

Annual report on progress achieved towards national energy efficiency targets for 2019

The Ministry of the Economy of the Slovak Republic draws up an annual report on energy efficiency for the preceding calendar year on the basis of Section 4(1)(d) of the Energy Efficiency Act, No 321/2014, and amending certain other acts, as amended. This is an annual assessment of fulfilment of the energy efficiency targets set by Slovakia. This annual report is the final annual report in this format, in accordance with Regulation (EU) 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action.

The report contains basic information on energy efficiency and on consumption in individual sectors of the national economy, and interim information on how and to what extent the energy efficiency targets are met, and in particular:

- basic statistics on energy consumption in Slovakia and the statistical indicators used for 2018,
- a description of trends in energy consumption in individual sectors of the national economy in 2018,
- updated information on the most important legislative and non-legislative energy efficiency measures implemented in 2019,
- an assessment of fulfilment of the national indicative energy efficiency target for 2020 in the form of an absolute value for primary energy consumption and final energy consumption pursuant to Section 5(1)(c) of Act No 321/2014 as of 2018,
- an assessment of fulfilment of the final-consumer energy savings target pursuant to Section 5(1)(b) of Act No 321/2014 as of 2019,
- an assessment of fulfilment of the energy savings target for public buildings as of 2018.
- details of individual energy efficiency measures for 2016-2019 in accordance with Section 4 of Act No 321/2014.

The content of the annual report is in accordance with part 1 of Annex XIV to Directive 2012/27/EU on energy efficiency, as amended.

1. Basic energy efficiency statistics

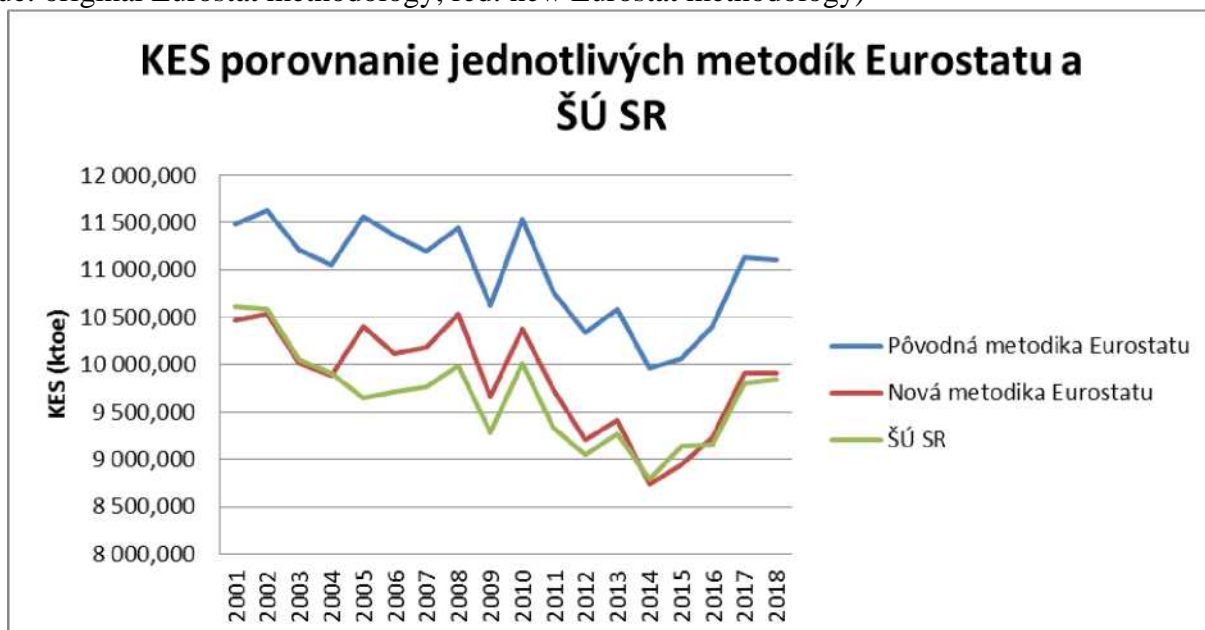
The basic energy consumption statistics are provided for the 2018 calendar year. Owing to differences in certain indicators, data from both Eurostat and the Slovak Statistical Office (ŠÚ SR) are provided. Eurostat has changed its methodology for calculating energy balances. That is why, for the sake of continuity in energy consumption trends, the data are provided in both the old and new Eurostat methodologies.

The principal reason for the differences between ŠÚ SR and Eurostat data lies in the different methodologies used to calculate the data for various items, since they are based on identical data. This chiefly involves differences in terms of reporting coal consumption and energy consumption to power gas pipeline compressor stations, and the fact the ŠÚ SR uses calorific value for all fuels, whereas Eurostat uses gross calorific value for some fuels. The ŠÚ SR and Eurostat databases are identical, as required by Regulation (EC) No 1099/2008 of the European Parliament and of the Council of 22 October 2008 on energy statistics.

In 2018, energy balances were issued in accordance with Eurostat's new methodology. Nevertheless, energy efficiency and, therefore, mainly primary energy and final energy consumption are still calculated in accordance with the methodology used by Eurostat up to 2016. Consumption developments in individual sectors are set out in accordance with the methodology used by ŠÚ SR for reasons of continuity in displaying consumption trends. Under the new Eurostat methodology, the data are very similar to those published by the Slovak Statistical Office, which is particularly evident in the trend in final energy consumption in Slovakia. The above-mentioned differences between ŠÚ SR and Eurostat data have been largely eliminated precisely because of the change in Eurostat's methodology.

Fig. 1: Comparison of Eurostat and ŠÚ SR methodologies in assessing the trend in final energy consumption (FEC)

(Blue: original Eurostat methodology; red: new Eurostat methodology)



Zdroj: ŠÚ SR (2020), Eurostat (2020)

Table 1: Basic energy efficiency figures for 2018

Indicator	Eurostat	Eurostat	ŠÚ SR
	Objective 2020 (old methodology)	New methodology 2018	2018
Primary energy consumption (ktoe)	15,790	16,998	16,040
Final energy consumption (ktoe)	11,113	9,911	9,839
Final energy consumption - industry (ktoe)	x	3,663	3,641
Final energy consumption - transport (ktoe)	x	2,744	2,691
Final energy consumption - households (ktoe)	x	2,058	2,058
Final energy consumption - trade and services (ktoe)	x	1,314	1,316
Final energy consumption - agriculture (ktoe)	x	133	133
Gross value added – industry (NACE Rev. 2 B-F) - EUR millions, in constant prices			
Gross value added – services (NACE Rev. 2 G-U) - EUR millions, in constant prices			
Gross disposable income (EUR millions)			
Gross domestic product (GDP) at constant prices (EUR millions)			
Electricity generation at thermal power plants (ktoe)			1)
Electricity generation from CHP (ktoe)			1)
Heat production at thermal installations (ktoe)			1)
Heat production from CHP plants (ktoe)			1)
Fuel inputs at thermal installations (ktoe)			2)
Passenger kilometres (pkm millions) - all passenger transport not			11,402

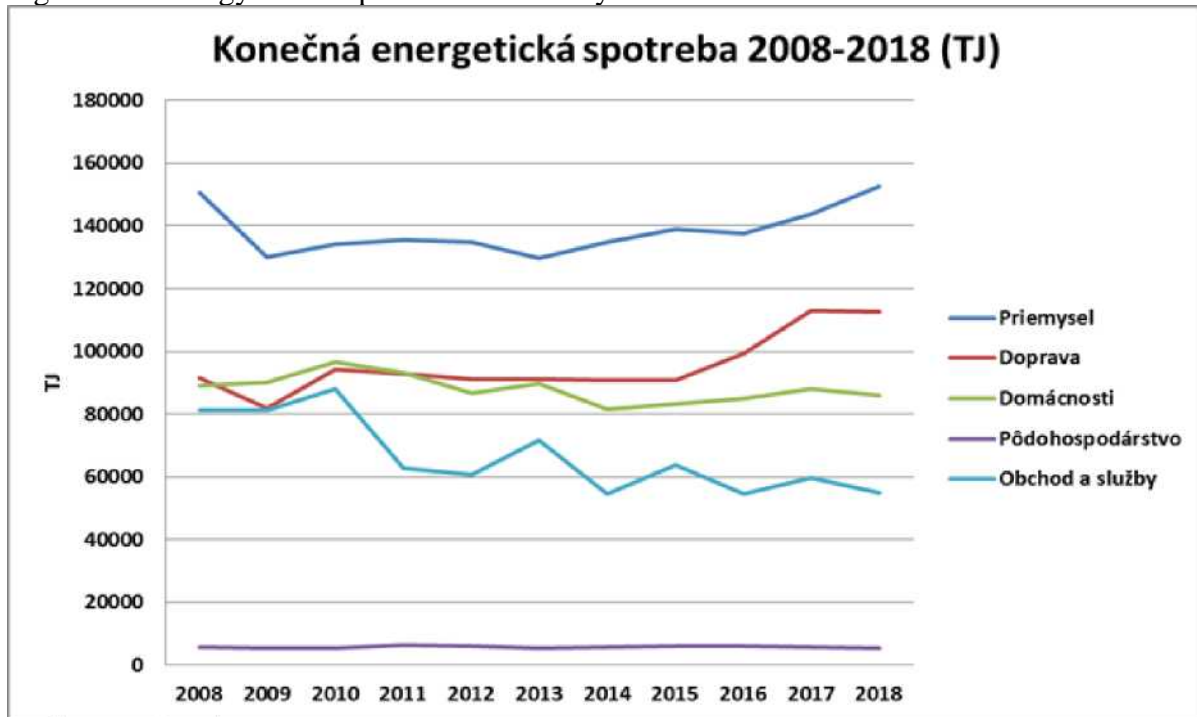
Passenger kilometres (pkm millions) - all public passenger transport not counting		11,373
Passenger kilometres (pkm millions) - all non-public passenger transport not counting private cars		29
Tonne kilometres (tkm millions) - total		44,873
Tonne kilometres (tkm millions) - rail transport		8,691
Tonne kilometres (tkm millions) - road transport		35,590
Tonne kilometres (tkm millions) - waterborne transport		451
Population as at 31.12.2018		5,450,421

Source: ŠÚ SR (2020), Eurostat (2020)

- 1) ŠÚ SR calculates these data only for the purposes of international questionnaires.
- 2) ŠÚ SR does not calculate this data. This estimate is based on Eurostat's 2016 calculation.

2. Energy consumption trends by sector

Fig. 2 Final energy consumption 2008-2018 by sector



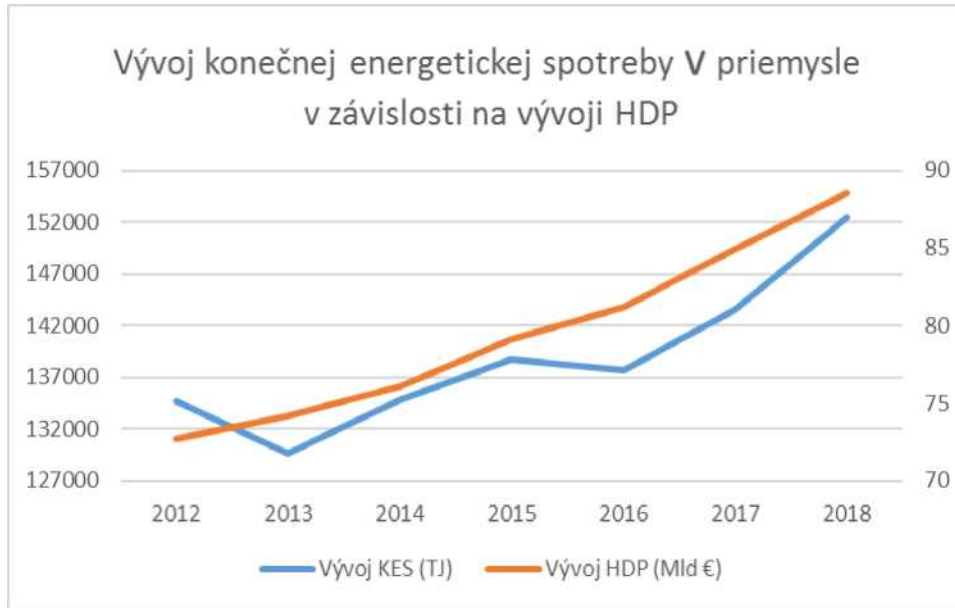
(From top: industry; transport; households; agriculture; trade and services)

Energy consumption trends by sector

Industry

In the long term, the industrial sector is the largest consumer of energy in the Slovak Republic. Its share of total final energy consumption in Slovakia is 37%. Since 2013, final energy consumption in Slovak industry has been growing at an annual average of 2.5%. Since 2016, the upward trend in final energy consumption has outstripped the trend in GDP growth. This is confirmed by the fact that the implementation of repayable measures aimed at reducing energy intensity is gradually, in a limited way, approaching its potential. The energy savings potential is typically greater for projects with a longer payback period than for projects with a payback period of about two years. However, businesses can only implement such projects to a very limited extent from their own resources. A prerequisite for slowing down/changing this negative trend is the implementation of measures and financial mechanisms that would sufficiently motivate businesses to implement measures they do not, as a general rule, invest in due to the unreasonably long payback period.

Fig. 3 Trend in final energy consumption in industry, depending on trends in GDP



Zdroj: ŠÚ SR, MH SR

Trend in FEC

Trend in GDP (EUR billion)

Source: ŠÚ SR, Ministry of the Economy

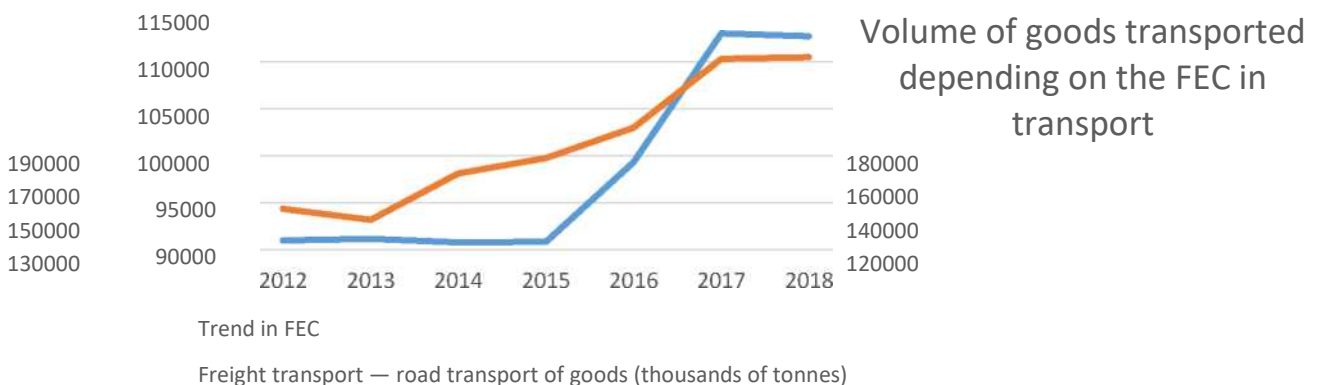
Transport

Compared to 2001, final energy consumption in transport in 2018 has almost doubled (83%). The other sectors surveyed (industry, households, trade and services) recorded an average decrease of 22% compared to 2001.

This adverse trend is mainly the result of the trend in key indicators such as the volume of goods transported, freight traffic performance and the increase in the number of registered vehicles in Slovakia.

The volume of goods transported has increased by 24.3% since 2012. Over the same period, a 24.1% increase in final consumption in transport has been observed. This is illustrated in Fig. 4.

Fig. 4: Trend in the volume of goods transported depending on the FEC in transport (see original)



Trend in FEC

Freight transport — road transport of goods (thousands of tonnes)

Source: ŠÚ SR, Ministry of the Economy

Freight transport performance increased by just under 14% compared to 2012; Fig. 5.

Fig. 5: Trend in freight transport performance depending on FEC in transport

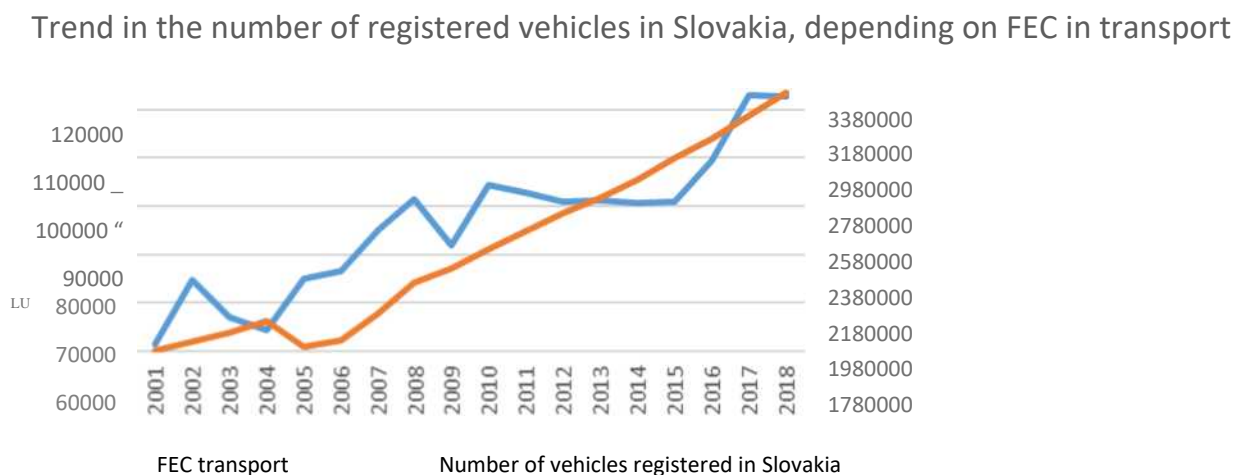


Zdroj: ŠÚ SR, MH SR

Source: ŠÚ SR, Ministry of the Economy

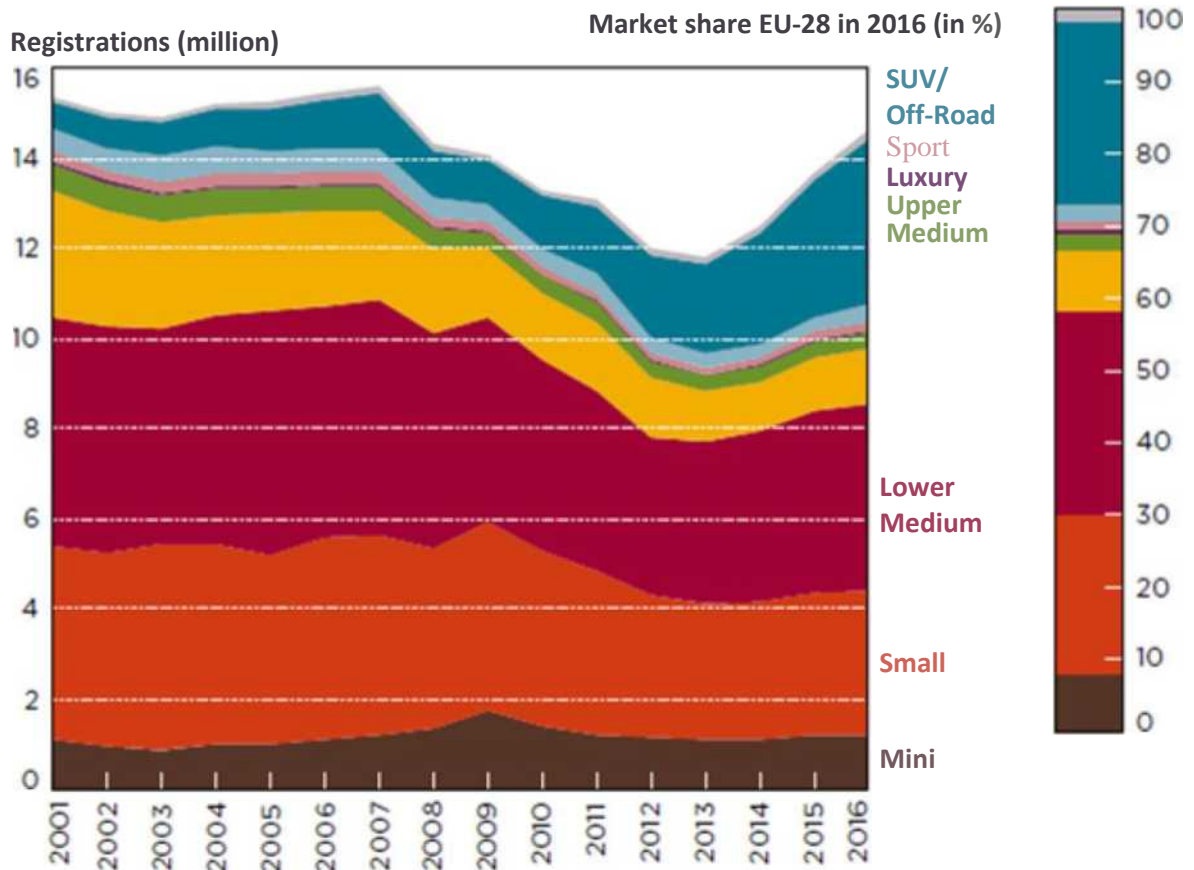
The number of vehicles registered in Slovakia has increased by 79.5% since 2001. Over the same period, an 83% increase in final energy consumption in transport has been observed. This is illustrated in Fig. 6.

Fig. 6: Trend in the number of registered vehicles in Slovakia, depending on FEC in transport



The energy consumption increase in transport is also due to a significant increase in the number of SUVs, which are very popular in other EU Member States as well as Slovakia. The upward trend in the number of registered vehicles in the EU by type is illustrated in Fig. 7.

Fig. 7: Trend in the number of registered vehicles in the EU by type



Source: Drivers of recent energy consumption trends across sectors in EU 28, Samuel Thomas Consulting

Households

Households recorded a more than 2% fall in energy consumption compared to 2017. Compared to 2001, energy consumption in this sector fell by more than a third.

In the case of this indicator, Slovakia has long ranked highly among Member States, but this is due to the baseline of generally lower energy consumption per capita in the household sector compared to the original EU-15. The energy savings potential for households consists mainly of replacing the highest-consuming appliances with more economical ones, for instance lighting and refrigerators.

Fuels used for individual heating are also part of the household sector, and it is this area of energy consumption in households that should be the main target for further measures in this sector. The main reasons are the continuing renovation of family homes and residential buildings, air protection requirements and the latest requirements for action against climate change.

Agriculture

Energy consumption in the agriculture sector has been on a downward trend since 2015. Compared to 2017, a 7% decrease has been observed. The sector's share of total final energy consumption was only 1.3% in 2018.

Trade and services

In 2018, the trade and services sector saw a fall in consumption of almost 8% compared to the previous year. This variation can be explained by the break-up and merger of undertakings, changes in

their sectoral classification and the resulting changes in how their consumption is classified in the energy balance, and by the calculation method used by the ŠÚ SR for this item. Consumption in the public sector is also included in 'third sector' consumption. It is clear that public-sector measures contribute significantly to reducing energy consumption.

3. Information on legislative and non-legislative measures in 2019

A description of the most important legislative and non-legislative measures implemented in 2019 which made a significant contribution to meeting the energy efficiency targets.

3.1 Legislative measures

Legislative activity in the field of energy efficiency in 2019 focused on completing the supporting documents for the basic European energy efficiency legislation — the three amendments to Directive 2012/27/EU on energy efficiency set out in Directives 2018/844 and 2018/2002 and in Regulation 2018/1999 and the two amendments to Directive 2010/31/EU on the energy performance of buildings in Directive 2018/844 and Regulation 2018/1999.

These are a Commission Delegated Regulation and a Commission Recommendation.

A number of items of energy-labelling and ecodesign legislation were issued in 2019 and are listed in Annex 2 to this report.

On 8 May 2018 Eurostat issued a detailed methodology on ways to carry out energy performance contracting (EPC) in the public sector in such a way that expenditure associated with renovating public buildings, which public entities have decided to renovate through EPCs, is not offset in the national accounts, i.e. it has not contributed to the creation of public State debt. Eurostat has also drawn up a new methodology for calculating energy balances, which it used for the first time for data from 2017.

At national level, an amendment to Energy Efficiency Act No 4/2019 was drawn up following the Eurostat methodology on energy performance contracting. The amendment allows for energy performance contracting in the public sector without impacting public State debt. On the basis of an authorisation from the Slovak Ministry of the Economy, the Slovak Innovation and Energy Agency provides technical assistance in preparing public-sector EPC projects. The recipients of the technical assistance provided are public administrations; priority is given to State administrations involved in the preparation and implementation of projects for increasing the energy efficiency of buildings through EPC. In accordance with the requirements of this Act, the Ministry of the Economy published on its website the methodology for the procedure and the Model Contract for GES/EPC in the Public Sector, agreed by Eurostat.

The transposition of Directive 2018/844 was prepared in 2019 in the form of amendments to the Energy Performance of Buildings Act, No 555/2005, and Act No 314/2012 on the inspection of heating and air-conditioning systems. However, the Slovak National Council only approved the amendments to Act No 555/2005, issued as Act No 378/2019. The amendment to Act No 314/2012 will be resubmitted as part of the draft laws submitted in the ongoing process of transposing the winter package from 2018 and 2019.

Meeting the obligations under the Energy Efficiency Act, No 321/2014, and the Energy Performance of Buildings Act, No 555/2005, made a particular contribution to meeting the national energy efficiency targets.

V Particular aspects under the Energy Efficiency Act are:

- compliance with voluntary agreements between the Ministry of the Economy and major energy consumers in industry and the energy sector,
- ensuring the implementation of mandatory energy audits for large companies,

including the introduction and maintenance of certified energy and environmental management systems and eco-management and audit schemes (EMAS),

- implementing energy efficiency measures in buildings with a total floor area of over 1,000 m², in particular by insulating hot-water systems in buildings with central hot-water distribution,
- creating a blueprint for developing EPC in the Slovak public sector and applying the rules of a support system for developing energy performance services with a primary focus on the public sector,
- ensuring the further development and linking of data when energy efficiency monitoring systems are used.

The main aspect under the Energy Performance of Buildings Act was the implementation of the requirements for compliance with the minimum requirements for the construction of new buildings and major renovations of existing buildings.

3.2 Non-legislative measures

Tables 2, 3 Contribution of measures and financial mechanisms to increasing energy efficiency to meet the target under Article 7 of the Energy Efficiency Directive

Titles of measures by sectors	Energy saving (GWh)	Share of measures in total energy savings
Industry	479.45	49.2%
Voluntary agreement on energy savings	448.33	46.0%
Application of legislative measures	27.77	2.8%
Implementation of energy efficiency measures from energy audits	3.35	0.3%
Buildings	348.13	35.7%
Improving the thermal characteristics of buildings (EPB)	323.49	33.2%
New build exceeding the minimum legal requirements (EPB)	16.43	1.7%
New construction to the standard for nearly zero-energy buildings (EPB)	4.56	0.5%
Provision of energy services in buildings	3.65	0.4%
Public sector	91.73	9.4%
Improving the thermal characteristics of public buildings (EPB)	91.08	9.3%
Provision of energy services for the public sector	0.65	0.1%
Appliances	45.35	4.7%
Replacement of electrical and electronic equipment in private	37.78	3.9%
Efficient lighting - voluntary agreements	7.57	0.8%
Transport	9.73	1.0%
Building and upgrading transport infrastructure (contd.)	4.72	0.5%
Renewal and modernisation of the vehicle fleet	4.25	0.4%
Cycling to work	0.76	0.1%

Source: SIEA - Energy efficiency monitoring system (EEMS)

Financial mechanisms by sector	Energy saving (GWh)
Industry	479.45
Own funds	448.33
Mandatory energy audits on industrial plants, including management	27.77
OP QoE 2014-2020	3.35
Buildings	348.13
Own funds	241.31
Own funds, commercial banks	56.33
ŠFRB (State Housing Development Fund)	27.4
Own funds, OP Rural Development	13.32
IROP 2014-2020	4.19
Contractor's own funds	3.65
ŠFRB-JESSICA 2013-2014	1.93
Public sector	91.73
Own funds budget headings	33.53
Own funds, commercial banks	32.26
Envirofond	15.2
OP QoE 2014-2020	6.07
Public funds	2.66
OP HR, priority axis 6	1.04
Contractor's own funds	0.65
IROP 2014-2020	0.32
Appliances	45.35
Guaranteed Energy Service (GES)	37.78
Own funds	7.57
Transport	9.73
OPT 2007-2013, OPII 2014-2020	4.72
IROP 2014-2020, Higher Territorial Units	3.93
MTC, own funds	0.76
OP Env 2007-2013, IROP 2014-2020	0.2
OPII 2014-2020	0.12

Source: SIEA - Energy efficiency monitoring system (EEMS)

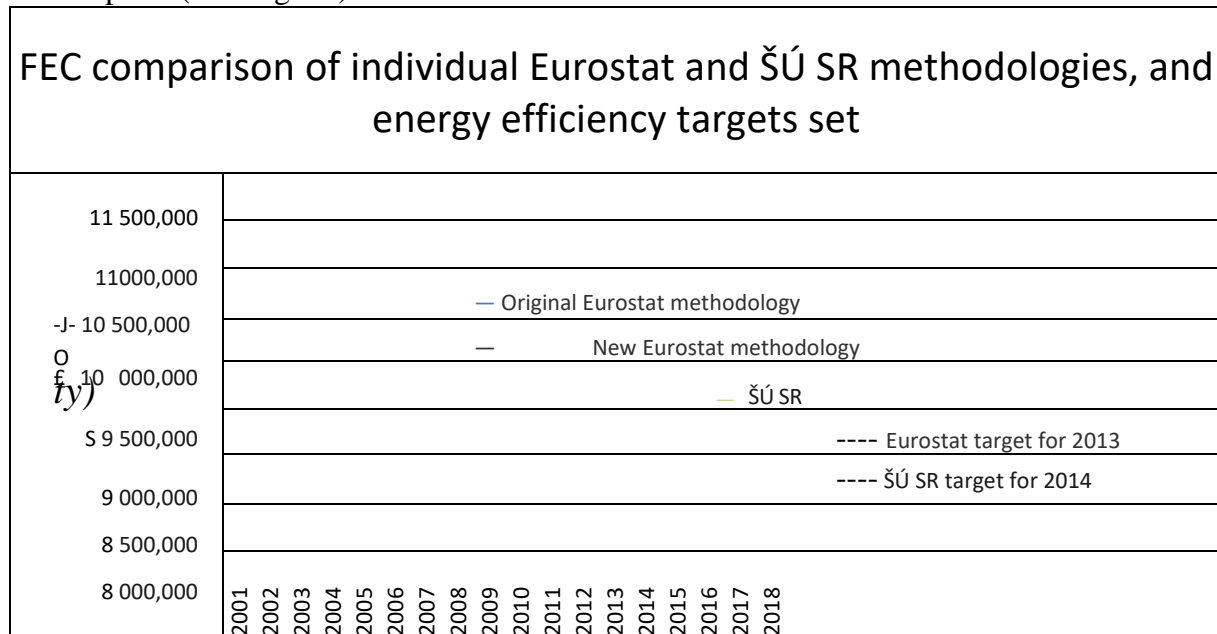
4. Evaluation of achievement of the national energy efficiency target

On the basis of Article 3 of Directive 2012/27/EU and in accordance with Section 5(1)(c) of Act No 321/2014, a national energy efficiency target was set for 2020 in the form of an absolute value for primary energy consumption and final energy consumption. The national indicative energy efficiency target for 2020 is expressed in the form of an absolute value for primary energy consumption in 2020 (20% - 686 PJ) and one for final energy consumption in 2020 (31% - 378 PJ) compared with the PRIMES reference scenario from 2007, and based on data from the ŠÚ SR.

The change in Eurostat's methodology showed significant changes in Slovakia's energy efficiency objectives, which were established in the past on the basis of statistics and therefore cannot be interchanged. The target was first set according to Eurostat data; however, it was higher than the final energy consumption reported by the ŠÚ SR, and it was therefore

recalculated according to the data for the Energy Policy of the Slovak Republic issued in 2014.

Fig. 8: Comparison of the trend in final energy consumption (FEC) according to Eurostat and ŠÚ SR methodologies in relation to energy efficiency targets for final and primary energy consumption (see original)

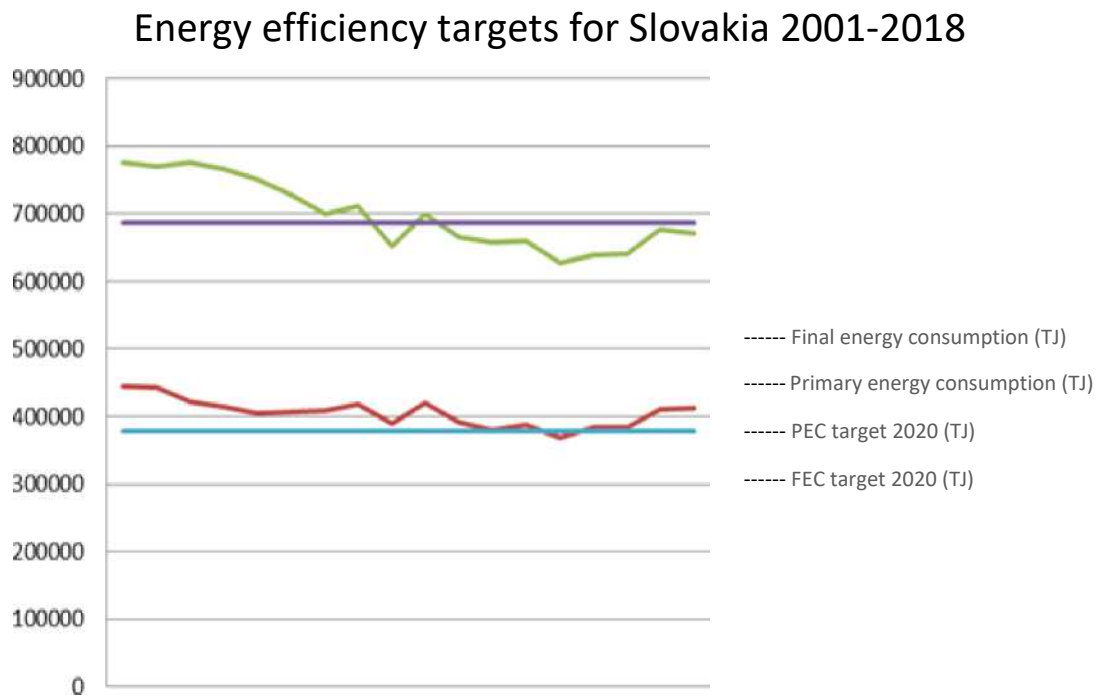


Source: ŠÚ SR

Primary energy consumption in 2018 amounted to 672 PJ, i.e. 4 PJ less than in 2017. **The Slovak Republic is achieving 102.1% of the primary energy consumption target on an ongoing basis.**

Final energy consumption in 2018 amounted to 412 PJ, which was 2 PJ more compared to 2017. **92% of the Slovak target for final energy consumption is currently being met on an ongoing basis.**

Fig. 9: Energy consumption in Slovakia between 2001 and 2018 and national indicative energy efficiency targets for primary and final energy consumption met



5. Fulfilment of the binding target pursuant to Article 5 of Directive 2012/27/EU

Pursuant to the requirements of Article 5 of the Directive, each Member State must ensure that, as from 1 January 2014, 3% of the total floor area of heated and cooled buildings owned and occupied by its central government is renovated each year to meet at least the minimum energy performance requirements for buildings. This target may also be met by alternative means that will result in the same volume of energy savings by 2020 as the basic approach. Slovakia gave notification in 2013 that it had met the target for energy savings in public buildings pursuant to Article 5 by alternative means pursuant to Article 5(6) of the EE Directive, i.e. the energy savings target for buildings is reported in energy units and measures other than major building renovations can be used to meet it. Under the alternative approach, according to the notification from 2013 the annual energy savings target was set at 52.17 GWh/year.¹

By continuing with the monitoring process even after the data collection deadline for drawing up the annual report for 2018, some more data were ascertained for building renovation which brought additional energy savings of 6.05 GWh during 2018. The preliminary result of 82.54 GWh stated in the 2018 annual report was corrected to the final value of 88.59 GWh. Older periods were not corrected. Annual fulfilment of Article 5 of the Directive according to the data ascertained to date, following the introduction of an extended monitoring process, reached a level of 175.8% in 2019 (see Table 2).

Table 4: Updated energy saving (fulfilment of annual target) in public buildings pursuant to Article 5 of Directive 2012/27/EU by year

Year	Annual target	Actual fulfilment of annual target		Difference in fulfilment of annual target	Fulfilment of annual target after redistribution of savings
	[GWh]	[GWh]	[%]	[GWh]	[GWh]
2014	52.17	43.79	83.9%	-8.38	52.17
2015	52.17	91.08	174.6%	38.91	52.17
2016	52.17	38.90	74.6%	-13.27	52.17
2017	52.17	49.70	95.3%	-2.47	52.17
2018	52.17	88.59	169.8%	36.42	52.17
2019	52.17	91.73	175.8%	39.56	52.17
Balance for 2020: 90.77 GWh			Balance after deduction of target: 38.60 GWh		

Source: SIEA - Energy efficiency monitoring system (EEMS)

Assessment of fulfilment of the target with distribution of savings

According to this table, the energy savings target was not actually met in 2014, 2016 and 2017. In 2015, 2018 and 2019 the savings target was significantly exceeded, giving a positive differential balance of +38.91 GWh in 2015, +36.42 GWh in 2018 and +39.56 GWh in 2019.

¹ Notification of alternative approach as provided for in Article 5 of Directive 2012/27/EU on energy efficiency. The notification was sent to the European Commission on 27 December 2013.

Since the Directive allows for its redistribution between other years (three years before/after), after redistribution of this differential balance it is possible to conclude that **Slovakia met the savings target each year from 2014 to 2019**. The surplus from 2015 was redistributed between the years 2014, 2016, 2017 and 2018. In 2019, Slovakia has a new differential balance of + 90.77 GWh which will be used to meet the 2020 target of 174% of the value of savings needed to meet the 2020 target.

Fig. 10: Annual fulfilment of target 2014-2019



Assessment of fulfilment of the target with the addition method

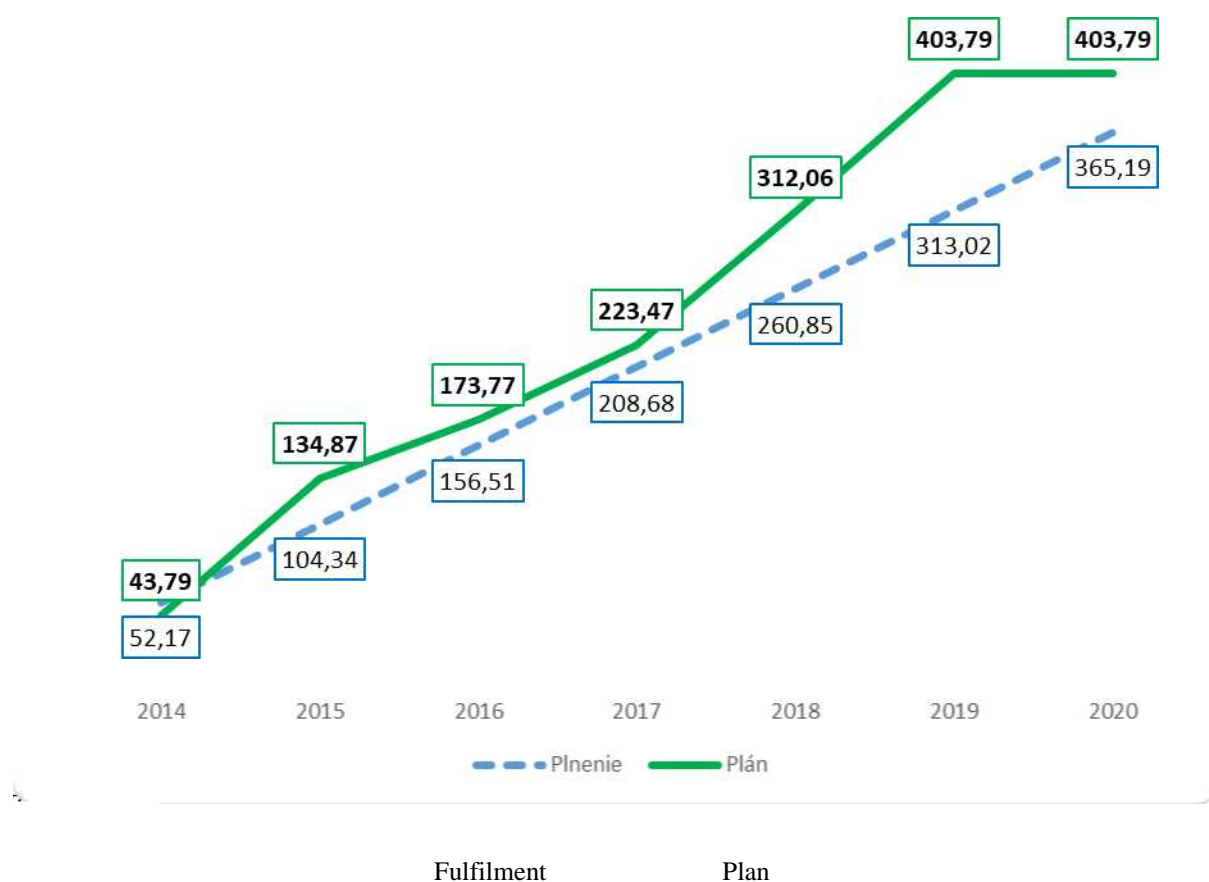
Based on the information available as of the deadline for processing the annual report, fulfilment of the binding target pursuant to Article 5 of Directive 2012/27/EU as of 31/12/2019 **under the addition method was at 129.00%**. See Table 5.

Table 5: Energy saving in public buildings pursuant to Article 5 of the Directive – trajectory

Year	Total annual targets	Annual fulfilment	Total annual fulfilments	Fulfilment according to totals
	[GWh]	[GWh]	[GWh]	[%]
2014	52.17	43.79	43.79	83.94%
2015	104.34	91.08	134.87	129.26%
2016	156.51	38.90	173.77	111.03%
2017	208.68	49.70	223.47	107.09%
2018	260.85	88.59	312.06	119.63%
2019	313.02	91.73	403.79	129.00%
2020	365.19	0.00	403.79	110.57%
Total	365.19	403.79	Difference	38.60

Source: SIEA - Energy efficiency monitoring system (EEMS)

Fig. 11: Energy saving in public buildings pursuant to Article 5 of Directive 2012/27/EU



Energy savings in public buildings were achieved in particular through:

- consistent application of the requirements of Act No 555/2005 on the energy performance of buildings in complying with the minimum requirements for new building construction and major renovations of existing buildings, including the provision of expert advice (SIEA, MTC, MoE) on the advantages of going beyond the minimum requirements for renovating buildings,
- supporting improvements in the thermal characteristics of national or local government buildings through major renovation, above and beyond the minimum requirements, financed from the European structural and investment funds (ESIF), in particular through the OP QoE,
- supporting increases in the effectiveness of technical equipment in and improving the thermal characteristics of public buildings to a level below that of major renovation (e.g. by changing openings, particularly windows, insulating roofs, etc.), financed mainly from national funds (e.g. the Environmental Fund or local and national budgets).

From the point of view of maintaining the positive trend towards renovating buildings in 2020, and to meet the energy savings target for public buildings, it is important to pay more attention to renovation projects in buildings owned by government entities and, in particular, to breaking down the barriers to accessing appropriate funding. What contributed most to the positive result for 2019 was the fact that funding began to be drawn from the ESIF, intended for renovating

State and public buildings. Analysis of the trajectory for fulfilment of the plan at Fig. 4 shows that without this funding Slovakia cannot meet the ambitious savings target of 52.17 GWh for Article 5 of the Directive. The biggest barrier is the length of time required for public procurement processes, which explains why the start of the planned implementation of the renovation was delayed by two years and why there was a local deficit in 2016 and 2017.

6. Fulfilment of the target pursuant to Article 7 of Directive 2012/27/EU on energy efficiency

The target pursuant to Article 7 of Directive 2012/27/EU is set at 1.5% of annual energy sales to final customers for each energy supplier. The resulting cumulative energy savings target for 2014-2020 was set at 26,565 GWh, and the annual target for 2014 at 948.75 GWh (3,416 TJ), making it possible to achieve the cumulative target in 2020. Slovakia is applying Article 7 of the EE Directive using alternative measures in accordance with Article 7(9) thereof. Prioritising alternative measures before introducing the energy efficiency obligation schemes has been significant in terms of eliminating the regulatory barriers in the business environment when meeting the binding final-consumer energy savings target. Introducing the obligation schemes would significantly increase the administrative burden, particularly for energy suppliers, but also for end consumers and, last but not least, for the State, not to mention the almost identical increase in energy prices.

Table 6: Adjustment to the annual energy savings target in line with Article 7 following an additional identification of energy efficiency measures implemented in 2018 and provisional results for 2019

Year	Energy savings target (annual)		Fulfilment of updated (annual) energy savings target		
	Original*	Updated**	[GWh/year]	[TJ/year]	[%]
	[GWh/year]	[GWh/year]			
2014	948.75	948.75	1,086.51	3,911.44	114.52%
2015	948.75	923.30	1,416.86	5,100.70	153.46%
2016	959.84	752.77	881.07	3,171.85	117.04%
2017	1019.49	688.62	924.49	3,328.16	134.25%
2018	1019.49	531.64	1,238.83	4,459.79	233.02%
2019	1019.49	0.00	974.39	3,507.80	Target achieved
2020	1019.49	0.00	3.11	11.20	Target achieved
Total			6,525.26	23,490.94	

Source: SIEA - Energy efficiency monitoring system (EEMS)

* Original savings target set in the Energy Efficiency Action Plan for 2017-2019, looking forward to 2020, Table 13.

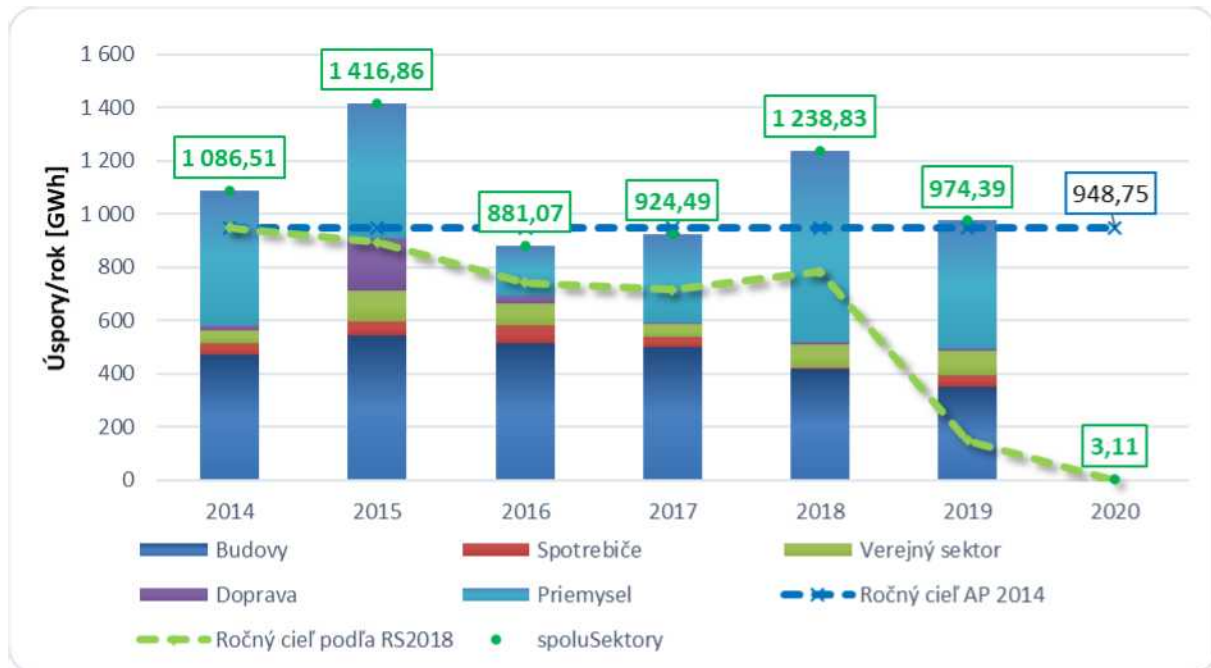
** The updated target includes the impact of the year-on-year data update. It is based on final savings from previous years and provisional savings for 2019 for planning 2020.

Improvements to the way in which energy efficiency is monitored for improving the thermal characteristics of buildings and the start of drawing appropriate funding from the ESIF for renovating State and public buildings contributed greatly to achieving the target.

Energy savings of **974.39 GWh** were achieved through energy efficiency measures carried out in 2019, which were identified at the deadline for drawing up the annual report. The final amount of energy savings for 2019 will be updated in the next annual report.

As a consequence of the final fulfilment of the energy savings targets for 2014-2018 and of provisional fulfilment in 2019, the planned cumulative target under Article 7 of Directive 2012/27/EU of 26,565 GWh in 2020 has already been met in 2019.

Fig. 12: Annual energy savings pursuant to Article 7 of Directive 2012/27/EU and updated target for 2019



Source: SIEA - Energy efficiency monitoring system (EEMS)

Savings/year (GWh)

Buildings	Consumers	Public sector
Transport	Industry	Annual target AP 2014
Annual target under RS2018		Total sectors

Cumulative fulfilment and new trajectory

Table 7: Trend in cumulative fulfilment of savings compared to original plan

Year	Cumulative contribution from original annual target	Total cumulative contributions from original annual target	Cumulative contribution from measures implemented in	Total cumulative contributions to fulfilment	Cumulative fulfilment according to totals
	[GWh]	[GWh]	[GWh]	[GWh]	[%]
2014	6,641.25	6,641.25	7,175.75	7,175.75	108.05%
2015	5,692.50	12,333.75	8,097.71	15,273.46	123.83%
2016	4,743.75	17,077.50	4,405.35	19,678.81	115.23%
2017	3,795.00	20,872.50	3,696.34	23,375.15	111.99%
2018	2,846.25	23,718.75	3,715.46	27,090.61	114.22%
2019	1,897.50	25,616.25	1,948.78	29,039.39	113.36%
2020	948.75	26,565.00	3.11	29,042.50	109.33%
Total	26,565.00		29,042.50		109.33%

Source: SIEA - Energy efficiency monitoring system (EEMS)

In comparing the original trajectory for energy savings and cumulative fulfilment, Slovakia is on course to meet this target in 2019 by 113.36% and to meet the binding target for 2020. It is not therefore necessary to introduce energy efficiency obligation schemes for 2020.

Fig. 13: Trajectory for cumulative energy savings pursuant to Article 7 of Directive 2012/27/EU



Source: SIEA - Energy efficiency monitoring system (EEMS)

7. Conclusion

The national indicative energy efficiency target for 2020 for primary energy consumption in Slovakia is on course to be met by **102%**. The national indicative energy efficiency target for 2020 for final energy consumption in Slovakia **is on course to be met by 92%**.

Slovakia is meeting the binding energy savings target for public buildings pursuant to Article 5, set in accordance with the notification. Based on the information available as of the deadline for processing the annual report, fulfilment of the target pursuant to Article 5 of Directive 2012/27/EU as of 31/12/2019 under the addition method was at 129%. In 2019, 110.57% of the **target** under Article 5 of Directive 2012/27/EU in 2020 has already been reached and further savings are still expected in 2020. However, it is important to pay more attention to breaking down the barriers to financing the renovation of buildings owned by government entities.

Based on updated data for 2018 and provisional data for 2019, Slovakia has met 113.36% of the planned cumulative energy savings target pursuant to Article 7 of the EE Directive for 2019. As a consequence of the final fulfilment of the energy savings targets for 2014-2018 and of provisional fulfilment in 2019, the planned cumulative target under Article 7 of Directive 2012/27/EU of 26,565 GWh in 2020 has already been **met** in 2019. It is not therefore necessary to introduce energy efficiency obligation schemes.

Annex 1: Evaluation of energy efficiency measures for 2016, 2017 and 2018

Table 8: Evaluation of measures in the BUILDINGS sector

		2016	2017	2018	Total (GWh)	Proportion (%)
Measure specifications	Residential buildings	321.92	288.21	285.65	895.78	63%
	Wholesale and retail trade	38.31	52.51	53.05	143.87	10%
	Residential and family houses	40.22	69.12	4.91	114.25	8%
	Family houses	36.12	35.83	39.14	111.09	8%
	Hotels and restaurants	31.29	15.66	16.07	63.02	4%
	Office buildings (except public buildings)	24.98	18.23	15.56	58.77	4%
	Other types of building	19.73	5.78	1.11	26.62	2%
	Schools and educational establishments	0.03	12.37	0.01	12.41	1%
Financial mechanism	Own funds	359.34	301.68	293.37	954.39	67%
	Own funds, commercial banks	94.23	124.06	62.7	280.99	20%
	ŠFRB-JESSICA 2013-2014	6.39	37.64	22.97	67	5%
	Own funds, OP Rural Development	28.82	15.38	15.83	60.03	4%
	ŠFRB (State Housing Development Fund)	3.98	13.19	21.04	38.21	3%
	Contractor's own funds	19.73	5.78	1.11	26.62	2%

Source: SIEA - Energy efficiency monitoring system (EEMS)

Table 9: Evaluation of measures in the TRANSPORT sector

		2016	2017	2018	Total (GWh)	Proportion (%)
Measure specifications	Building and upgrading transport infrastructure (contd.)	22.79	0	0	22.79	55%
	Renewal and modernisation of the vehicle fleet	6.79	1.44	4.42	12.65	30%
	Cycling to work	0	0.81	1.03	1.84	4%
	Support for the development of non-motorised transport, especially cycling	1.31	0	0	1.31	3%
	MHD (public transport) - renewal of trolleybuses in Žilina	0	0	1.05	1.05	3%
	Renewal of freight transport	0	0	0.98	0.98	2%
	Promoting the development and use of public passenger transport, including support for the creation of integrated transport systems	0.59	0	0	0.59	1%
	MHD - renovation of trolleybuses	0	0.41	0	0.41	1%
Financial mechanism	OPT 2007-2013, OPII 2014-2020	22.79	0	0	22.79	55%
	OPT 2007-2013	6.59	0	0	6.59	16%
	OP Env 2007-2013, IROP 2014-2020	0.08	0	2.89	2.97	7%
	IROP 2014-2020, Higher Territorial Units	0.12	1.33	1.44	2.89	7%
	MTC, own funds	0	0.81	1.03	1.84	4%
	IROP 2014-2020	1.31	0	0	1.31	3%
	Munseff	0	0	1.05	1.05	3%
	Slovseff III	0	0	0.98	0.98	2%
	OPII 2014-2020, IROP 2014-2020	0.59	0	0	0.59	1%
	OPII 2014-2020	0	0.41	0	0.41	1%

Source: SIEA - Energy efficiency monitoring system (EEMS)

Table 10: Evaluation of measures in the INDUSTRY sector

		2016	2017	2018	Total (GWh)	Proportion (%)
<i>Measure specifications</i>	Voluntary agreement on energy savings	107.83	319.31	686.41	1,113.55	90%
	Application of legislative measures	76.74	10.29	29.93	116.96	9%
	Improving the energy efficiency of industrial production	2.02	5.27	3.82	11.11	1%
	Energy services in industry	0	0	0.42	0.42	0%
	Support for energy audits for SMEs in Bratislava region	0	0	0.26	0.26	0%
	Incentives for industry	0.91	0	0	0.91	0%
<i>Financial mechanism</i>	Own funds	107.83	319.31	686.41	1,113.55	90%
	Mandatory energy audits on industrial plants including management	76.74	10.29	29.93	116.96	9%
	Slovseff III	2.02	5.27	3.82	11.11	1%
	State budget	0.91	0	0	0.91	0%
	Guaranteed Energy Service (GES)	0	0	0.42	0.42	0%
	Subsidy under MoE	0	0	0.26	0.26	0%

Source: SIEA - Energy efficiency monitoring system (EEMS)

Table 11: Evaluation of measures in the PUBLIC SECTOR

		2016	2017	2018	Total (GWh)	Proportion (%)
Measure specifications	Public lighting and energy services	48.21	1.19	0.81	50.21	23%
	Administrative buildings (public only)	7.38	12.27	30.06	49.71	22%
	Schools and educational establishments	9.96	12.36	22.61	44.93	20%
	Health facilities	11.84	8.75	9.22	29.81	13%
	Activity L3: Increasing the energy efficiency of existing public buildings, including insulation	4.22	9.68	9.35	23.25	10%
	Administrative buildings, school buildings and school facilities, medical facilities	0	5.45	14.86	20.31	9%
	Public buildings	0	0	1.41	1.41	1%
	Administrative buildings of organisations under central State administration bodies	0.88	0	0	0.88	0%
	Nursery schools, community centres, administrative buildings	0	0	0.8	0.8	0%
	Administrative buildings of central State administration bodies (directly, non-relevant)	0.47	0	0	0.47	0%
Financial mechanism	Own funds, commercial banks	21.75	31.38	61.17	114.3	52%
	SF 2007-2013, OP CEG 2007-2013	44.06	0	0	44.06	20%
	Envirofond	4.22	9.68	9.35	23.25	10%
	OP QoE 2014-2020	0	5.45	14.86	20.31	9%
	Public funds	7.17	2	0.72	9.89	4%
	Contractor's own funds	4.15	1.19	0.28	5.62	3%
	Slovseff III	0	0	1.94	1.94	1%
	Own funds budget headings	1.35	0	0	1.35	1%
	OP HR, priority axis 6	0	0	0.8	0.8	0%
	Own funds	0.26	0	0	0.26	0%

Source: SIEA - Energy efficiency monitoring system (EEMS)

Table 12: Evaluation of measures in the CONSUMER sector

		2016	2017	2018	Total (GWh)	Proportion (%)
Measure specifications	Replacement of white goods	52.94	38.79	0	91.73	87%
	Efficient lighting - voluntary agreements	12.18	0	0	12.18	12%
	Replacement of electrical and electronic equipment in private households	0	0	2.78	1.84	2%
Financial mechanism	Own funds	65.12	38.79	0	103.91	97%
	Guaranteed Energy Service (GES)	0	0	2.78	2.78	3%

Source: SIEA - Energy efficiency monitoring system (EEMS)

Table 11: Evaluation of measures in the PUBLIC SECTOR

Table 13: Evaluation of measures in the ENERGY TRANSFORMATION, TRANSMISSION AND DISTRIBUTION sector

		2016	2017	2018	Total (GWh)	Proportion (%)
Measure specifications	Application of legislative measures	2.85	0	0	2.85	44%
	Reconstruction and modernisation of installations for the production of electricity and heat, distribution of electricity, heat, gas	1.74	0	0	1.74	27%
	Construction, renovation and upgrading of heat distribution pipes	0	0	0.12	1.84	29%
Financial mechanism	Own funds	4.59	0	0	4.59	97%
	OP QoE 2014-2020	0	0	0.12	0.12	3%

Source: SIEA - Energy efficiency monitoring system (EEMS)

Annex 2: List of Regulations (R) for Ecodesign and Delegated Regulations (DR) for energy labelling of products

Seq. No	Type of products	ECODESIGN Directive 2009/125/EC	ENERGY LABELLING Regulation 2017/1369/EU
1.	Electrical displays (incl. TV) <i>Electronic displays</i> (including TV)	R No 642/2009/EC Televisions Valid until: 1.3.2021 R No 2019/2021/EU of 1.10.2019 Electronic displays amending R 1275/2008/EC repealing R 642/2009/EC Valid from: 1.3.2021	DR No 1062/2010/EU Televisions Valid until: 1.3.2021 DR No 2019/2013/EU of 11.3.2019 Electronic displays repealing DR No 1062/2010/EU Valid from: 1.3.2021
2.	Refrigerating appliances <i>Household refrigerating appliances</i> <i>2009-10</i> <i>Fridges 2019</i>	R No 643/2009/EC Valid until: 1.3.2021 R No 2019/2019/EU of 1.10.2019 amending R No 1275/2008/EC repealing R 643/2009/EC Valid from: 1.3.2021	DR No 1060/2010/EU of 11.3.2019 Valid until: 1.3.2021 DR 2019/2016/EU of 11.3.2019 repealing DR No 1060/2010/EU Valid from: 1.3.2021
3.	Professional refrigerated storage blast cabinets, condensing units and process chillers <i>Professional refrigerators</i>	R No 2015/1095/EU Valid from: 5.5.2015	DR No 2015/1094/EU Valid from: 5.5.2015
4.	Refrigerating appliances with direct sales function <i>Commercial. fridges</i>	R No 2019/2024/EU of 1.10.2019 Valid from: 1.3.2021	DR No 2019/2018/EU of 11.3.2019 Valid from: 1.3.2021

5.	Household washing machines and household washer-dryers <i>Household washing machines and washer-dryers</i>	R No 1015/2010/EU of 10.11.2010 Household washing machines Valid until: 1.3.2021 R No 2019/2023/EU of 1.10.2019 Household washing machines and household washer-dryers amending R No 1275/2008/EC repealing R No 1015/2010/EC Valid from: 1.3.2021	DR No 1061/2010/EU of 28.9.2010 Household washing machines Valid until: 1.3.2021 DR No 2019/2014/EU of 11.3.2019 Household washing machines and household washer-dryers repealing DR No 1061/2010/EU and repealing Directive 96/60/EC Valid from: 1.3.2021
6.	Household tumble driers Household tumble dryers	R No 932/2012/EU of 3.10.2012	DR No 392/2012/EU of 1.3.2012 Directive 96/60/EC of 19.9.1996 Valid until: 1.3.2021
7.	Household dishwashers <i>Dishwashers</i>	R No 1016/2010/EU of 10.11.2010 Valid until: 1.3.2021 R No 2019/2022/EU of 1.10.2019 amending R No 1275/2008/EC repealing R No 1016/2010/EC Valid from: 1.3.2021	DR No 1059/2010/EU of 28.10.2010 Valid until: 1.3.2021 DR No 2019/2017/EU of 11.3.2019 repealing DR No 1059/2010/EU Valid until: 1.3.2021
8.	Domestic ovens, hobs and range hoods <i>Cooking appliances</i>	R No 66/2014/EU of 14.1.2014	DR No 65/2014/EU of 1.10.2013
9.	Simple set-top boxes <i>Simple set-top boxes</i>	R No 107/2009/EC of 4.2.2009	
10.	Vacuum cleaners <i>Vacuum cleaners</i>	R No 666/2013/EU of 8.7.2013	

11.	<p>Lighting devices and separate control gear <i>Light sources</i></p>	<p>R No 244/2009/EC of 18.3.2009 <i>Non-directional household lamps</i> Valid until: 1.9.2021 R No 1194/2012/EU of 12/12/2012 <i>Directional lamps, light emitting diode lamps and related equipment</i> Valid until: 1.9.2021 R No 2019/2020/EU of 1.10.2019 Light sources and separate control gears <i>Light sources and separate control gears</i> amending R No 1275/2008/EC repealing R 244/2009/EC repealing R 245/2009/EC repealing R 1194/2012/EU Period of validity: from 1.9.2021</p>	<p>DR No 874/2012/EU of 12.7.2012 electrical lamps and luminaires <i>Lamps and luminaires</i> Valid until: 1.9.2021 DR No 2019/2015/EU of 11.3.2019 Light sources <i>Light sources</i> repealing DR No 874/2012/EU Valid from: 1.9.2021</p>
12.	<p>Fluorescent lamps without integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps <i>Fluorescent lamps w/o integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps</i></p>	<p>R No 245/2009/EC of 18.3.2009 repealing Directive 2000/55/EC Valid until: 1.9.2021 R No 347/2010/EU of 21.4.2010 amending and supplementing R No 245/2009/EC</p>	

13.	Ultraviolet radiation from non-directional household lamps <i>Ultraviolet radiation from non-directional household lamps</i>	R No 859/2009/EC of 18 September 2009 amending and supplementing R No 244/2009/EC	
14.	Servers and data storage products <i>Servers and data storage products</i>	R No 2019/424/EU of 15.3.2019 servers and data storage products amending R No 617/2013/EU	
15.	Computers and computer servers <i>Computers and computer servers</i>	R No 617/2013/EU of 26.6.2013 computers and computer servers	
16.	Standby and off-mode electric power consumption of electrical and electronic household and office equipment <i>Off mode, standby and networked standby</i>	R No 801/2013/EU of 22.8.2013 amending R No 1275/2008/EC amending R No 642/2009/EC televisions R No 1275/2008/EC of 17.12.2008	
18.	Electric motors and variable speed drives <i>Electric motors and variable speed drivers</i>	R No 640/2009/EC of 22.7.2009 Electric motors Valid until: 1.7.2021 R No 641/2009/EC of 22.7.2009 glandless circulators R No 2019/1781/EU of 1.10.2019 Electric motors and variable speed drives amending R No 641/2009/EC repealing R No 640/2009/EC Valid from: 1.7.2021	

17.	Circulators <i>Circulators</i>	R No 622/2012/EU of 11.7.2012 R No 641/2009/EC of 22.7.2009	
18.	External power supplies <i>External power supplies</i>	R No 278/2009/EC of 6.4.2009 Valid until: 1.4.2020 R No 2019/1782/EU of 1.10.2019 repealing R No 278/2009/EC Period of validity: 1.4.2020	
19.	Small, medium and large power transformers <i>Power transformers</i>	R No 548/2014/EU of 21.5.2014 R No 2019/1783/EU of 1.10.2019 amending R No 548/2014/EU	
20.	Welding equipment <i>Welding equipment</i>	R No 2019/1784/EU of 1.10.2019	
21.	Tyres Tyres		R No 1222/2009/EC of 25.11.2009 fuel efficiency and other essential parameters
22.	Water pumps <i>Water pumps</i>	R No 547/2012/EU of 25.6.2012	
23.	Local space heaters <i>Local space heaters</i>	R No 2015/1188/EU of 28.4.2015	DR No 2015/1186/EU of 24.4.2015
24.	Solid fuel local space heaters <i>Solid fuel local space heaters</i>	R No 2015/1185/EU of 24.4.2015 solid fuel local space heaters	
25.	Water heaters and hot water tanks <i>Water heaters</i>	R No 814/2013/EU of 2.8.2013	DR No 812/2013/EU of 18.2.2013

26.	Solid fuel boilers <i>Solid fuel boilers (500 kW)</i>	R No 2015/1189/EU of 28.4.2015	DR No 2015/1187/EU of 27.4.2015
27.	Space heaters and combination heaters <i>Space and combination heaters</i>	R No 813/2013/EU of 2.8.2013	DR No 811/2013/EU of 18.2.2013
28.	Air heating products, cooling products, high temperature process chillers and fan coil units <i>Air heating products (1 MW), cooling products (2 MW), high temperature process chillers (2 MW) and fan coil units</i>	R No 2016/2281/EU of 30.11.2016	
29.	Air conditioners and comfort fans <i>Air conditioners and comfort fans</i>	R No 206/2012/EU of 6.3.2012	DR No 626/2011/EU of 4.5.2011 air conditioners
30.	Fans <i>Industrial fans</i>	R No 327/2011/EU of 30.3.2011 driven by motors with an electric input power between 125 W and 500 kW	
31.	Ventilation units <i>Ventilation units</i>	R No 1253/2014/EU of 7.7.2014	DR No 1254/2014/EU of 11.7.2014 residential ventilation units
32.	Building automation and control systems <i>Building automation and control systems</i>		
33.	Smart appliances <i>Smart products</i>		

34.	Lifts <i>Lifts</i>		
35.	Hand dryers <i>Hand dryers</i>		
36.	Solar panels and inverters <i>PV panels and inverters</i>		
37.	Refrigerated containers <i>Refrigerated containers</i>		
38.	Lighting systems <i>Lighting systems</i>		
39.	Batteries <i>Batteries</i>		
40.	Complex set-top boxes <i>Complex set-top boxes</i>	Voluntary agreement	
41.	Imaging equipment <i>Imaging equipment</i>	Voluntary agreement	
42.	Game consoles <i>Game consoles</i>	Voluntary agreement	
43.	Bathroom taps and fittings <i>Taps and showers</i>	Voluntary agreement	