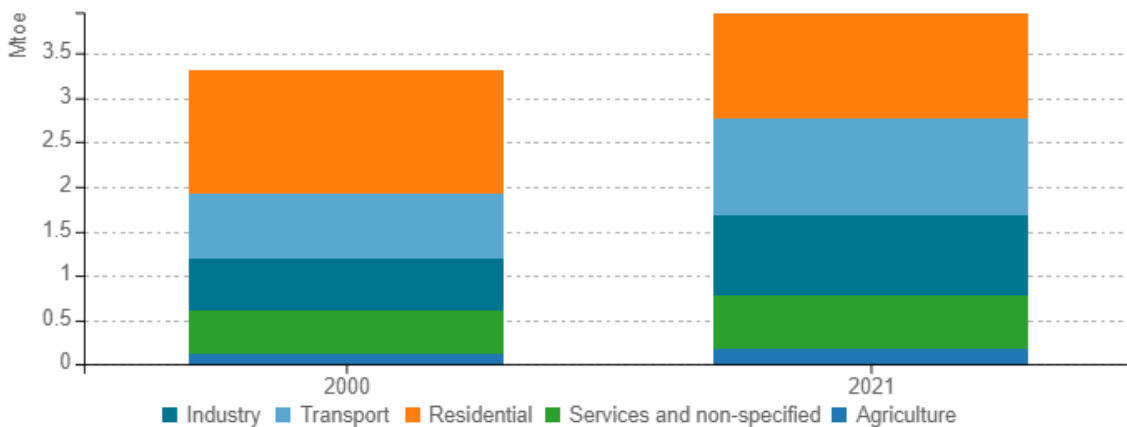


Energy efficiency trends and policies

Overview

In 2021 the final energy consumption (FEC) in Latvia was 3.95 Mtoe; the increase was about 20% in comparison with the year 2000. In 2021, the largest consuming sector is residential, representing 30% of total FEC. The share of residential has decreased by about 12 percentage points. The share of transport has significantly increased from 22.1% to 27.4% in 2021, while industry increased its share from 17.5% to 22.9%. Unlike other sectors, residential energy consumption decreased by 14% over this period.

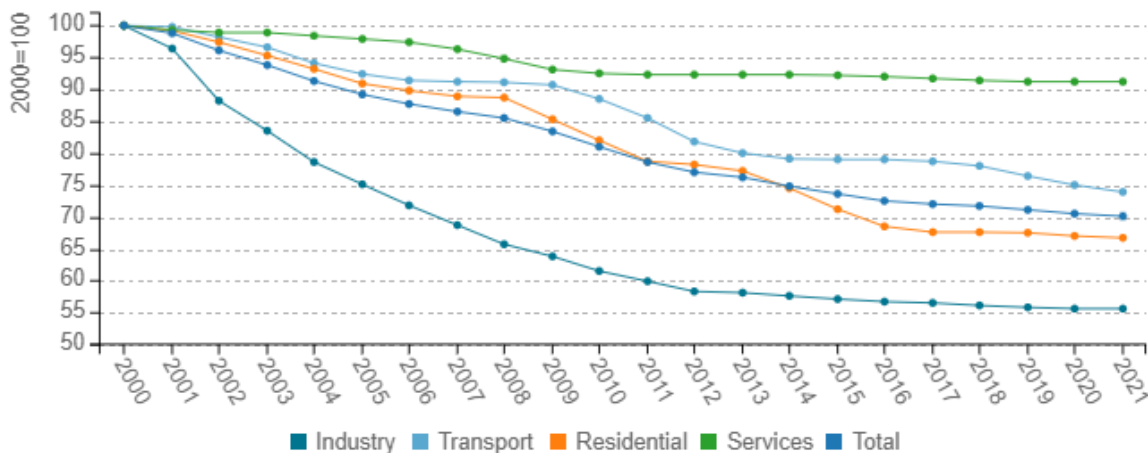
Figure 1: Final energy consumption by sector (normal climate)



Source: ODYSSEE

Energy efficiency for final consumers, as measured by ODEX, improved by 30%, or 1.7% per year from 2000 to 2021. In the industry, despite the economic recession (2008-2011), there has been steady progress and larger gains than in the other sectors (2.8% per year). The financial support programs from the State and the implementation of legislation targeted at reducing heat losses from buildings had contributed to the improvement of energy efficiency in the residential sector by about 33% (average 1.9%/year). For the transport and service sectors, gains are lower (1.4% and 0.4% per year respectively since 2000).

Figure 2: Technical Energy Efficiency Index



Source: ODYSSEE



Energy efficiency improvement is one of the top priorities of the national energy sector development which allows for the cost-effective reduction of risks associated with security of energy supply, provides sustainability, competitiveness and growth of national economy, in line with a contribution in GHG emissions mitigation. Mix of instruments are used for energy efficiency policy implementation. The co-financing of energy efficiency investments (see sectorial Tables) and energy management systems (EMS) should be particularly underlined. The Latvia's cumulative energy saving target in 2030, according to the Article 8 of Energy Efficiency Directive (2023/1791/EU), is stated 29.522 TWh (2.54 Mtoe). To meet the cumulative energy saving target (0.8509 Mtoe) for 2020, both the Energy Efficiency Obligation Scheme and alternative measures were implemented. The Energy Efficiency Obligation Scheme included, by December 2020, electricity retailers with annual sale over 10 GWh.

Table 1: Sample of cross-cutting measures

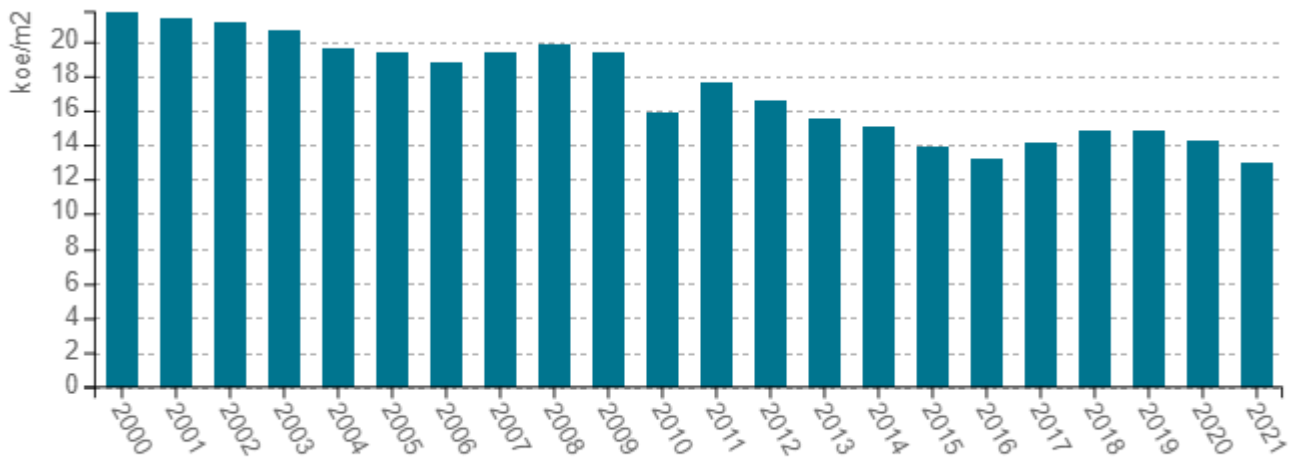
Measures	NECP measures	Description	Expected savings, impact evaluation
Energy Audits (EA)/EMS and Energy Efficiency Improvement in Large Enterprises	yes	The large enterprise shall implement EA or EMS and submit annual report on implemented energy efficiency measures and reached savings. At least three energy efficiency measures (or all if one or two stated) stated by the EA or EMS which have the highest energy savings or the highest economical return shall be implemented by large enterprise.	High
EMS/ Energy Audits in Entities - Large Electricity Consumers (> 500 MWh /year of electricity consumption in two subsequent years).	yes	The large electricity consumer shall implement EMS or EA and submit annual report on implemented energy efficiency measures and reached savings. It has to be implemented all ((if one or two measures stated) or at least three energy efficiency improvement measures stated by EMS or EA which have the highest energy savings or the highest economical return.	Medium
Energy Management Systems (EMS) in municipalities, state direct administration institutions and derived public persons.	yes	After 2021 administrative territorial reform the EMS became mandatory in all municipalities. EMS is mandatory in those state direct administration institutions and derived public persons which have buildings with total heated area 10000 m2 and above. Annual report on implemented energy efficiency measures and reached savings has to be submitted.	Medium

Source: MURE

Buildings

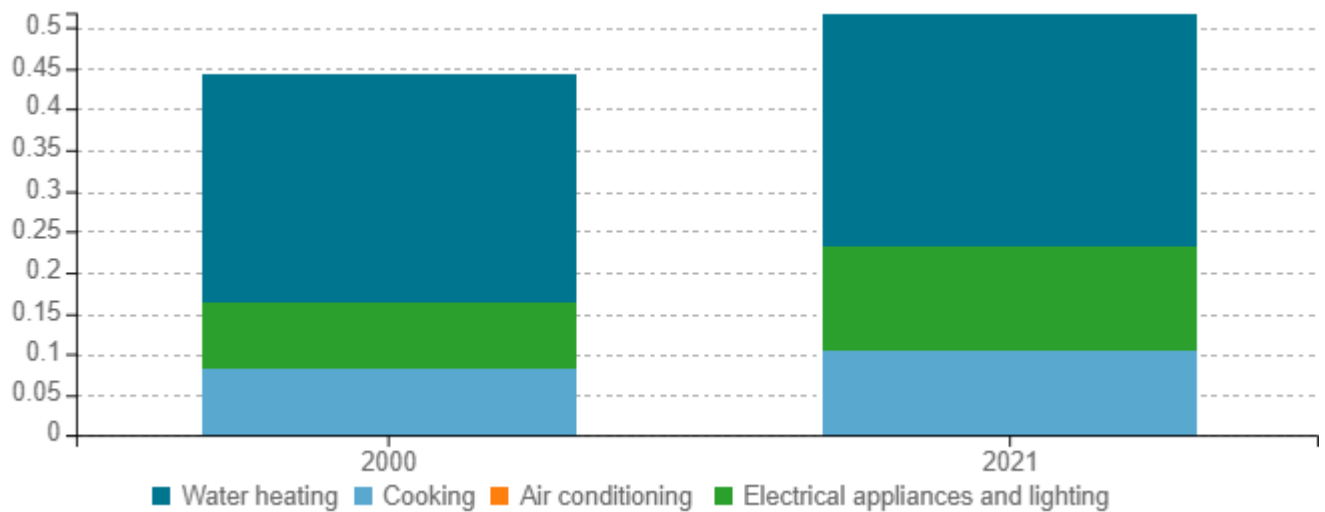
In 2021, space heating accounted for 64% of sector’s consumption, water heating for 20% and cooking for 7.2%. As shown in Figure 3 the household energy consumption per m² for space heating has decreased by 40% since 2000, from 21.7 koe/m² to 13.0 koe/m² in 2021, thanks in particular to energy efficiency policies in existing buildings. While energy consumption of electrical appliances and water heating per dwelling increased since 2000 (2.3% and 0.1%/year respectively).

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)

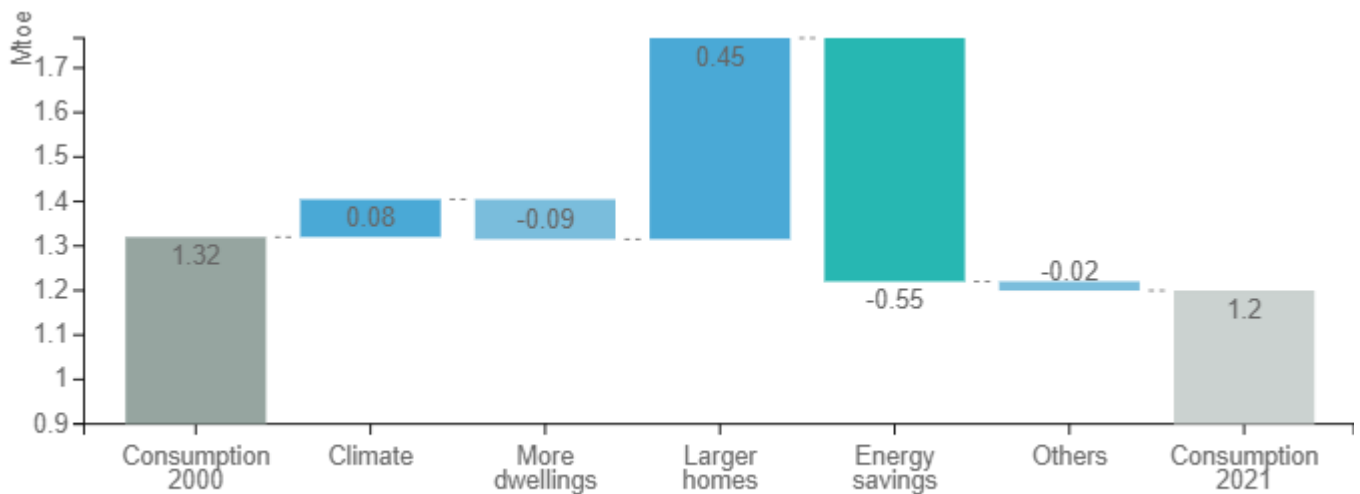


Source: ODYSSEE



The final energy consumption of households was 0.12 Mtoe lower in 2021 than in 2000. On the one hand, two main drivers contributed to increase energy consumption – lifestyle/comfort (larger homes by 0.45 Mtoe) and climate effects (by 0.08 Mtoe). On the other hand, energy savings (0.55 Mtoe) fully compensated the effect of the above-mentioned energy consumption drivers, while the decline in the number of dwellings had a slight downward impact of 0.09 Mtoe.

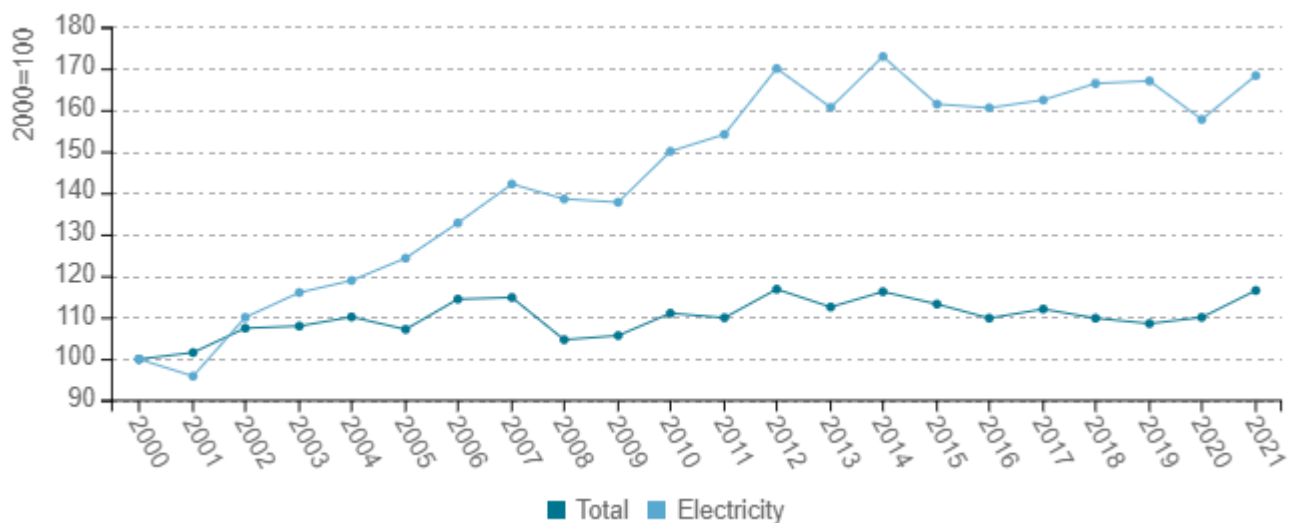
Figure 5: Main drivers of the energy consumption variation of households



Source: ODYSSEE

Energy consumption per employee increased by 17% between 2000 and 2021. To a large extent, it was due to the sharp increase by 70% of electricity consumption per employee. Though electrical appliances become ever more efficient, the rapid increase in their number and diffusion of ICT in offices contributed to the growth of electricity consumption. The introduction of digital solutions to replace employees in certain segments of the service sector also affects this indicator.

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



Source: ODYSSEE

Buildings is one of the top priorities of the national energy efficiency policy, particularly NECP2030. Mix of investment support, regulation, information measures are used. Thermal engineering of new apartment building envelopes since 1980 is characterized by continuous stringent regulations, resulting in decrease of specific normative energy consumption for heating: 150-200 (1980), 100-130 (1992), 70-90 (2003), 60-85 (2015), 40 (2021) kWh/m²/year. However more than 90% of total floor area of multi-apartment buildings were built before 2003, thus having low energy efficiency. The Cabinet of Ministers Regulation on Energy Certification of Buildings (2013) introduced six energy performance classes. The Regulation has been re-casted in 2021 stating both energy consumption for heating and non-renewable primary energy consumption for each of the class, also voluntary A+ class has been introduced. In April 2014 provisions of re-casted Directive 2010/31/EU had been included in the national Construction Standard, followed by the new Construction Standard (in force 2020). In December 2020 the Cabinet of Ministers Regulation on minimal requirements for energy efficiency of existing buildings was adopted.

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

Measures	Description	Expected savings, impact evaluation
Energy certification and Energy Performance (EP) classes of residential buildings	In April 2021 the EP classes and values have been re-casted, now based on evaluation of both (1) energy consumption for heating (A+, A-F classes), and (2) non-renewable primary energy consumption (A+, A-G classes). Important, 2021 Regulation introduces the specific energy consumption values depending on the heated area of the residential building, thus providing for cost-effective values in smaller buildings. New residential buildings, if construction intention is approved from the 1st January 2021, shall meet nearly zero energy building standard, if technically or functionally possible and cost-benefit analysis of useful lifetime does not indicate the losses. EP requirements for renovated buildings are stated by the construction standard LBN002-19. The threshold for existing buildings is EP class at least "E". For EP classes of non-residential buildings see the measure SER-LV1705.	Medium
Increasing energy efficiency (EE) in multi-apartment buildings	EE improvement measures in multi-apartment buildings have been co-financed by the ERDF within the National Operational Programmes (NOP): (1) over 2007-2013 planning period (NOP "Infrastructure and Services") - 741 multi-apartment buildings and 55 social apartment buildings renovated, (2) over 2014-2020 planning period (NOP "Growth and Employment") - around 620 multi-apartment buildings renovated by 2024. The measure continues in 2021-2027 planning period, financed by both Latvia's Recovery and Resilience Facility Plan and Cohesion Policy Programme 2021-2027, see HOU-LV0793.	High

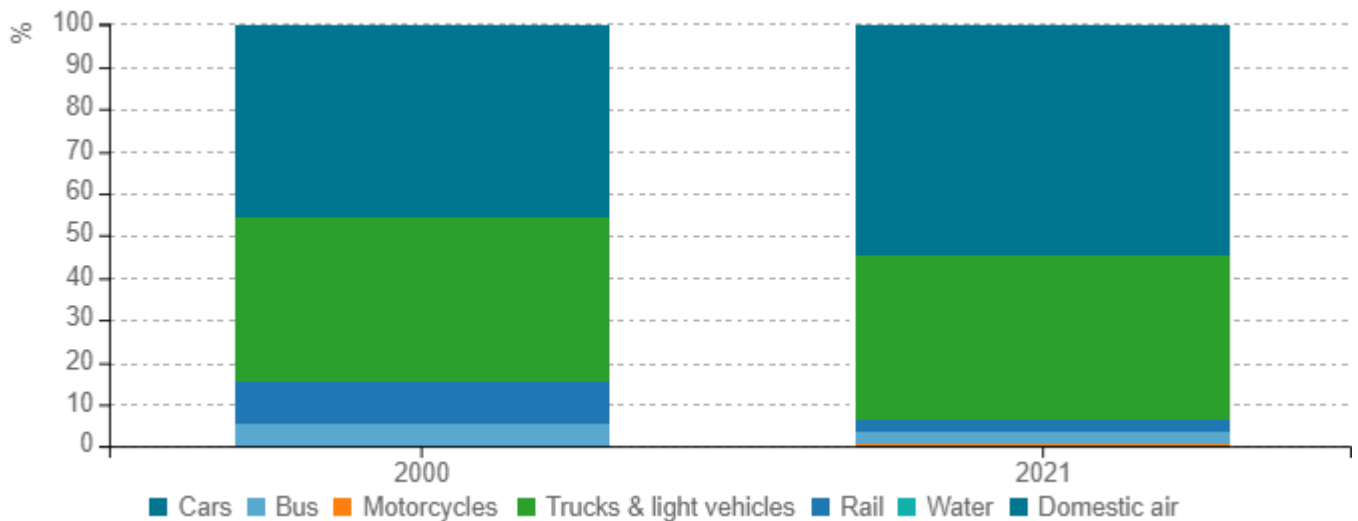
Information programme “Let’s Live Warmer”	<p>Highly effective communication programme ensuring that information on energy efficient housing renovation is widely available. Diverse actions of the programme motivate communities of flats’ owners to renovate apartment buildings and provide information on the best practices and available financial support. Information is provided also regarding the good practice of maintaining the apartment buildings after renovation.</p>	<p>Medium</p>
Increasing energy efficiency (EE) of public buildings	<p>Over the 2014-2020 planning period, EE improvement measures in municipal and state public buildings have been co-financed by ERDF within the National Operational Programme “Growth and Employment” (see the measures SER-LV1706 and SER-LV1707 respectively). The measure continues in 2021-2027 planning period, financed by both Latvia’s Recovery and Resilience Facility Plan and Cohesion Policy Programme 2021-2027.</p>	<p>High</p>
National Construction Standard LBN002-19 “Thermotechnics for building envelopes”	<p>The new Standard came into force 1st January 2020. The Standard directly incorporates the energy performance requirements (in kWh per m2 annually) for new and reconstructed/renovated buildings.</p>	<p>High</p>
Energy efficiency (EE) measures in education sector buildings	<p>Over EU Funds 2014-2020 planning period the complex support has been provided for education sector institutions (both general education, vocational education and universities), Among other activities, the investment support has been used to improve the EE of buildings (both schools and dormitories) and their engineering and lighting systems. The measure continues in 2021-2027 planning period.</p>	<p>Medium</p>
RES technologies in residential buildings to reduce GHG emissions	<p>The national green investment scheme (revenues from EU ETS Emissions Allowances Auctioning) provides support for both installation of RES heat technology to replace existing fossil fuel one and RES electricity microtechnology to produce and supply renewable electricity to residents. Also, connection of buildings to district heating system is supported.</p>	<p>High</p>

Source: MURE

Transport

Road transport constitutes the greatest part of energy consumption in transport (96.9%). In 2021 cars accounted for 54.8% of the sector’s consumption and road freight transport for 38.7%. From 2000 to 2021 the share of railway in transport energy consumption has decreased from 9.7% to 2.8%.

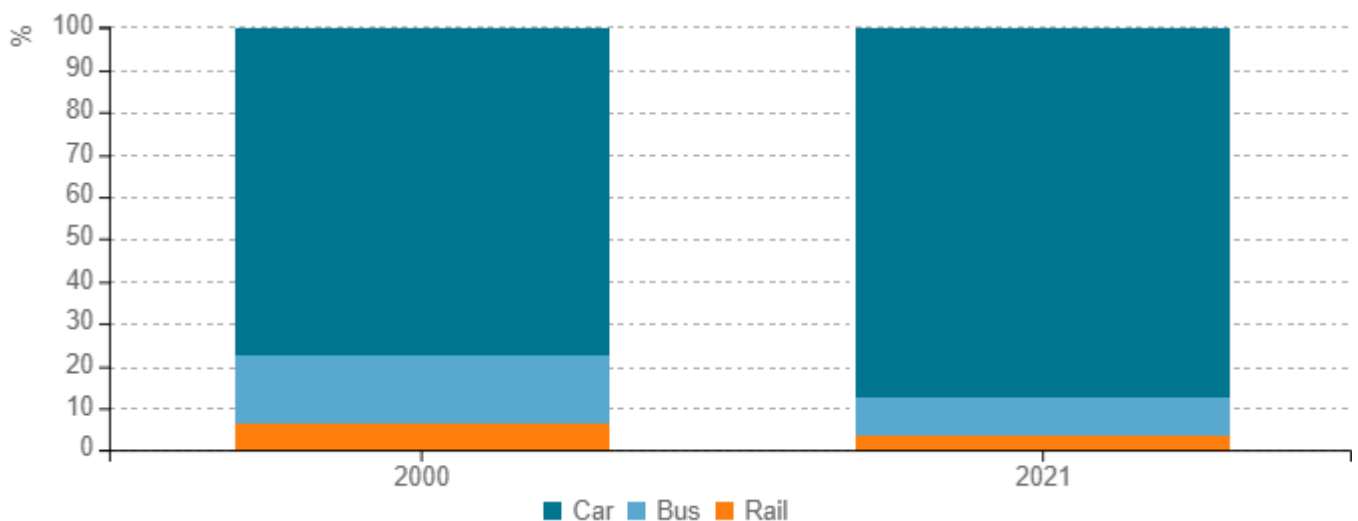
Figure 7: Transport energy consumption by mode



Source: ODYSSEE

The passenger traffic grew by around 0.2%/year since 2000. The growth was mainly observed in the traffic by cars (0.7%/year) while public transport showed an opposite trend: road public transportation decreased by 2.5%/year and rail by 2.7%/year. In 2021 cars represented 87.5% of the traffic of passengers. It should be noted that public transport was significantly impacted by the COVID-19 pandemic. In 2021, bus and rail traffic, measured in passenger-kilometers, declined by 46% and 44%, respectively, compared to 2019.

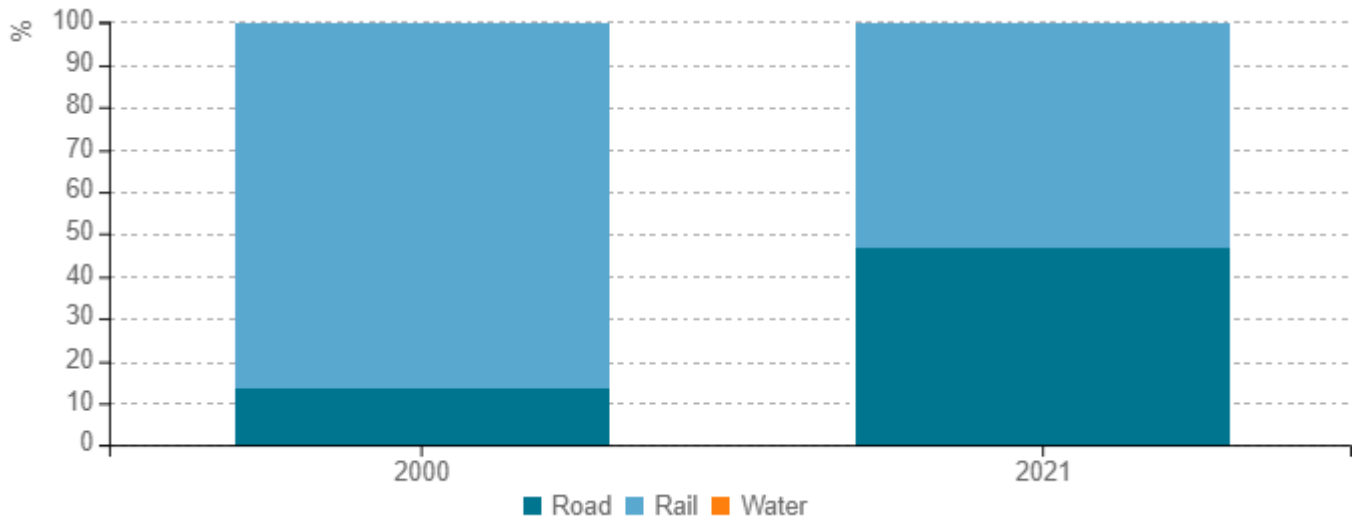
Figure 8: Modal split of inland passenger traffic



Source: ODYSSEE

Road freight transport represents 47% of total freight traffic in 2021, 33% points more than in 2000. The share of rail transport in freight decreased strongly by 33% points. Freight transport (measured in tonne-kilometre) showed decrease in comparison with 2000 (0.5% per year) due to the sharp decline in rail transport from 2019.

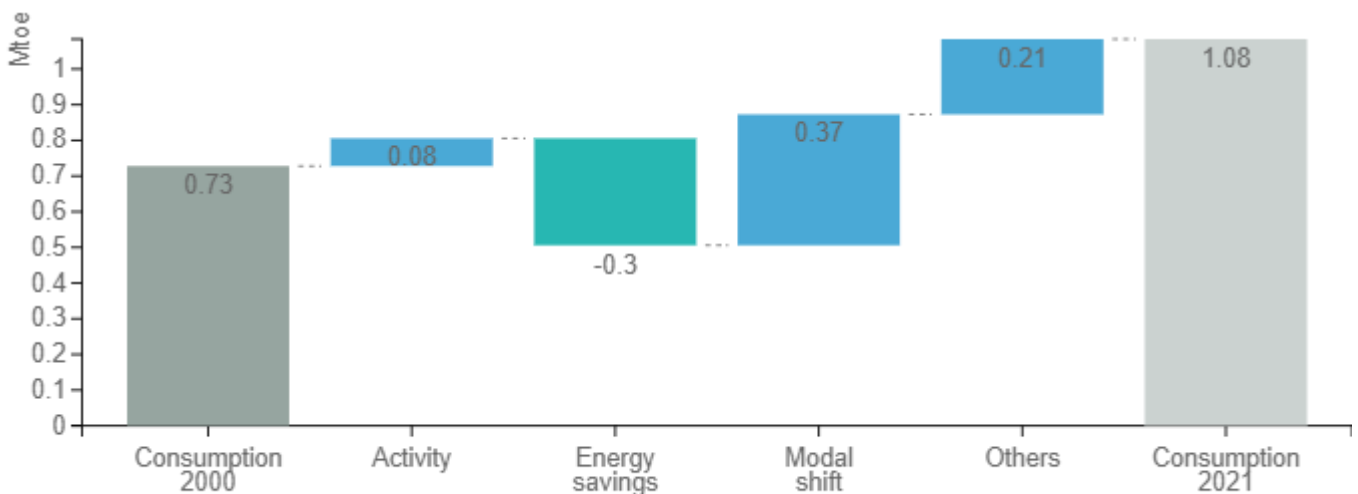
Figure 9: Modal split of inland freight traffic



Source: ODYSSEE

The energy consumption in the transport sector has increased by 2%/year from 0.73 Mtoe to 1.08 Mtoe. The main drivers for the increase are the growth in passenger traffic (0.08 Mtoe) and shift from rail to road for freight and from public transport to cars (0.37 Mtoe). This trend was partly counterbalanced by energy savings (0.3 Mtoe).

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



Source: ODYSSEE



NECP 2030 policies promote zero-emission vehicles, both public, commercial and private transport, multi-modality and environmentally friendly transport infrastructure. Planning of environmentally-friendly transport system started with "Electromobility Development Plan 2014-2016", followed by "Alternative Fuels Development Plan 2017-2020" and "Transport Sector Development Strategy 2021-2027". Mix of measures is applied in these documents and NECP2030: infrastructure investment, electric vehicles (EV) purchase co-financing, regulations (standards, labelling, public procurement), fiscal, information/education ones. Cars' and light duty vehicles' annual operational tax based on specific CO2 emission is introduced. EURO class-based taxation is introduced for buses and duty vehicles having gross weight above 3500 kg. The country-wide EV fast charging network is established, followed by on-going development of EV charging infrastructure in public areas.

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

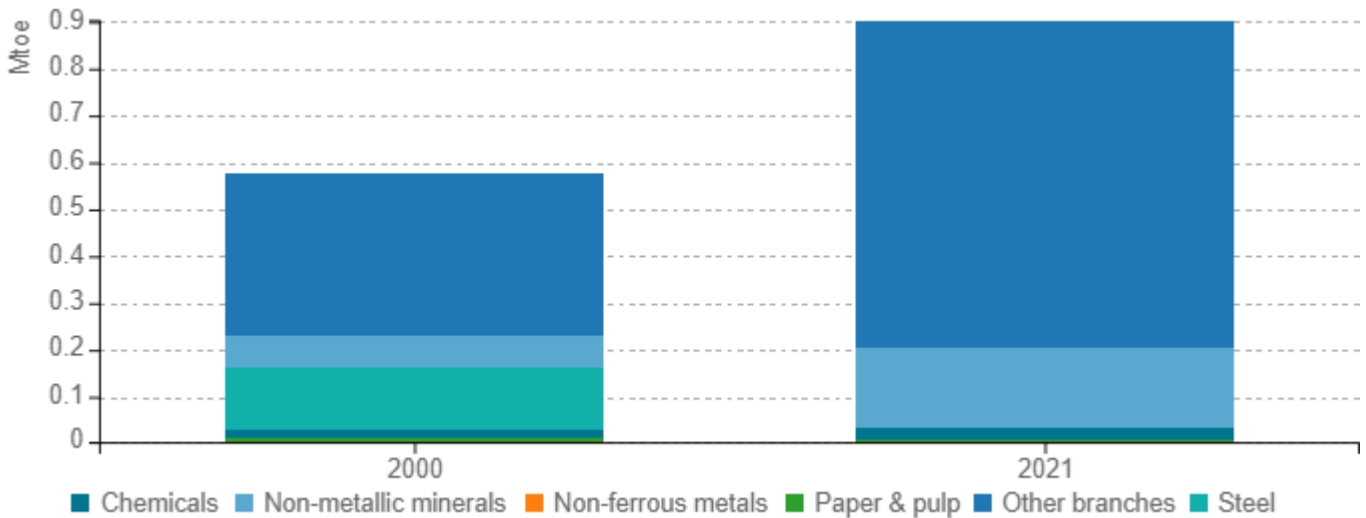
Measures	Description	Expected savings, impact evaluation
Annual operational tax of cars and light duty vehicles based on specific CO2 emission.	Motivates car owners to choose fuel efficient vehicle. The 2016 Amendments on the Law „On the Vehicle Operation Tax and Company Car Tax” (in force from the 1st January 2017) have introduced specific CO2 emission based tax for the cars which had first registration in 2009 and afterwards. In its turn, the 2020 Amendments (in force from the 1st January 2021) have introduced specific CO2 emission based taxation also for the light duty vehicles with gross weight up to 3500 kg registered for the first time after the 31th December 2011.	Medium
Development of the infrastructure of environmentally friendly public transport	The three specific objectives have been (1) widening of trams infrastructure, (2) increase of number of environmentally friendly public buses, and (3) implementation of new energy efficient EMU trains (replacement of old ones, see TRA-LV2288). Investments have been co-financed by Cohesion Fund within the National Operational Programme “Growth and Employment 2014-2020”. In 2023-2029 attention is paid to co-finance zero emission (buses) transport fulfilling municipal functions (see TRA-LV3890) and zero emission public transport in Riga metropolitan area.	Medium
Electromobility Development	Implementation of country-wide electric vehicles’ fast charging infrastructure had been finished in Dec 2021, co-financed by the ERDF within the National Operational Programme “Growth and Employment” of 2014-2020 planning period. Currently is on-going development of EV charging points in public areas and establishment of fast charging stations on TEN-T roads is envisaged.	Medium
Electric vehicles purchase subsidies for (1) physical persons, and (2) manufacturing industry	Support is provided for M1 and N1 category vehicles. Regarding physical persons, support in 2022-2024 is provided by national green investment scheme (revenues from EU ETS Emissions allowances auctioning) for both new and exploited BEV and new PHEV, it is also provided support for the scrapping of an existing vehicle. In turn, the support for manufacturing industry for new BEV in 2022-2026 is provided by Latvia’s Recovery and Resilience Facility Plan (see TRA-LV4492).	Medium

Source: MURE

Industry

The total consumption of the industry sector increased from 0.58 Mtoe in 2000 to 0.9 Mtoe in 2021 (+57%). The consumption increase was mainly brought about by two branches: non-metallic minerals by 4.7% per year and wood and wood products by 9.2% per year; the later absorbs 61% of the energy consumption of the manufacturing sector.

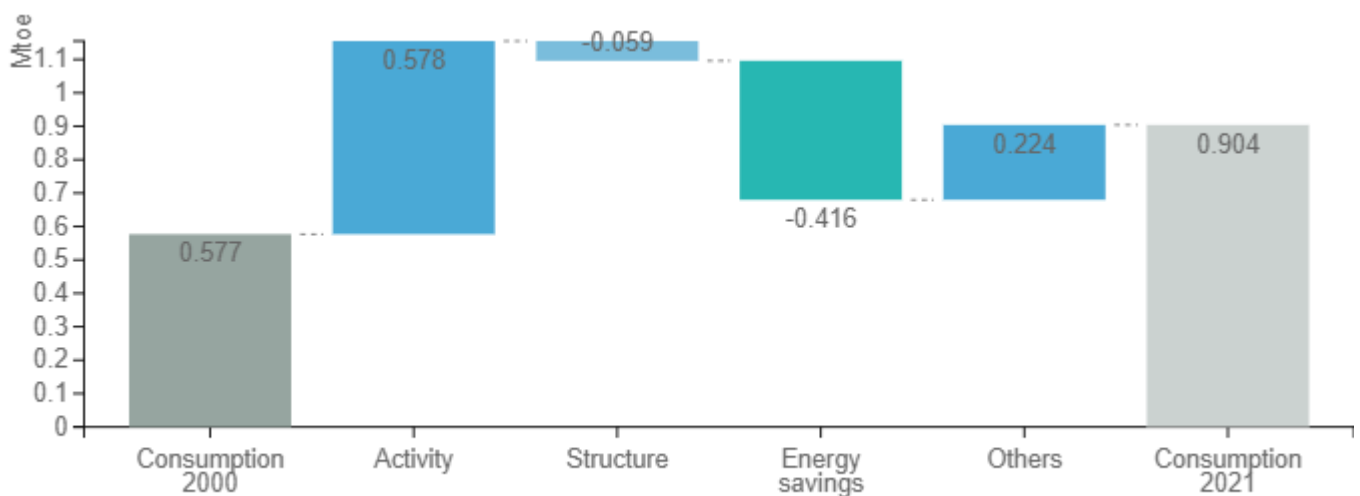
Figure 11: Final energy consumption of industry by branch



Source: ODYSSEE

Since 2000 final energy consumption increased by 2.2%/year driven by a growth in activity (0.58 Mtoe) and other factors (0.22 Mtoe). Just over half of these effects have been offset by energy savings (0.42 Mtoe) thanks to technical improvements of the machineries and processes.

Figure 12: Main drivers of the energy consumption variation in industry



Source: ODYSSEE



A mix of investment co-financing, regulatory (particularly mandatory implementation of energy audits/energy management systems in large enterprises), market instruments (particularly EU ETS), information measures is used. Over the EU funds 2014-2020 planning period, the energy efficiency investments in the manufacturing industry have been co-financed by national operational programmes. In turn, the State Development Finance Institution ALTUM provides complementary measures.

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

Measures	Description	Expected savings, impact evaluation
Efficient use of energy resources, reduction of energy consumption and transfer to RES in manufacturing industry	Over the period 2010-2015 the measures to increase energy efficiency (EE) in Industry were co-financed by the national green investment scheme (revenues from emissions trading under UFGCC Kyoto Protocol). Over the 2014-2020 planning period, the investments to improve EE in manufacturing industry have been co-financed by Cohesion Fund within the National Operational Programme "Growth and Employment". The activities included EE improvement in both industrial buildings and their engineering and lighting systems and industrial production technologies as well as implementation of RES utilizing energy production technologies. The measure continues in 2021-2027 planning period, financed by both Latvia's Recovery and Resilience Facility Plan and Cohesion Policy Programme 2021-2027, see IND-LV3885.	High
ALTUM programmes	The state-owned JSC "Development Finance Institution ALTUM" provides complementary programmes for energy efficiency, such as providing green bonds' loans and grants for energy audits.	Medium
Energy efficiency improvement within the complex investment co-financing programme for SME's	Over the EU Funds 2014-2020 planning period, co-financing of investments by ERDF has been done to establish new or reconstruct existing production premises and infrastructure in order to encourage development, economic activity, growth of productivity of SME's in manufacturing industry. Investments in energy efficiency have been the part of eligible activities.	Medium
Energy Audits (EA)/EMS and Energy Efficiency Improvement in Large Enterprises	The large enterprise shall implement EA or EMS and submit annual report on implemented energy efficiency measures and reached savings. At least three energy efficiency measures (or all if one or two stated) stated by the EA or EMS which have the highest energy savings or the highest economical return shall be implemented by large enterprise.	High

Source: MURE