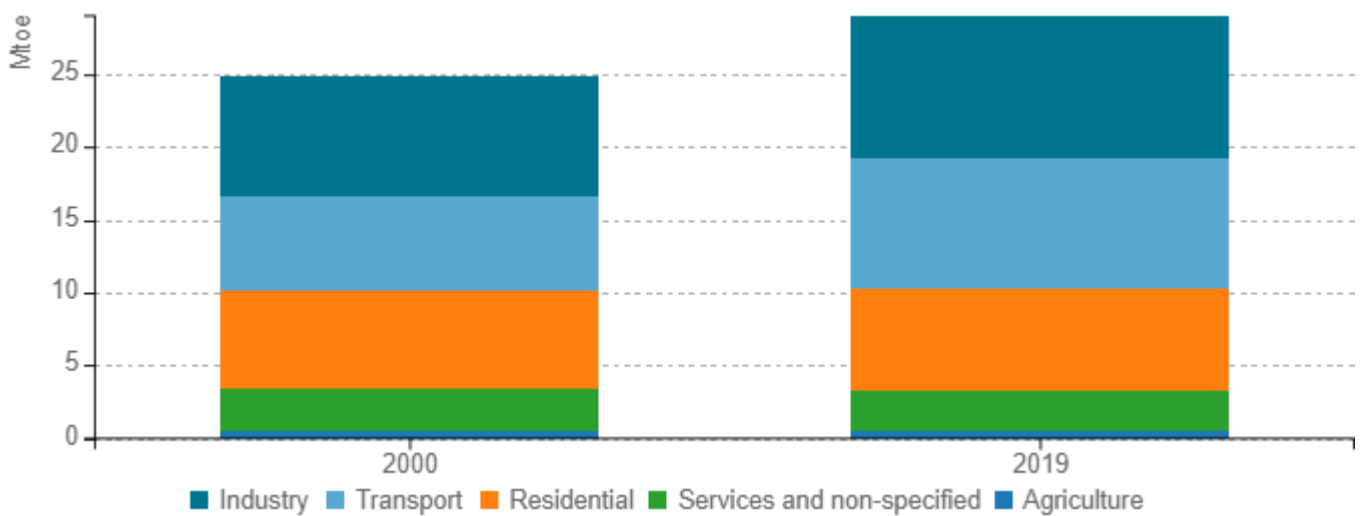


Energy efficiency trends and policies

Overview

In Austria final energy consumption (at normal climate) was 24.8 Mtoe in 2000. Since then, it has risen by 4.2 Mtoe to 29 Mtoe in 2019. The transport sector has shown an increase by 2.5 Mtoe, as well as the industry by 1.5 Mtoe and the residential sector by 0.3 Mtoe. Whereas the energy consumption in services and in the agricultural sector have slightly decreased by 0.1 Mtoe and 0.01 Mtoe respectively. The industry sector accounted for the largest share in 2000 as well as in 2019, at around 33%. The second largest consuming sector in 2000, the residential sector, was exceeded by the transport sector in 2019.

Figure 1: Final energy consumption by sector (normal climate)

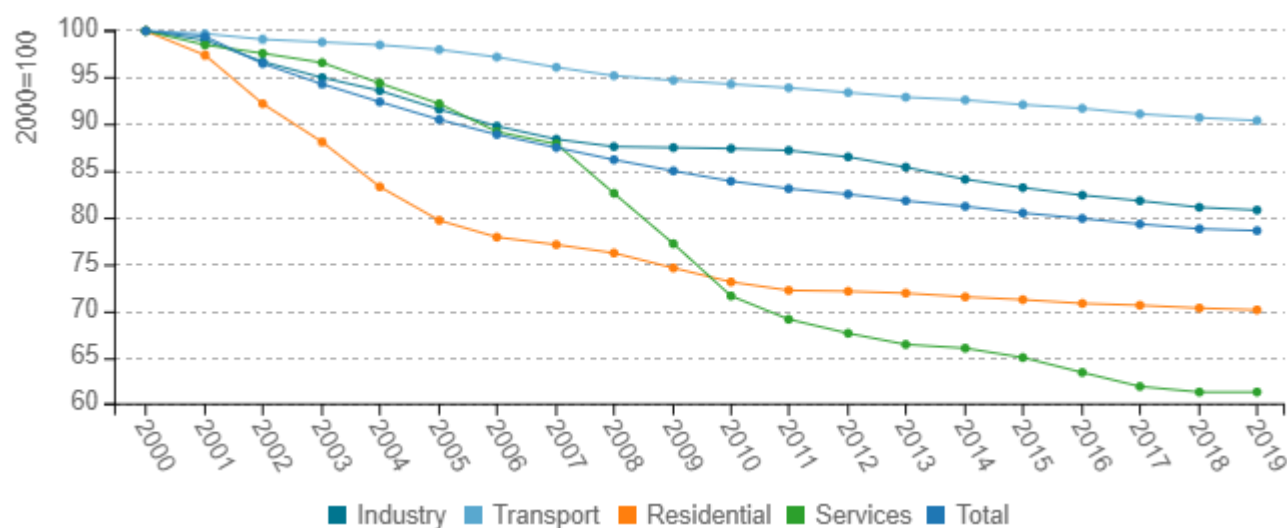


Source: ODYSSEE

Energy efficiency for final consumers, as shown by ODEX, has improved by around 1.3% per year from 2000 to 2019, 21% in total. Largest gains have been registered in the service (39% or 2.5% on average per year) and residential sector (30% or 1.8% on average per year) whereas the industry (19% or 1.1% on average per year) and transport sector (10% or 0.5% on average per year) have only shown low rates of improvement.



Figure 2: Technical Energy Efficiency Index



Source: ODYSSEE

Austria has set itself the goal of climate neutrality by 2040. Measures are implemented on the basis of the amended Climate Protection Act in accordance with binding reduction paths. In addition to promoting the use of renewable energy sources, one of the main strategies of Austria's energy policy is to reduce the demand for energy, through sound use of energy and by improving energy efficiency. Both at the federal government and federal state levels, Austria has implemented a number of instruments and measures for saving energy and improving energy efficiency. Besides regulation, these measures concern the areas of research, technological development and demonstration and are aimed at promoting market penetration as well as spreading information and promoting financial incentives for implementing suitable measures. The current government program includes the further development of the Federal Energy Efficiency Act.

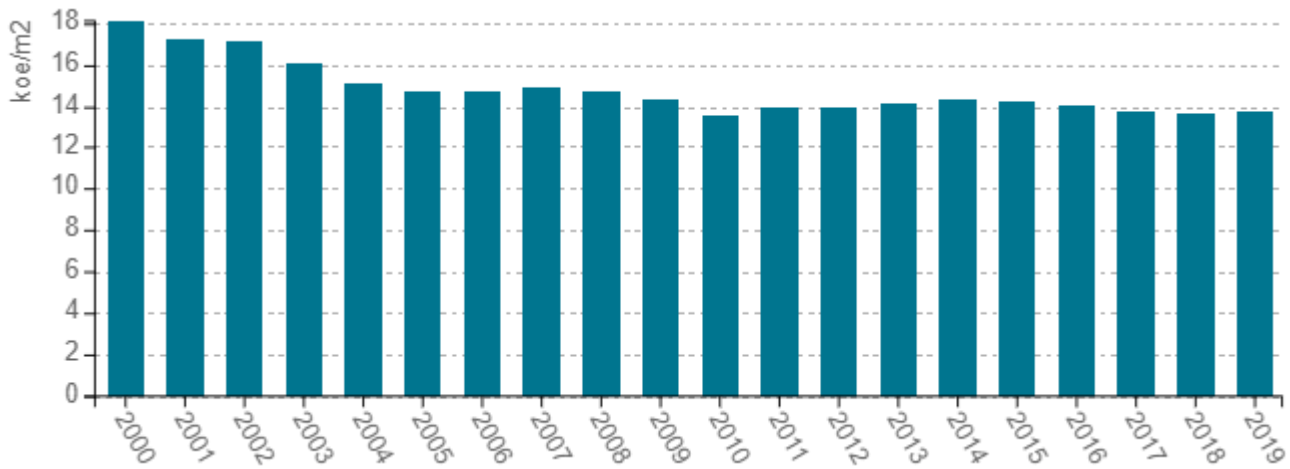
Table 1: Sample of cross-cutting measures

Measures	In NEEAP	Description	Impact	More information available
Climate and Energy Strategy	yes	The Austrian Climate and Energy Strategy concerns the long-term transformation of the energy system in order to meet the future challenges in relation to climate protection.	High	https://ec.europa.eu/energy/sites/ener/files/documents/at_final_necp_main_en.pdf
Renewable Energy Action Plan	yes	The Austrian Renewable Energy Action Plan promotes a lot of different measures at national level for the growth of energy from renewable sources.	High	https://www.ris.bka.gv.at/eli/bgbl/l/2021/150/20210727
Federal Energy Efficiency Act	yes	Federal law to accelerate energy efficiency measures. The law further establishes a monitoring, reporting and verification system.	High	https://www.ris.bka.gv.at/Gel_tendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20008914

Buildings

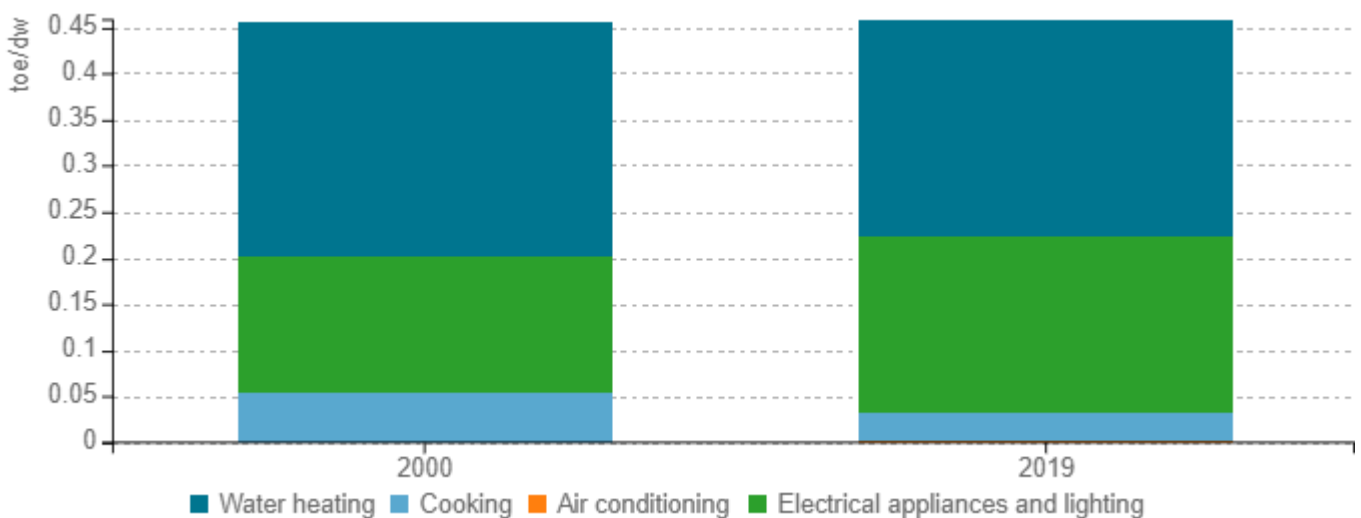
As shown in Figure 3 there is a clear downward trend in energy consumption of space heating per m² since 2000. Energy consumption of space heating per m² decreased by 4.4 koe/m², from 18.1 koe/m² in 2000 to 13.7 koe/m² in 2019. While the consumption per dwelling for water heating decreased by around 7% from 2000 to 2019, as well as for cooking (-44%), the consumption for electric appliances and lighting increased by around 29% (Figure 4).

Figure 3: Energy consumption of space heating per m² (normal climate)



Source: ODYSSEE

Figure 4: Energy consumption per dwelling by end-use (except space heating)

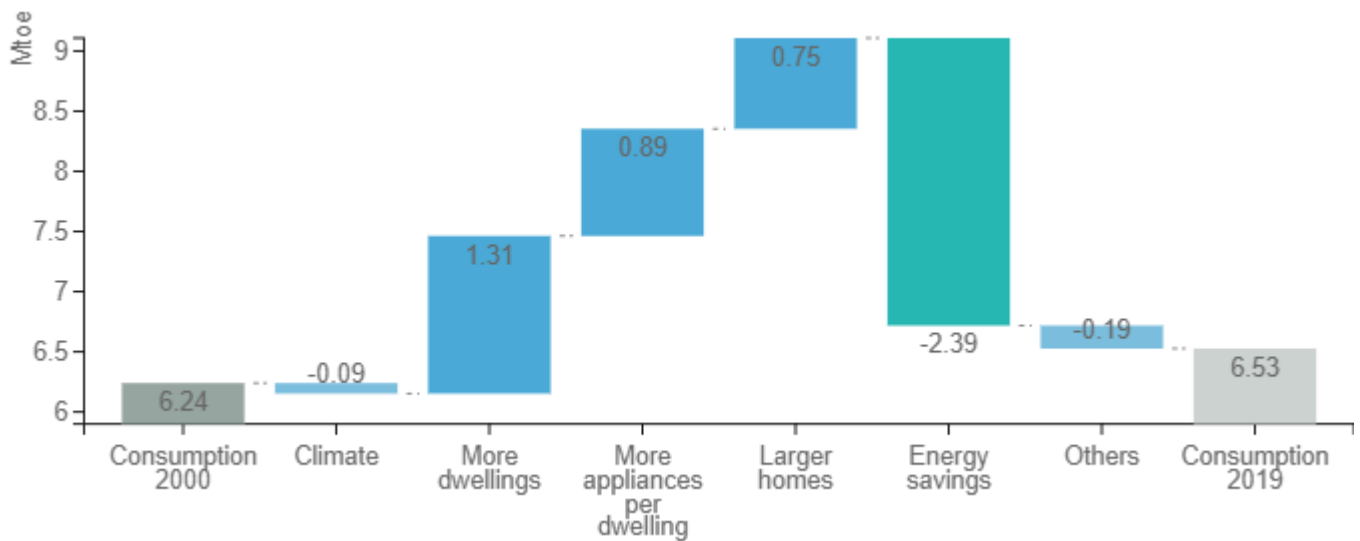


Source: ODYSSEE



Energy consumption for households has increased by 0.3 Mtoe between 2000 and 2019. Main drivers for this upward trend are the increasing number of dwellings (1.3 Mtoe), more appliances per dwelling (0.9 Mtoe) and the increasing size of homes (0.75 Mtoe). This upward trend is mostly counterbalanced by energy savings that account for a 2.4 Mtoe decrease in energy consumption. Other effects (-0.2 Mtoe) and climate-related aspects (-0.1 Mtoe) only play a minor role.

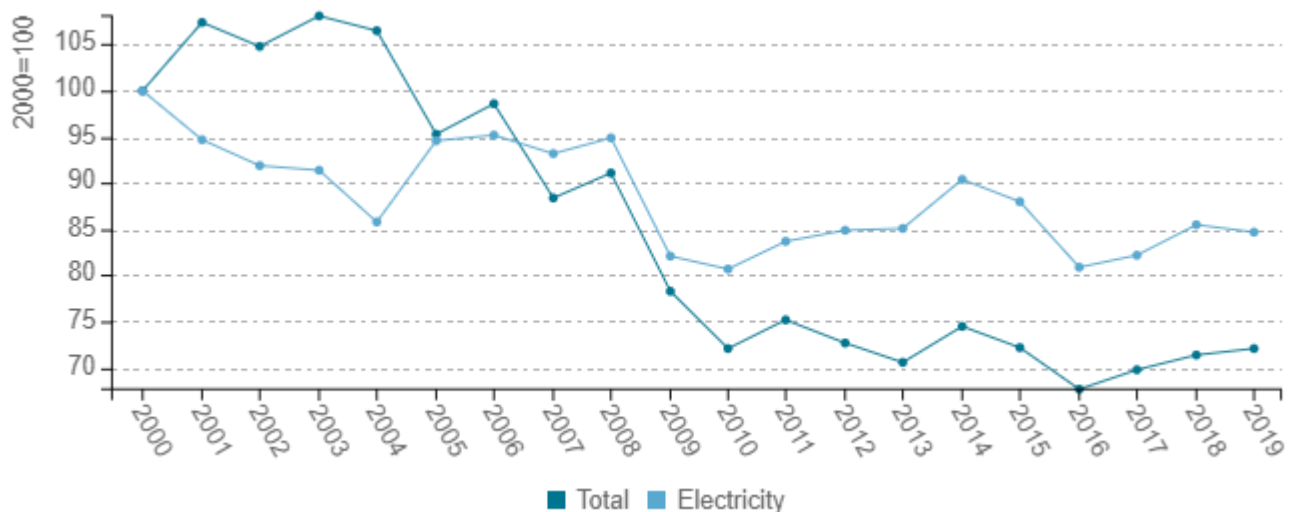
Figure 5: Main drivers of the energy consumption variation of households



Source: ODYSSEE

In buildings total energy consumption and electricity consumption per employee have decreased quite steadily after 2008. While electricity consumption per m² has already dropped in the year 2000 with a slight increase between 2004 and 2008, total energy consumption has increased until the year 2004.

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



Source: ODYSSEE



To increase energy efficiency in the buildings sector, the goal is to increase renovation rates as well as the thermal-energy quality of renovations in accordance with the national energy efficiency act. Some important measures are the further development of the housing subsidies, a consistent switch of heating and cooling system to renewable energy systems, a funding program for thermal-energy renovations as well as the adaption of the buildings sector to increased temperature.

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

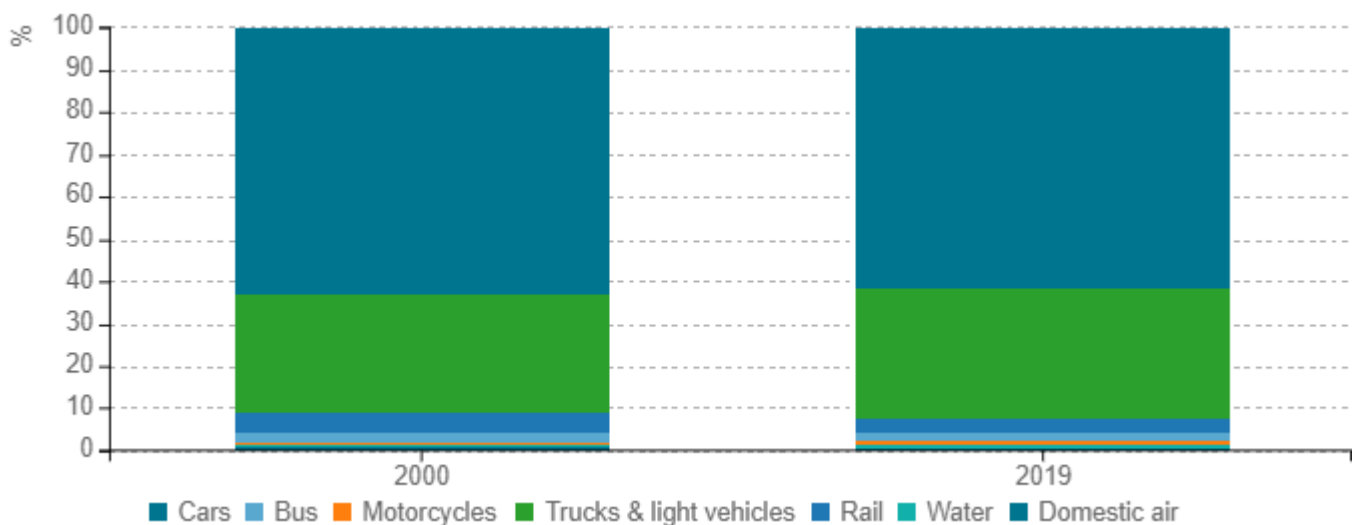
Measures	Description	Expected savings, impact evaluation	More information available
Residential building subsidy	The enhancement of the thermal quality of residential buildings and the expansion of efficient heating systems are supported. The level of subsidy is dependent on the achieved thermal quality and the efficiency of the heating system.	High	https://www.bmk.gv.at/
Smart Metering and Informative Billing	Austria is working on a large-scale implementation of smart meters for electricity consumption.	High	https://www.e-control.at/marktteilnehmer/strom/smart-metering/monitoring

Source: MURE

Transport

The share of cars in transport energy consumption makes up 62% in 2019 and has only decreased by 1.7 points. With trucks and light vehicles (31%), busses (2%) and motorcycles (0.6%), road transport represented more than 95% of the energy consumption for transport in 2019, while rail transport decreased 1.6 points.

Figure 7: Transport energy consumption by mode

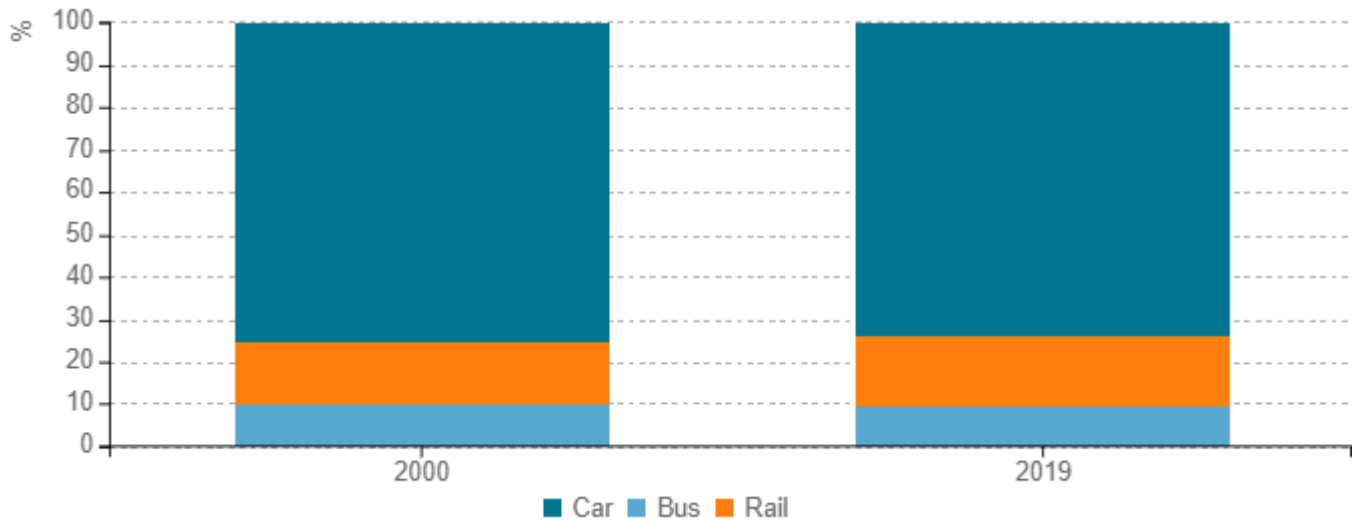


Source: ODYSSEE



Cars represent around 75% of the modal split of inland passenger traffic, rail transportation around 15% and bus transportation around 10%. Between 2000 and 2019, the share of cars decreased slightly by 1.3 points as well as the share of bus transport (-0.7 points), in favour of rail transport.

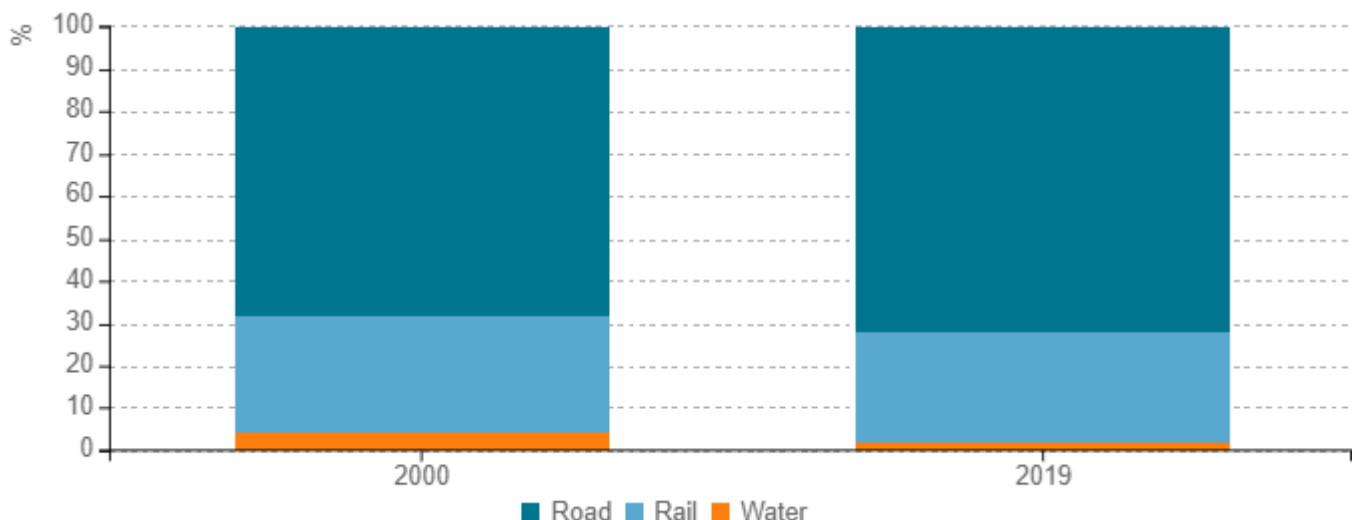
Figure 8: Modal split of inland passenger traffic



Source: ODYSSEE

Road freight traffic accounts for around 70% of the modal split of inland freight traffic and increased by 3.5 points from 2000 to 2019, while rail freight traffic accounts for around 25% of the modal split and decreased by 1.2 points. Freight traffic by water decreased from 4.3% to 2%.

Figure 9: Modal split of inland freight traffic

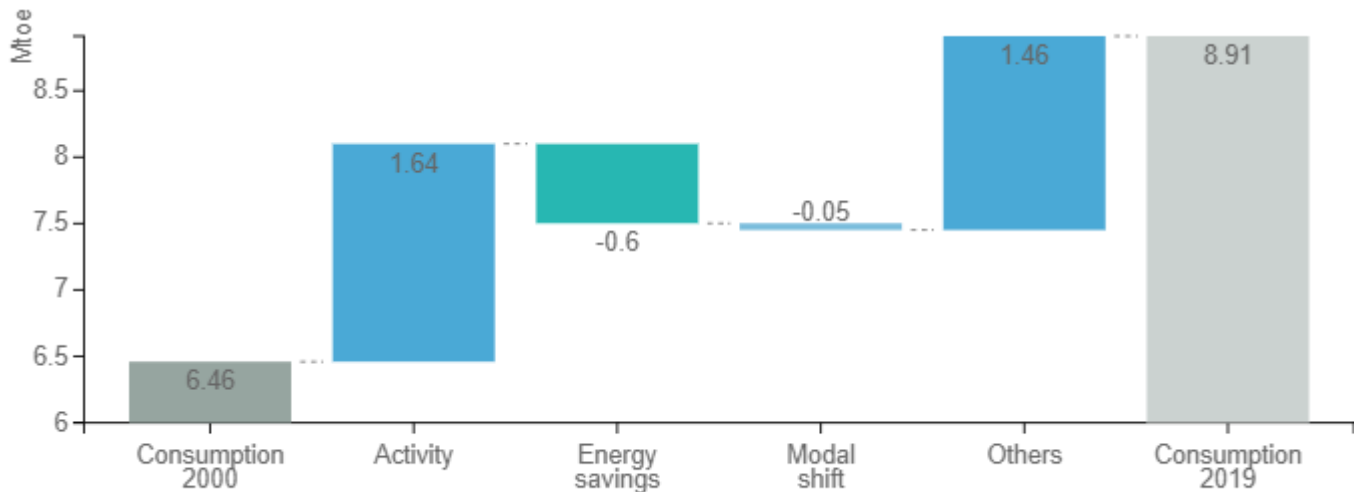


Source: ODYSSEE



The energy consumption in the transport sector has increased from 6.5 Mtoe in 2000 to 8.9 Mtoe in 2019. The main drivers behind the upward trend are increased activity (+1.6 Mtoe) and other effects (+1.5 Mtoe) which are only partly counterbalanced by energy savings (0.6 Mtoe). The modal shift plays a minor role (0.05 Mtoe).

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



Source: ODYSSEE

To achieve a climate-neutral transport sector by 2040, the 2030 Mobility Master Plan identifies ways to avoid traffic, shift traffic and improve the efficiency of each mode of transport. Especially high-performance public modes of transport as well as more incentives to use public transport will increase energy efficiency in the transport sector. Included in this plan is the significant increase of the share of eco-mobility in total transport – foot and bicycle traffic, public modes of transport, and shared mobility.

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

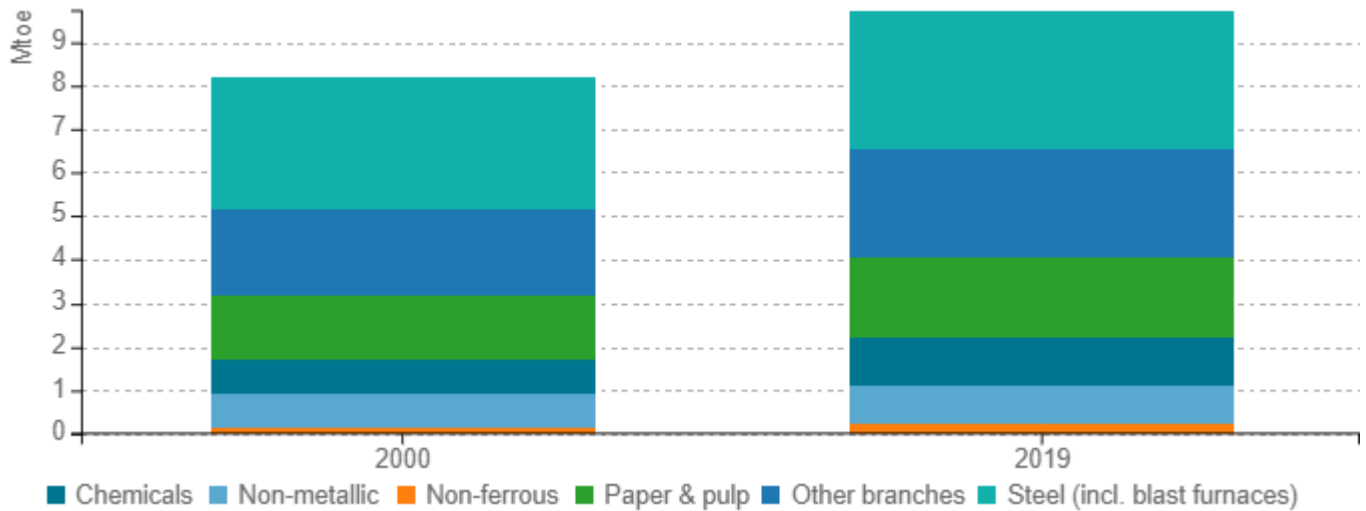
Measures	Description	Expected savings, impact evaluation
Fuel tax (MOEST) with reduced tax rate for biofuels	Conventional fuel is subject to a tax. The tax is reduced for the proportion of biofuel of which a certain proportion has to be added.	High
Dealing with parking cars as a step to enhance energy-efficiency	The energy efficiency of transport can be improved by avoiding unnecessary car traffic (e.g. Park & Ride facilities).	High
Obligatory transport audits for large companies	The Energy Efficiency Act commits large companies to conduct energy audits every fourth year.	High

Source: MURE

Industry

The total final energy consumption of the industry sector increased from 8.2 Mtoe in 2000 to 9.7 Mtoe in 2019, by around 18%. Consumption of all industrial branches increased, especially in the chemical and the paper and pulp branches.

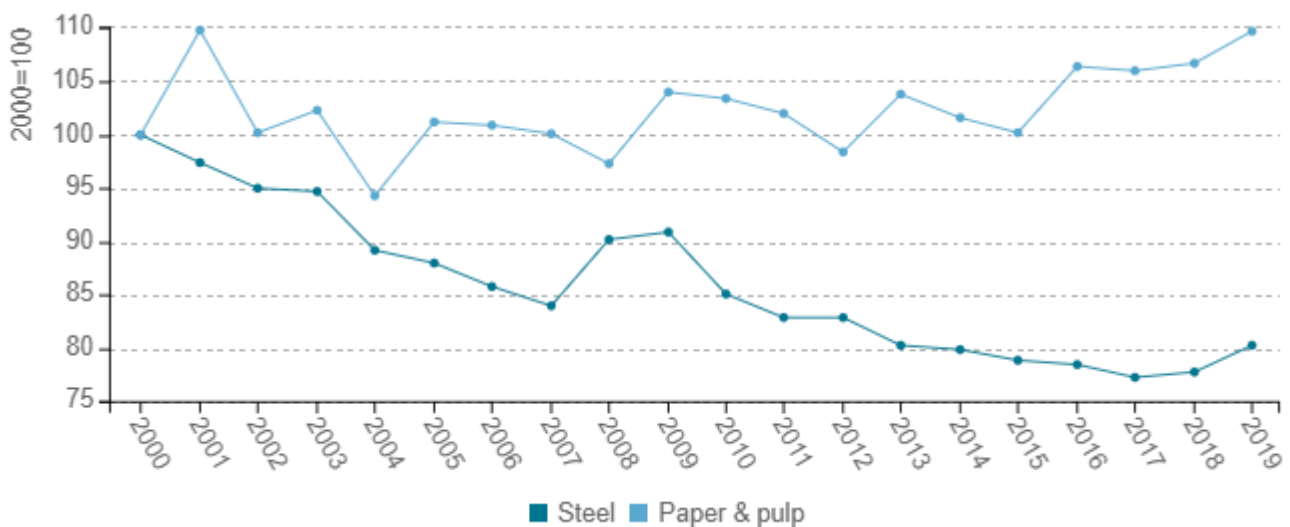
Figure 11: Final energy consumption of industry by branch



Source: ODYSSEE

While the unit consumption of steel declined by 20% from 2000 to 2019, paper and pulp unit consumption increased by 10%.

Figure 12: Unit consumption of energy-intensive products (toe/t)

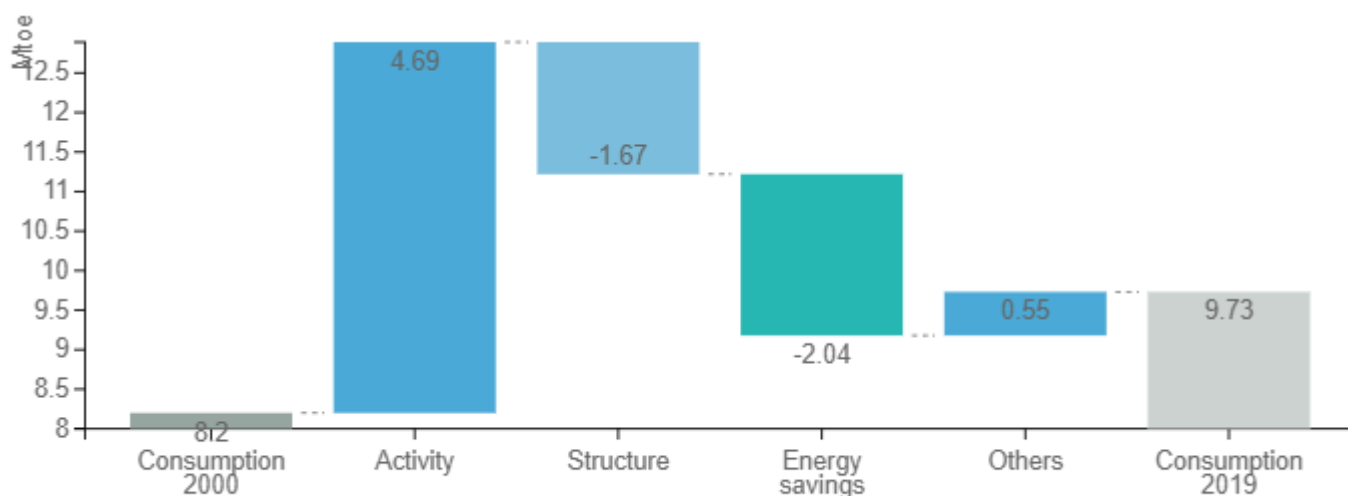


Source: ODYSSEE



Figure 13 shows an increase in industry energy consumption of 1.5 Mtoe between 2000 and 2019 that was mainly driven by increased industrial activity (4.7 Mtoe). This effect was partly counterbalanced by energy savings (-2 Mtoe) and structural changes (-1.7 Mtoe).

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



Source: ODYSSEE

Key goals for the decarbonization of the industry sector are a highly efficient use of resources, and the coordination of the energy demand from industrial facilities with the energy supply from renewable sources. Other measures are company advisory programs, thermal renovation of existing company buildings, compulsory energy audits for large companies and the implementation of energy and environmental management systems. In addition, research and industry are funded to develop and test new concepts and so-called “breakthrough technologies” for low-CO₂ production.

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

Measures	Description	Expected savings, impact evaluation	More information available
Energy Taxation	An energy tax has been levied on coal, lignite, coke and similar products since 2004	High	https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20002873
Obligatory energy audits for large companies	The Energy Efficiency Act commits large companies to conduct energy audits every fourth year.	High	http://www.monitoringstelle.at/index.php?id=585

Source: MURE

