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**COMMISSION STAFF WORKING DOCUMENT**

**Country Factsheet Lithuania**

*Accompanying the document*

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN  
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL  
COMMITTEE, THE COMMITTEE OF THE REGIONS AND THE EUROPEAN  
INVESTMENT BANK**

**State of the Energy Union**

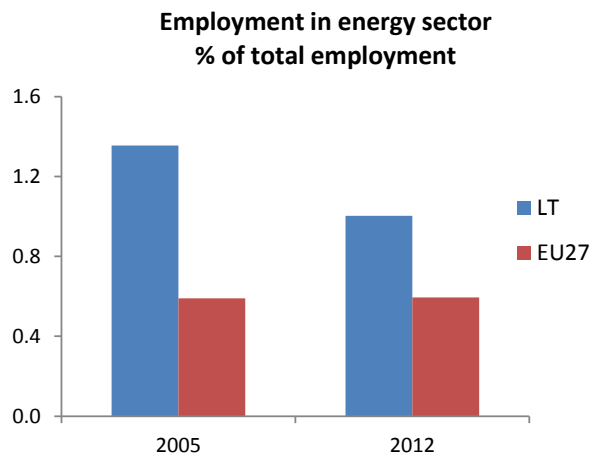
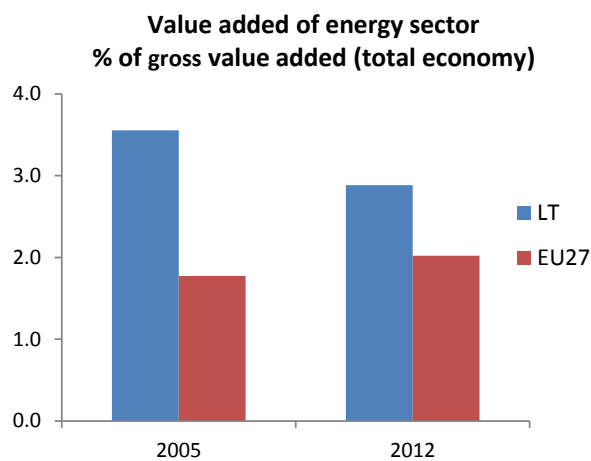
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## Macroeconomic relevance of energy

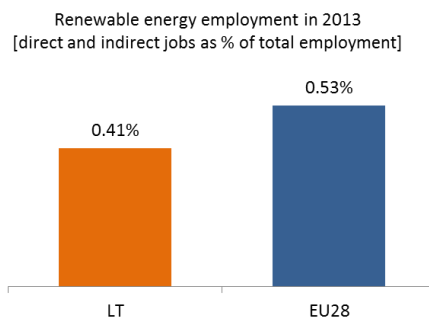
### IMPORTANCE OF THE ENERGY SECTOR

At 2.8% of total gross value added in 2012, the share of the energy sector in Lithuania is considerably higher than the EU average, but has decreased from 3.5% in 2005. In parallel, the share of employment in the energy sector in total employment has decreased importantly (from 1.4% to 1%) but is still nearly twice as high as the EU average (0.6% in 2012).



Source: EUROSTAT – National Accounts

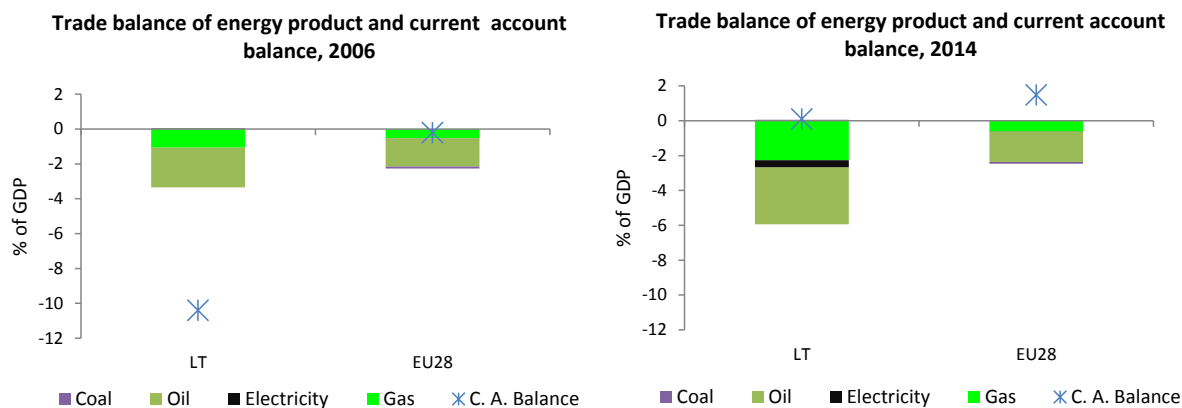
According to EurObserv'ER, in 2013, the share of direct and indirect renewable energy related employment in total employment of the economy in Lithuania was at about 0.41%, below the EU average of 0.53%.



Source: European Commission, based on EurObserv'ER and EUROSTAT

### TRADE BALANCE OF ENERGY PRODUCTS

The energy trade balance of Lithuania is significantly negative and amounted to 6% of GDP in 2014. The Lithuanian deficit is driven almost entirely by gas and oil import. Despite high dependence on foreign energy products, Lithuania has greatly reduced its current account deficit over the past few years. It went from a deficit of 10% of GDP in 2006 to a balanced current account in 2014. The reduction was largely due to non-energy components, with energy trade deficit doubling to 6% of GDP during the same period.



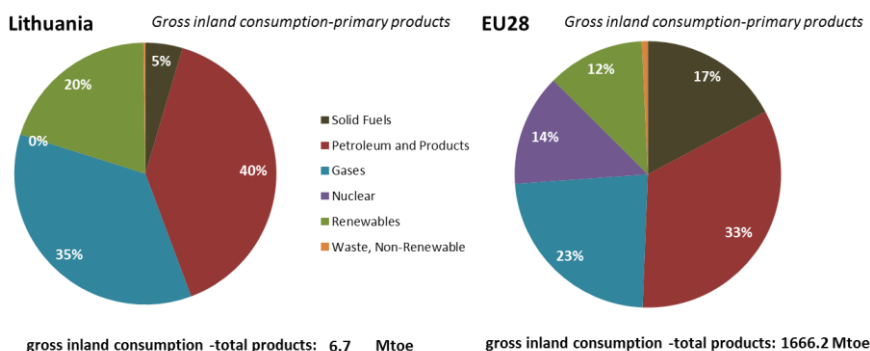
Source: EUROSTAT  
 Note: Current account balance for EU28 from European Commission (AMECO)

# 1. Energy Security, solidarity and trust

## ENERGY MIX

The energy mix of Lithuania differs from the one of the EU-28, with the notable difference of a much higher share of gases and much lower of solid fuels. Compared to 1995, the share of nuclear has decreased from 36% to 0%, due to the closure of the Ignalina nuclear power plant. Consequently, all other energy sources increased in the share of gross inland energy consumption. The share of solid fuels and petroleum and products increased (from 2% to 5% and from 35% to 40% respectively). However, it is the share of renewable energy which experiences the most striking change, with a sharp increase by 18 percentage points. The share of gases increased from 23% to 35% of the energy mix.

### Gross inland energy consumption in 2013



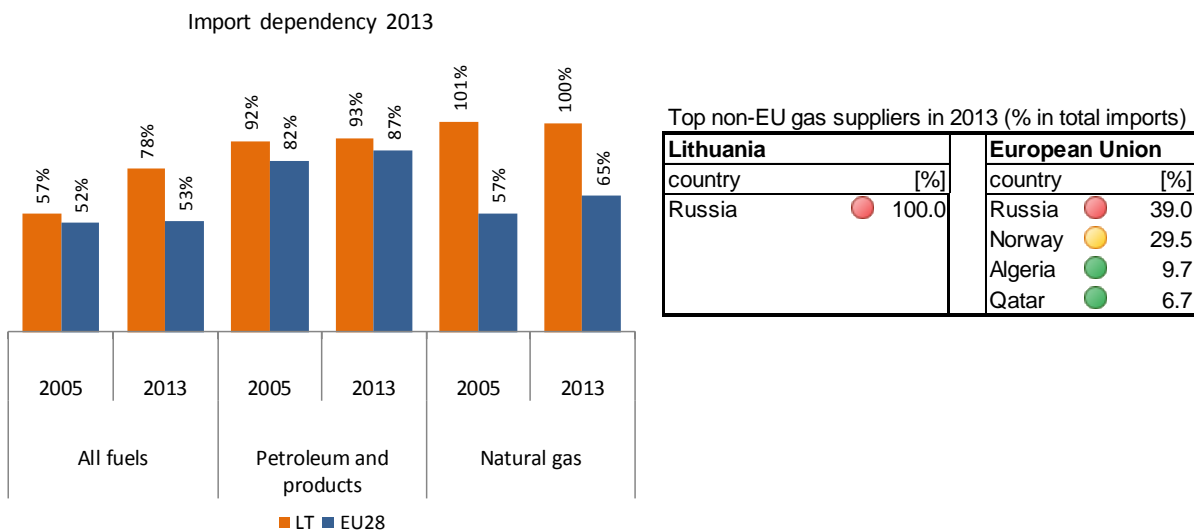
Source: European Commission, based on EUROSTAT

## IMPORT DEPENDENCY

Import dependency<sup>1</sup> in Lithuania is higher than for the EU as a whole. Import dependency was in 2013 100% for gas and at very high levels for petroleum products. However, after the putting into operation of the LNG Terminal in Klaipeda, Lithuania diversified its gas imports, although it still imports most of its gas from Russia<sup>2</sup>. In addition, the country's dependency for solid fuels increased in the last years. Supply concentration of other fuel sources is also very high, making Lithuania

<sup>1</sup> Note: A dependency rate in excess of 100% indicates that energy products have been stocked.  
<sup>2</sup> Top non-EU gas suppliers table is based on EUROSTAT data. The share of imports from non-EU countries is calculated as the ratio between volumes of imports from that specific non-EU supplier and total imports (from EU and non-EU countries).

vulnerable to external supply shocks. This also translates into a very large energy trade deficit, as expressed in percentage of GDP. Lithuania remains highly dependent on electricity imports (64% in 2013), mainly (44 %) from the Russian Federation. In order to address this issue, Lithuania is being considering a possibility to build a regional nuclear power plant together with other regional partners.



Source: European Commission, based on EUROSTAT

## 2. A fully-integrated internal energy market

### INTERCONNECTIONS



Source: European Commission based on ENTSO-E scenario outlook and adequacy forecast 2014

Note: Reference to 2030 target is based on October 2014 European Council conclusions stating that "the Commission will also report regularly to the European Council with the objective of arriving at a 15% target by 2030"

The interconnection capacity for electricity was 4% in 2014 for the three Baltic States – Estonia, Latvia and Lithuania – taken as one entity. With the start of operation of Estlink2, their level of interconnection substantially increased to around 10%. Lithuania is not directly connected to the European electricity grid<sup>3</sup> and therefore, answering to the Commission's priority of ending the Baltic isolation, several projects were listed as key infrastructure projects in the European Energy Security Strategy (EESS). Interconnectors with Sweden and Poland, to be completed in 2015, will foster security of supply and wholesale market functioning. The three Baltic States agreed in the first quarter of 2015 on a common strategic goal: de-synchronisation from IPS/UPS and the synchronisation of their power systems with the Continental European Network. The project of synchronisation is included as a key infrastructure project in the European Energy Security Strategy, as well as is highlighted as one of the key energy priority areas in Baltic Energy Market Interconnection Plan (BEMIP).

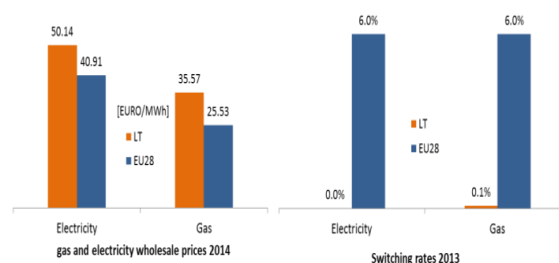
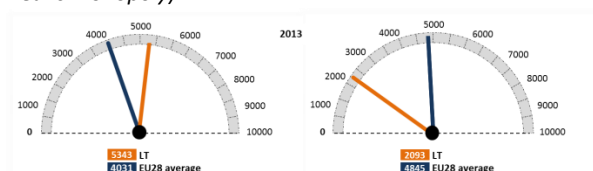
The LNG terminal in Klaipeda, finished at the end of 2014, created diversification of gas supply. However, to end the Baltic States' (and Finland's) physical isolation from the European gas networks, the new bi-directional gas pipeline between Poland and Lithuania (GIPL) is an essential project mentioned also in the European Energy Security

<sup>3</sup> The three Baltic States are interconnected with the European electricity network only via Finland at the moment.

Strategy. It will be the first gas interconnector of the Eastern-Baltic region with the Continental European gas networks. The financing agreement of the gas interconnection, signed on 15 October 2015, paves the way for its successful implementation by the end of 2019.

## ELECTRICITY AND GAS MARKETS

Market concentration index for power generation (left) and gas supply (right) (2013) (Herfindahl index – 10000 means monopoly)



Sources: ESTAT and European Commission Calculations

Sources: European Commission based on ESTAT, CEER and Platts Power Vision

Concentration on power generation markets is slightly above EU average. The closure of the Ignalina nuclear power plant in 2009 created opportunities for new suppliers on the market with the bulk of the shortfall being replaced by imports from Russia. On the upstream gas market, until the opening of the Klaipėda LNG terminal and the signing of an LNG supply contract with Statoil, Gazprom was the only gas supplier to Lithuania and the whole Eastern-Baltic region. Klaipėda LNG terminal significantly enhanced security of natural gas supply for all consumers in the Baltic States by providing an alternative gas supply source on the basis of full Third Party Access. Klaipėda LNG terminal regasification capacities of 3.8 bcm/y (10.3 mcm/d) are sufficient to cover around 90% of all current demand of the Baltic States.

Electricity and gas wholesale prices are above EU average. Regarding gas prices, the diversification of import sources via the new LNG terminal has positive impacts on prices.

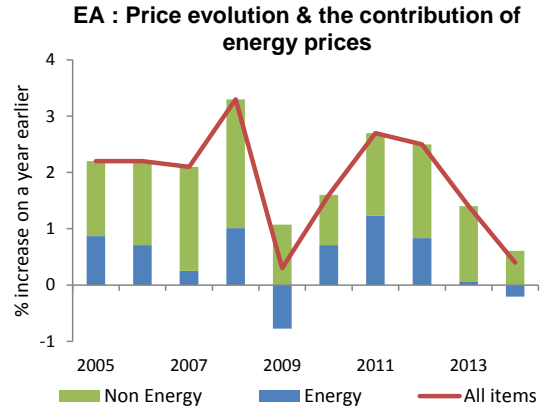
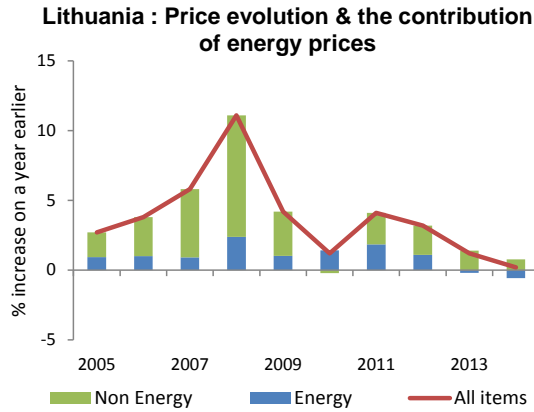
The gas market is 100% liberalised and customers are free to choose among gas suppliers, however during 2013 only modest interest in switching was observed. Changing electricity supplier in Lithuania was permitted but during 2013 no switches were made. According to an EU-wide survey<sup>4</sup>, consumers' satisfaction regarding both the electricity and the gas retail markets is well above the EU average.

Natural gas smart metering is planned to be installed in Lithuania, starting with a pilot project for large customers. In parallel, in the electricity sector a pilot project of smart meters is initiated too.

## CONTRIBUTION OF ENERGY TO CONSUMER PRICE EVOLUTION

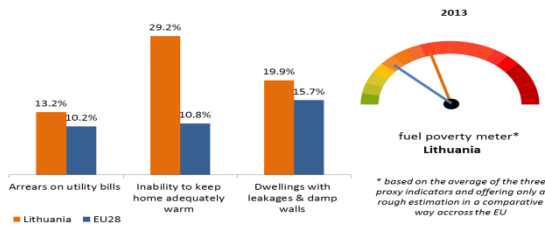
Inflation of consumer prices has decreased importantly in Lithuania compared to the pre-crisis period. Past volatility in inflation was largely due to non-energy items, although energy played a significant role in 2010-11. As in the rest of the Euro area, oil prices have declined in 2014, driving overall inflation at historically low levels.

<sup>4</sup> 10th Consumer Markets Scoreboard (June 2014), [http://ec.europa.eu/consumers/consumer\\_evidence/consumer\\_scoreboards/10\\_edition/index\\_en.htm](http://ec.europa.eu/consumers/consumer_evidence/consumer_scoreboards/10_edition/index_en.htm)



Source: DG ECFIN based on Eurostat

### VULNERABLE CONSUMERS

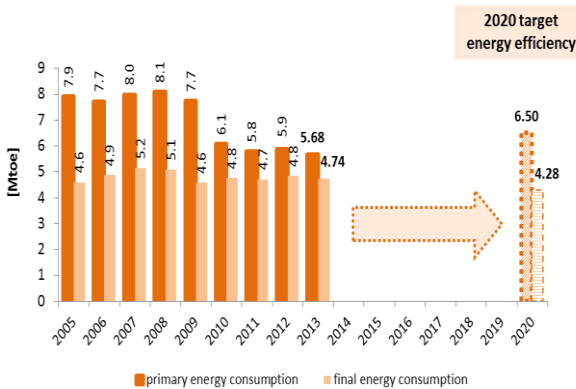


Source: European Commission, based on EUROSTAT SILC survey

According to a EUROSTAT survey, the three proxy indicators related to fuel poverty indicate an acute issue in Lithuania, in particular as regards the ability to keep home adequately warm. However, Lithuania has put in place an adequate legislative framework for the protection of vulnerable consumers.

## 3. Energy Efficiency and moderation of energy demand

### ENERGY EFFICIENCY TARGET 2020 (6.5 Mtoe primary energy and 4.2 Mtoe final energy)



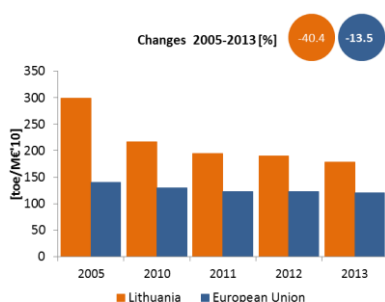
Source: European Commission, based on EUROSTAT and on national energy efficiency targets as declared by the MS under the EED

Lithuania's 2020 energy efficiency target is 6.49 Mtoe expressed in primary energy consumption (4.28 Mtoe expressed in final energy consumption). When comparing the trend of primary energy consumption with the GDP development over the past decades, it can be seen that there is evidence of a decoupling of both. Even if Lithuania's current primary energy consumption (5.7 Mtoe in 2013) is below its 2020 target, it could continue its current efforts regarding energy efficiency to keep the primary energy consumption at this level or increase it only slightly so that it will reach its 2020 target even if the economy continues to grow in the next five years.

### ENERGY INTENSITY

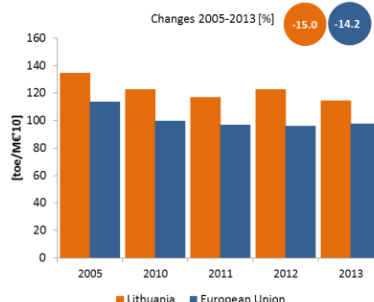
Overall energy efficiency indicators and trends are still above EU averages. Energy intensity is higher in the overall economy and the major sectors, i.e. industry, buildings and transport. However, primary energy intensity in Lithuania has significantly decreased since 2005, although it remains well above the EU average. A high energy intensity reduction is also recorded in the industrial sector, although here again it remains above EU average.

Primary energy intensity of the economy



Source: European Commission based on EUROSTAT

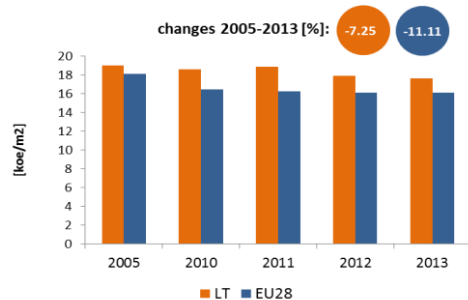
Final energy intensity in industry



Source: European Commission based on EUROSTAT and European Commission/AMECO

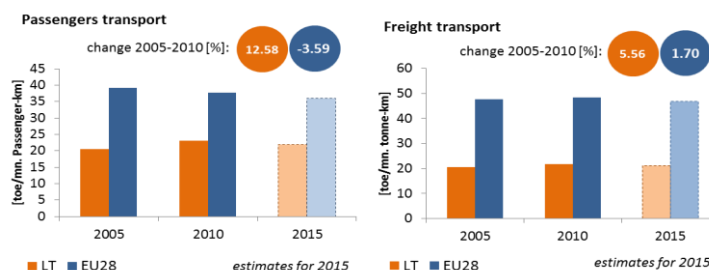
Specific energy consumption by households is above EU average and decreased at a slightly slower pace than the EU average. This could mean that there remains untapped potential to improve energy efficiency in the residential sector. The indicator used below shows that the energy intensity of transport is below EU average. This is however difficult to interpret as Lithuania has one of the most inefficient car fleet in Europe. The average age of passenger cars is around 14 to 15 years and the emission levels of newly registered cars are among the highest in the EU (140 g CO<sub>2</sub>/km against an EU average of 127 g CO<sub>2</sub>/km). There is no car taxation in place and taxes on transport fuel are among the lowest in the EU.

Final energy consumption per m<sup>2</sup> in residential sector, climate corrected



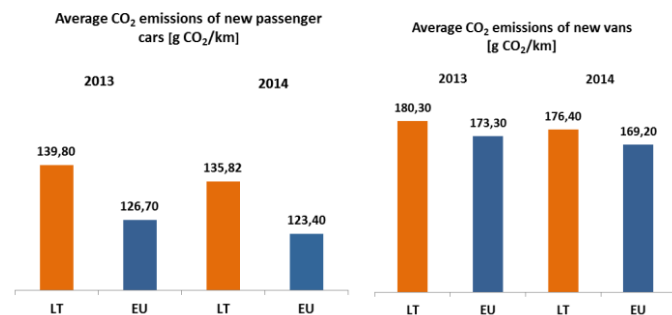
Source: European Commission based on Odyssee database

Specific energy intensity for passenger cars and freight transport<sup>5</sup>



Source: PRIMES model background data and estimations based on EU Commission and EU MS inputs

EU legislation sets mandatory CO<sub>2</sub> emission reduction targets for new cars and vans. By 2021, the fleet average to be achieved by all new cars is 95 grams of CO<sub>2</sub> per kilometre. For new vans, the fleet average is set at 147 g/km by 2020.

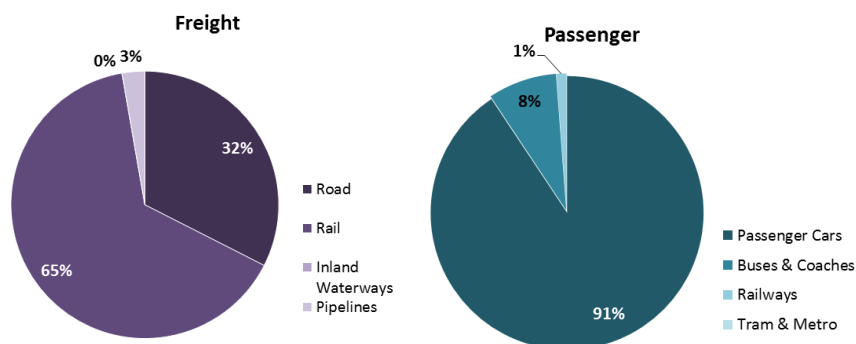


<sup>5</sup> Statistics on energy demand for passengers and freight transport are not available and model estimates have been used instead. These issues should be borne in mind when comparing energy intensity in freight or passenger transport between Member States, which should be regarded as merely indicative.

Source: European Environmental Agency. 2014 values are provisional. 2013 EU average refers to EU-27

Regarding transport performance, in EU-28 the inland freight modal shares are 71% by road, 17% by rail, 7% by inland waterways and 5% by pipelines. The respective inland passenger modal shares are 82% by private car, 9% by buses and coaches, 7% by railways and 2% by tram and metro. In Lithuania, as in the other Baltic States, rail is widely used in freight transport. However, passenger transport is mostly performed by road.

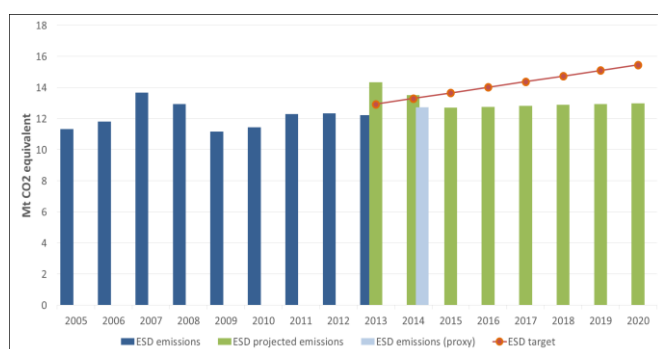
### Modal shares Lithuania



Source: Eurostat and EU transport in figures 2015. Data refers to 2013. Modal shares based on tonne-kilometres for freight sector and passenger-kilometres for passenger sector, freight data based on activity within country territory. Estimates are made when data is missing.

## 4. Decarbonisation of the economy

### NON-ETS GHG EMISSION REDUCTION TARGET 2020 (+15% by 2020 as compared to 2005 in the non-ETS sector)



Source: European Commission based on EEA. Based on preliminary inventory data.

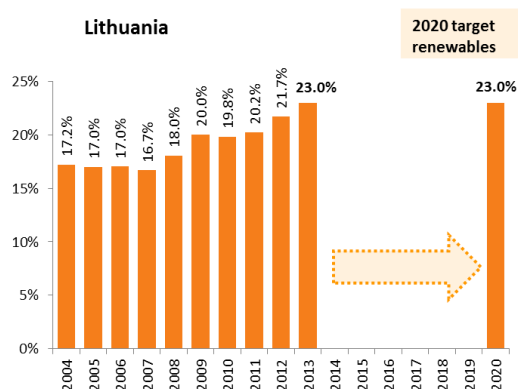
ESD (Effort Sharing Decision) emissions are the emissions from sectors not covered by the EU ETS.

Lithuania has decreased its emissions by 5% between 2005 and 2014 (based on 2014 approximated data). According to its 2015 projections, Lithuania is on track to reach its 2020 target, with a 18% margin as compared to 2005.

Non-ETS Emissions (vs. 2005)	Projections/proxy	target
Projections with existing measures 2020	-3%	+15%
Proxy 2014	-5%	-1%

### RENEWABLE ENERGY SHARE TARGET 2020 (23%)





Source: European Commission based on EUROSTAT

In 2013, Lithuania had a renewable energy share of 23%. This corresponds to its 2020 target.

### GREENHOUSE GAS EMISSION INDICATORS

- In Lithuania the Agriculture sector is the largest in terms of share of total emissions, with a value that is twice the EU average
- Lithuania has one of the highest carbon intensity of the economy in the EU, about 80% higher than EU average.
- In 2014, Lithuania reinvested all the revenues from the auctioning of ETS allowances (EUR 17.3 million) to improve energy efficiency of buildings and for installation of renewable energy resources in public and private buildings.

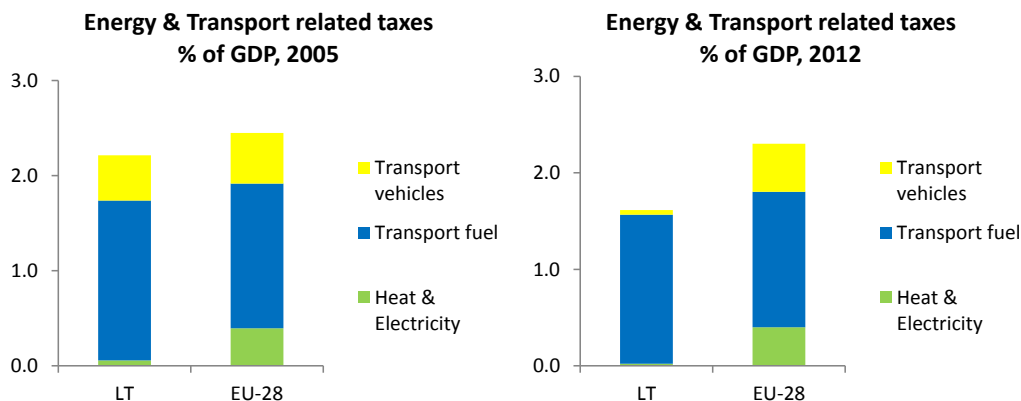
Largest Sectors of GHG Emissions in 2012 (*)	Lithuania	EU Average
Energy/power industry	22%	33%
Transport	21%	20%
Industry	23%	19%
Agriculture (incl. forestry & fishery)	24%	12%
Residential & Commercial	6%	13%
Waste & others	4%	3%

GHG Emissions	Lithuania	EU
EU ETS auctioning revenues in 2014 (EUR millions)	17,3	3205
Share of ETS emissions in 2013	38%	42%
GHG emissions/capita in 2013 (tCO <sub>2</sub> equivalent)	6.6	8.5
Carbon intensity of the economy in 2013 (tCO <sub>2</sub> equivalent/EUR millions)	618	328

Source: European Commission based on EEA  
 (\*)Sectoral breakdown for 2013 data not available

### ENERGY & TRANSPORT TAXATION

Energy and transport related taxes as a share of GDP are below the EU-average, largely due to lower receipts from taxation of vehicles and of heat and electricity. The overall tax burden has declined since 2005.

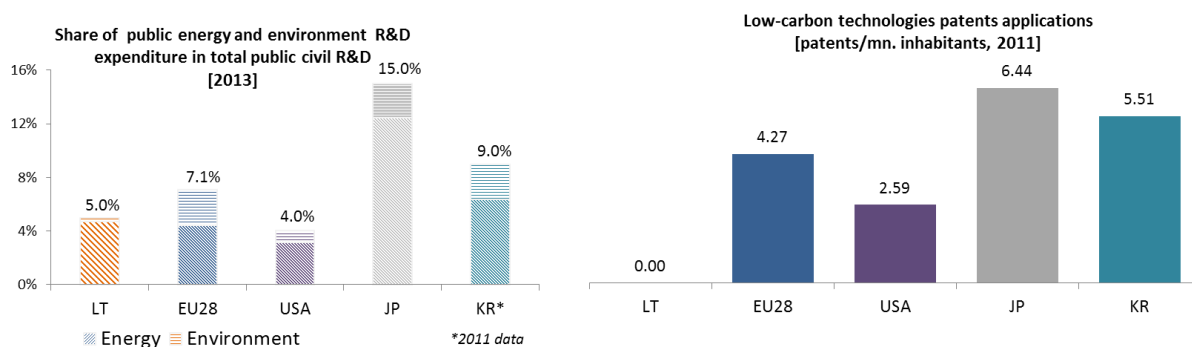


Source: Eurostat

## 5. Research, innovation and competitiveness

### RESEARCH AND INNOVATION

Lithuania is below the EU average, above the US and below Japan and South Korea in terms of public support share allocated to research and innovation in the field of energy and environment. In terms of intensity of low-carbon technologies patents, Lithuania is much behind the EU average and main worldwide partners.



Source: European Commission based on EUROSTAT

### COMPETITIVENESS

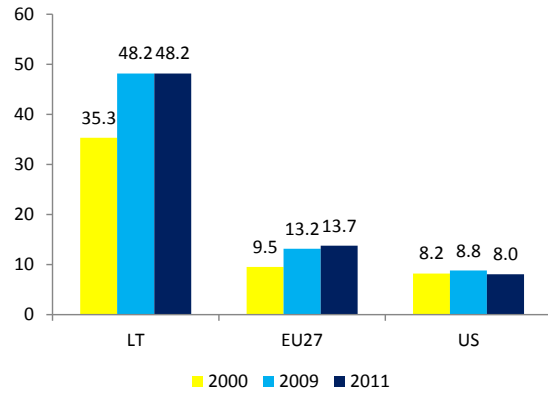
The real unit energy costs<sup>6</sup> are more than three times higher in Lithuania than in the EU. This reflects that the energy intensity<sup>7</sup> of Lithuania's manufacturing sector is higher than both the EU's and in the US, and that real energy prices have increased in Lithuania over the past ten years.

Being in line with the EU average, electricity and gas prices for industrial consumers remain higher than in the US and other major non-EU trading partners.

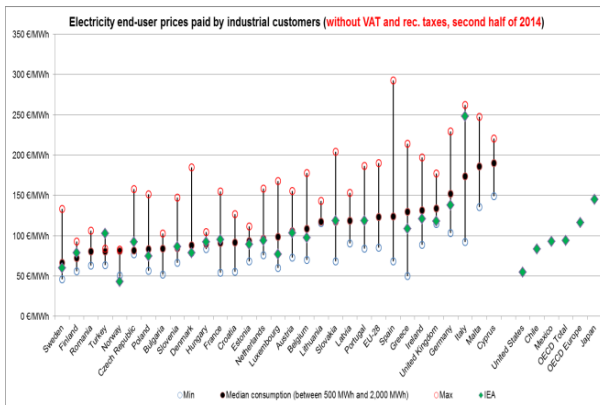
*Real unit energy costs (% of value added)*

<sup>6</sup> This indicator measures the amount of money spent on energy sources needed to obtain one unit of value added.

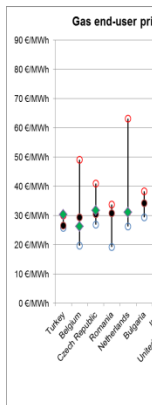
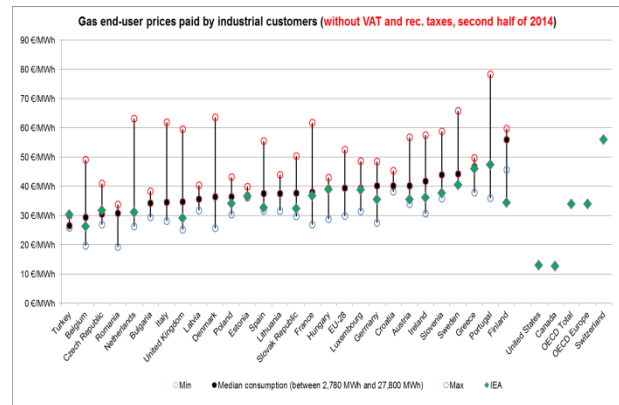
<sup>7</sup> The energy intensity presented here is derived from Use Tables of WIOD, see "Energy Economic Developments in Europe SWD(2014)19".



Source: European Commission



Source: European Commission based on EUROSTAT and IEA



## 6. Post-2020 Energy and Climate policy Strategy

### COMPREHENSIVE MEDIUM TO LONG-TERM STRATEGY (post-2020) FOR CLIMATE AND ENERGY

- In 2012, Lithuania adopted a National Energy Independence Strategy, which contains strategic initiatives until 2020, and lays down guidelines for the development of the energy sector until 2030 and 2050. By 2050, Lithuania aims to be independent from fossil fuel and to produce its energy from nuclear and renewable energy sources only. A revision of the Strategy is planned.
- In 2012, Lithuania adopted a Strategy for the National Climate Change Management Policy for the period 2013 - 2050 as the country's low- carbon development strategy. The Strategy, covering adaptation and mitigation policies, sets binding targets for 2020, and sets indicative goals and objectives for the medium (2030-2040) and long run (2050). An Inter-institutional Action Plan and biennial reports to Parliament have been established to ensure the timely implementation of the Strategy, for which an update is planned after 2019.

### NATIONAL TARGETS, especially for 2030

Objective, 2030-2050	Targets	Comments
GHG reduction	Yes, indicative	The Climate Strategy sets the following indicative targets: to contribute to the implementation of the proposed EU medium-term indicative targets – GHG emission reduction by 40% reduction by 2030, 60% reduction by 2040 and 80% reduction by 2050 as the long-term perspective, by comparison with the level in 1990.
Renewable energy share	No (for 2030); Indicative (for 2050)	No specific 2030 target. Indicative targets outlined for 2050: 40-100% renewables in the energy mix; 0-30% nuclear energy, and 0-30% fossil fuel with carbon capture storage
Energy Efficiency / savings	No (for 2030); Indicative (long term)	No specific target for 2030; however, the Strategy for the National Climate Change Management Policy includes a long-term indicative target for a 1.5-2% annual improvement in energy efficiency, while the National Energy Independence Strategy aims at a 1.3% annual improvement at least

## 7. Regional cooperation

EU Member States cooperation in the energy sector in the Baltic Sea region has brought many benefits for the participating countries. The work and achievements within the framework of the Baltic Energy Market Interconnection Plan (BEMIP) agreed in June 2009 and with subsequent amendments in 2011 and 2013 respectively proved that enhanced regional cooperation can be a catalyst for positive developments both in energy infrastructure projects or market related aspects. The MoU on reinforced BEMIP was signed on 8 June 2015 with the overall goal to ensure further market and system integration of the Baltic States into European Continental network and ensure its full market functioning also strengthening the organisational structure of the BEMIP. The new MoU and Action Plan also foresees regional cooperation in new energy policy areas, including electricity and gas markets, security of supply, power generation, renewable energy and energy efficiency.

Regional cooperation on infrastructure development is necessary to optimise the identification of regional infrastructure priorities and to coordinate cross-border investments. Lithuania is a member

of two electricity and gas Regional Groups which have been established under the trans-European energy networks (TEN-E) Regulation, i.e. Baltic Energy Market Interconnection Plan in electricity (BEMIP Electricity) and Baltic Energy Market Interconnection Plan in gas (BEMIP Gas).

Additionally, Regional Gas Market Coordination Group was established on February 12, 2015 to facilitate creation of the effectively functioning regional gas market, consisting of the representatives of the ministries responsible for energy policy, the national regulatory authorities of the energy sector and the operators of the key gas infrastructure in the Baltic States and Finland.

## 8. Cohesion Policy Contribution

The EU Cohesion policy provides for important investment possibilities to implement energy policy objectives in Lithuania which will be complemented by national public and private co-financing, aiming at optimal leverage. It also ensures integrated territorial solutions to challenges by supporting capacity building and territorial cooperation, including the Baltic Sea Region macro-regional strategy in which Lithuania takes part.

*Internal Energy Market:* Over 2014-2020, EU Cohesion Policy will invest some EUR 154 million in smart transmission systems, as well as some EUR 21 million in smart electricity distribution grids in Lithuania. These investments are expected to contribute to around 10 000 additional users connected to smart grids.

*Energy efficiency:* Over 2014-2020, EU Cohesion Policy will invest some EUR 540 million in energy efficiency improvements in public and residential buildings and in enterprises, as well as in high-efficiency cogeneration and district heating in Lithuania. A further estimated EUR 626 million will be invested in supporting the move towards an energy-efficient, decarbonised transport sector. These investments are expected to contribute to around 30 000 households with improved energy consumption classification and a decrease of around 60 000 000 kWh per year of decreased primary energy consumption of public buildings, as well as to around 70 km of reconstructed or upgraded railway lines, and 20 km of new or improved inland waterways.

*Decarbonisation:* Overall, the EU Cohesion Policy investments in Lithuania over 2014-2020 are expected to contribute to an estimated annual decrease of GHG of around 680 000 tonnes of CO<sub>2</sub>eq. Over 2014-2020, EU Cohesion Policy will invest some EUR 330 million in renewable energy in Lithuania. These investments are expected to contribute to around 760 MW of additional capacity of renewable energy production.

*Research, Innovation and Competitiveness:* Over 2014-2020, EU Cohesion Policy will invest significantly in R&I and in SME competitiveness in Lithuania. This will be based on the national strategy for smart specialisation. For Lithuania, the Strategy<sup>8</sup> includes a focus on energy and a sustainable environment priorities, namely (1) smart systems for energy efficiency, diagnostic, monitoring, metering and management of generators, grids and customers, (2) energy and fuel production using biomass/waste and waste treatment, storage and disposal, (3) technology for the development and use of smart low-energy buildings – digital construction and (4) solar energy equipment and technologies for its use for the production of electricity, heat and cooling. At this stage, at least EUR 103 million is foreseen for investments in R&I and adoption of low-carbon technologies in Lithuania, but this might increase further in line with the evolving content of the smart specialisation strategy.

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<sup>8</sup> [http://www.ukmin.lt/web/en/innovations/Smart\\_Specialisation](http://www.ukmin.lt/web/en/innovations/Smart_Specialisation).