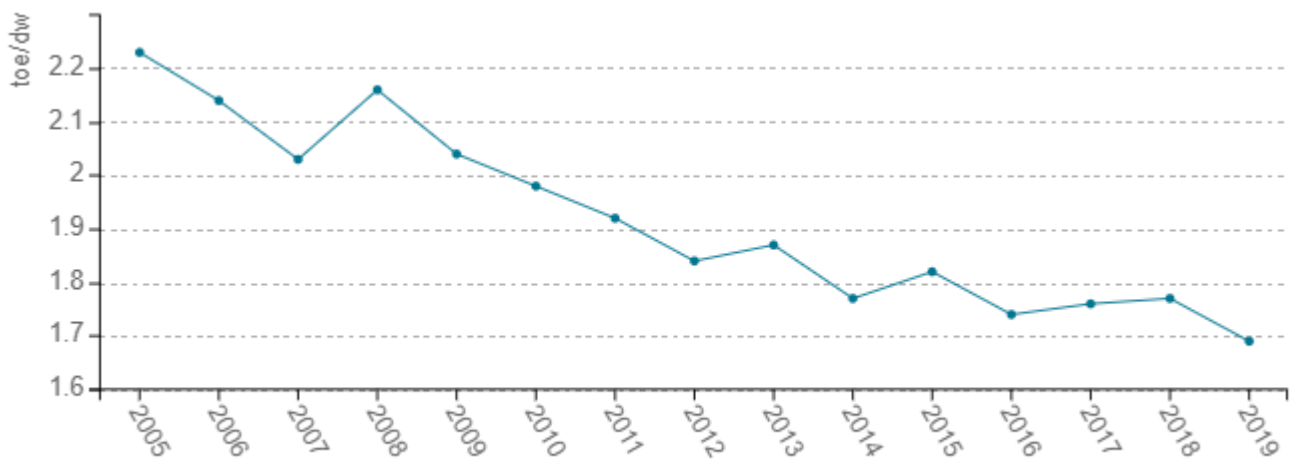
Source: MURE



Buildings

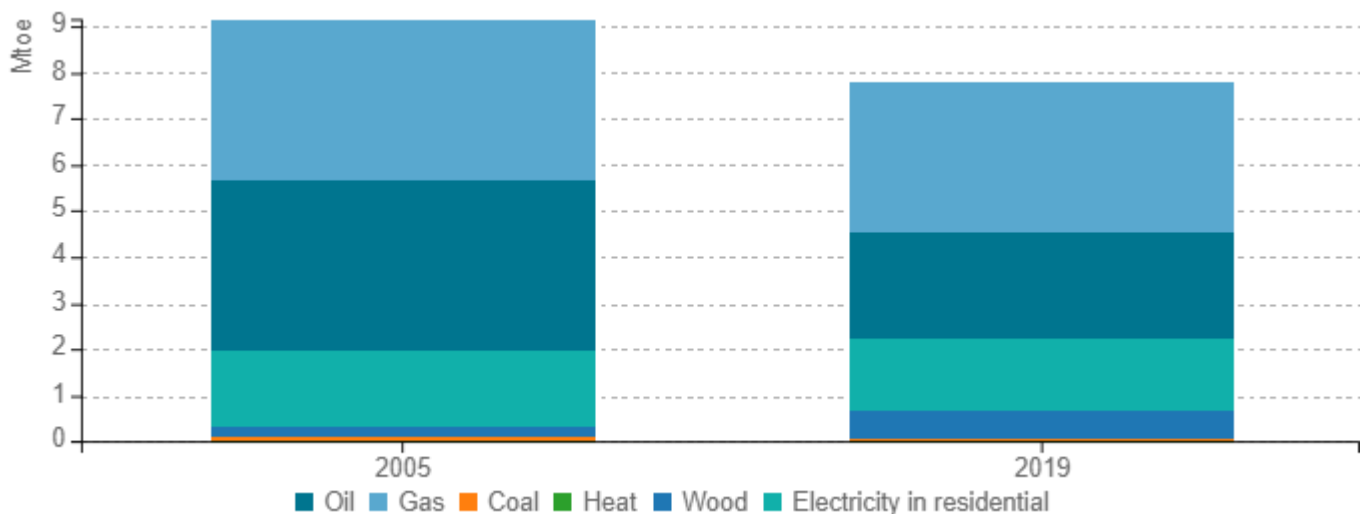
In 2019, the average consumption per dwelling (with climatic corrections) was 19.6 MWh (1.7 toe). This is a decrease of 24.4% compared to 2005, where the average consumption per dwelling was 26 MWh (2.2 toe), an improvement of 0.5 MWh per year on average. Overall residential energy consumption decreased by 14.6% from 2005 to 2019 (an average of 1.1% per year) despite an increase in the number of households and dwellings. The decrease mainly concerns fossil fuels, although electricity consumption also decreased slightly (-3.1%), while consumption of renewables increased by over 200%.

Figure 3: Energy consumption per dwelling



Source: ODYSSEE

Figure 4: Energy mix of households

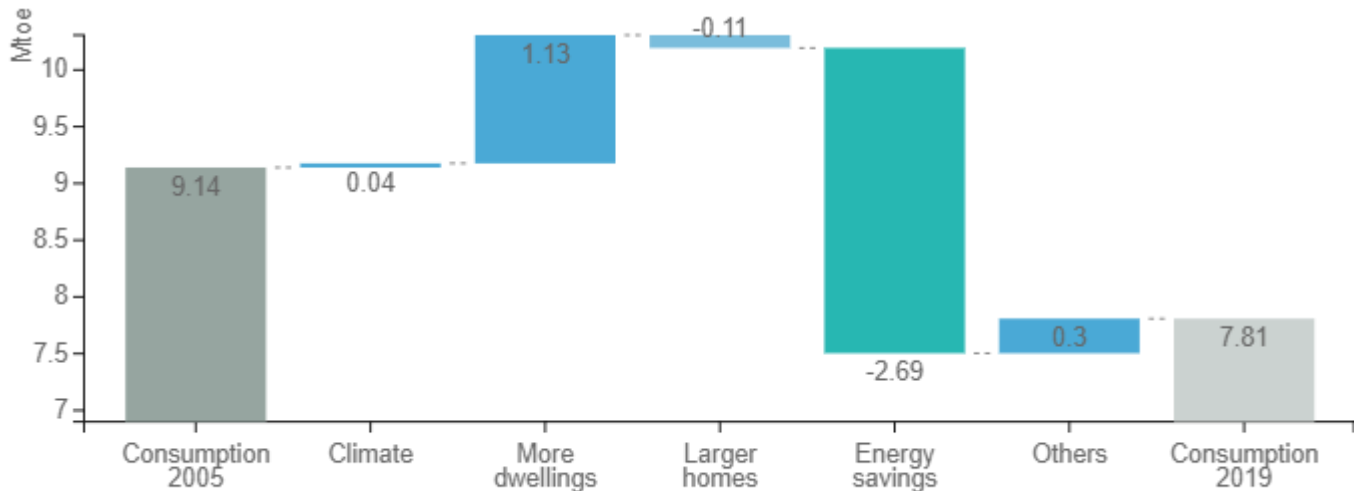


Source: ODYSSEE



Globally, the final energy consumption of residential buildings was 1.33 Mtoe (15.5 TWh) lower in 2019 than in 2005. Two main factors contributed to increased energy consumption over the period – more dwellings (1.13 Mtoe), and "others" (0.3 Mtoe), which could include various drivers such as the fact that there are more appliances per dwelling or that habits have changed (more intensive use of some appliances for instance). However, energy savings (2.69 Mtoe) more than offset the effect of the drivers of consumption growth and explain the observed decrease in global energy consumption.

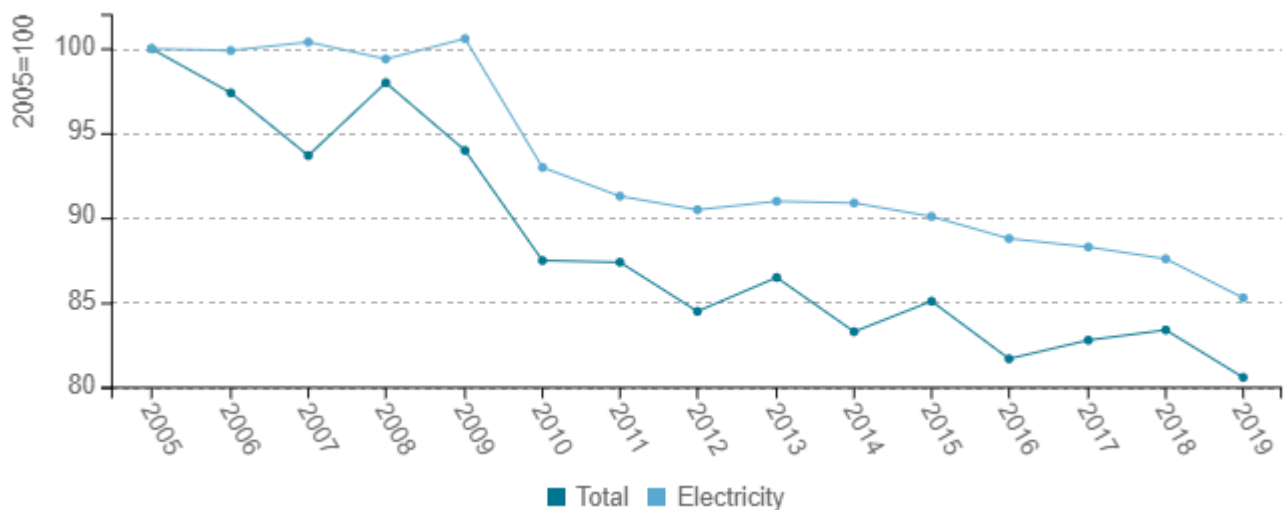
Figure 5: Main drivers of the energy consumption variation of households



Source: ODYSSEE

While the energy consumption per employee in the services sector dropped by 19.4% since 2005 (likely driven by a decrease in consumption for space heating), electricity consumption remained quite stable until 2009, before declining slowly. This could be explained by the diffusion of IT and electrical appliances in offices, which eventually reached a saturation point and was then offset by increased efficiency.

Figure 6: Energy and electricity consumption per employee (normal climate)



Source: ODYSSEE



The regions have, each for their own territory, mainly implemented the EU Energy Performance of Buildings (EPB) directive, and promoted further energy efficiency through grants, audit schemes, awareness raising, etc. In Brussels, a special effort has also been made to develop exemplary buildings with virtually zero consumption and high environmental quality. Disclaimer: the measures listed below are currently under review and will be updated as soon as possible.

Table 2: Sample of policies and measures implemented in the building sector

Measures	Description	Expected savings, impact evaluation	More information available
Wallonia - Financial incentives for RUE investments in buildings	Grants for households, covering energy audits, roof insulation, wall insulation, floor insulation and heating systems (gas condensing boilers, heat pumps, biomass boilers and solar water heaters)	2020: 14 PJ	https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/421
EU-related: Energy Performance of Buildings (Directive 2002/91/EC) - Flanders - Insulation and energy performance regulation for residential buildings	Insulation, energy performance and indoor-climate requirements introduced in the framework of the EPB directive (EPBD)	2020: 16 PJ	https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/420
Brussels - Develop and promote exemplary buildings - BATEX (with virtually zero consumption and of high environmental quality) in the tertiary sector	Financial support, technical assistance and public visibility for exemplary building projects in terms of energy and environmental performance, in order to demonstrate their technical and economical feasibility		https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/1380

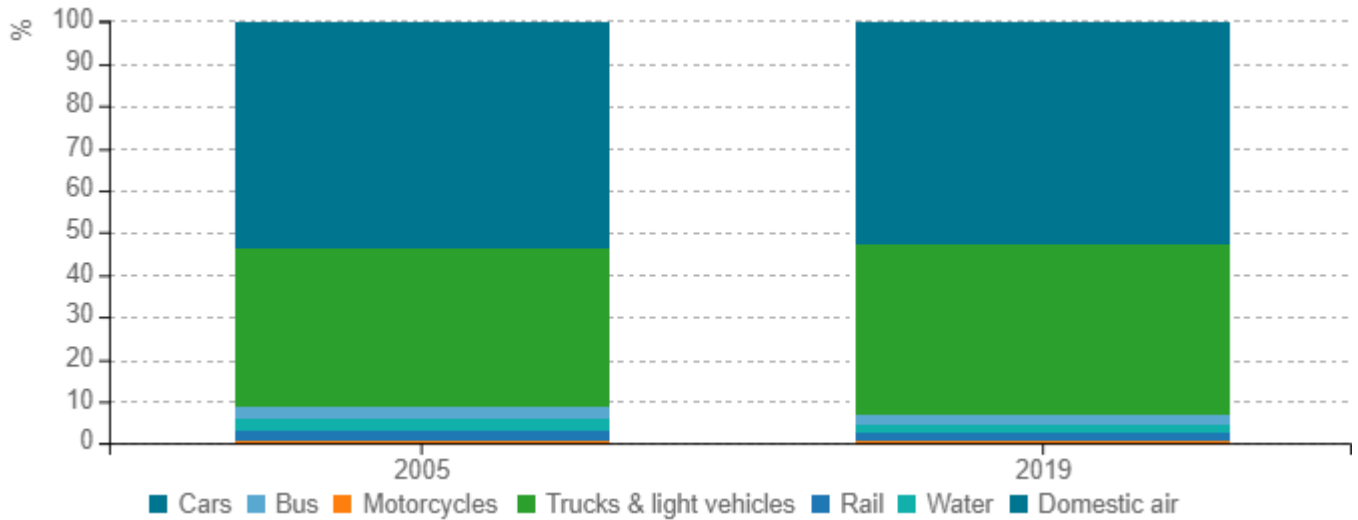
Source: MURE



Transport

In Belgium, road transport remains the main driver of energy consumption in domestic transport. Cars represent 53% of the total consumption in the sector in 2019, while trucks and light vehicles represent 40% (vs 54% and 37% respectively in 2005). Over the same period, there was a slight decrease in the share of buses (- 0.6%), rail (- 0.4%) and water transport (- 1.1%).

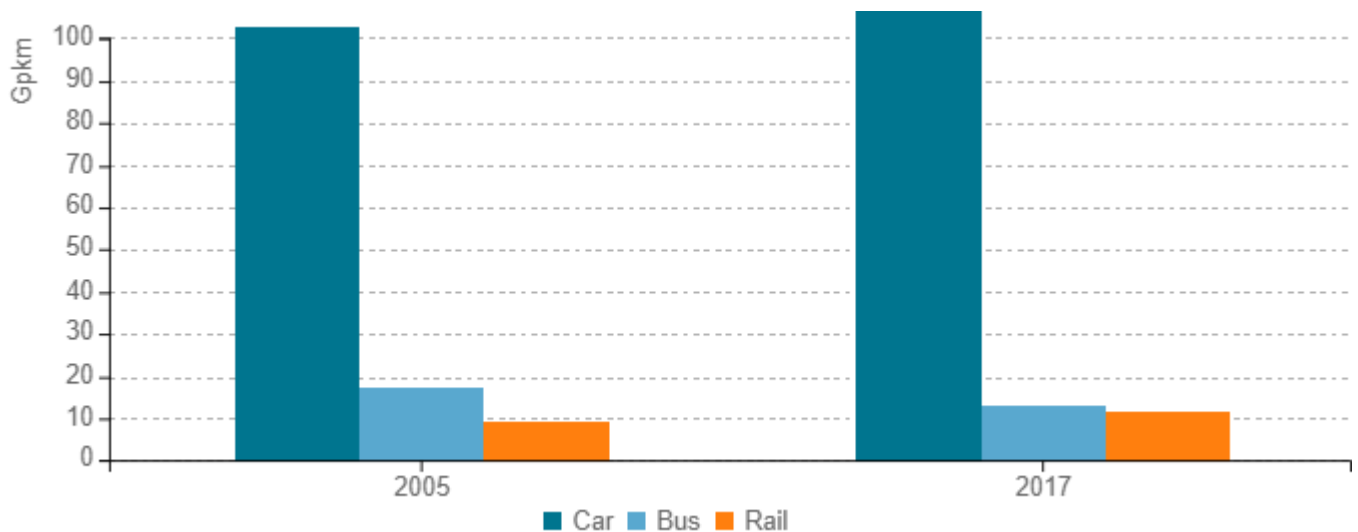
Figure 7: Transport energy consumption by mode



Source: ODYSSEE

Between 2005 and 2017, passenger traffic increased by an average of 0.1% per year (1.7% over the period). This increase was mainly observed in rail (+ 24.6%), which saw its share in overall passenger traffic increase from 7.3% to 8.9%. Car traffic remained almost stable (+ 4%), as did its share in overall passenger traffic (81% in 2017 v. 79% in 2005). Bus traffic decreased by 24%, and its share decreased from 13.5% to 10.1%. Please note road traffic data is not currently available for 2018-2019.

Figure 8: Modal split of inland passenger traffic

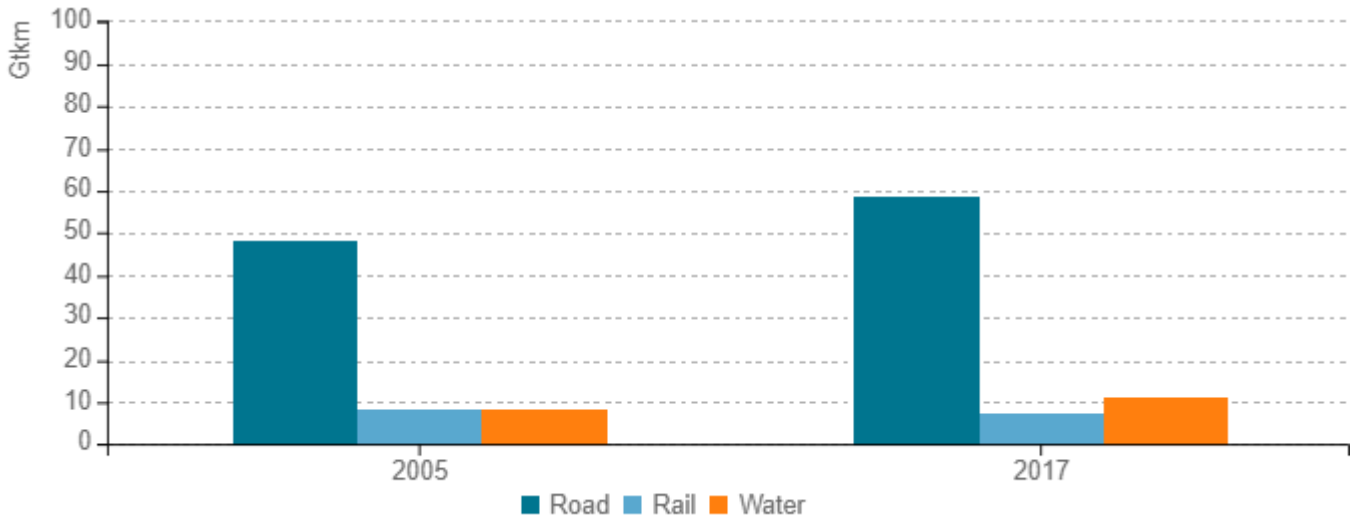


Source: ODYSSEE



Freight traffic increased dramatically between 2005 and 2017 (average of 1.5% per year or 19.5% over the period). This increase was mainly observed in road transport (+ 22.8%), while rail transport decreased over the same period (- 10.5%). Please note road traffic data is not currently available for 2018 and 2019, and water transport data for 2017 is under revision.

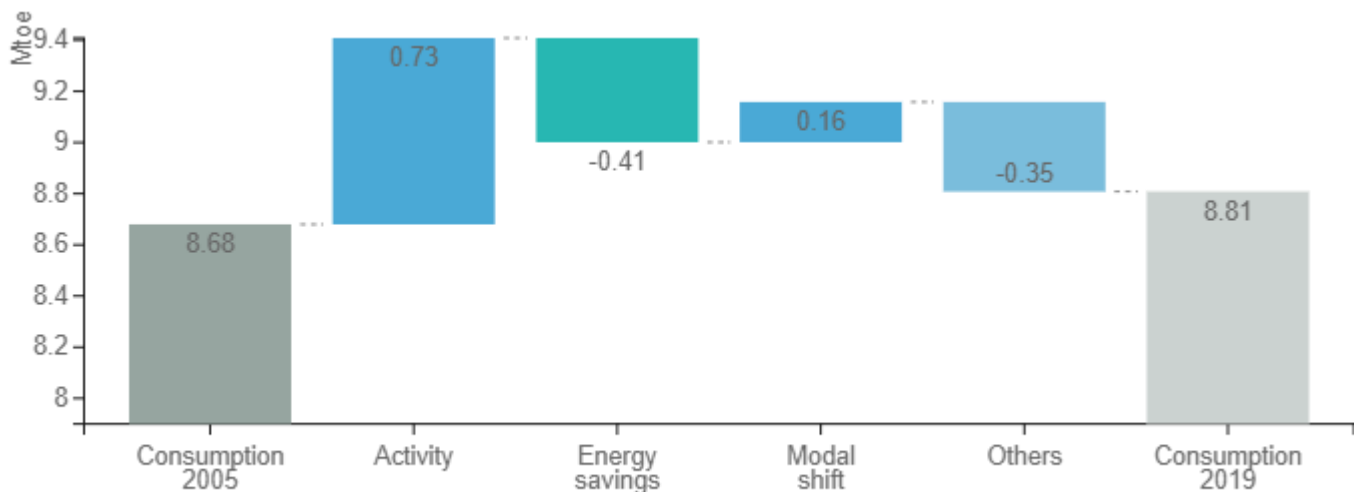
Figure 9: Modal split of inland freight traffic



Source: ODYSSEE

Energy savings between 2005 and 2019 (0.41 Mtoe) were not sufficient to counterbalance the dramatic rise in activity (0.73 Mtoe). Other factors, such as an increase in load factors for the freight transport, did however mitigate the increase of global consumption in transport somewhat. Please note estimations were used for missing 2018 and 2019 data.

Figure 10: Main drivers of the energy consumption variation in transport



Source: ODYSSEE



Each of the three regions has implemented a diversity of measures, covering mobility, infrastructure, promotion of modal shifts and alternative vehicles, as well as unit consumption of vehicles. Disclaimer: the measures listed below are currently under review and will be updated as soon as possible.

Table 3: Sample of policies and measures implemented in the transport sector

Measures	Description	Expected savings	More information available
Flanders - Measures improving the mobility needs and the environmental performance of transport	This measure comprises: - the Mobility Plan Flanders (focusing on mobility and improving the environmental performance of the vehicle fleet); - the Clean Power for Transport Plan (aiming at reducing the cost of clean cars, developing the charging infrastructure for electric vehicles, and communication).	2020: 20 PJ	https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/1966
Wallonia - Financial incentives or funding devoted to transport	Subsidies in the transport sector (water, road, rail) for investments in the rational use of energy in transport, whether passenger or goods transport.	2020: 2 PJ	https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/1965
Brussels - Measures in the transport sector (IRIS II Mobility Plan, COBRACE code, etc.)	Brussels - Measures in the transport sector (IRIS II Mobility Plan, COBRACE code, etc.)		https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/1962

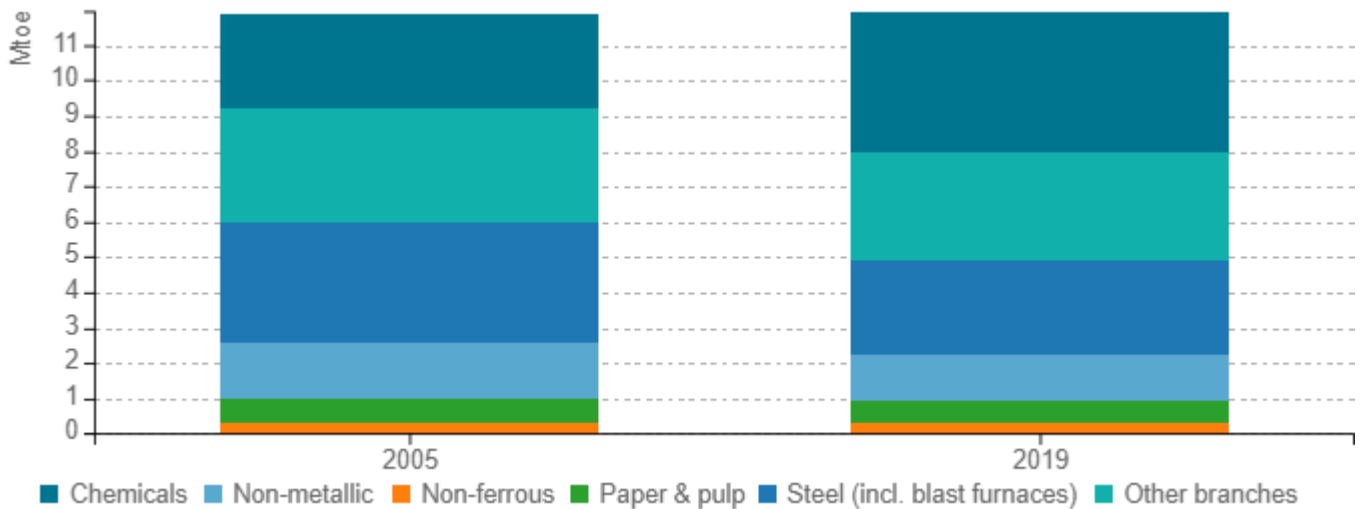
Source: MURE



Industry

The energy consumption of industry increased by 0.3% to 11.9 Mtoe between 2005 and 2019. In 2019, the main consumption sectors were chemicals (33%), steel (22%) and other branches (25.5%). The evolution of the consumption in these sectors is however dramatically different, with respectively + 47%, - 22.5% and - 5% compared to 2005.

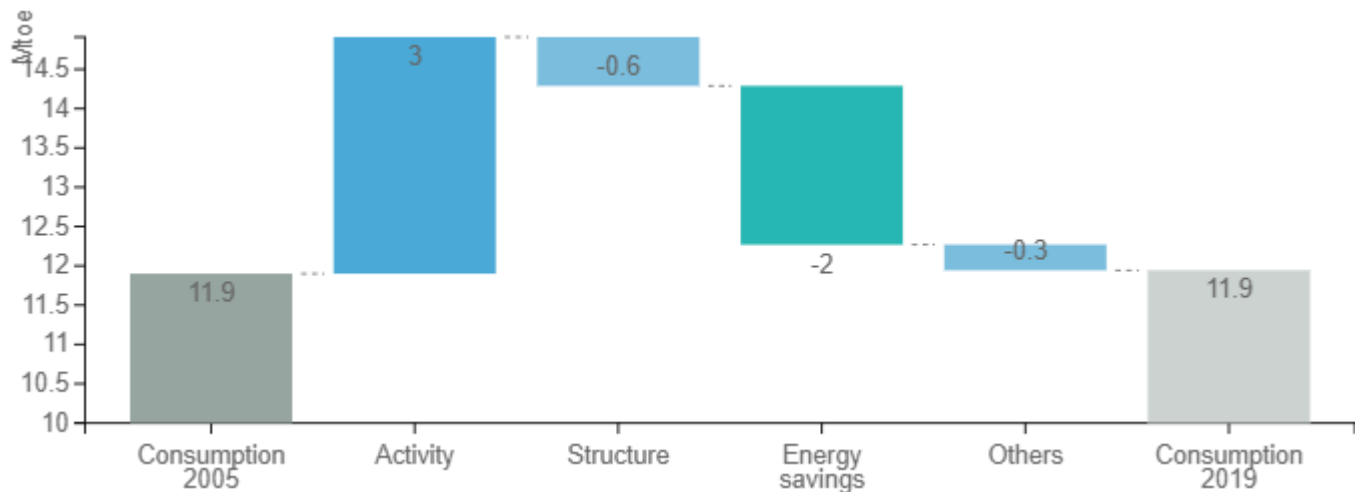
Figure 11: Final energy consumption of industry by branch



Source: ODYSSEE

Despite the economic crisis of 2007, industrial activity in Belgium rose overall since 2005. Energy consumption decreased from 2002, but rose again in 2010. In 2019, energy consumption showed a small increase compared to 2005 (+ 0.3%). Energy savings (2 Mtoe) and a slight decrease in energy consumption (- 0.6 Mtoe) caused by the shift from energy-intensive sectors (such as steel) to less energy-intensive sectors (such as chemicals) compensated for the rise in activity.

Figure 13: Main drivers of the energy consumption variation in industry



Source: ODYSSEE



In Belgium, the energy efficiency policy in industry focuses on voluntary agreements between the regional governments (of Flanders and Wallonia) and industry. The ways of setting the targets and monitoring the results differ between the regions and have changed over time. Disclaimer: the measures listed below are currently under review and will be updated as soon as possible.

Table 4: Sample of policies and measures implemented in the industry sector

Measures	Description	Expected savings	More information available
Flanders - Voluntary agreements in energy intensive industry	Voluntary agreements with industry on energy efficiency, currently covering the period 2015-2020. Companies joining commit themselves to set up an Energy Plan and to carry out all profitable energy efficiency measures contained in it, in exchange for not being subject to other policy measures beyond the EU obligations.	2020: 45 PJ	https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/1035
Wallonia - Voluntary agreements with industry	Voluntary agreements with industry on energy efficiency, currently covering the period 2014-2020. Joining companies commit themselves to carry out all profitable energy efficiency and CO2 emission reduction measures, in exchange for financial and administrative support and not being subject to other policy measures beyond the EU obligations.	2020: 18 PJ	https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/1034

Source: MURE

