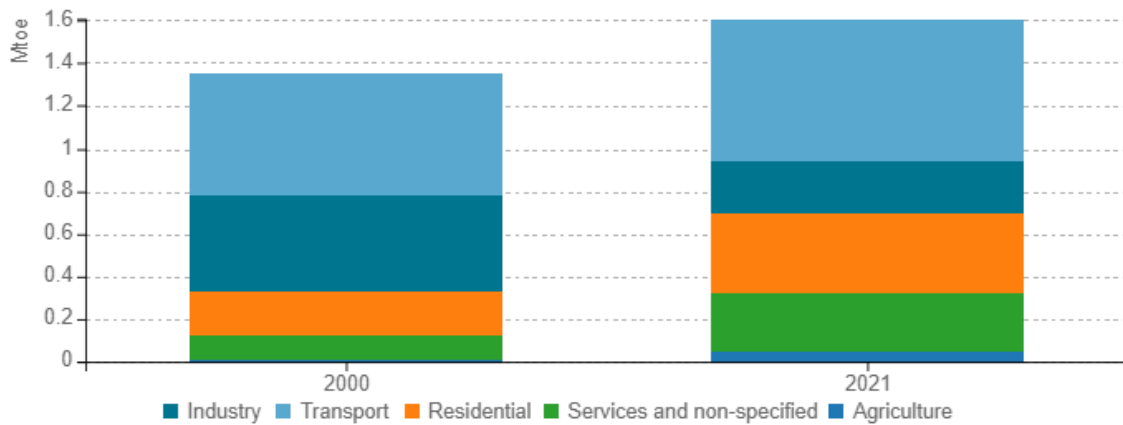


Energy efficiency trends and policies

Overview

Despite the temporary effects of the economic recession of years 2012-2015, energy consumption in Cyprus was higher in 2021 than in 2000. Increases in energy demand of both transport and buildings (residential and services) have been responsible for this development, while the share of industry in energy consumption has dropped both because of the smaller share of industry in total economic activity in 2021, and thanks to energy efficiency improvements in major industrial plants.

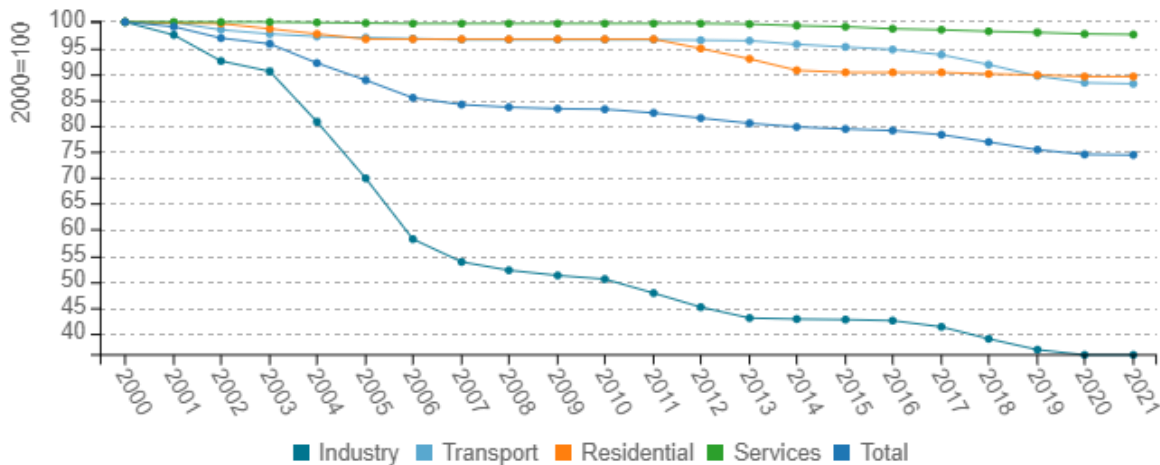
Figure 1: Final energy consumption by sector (normal climate)



Source: ODYSSEE

Overall technical energy efficiency has improved by around 26% in Cyprus between 2000 and 2021. This has been driven by energy efficiency improvements in all sectors - buildings, industry and transport. Industry has shown the fastest increase in energy efficiency, mainly because the largest industrial energy consumer is by far the cement industry, which has undergone a major reconstruction and refurbishment of its plants. Services have demonstrated the slowest energy efficiency improvement, as well as transport until 2015. Over the last years (2014-2021) progress in the residential sector has remained stagnant too.

Figure 2: Technical Energy Efficiency Index



Source: ODYSSEE



Table 1: Sample of cross-cutting measures

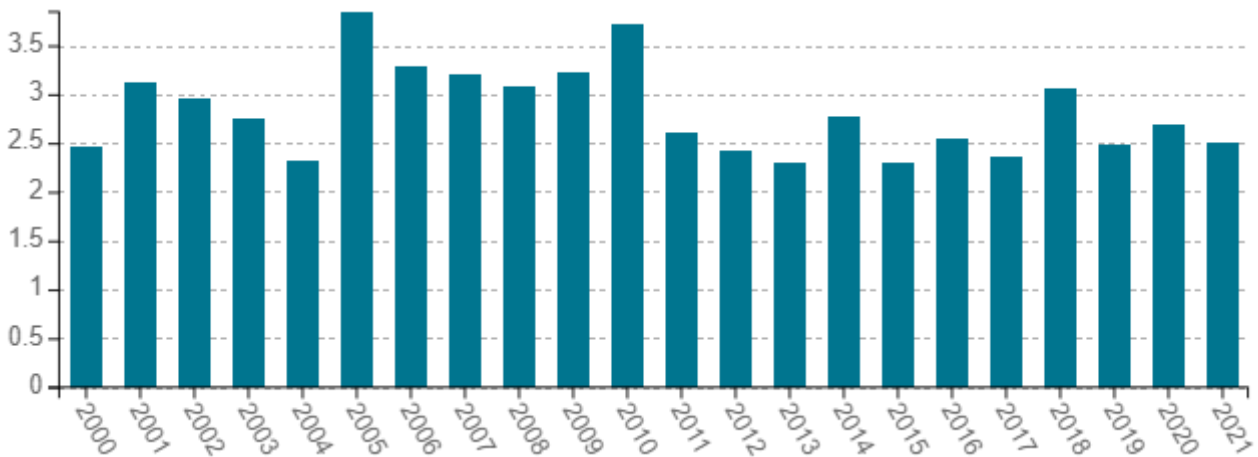
Measures	NECP measures	Description	Expected savings, impact evaluation
Energy efficient street lighting	yes	Replacement of existing lighting systems in public roads (motorways and local roads) with new, more efficient ones, in the period 2018-23.	20 TJ energy savings by 2023, 4.2 kt CO2 emission reductions by 2023
Net billing scheme for high-efficiency cogeneration (HECHP)	yes	Applies to commercial, industrial and public administration consumers for the installation of HECHP systems of up to 5 MW mainly for covering their own consumption	70 TJ energy savings by 2030, 6.1 kt CO2 emission reductions by 2030
Fund of Funds providing soft loans for energy efficiency	yes	Low-interest loans by private banks to cover the capital cost for implementing energy efficiency investments. Target groups are households, SMEs and public sector	210 TJ energy savings by 2023, 18.4 kt CO2 emission reductions by 2023

Source: MURE

Buildings

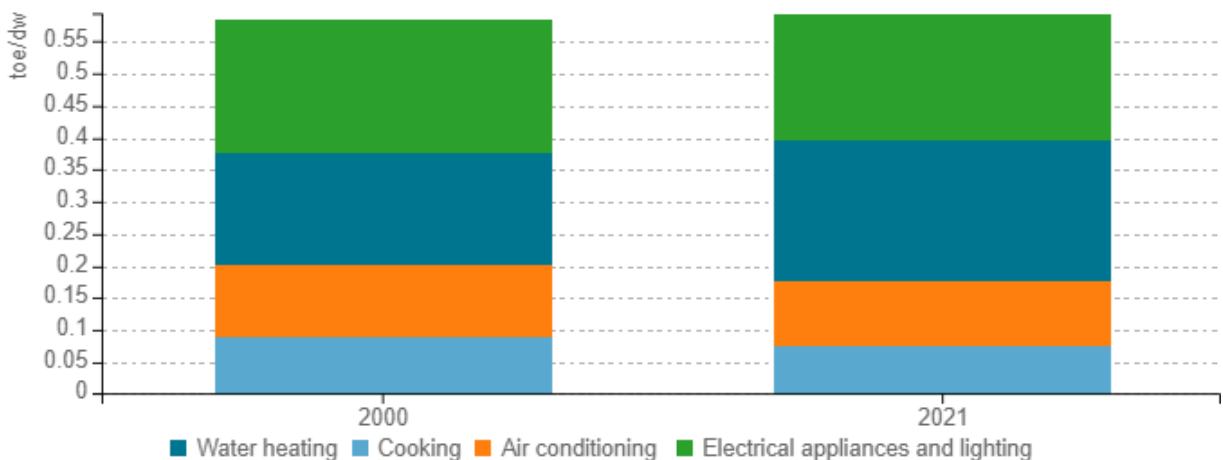
Energy efficiency of new buildings in Cyprus has improved steadily since the adoption of energy performance standards in the mid-2000s, and as a result of the implementation of all relevant EU legislation. Still, energy consumption of buildings has remained stagnant - or even slightly grown - as a result of the increasing number and size of dwellings, which outweighs energy efficiency improvements, and the increased utilisation of space heating appliances in modern buildings. Because of the relatively mild winters in Cyprus, space heating was used less in earlier years, but modern residential and office buildings always include space heating installations. Residential energy consumption per dwelling in 2021 was almost the same with that in year 2000, which seems to be the composite effect of improved energy performance of new buildings and some energy renovations in existing buildings on the one hand, and greater size and comfort of more recent buildings on the other hand. The share of main end uses in energy consumption has not changed significantly. Electrical appliances and water heating are responsible for the highest part of final energy consumption - however, the latter use is predominantly satisfied through solar water heaters.

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)

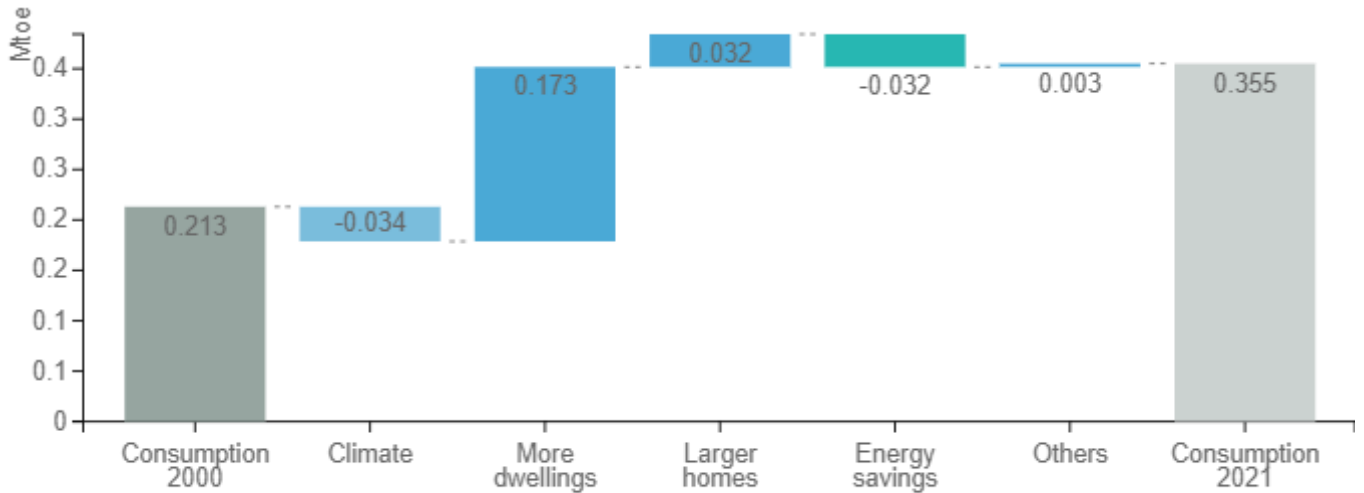


Source: ODYSSEE



The increase in the number and size of dwellings has been primarily responsible for the rise in total residential energy consumption between 2000 and 2021. It has been only partly counterbalanced by energy efficiency improvements.

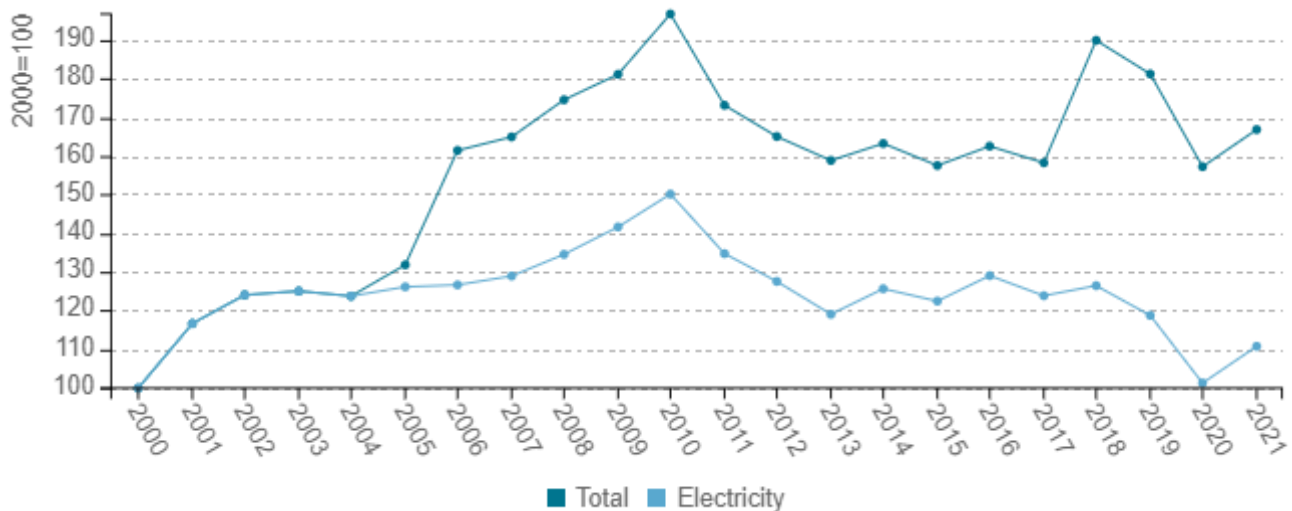
Figure 5: Main drivers of the energy consumption variation of households



Source: ODYSSEE

Energy consumption per employee in the service sector of Cyprus has declined, essentially after 2010, as the combined effect of the economic downturn of 2012-2015 and energy efficiency improvements. The sector relies on electricity by more than 80% to cover its energy needs.

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



Source: ODYSSEE



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

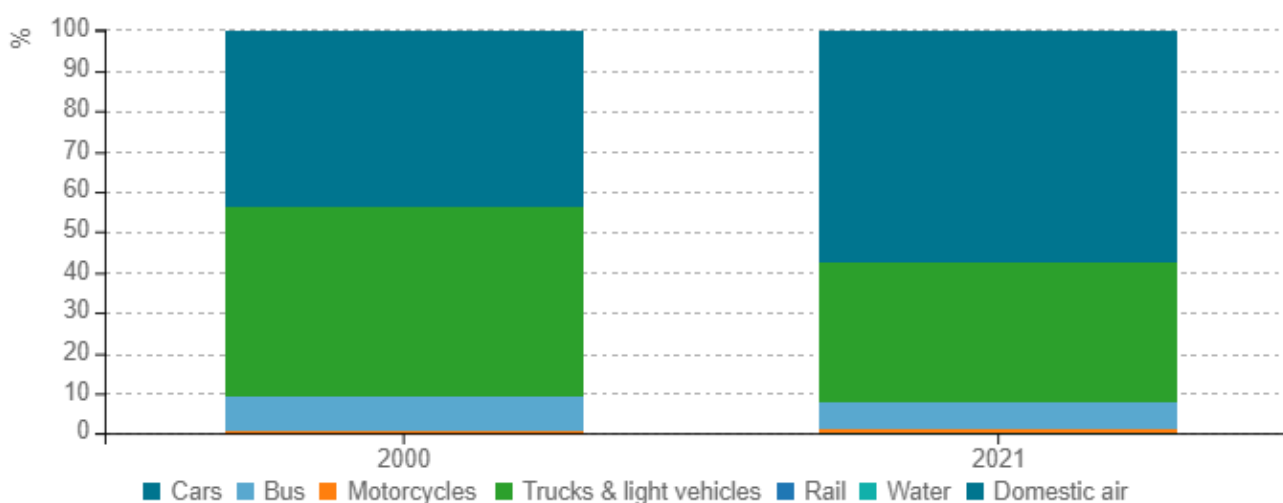
Measures	Description	Expected savings, impact evaluation
Smart electricity meters	The measure concerns the gradual installation of 400,000 electricity smart meters on the building stock of the country between the period 2021-2027	70 TJ annual energy savings, 6.1 kt annual CO2 emission reduction by 2030
Reduced VAT for energy renovations in the residential sector	Since December 2015, renovations of private residences are subject to a VAT rate of 5% instead of the standard VAT rate of 19%. The renovations subject to reduced VAT include thermal insulation of external walls and replacement of doors and windows of the building.	
Access to finance for energy renovations	Low-Interest Loans Provided by the Cyprus Cooperative Bank	13,5 TJ annual energy savings, 1.52 kt annual CO2 emission reduction in 2020
Support schemes for promoting energy efficiency investments in buildings	Renovations of existing dwellings are co-funded by this scheme. They address Individual energy efficiency measures in public buildings and dwellings.	1.56 PJ cumulative energy savings by 2025

Source: MURE

Transport

Transport accounts for half of final energy consumption in Cyprus, and cars are responsible for more than half of transport's energy use. This is due to the very low use of public transport, despite recent investments in public buses which have not been adequate to induce a significant modal shift.

Figure 7: Transport energy consumption by mode

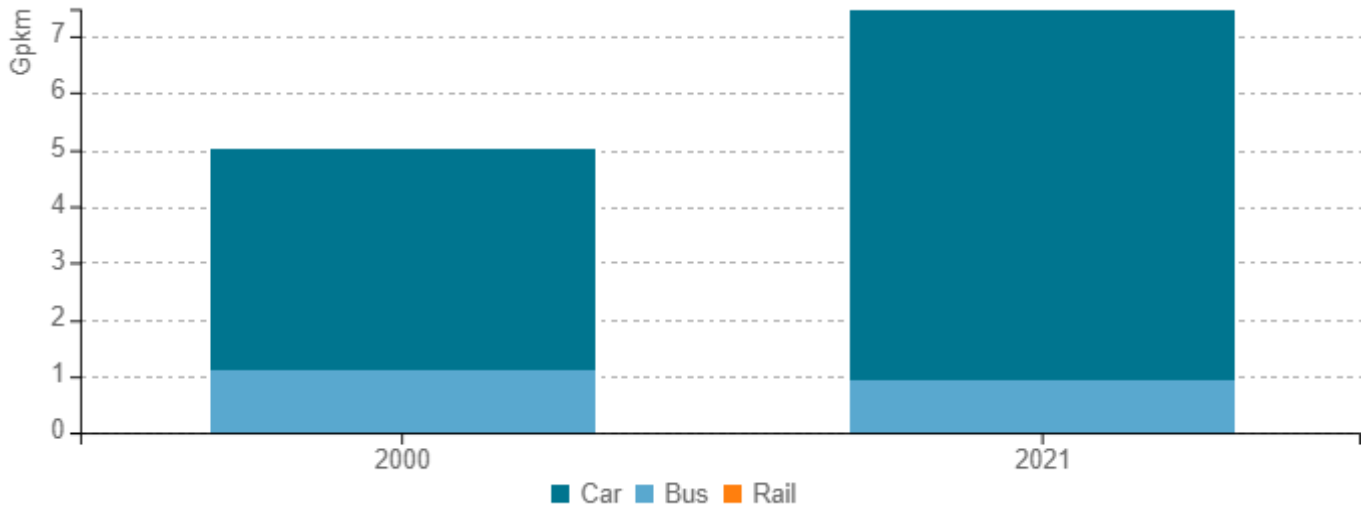


Source: ODYSSEE



Attempts to strengthen the public transport system, which consists of urban and interurban buses, have only had a small effect up to now. Therefore, the share of cars in total passenger traffic has remained very high in Cyprus; in fact, it has risen further between 2000 and 2021.

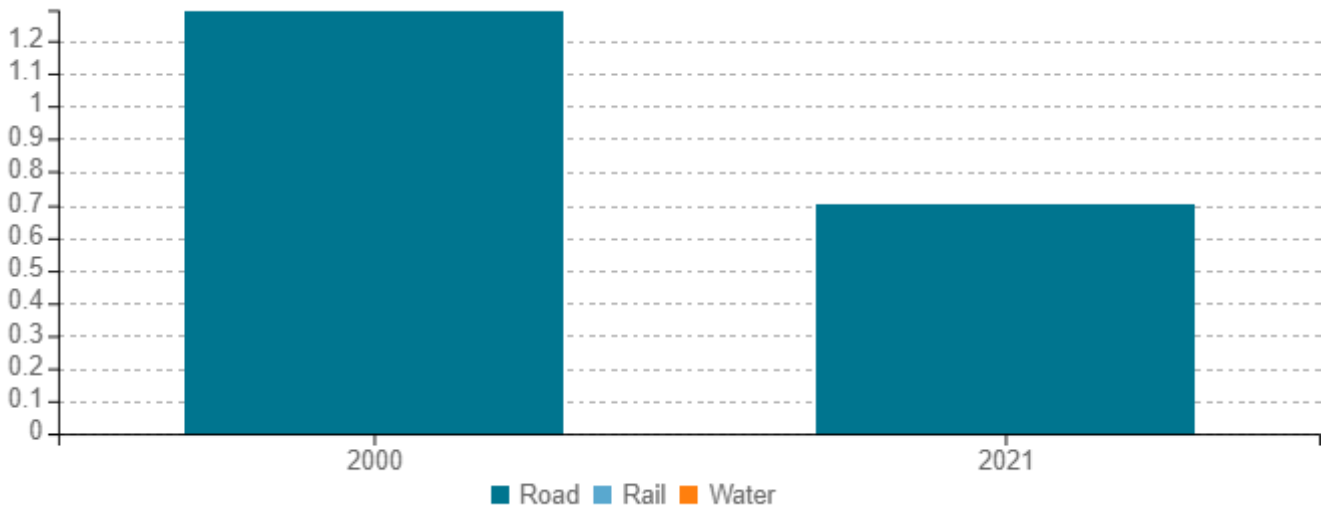
Figure 8: Modal split of inland passenger traffic



Source: ODYSSEE

Inland freight transport is conducted only with trucks.

Figure 9: Modal split of inland freight traffic

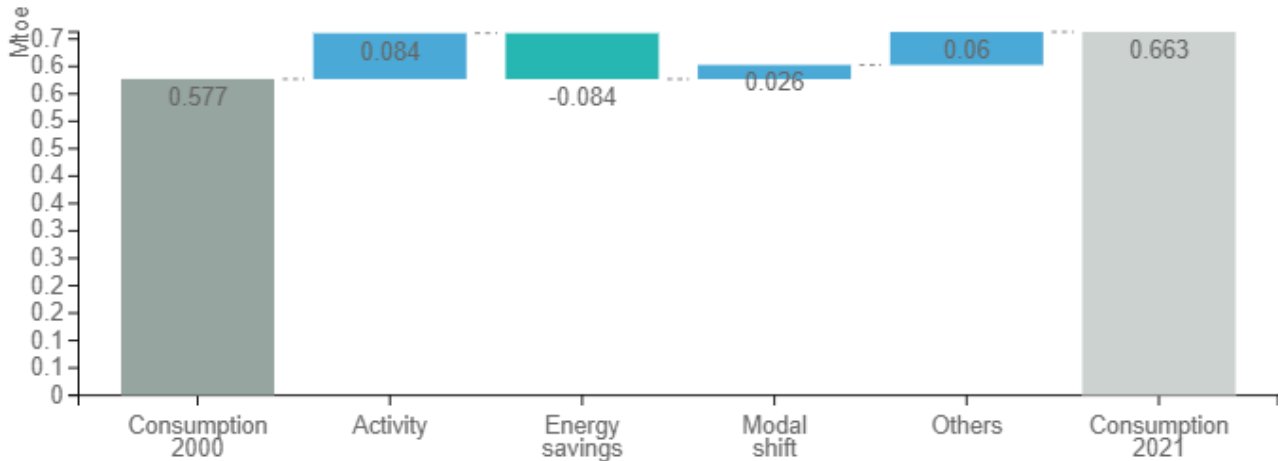


Source: ODYSSEE



Despite some energy efficiency improvements because of the gradual renewal of the stock of motor vehicles, increases in total passenger kilometres and tonne kilometres travelled have been stronger; therefore, total energy consumption of transport has risen by almost 15% between 2000 and 2021.

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



Source: ODYSSEE

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

Measures	Description	Expected savings, impact evaluation
CO2-based vehicle taxation	Annual circulation taxes are mainly calculated on the basis of a vehicle's certified CO2 emission levels. The CO2 component was strengthened in 2019.	

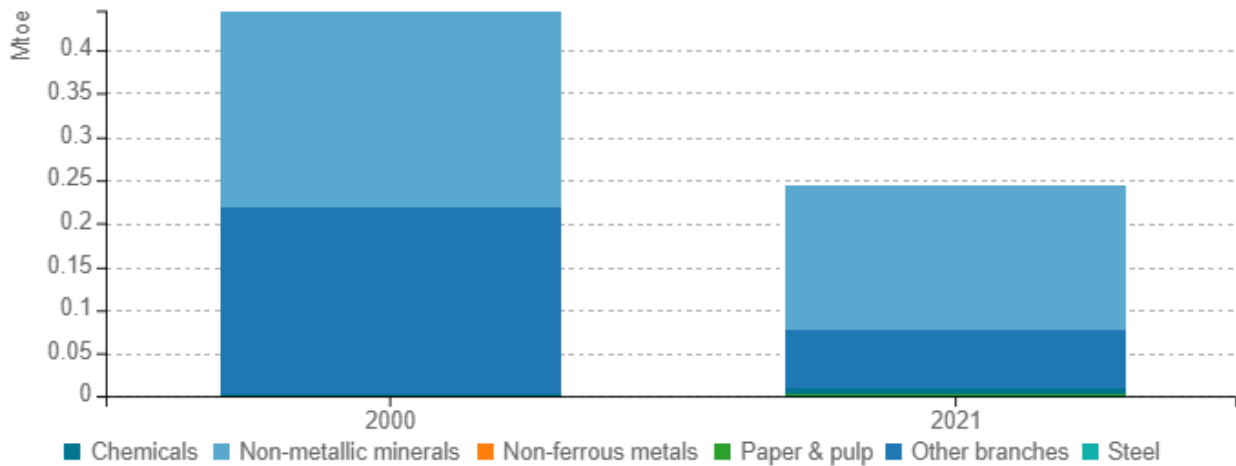
Source: MURE



Industry

Industrial activity in Cyprus has been steadily declining. This has led to a drop in final energy consumption of the industrial sector. The fall in energy use has been accelerated by substantial energy efficiency improvements across the sector and mainly in the cement industry.

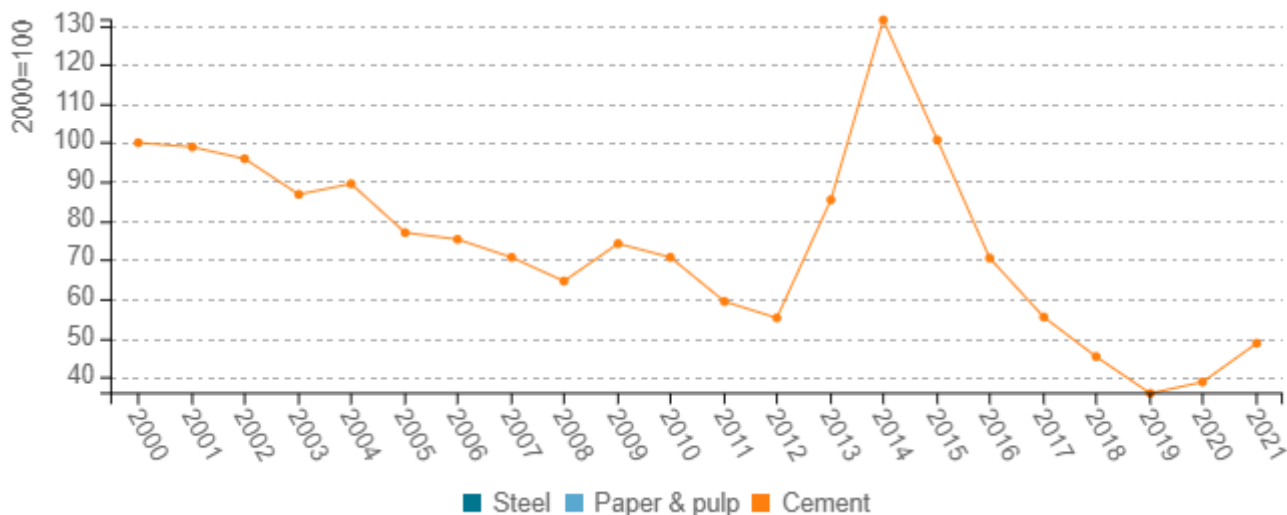
Figure 11: Final energy consumption of industry by branch



Source: ODYSSEE

Final energy consumption of the industrial sector in Cyprus has dropped substantially over the last two decades because of a strong decline in industrial economic activity. The non-metallic minerals sector, dominated by the cement industry, is currently the only energy-intensive industrial activity in Cyprus and is responsible for more than half of industrial energy use.

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

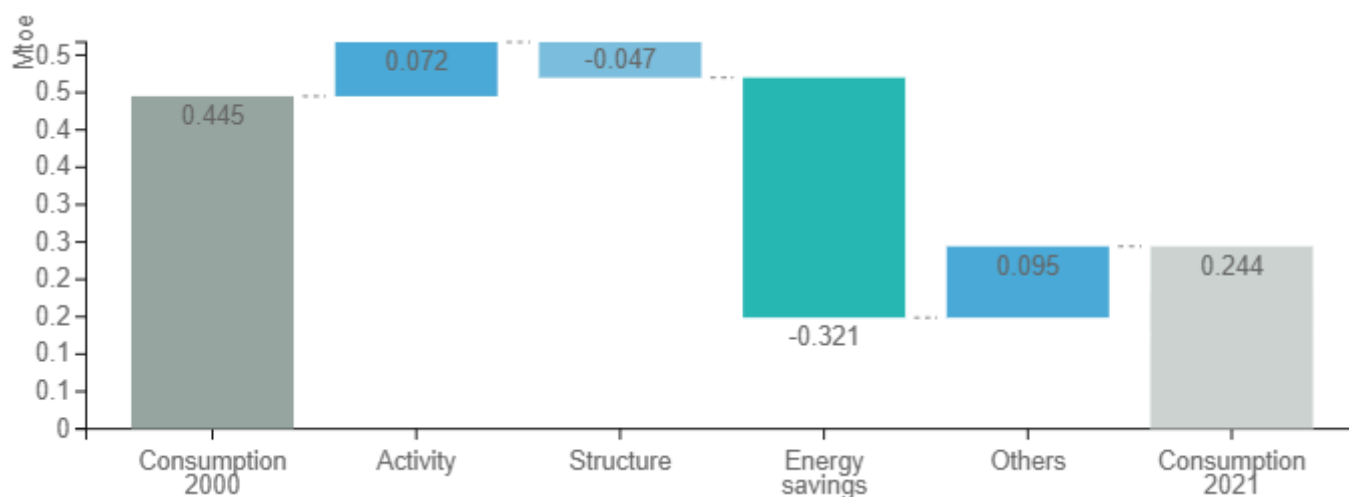


Source: ODYSSEE



Unit consumption of the cement industry - the only energy-intensive industry of Cyprus - has declined since 2000. The increase after 2012 is an artefact of the decreasing denominator of this index (tonnes of cement production) because production of cement has dropped substantially in 2013-2015 because of the decline of the Cypriot construction industry due to the economic downturn. However, production of clinker (which was exported for cement production abroad) continued and hence energy consumption of the cement plant continued as well.

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



Source: ODYSSEE

Energy savings, mainly effected in the cement industry, as well as structural changes (i.e. a shift towards less energy intensive industrial activities) have been the major contributors of the decline in industrial energy consumption between 2000 and 2021.

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

Measures	Description	Expected savings, impact evaluation
Energy audits	Apart from organisations that are legally obliged to conduct energy audits, grants have been available to other businesses for voluntary energy audits and the implementation of recommendations included the energy audit report.	25 TJ energy savings by 2020, 3.6 kt CO2 reduced by 2020

Source: MURE