# 7. REPORT ON PROGRESS TOWARDS NATIONAL ENERGY EFFICIENCY TARGETS IN THE CZECH REPUBLIC

## pursuant to Article 24 of Directive 2012/27/EU on energy efficiency

## 1. Introduction

Pursuant to Article 24 (Review and monitoring of implementation) of Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC ('the Directive'), 'by 30 April each year as from 2013, Member States shall report on the progress achieved towards national energy efficiency targets'.

The Czech Republic's energy efficiency strategy is detailed in the National Energy Efficiency Action Plan (NAPEE), the fifth version of which (NAPEE-V) was approved by the government on 15 May 2017.

The 2018 Progress Report focuses on assessing the impact of the practical implementation of the Directive in the Czech Republic and its impact on energy consumption (i.e. the Czech Republic's contribution to the EU's 2020 energy efficiency target), progress made towards meeting the objectives and obligations stemming from the Directive, and predicting further developments in implementation, updating instruments aimed at improving energy efficiency and assessing policy measures under Article 7 of the Directive.

In its report, in accordance with point (5) of Annex V to the Directive, the Czech Republic gives notification of new policy measures for an alternative scheme in accordance with Article 7 of the Directive.

## National indicative energy efficiency target of the Czech Republic for 2020

The national indicative energy efficiency target, the 'national contribution' to achieving the Union's 2020 20 % headline target for energy efficiency, was set in line with the requirements of Article 3 of the Directive. Under the provisions of this Article, each Member State is to set a national indicative energy efficiency target based on primary energy consumption or final energy consumption.

The Czech Republic's approach to setting the national energy efficiency target is based on the Common European Framework for the Promotion of Energy Efficiency, which introduces achievement of the EU's energy efficiency target by 2020. With this target, the EU has committed itself to a 20 % decrease in energy consumption by 2020, compared with the reference scenario for the development of energy consumption in 2007. The Czech Republic's approach to setting the national contribution was similar, i.e. reducing the value of final energy consumption by 20 % in 2020, compared with the Czech reference scenario. Under this scenario, the Czech Republic's final energy consumption in 2020 would be 1 324.87 PJ, i.e. 31.644 Mtoe, without taking into account the effect of savings from implementing the Directive.

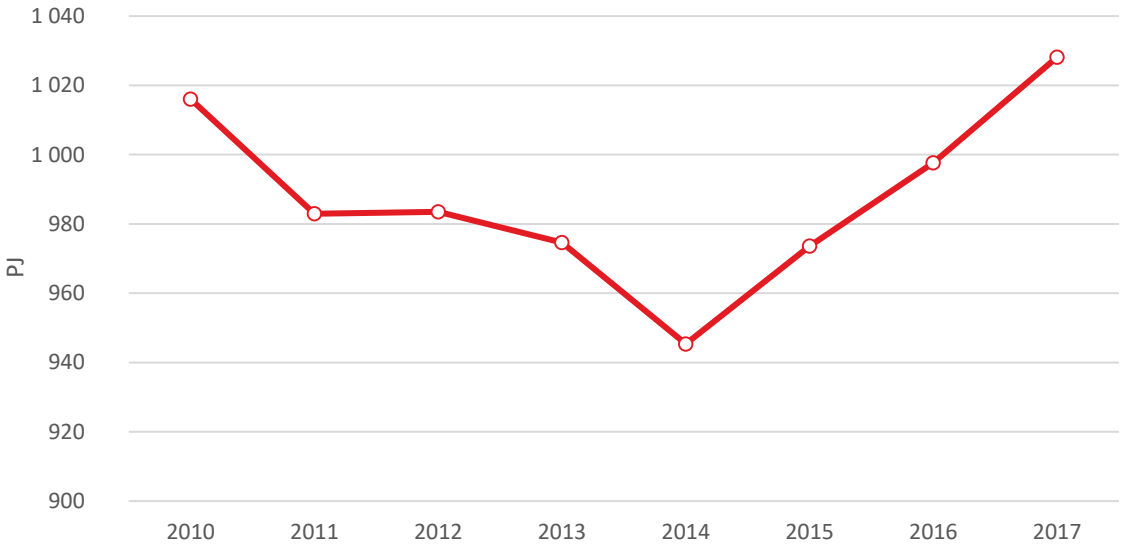
The Czech Republic's indicative energy efficiency target was set in accordance with the 'Update of the Czech Republic's State Energy Policy' ('the Update'), a document approved by the Czech government in its Resolution No 362 of 18 May 2015.[1]

**The Czech Republic's national indicative energy efficiency target is set at 1 060 PJ, i.e. 25.315 Mtoe of final energy consumption. The estimated national target expressed in primary energy consumption was established at 1 855 PJ, i.e. 44.305 Mtoe, based on a primary energy coefficient of 1.75.[2]**

## 2. Statistical data for the Czech Republic and analysis of trends in energy consumption

Analysis of trends in energy consumption shows a year-on-year increase in energy consumption from 2014. Consumption in 2017 increased year-on-year by 3.1 %, which in absolute terms represents 31 PJ. According to the Czech Republic's updated cumulative energy balance, under the revised Eurostat methodology final energy consumption in 2017 was 1 028 PJ.[3] The year-on-year increase in final energy consumption caused an increase in consumption in all sectors of the economy. **Crucially, despite increasing final energy consumption, the energy intensity of the economy has been declining over a long period. Nevertheless, in 2017 the energy intensity level stalled at 391 GJ/CZK million of GDP.[4]**

**Figure 1:** Development of final energy consumption in the Czech Republic, 2010-2017




Source: MIT

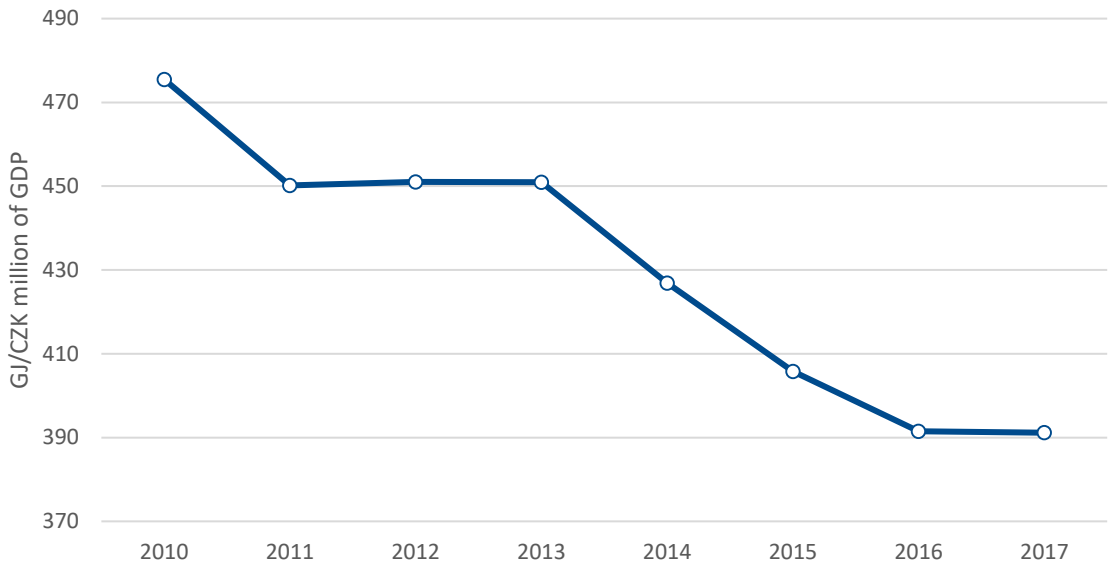
[1] The Update is a strategic document by which the Czech Government formulates the political, legislative and administrative framework for reliable, affordable and sustainable energy supply (https://www.mpo.cz/dokument158012.html).

[2] The coefficient was determined on the basis of developments in the primary energy coefficient in 2010–2015, assuming increasing energy conversion efficiency.

[3] The level of final energy consumption corresponds to the cumulative energy balance of the Ministry of Industry and Trade, drawn up on the basis of a new Eurostat methodology.

[4] Gross domestic product at market prices in 2010 (source: Eurostat).

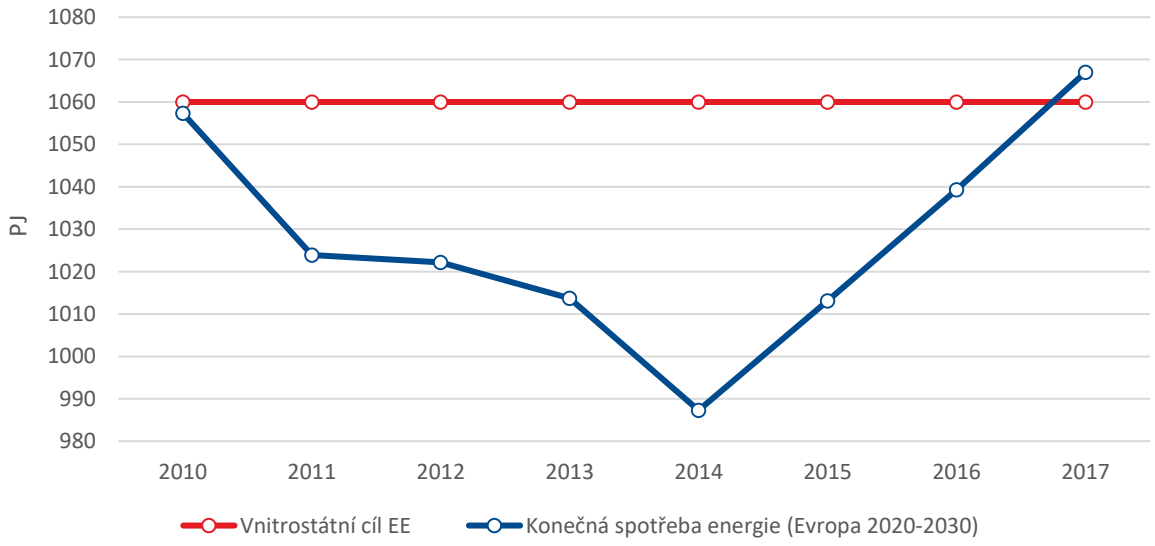
**Figure 2:** Development of energy intensity in the Czech Republic, 2010 -2017




Source: MIT, Eurostat

If we look at final energy consumption in the light of the initial Eurostat methodology, Europe 2020-2030, which is standard for the Member States when demonstrating compliance with the national energy efficiency target for 2020, the Czech Republic's final energy consumption exceeds the target figure set for 2020, i.e. 1 060 PJ. It is clear that according to the initial Eurostat methodology, the final energy consumption figures are higher compared with the official revised Eurostat methodology used to prepare the cumulative energy balance of the Ministry of Industry and Trade.

**Figure 3:** Meeting the national energy efficiency target (Europe 2020-2030), 2010-2017

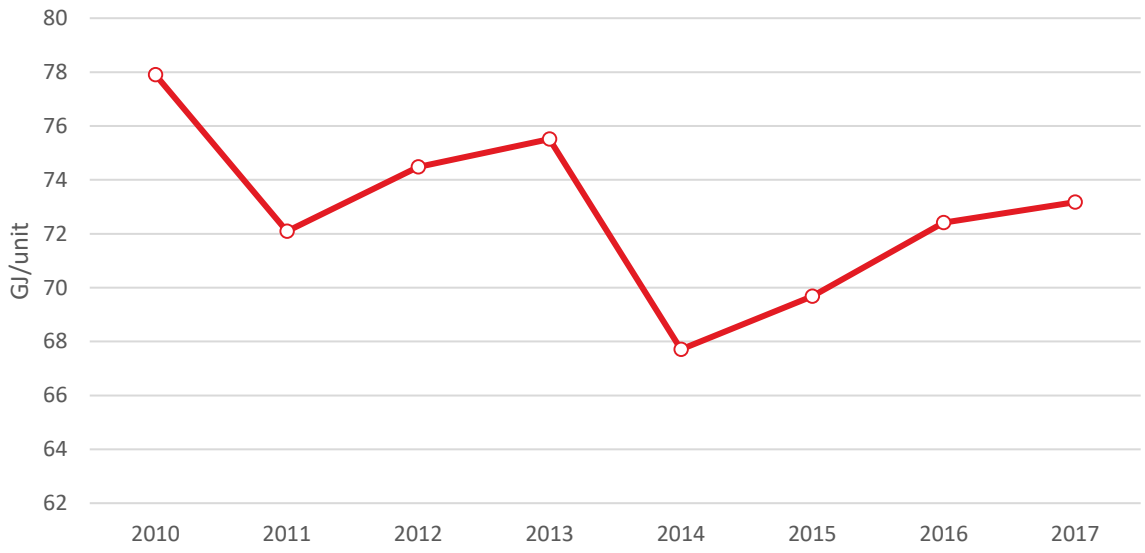


Source: Eurostat

Energy consumption in the household sector increased by 1.7 % year-on-year in 2017, reaching a level of around 307 PJ. The energy intensity of households, expressed per housing unit, has also been rising over a long period. It grew by 1 % year-on-year in 2017 to 73 GJ/unit. Energy consumption in the household sector over the previous period was also influenced by the increased number of new housing units, increased average floor area in housing units[5] and a fall in the number of people living in a single housing unit.[6] In demographic terms, the level of consumption reflects an increase in the population and in disposable household income,[7] leading to raised living standards and influencing consumer behaviour, which affects energy consumption.

If we monitor final energy consumption for space heating in the household sector net of climate effects, it can be noted that this is increasing at a slower rate. i.e. less than 1 %. In 2017, energy consumption for heating with climatic adjustment amounted to 51.37 GJ per housing unit, representing a 0.3 % decline in energy efficiency in the household sector compared to 2016.

**Figure 4:** Final energy consumption per household, 2010-2017



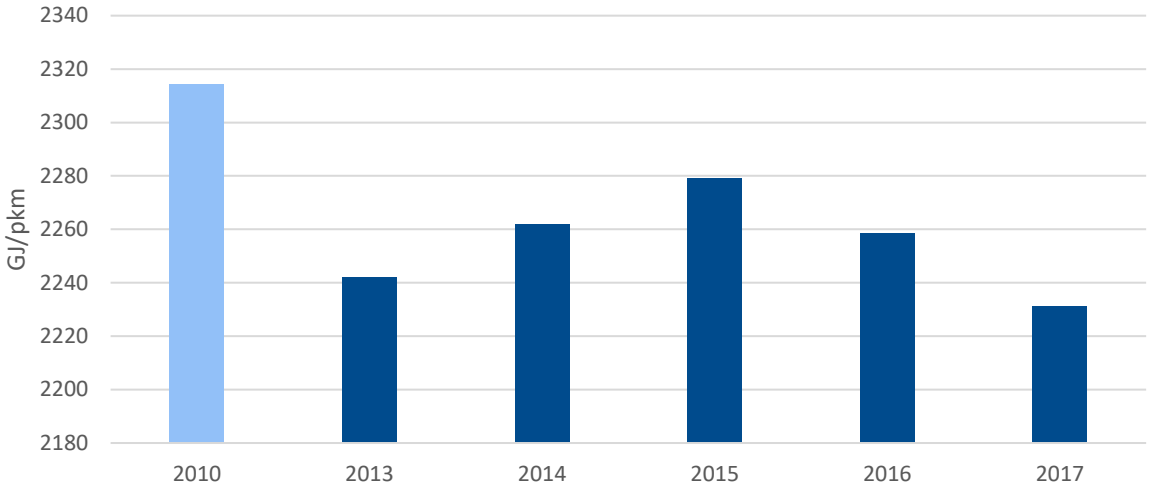

Source: MIT

**The transport sector has already seen a long-term increase in energy consumption. The year-on-year increase in energy consumption in the transport sector in 2017 was 3 %**, or approximately 8 PJ overall. This was due in particular to a year-on-year increase of almost 4.5 % in the number of person-kilometres. Despite the year-on-year increase in person-kilometres, year-on-year energy

[5] Average floor area in housing increased by 5 % between 2004 and 2015 (source: Czech Statistical Office (ČSÚ) — ENERGO 2015).
[6] The fall in the number of people living in a single housing unit reflects a trend towards independent living. The average number of people in a housing unit fell by 11 % between 2004 and 2015 (source: ČSÚ - ENERGO 2015).
[7] Gross disposable income increased year-on-year by 4 % in 2017 and by 3.4 % in 2016 (source: Eurostat).

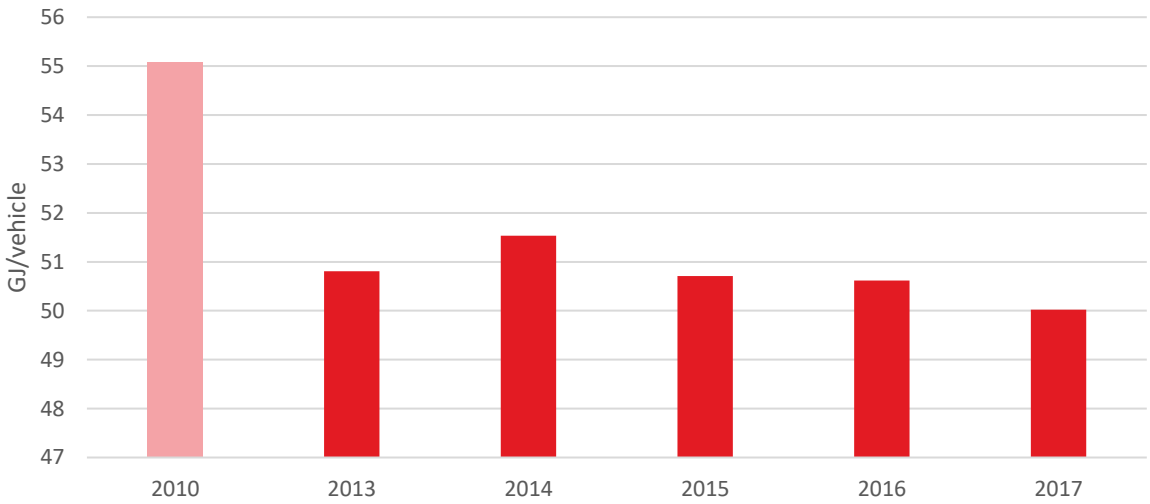
consumption per person-kilometre fell in 2017 (including private car transport and public transport),[8] as well as energy consumption per vehicle (including only private car transport). Based on the trends in these indicators, it can be assumed that the efficiency of public transport has increased.

**Figure 5:** Energy consumption in the transport sector in person-kilometres, 2010-2017




Source: Ministry of Transport, MIT

**Figure 6:** Energy consumption in the transport sector per vehicle, 2010-2017



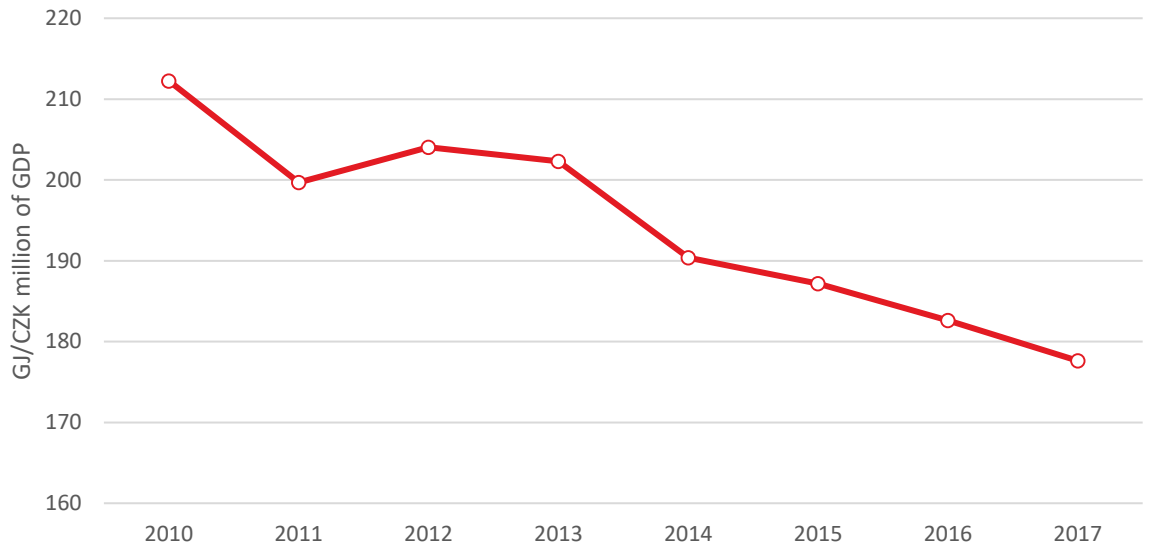

Source: Ministry of Transport, MIT

**The industry sector saw a 4.5 % year-on-year increase in consumption in 2017 compared to the previous long-term decline.** This increase was not caused by a physical increase in energy consumption, but by a change in the statistical budgeting of consumption in the petrochemical sector.

[8] Public transport includes rail, bus, air, internal waterways and urban public transport.

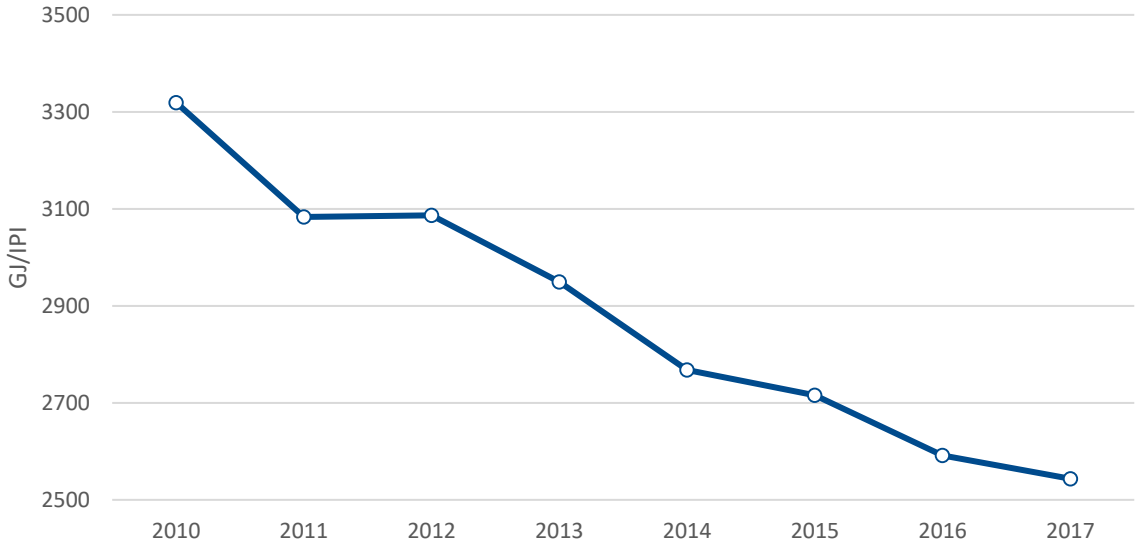
Based on this long-term trend, energy intensity in industry has also fallen steadily since 2012 to gross value added (GVA). Compared to 2016, energy intensity in industry has fallen year-on-year by more than 2.7 %. Over the long term, the ratio of energy consumption to industrial production has also fallen, as measured against the industrial production index (IPI).[9] In 2017, this ratio fell year-on-year by 1.8 %, confirming the trend towards increasing technical efficiency in the industrial sector.

**Figure 7:** Development of energy intensity in industry in the Czech Republic, 2010 -2017




Source: Eurostat, MIT

**Figure 8:** Energy consumption in relation to industrial production, 2010-2017

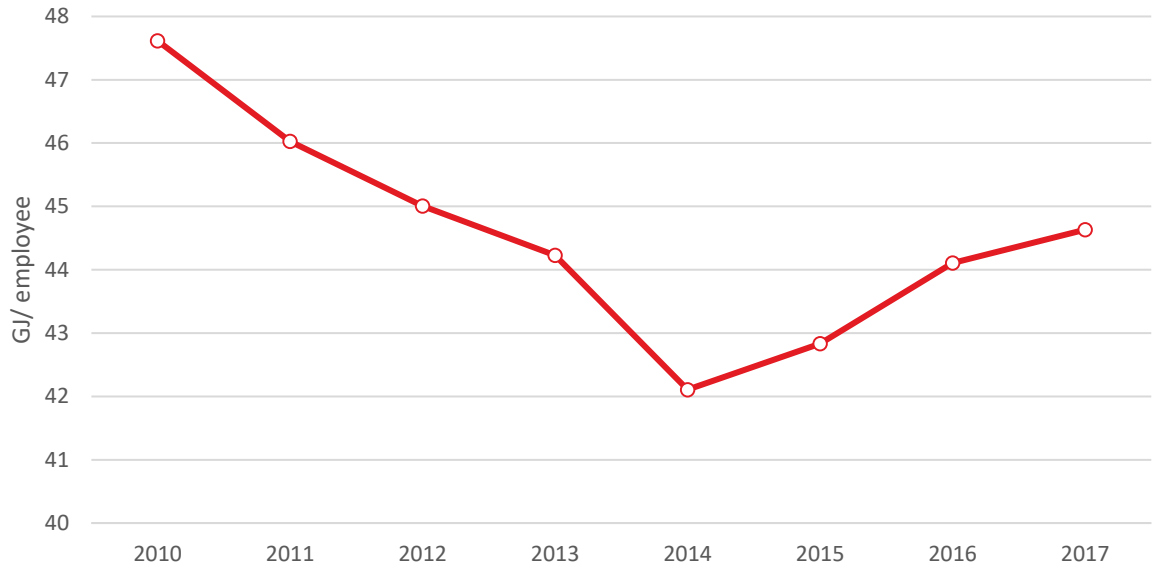



Source: Czech Statistical Office, MIT

[9] The industrial production index (IPI) measures own output from industries, price-adjusted. The index is primarily calculated as a monthly basic index, currently for an average month in 2015.

**On the other hand, final energy consumption in the service sector grew year-on-year by approximately 3 %, representing approx. 4 PJ.** Increased consumption in the sector was due in particular to its increased economic performance and the increased number of employees. On average, from 2014 energy consumption per employee also increased in this sector, and in 2017 reached approximately the same level as in 2013.

**Figure 9:** Energy intensity in the service sector per employee, 2010-2016




Source: Czech Statistical Office, Eurostat

**Table 1:** Statistics for CR - EUROSTAT data

| | Source | unit | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|
| Primary energy consumption | 1 | TJ | 1 745 793 | 1 747 487 | 1 727 226 | 1 800 928 |
| Total final energy consumption | 1 | TJ | 945 381 | 973 653 | 997 600 | 1 028 132 |
| Final energy consumption by sector: | | | | | | |
| industry | 1 | TJ | 265 386 | 271 593 | 268 028 | 280 135 |
| transport | 1 | TJ | 249 068 | 259 388 | 268 680 | 277 019 |
| households | 1 | TJ | 279 392 | 289 143 | 302 338 | 307 418 |
| services | 1 | TJ | 122 651 | 124 981 | 129 849 | 133 690 |
| Final energy consumption using Europe 2020-2030 methodology | 2 | TJ | 987 275 | 1 013 075 | 1 039 286 | 1 067 029 |
| Gross value added by sector – 2005 prices: | | | | | | |
| Industry | 2 | CZK million | 1 393 856 | 1 451 040 | 1 467 826 | 1 577 095 |
| Services | 2 | CZK million | 2 033 796 | 2 142 527 | 2 210 852 | 2 273 216 |
| Gross value added by sector – current prices: | 2 | | | | | |
| Industry | 2 | CZK million | 1 477 294 | 1 562 192 | 1 600 393 | 1 676 537 |
| Services | 2 | CZK million | 2 314 585 | 2 470 997 | 2 586 987 | 2 748 756 |
| Disposable household income | 2 | CZK million | 2 284 609 | 2 383 321 | 2 474 370 | 2 575 885 |
| Gross domestic product (GDP) – 2005 prices | 2 | CZK million | 3 801 154 | 4 002 966 | 4 101 060 | 4 279 563 |
| Gross domestic product (GDP) - current prices | 2 | CZK million | 4 313 789 | 4 595 783 | 4 767 990 | 5 047 267 |
| Electricity generation from thermal power plants | 1 | GWh | 80 587 | 77 984 | 77 479 | 81 226 |
| Electricity generation from combined heat and power | 1 | GWh | 42 680 | 42 424 | 42 904 | 43 849 |
| Heat generation from thermal power generation | 1 | TJ | 119 666 | 121 233 | 127 519 | 122 851 |
| Heat generation from combined heat and power plants, including industrial waste heat | 1 | TJ | 94 380 | 95 794 | 99 906 | 95 618 |
| Fuel consumption for energy production from heat energy sources | 1 | TJ | 940 368 | 904 638 | 889 375 | 924 494 |
| Number of person-kilometres | 3 | pkm million | 110 114 | 113 814 | 118 957 | 124 165 |
| Number of tonne-kilometres | 3 | tkm million | 71 421 | 76 613 | 68 172 | 62 936 |
| Population (mean) | 4 | persons | 10 524 783 | 10 542 942 | 10 565 284 | 10 589 526 |

Sources: 1 – Aggregate energy balance (MIT, Eurostat methodology); 2 – Eurostat; 3 – Ministry of Transport; 4 – Czech Statistical Office

# 3. Implementing the tools for meeting the targets of the Energy Efficiency Directive in 2017

## 3.1. Legislative measures

The Directive was already fully transposed in 2015, in the context of the amendment of three legislative acts. These were amendments to Act No 458/2000 on business conditions and the performance of State administration in the energy sectors, as amended, Act No 406/2000 on energy management, as amended, and Act No 165/2012 on subsidised sources, as amended.

**No new legislative measures were applied in 2018 to support the implementation of energy-saving measures**, nor was existing legislation updated, whether directly or indirectly connected with increasing energy efficiency.

However, work started in 2018 on the substance of a "new" Building Code, one of the aims of which is to speed up the authorisation process. Simplification and streamlining should facilitate the implementation of a long-term building renovation strategy.

The Czech Government further approved a draft Act amending Act No 406/2000 on energy management. One of the objectives of this amendment is to streamline the practical implementation of the legal framework for improving energy efficiency. The amendment will be accompanied by amendments to the implementing legislation. In 2018 there was a proposal to amend Decree No 78/2013 on the energy performance of buildings, as amended. The proposal foresees a tightening of NZEB requirements from 2022 onwards. At the same time, it responds to some aspects of newly adopted EU legislation, namely Directive (EU) 844/2018 of the European Parliament and of the Council amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency.

The introduction in 2018 of a draft Act amending Act No 383/2012 on the conditions for trading in greenhouse gas emission allowances, as amended, was of great importance in establishing the policy for increasing energy efficiency. This draft Act transposes Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments and Decision (EU) 2015/1814. The amendment to Act No 383/2012 provides for the use of part of the proceeds from the trading of emission allowances to promote improvement in the energy performance of buildings and the use of the Modernisation Fund to improve energy efficiency.

# 4. Exemplary role of public bodies' buildings (Article 5)

In 2015, the Ministry of Industry and Trade, in cooperation with other stakeholders and following on from previous documents relating to Article 5 of the Directive, drew up an investment plan for the renovation of buildings owned by central government institutions under the rules set out in Article 5 of the Directive. The document included a list of the institutions subject to the commitment under Article 5 of the Directive and their renovation plans, quantifying the expected energy savings in

buildings they own and occupy with an energy reference area of over 250 $m^2$ not meeting the energy performance requirements under Section 7 of Act No 406/2000 on energy management.

As part of the Reconstruction Plan Update under Article 5 of Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, drawn up with a view to 2020, the exemptions applied to the buildings of the Czech National Bank were reviewed in 2017-18. This institution was included among those subject to the obligation under Article 5 of the Directive. At the same time, it should be noted that all buildings owned and occupied by them meet the energy performance requirements under Act No 406/2000 and Implementing Decree No 78/2013. The amount of the commitment was also revised, owing to the reintegration of buildings owned and occupied by the Czech Prison Service (a total of 447 buildings, of which 389 do not meet energy performance requirements).

In accordance with Annex IV to the Public Procurement Directive (2004/18/EC), the following 42 institutions were identified in the Czech Republic:

**Table 2:** Institutions identified in accordance with Annex IV to the Directive

| | | | |
|---|---|---|---|
| *1.* | Academy of Sciences of the Czech Republic | *22.* | Ministry of Foreign Affairs |
| *2.* | Security Information Service | *23.* | Ministry of Health |
| *3.* | Czech National Bank | *24.* | Ministry of Agriculture |
| *4.* | Czech Mining Authority | *25.* | Ministry of the Environment |
| *5.* | Czech Statistical Office | *26.* | National Security Authority |
| *6.* | Czech Telecommunications Office | *27.* | Supreme Audit Office |
| *7.* | Czech Surveying and Land Registry Office | *28.* | Supreme Court |
| *8.* | Energy Regulatory Office | *29.* | Supreme Administrative Court |
| *9.* | Grant Agency of the Czech Republic | *30.* | Supreme Public Prosecutor's Office |
| *10.* | Office of the President | *31.* | Chamber of Deputies of the Parliament of the Czech Republic |
| *11.* | Office of the Ombudsman | *32.* | Senate of the Parliament of the Czech Republic |
| *12.* | Ministry of Transport | *33.* | Administration of the State Material Reserves |
| *13.* | Ministry of Finance | *34.* | State Labour Inspection Office |
| *14.* | Ministry of Culture | *35.* | State Office for Nuclear Safety |
| *15.* | Ministry of Defence | *36.* | Office for the Protection of Competition |
| *16.* | Ministry of Labour and Social Affairs | *37.* | Office for Personal Data Protection |
| *17.* | Ministry of Regional Development | *38.* | Office for Government Representation in Property Affairs[10] |
| *18.* | Ministry of Industry and Trade | *39.* | Industrial Property Office |
| *19.* | Ministry of Justice | *40.* | Office of the Government of the Czech Republic |
| *20.* | Ministry of Education, Youth and Sports | *41.* | Constitutional Court |
| *21.* | Ministry of the Interior | *42.* | Prison Service |

[10] A non-obligated institution, included at its own request.

Under Article 5(1) of the Directive, the obligation to renovate applies to buildings that are both owned and occupied by central government institutions. Furthermore, Article 5(2) of the Directive allows for the exemption of buildings:

- owned by the armed forces or central government institutions and serving national defence purposes (the main reason for the current decrease in the number of buildings);
- used as places of worship and for religious activities.

The collection of data on the buildings of the above institutions has led to the finding that five institutions fail to meet the ownership and use requirement or apply the exemption in accordance with Article 5(1) of Directive 2012/27/EU.

The institutions are as follows:

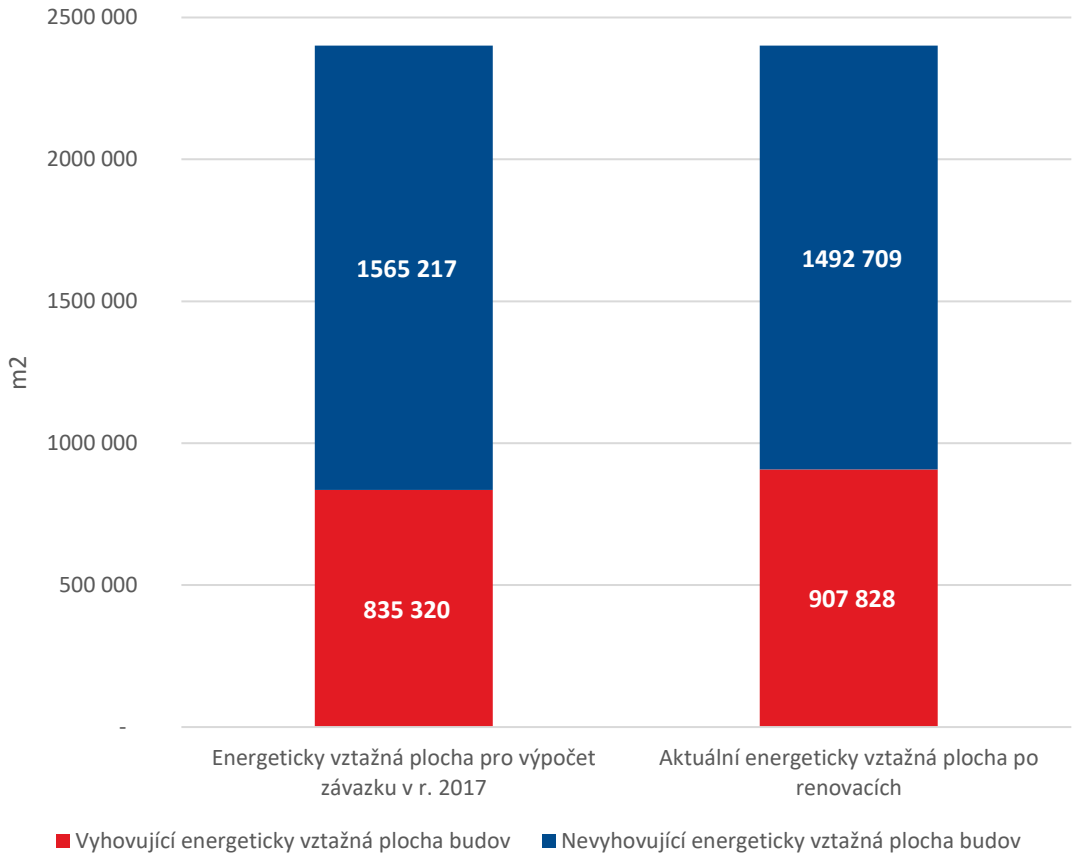
- the Academy of Sciences of the Czech Republic – does not own any buildings;
- the Security Information Service (BIS) – the premises were exempted due to their nature and at the request of the BIS;
- the Grant Agency of the Czech Republic – does not own any buildings;
- the Office of the President – does not own any buildings;
- the Ministry of the Interior – does not own any buildings.

The buildings within the scope of Article 5 of the Directive exclude selected buildings of the Ministry of Defence which qualify for exemption under Article 5(2) of the Directive, i.e. they are owned by the armed forces or central government institutions serving national defence purposes.

Following the procedures described in the Commission staff working document 'Guidance note on Directive 2012/27/EU on energy efficiency, amending Directives 2009/125/EC and 2010/30/EC, and repealing Directives 2004/8/EC and 2006/32/EC – Article 5: Exemplary role of public bodies' buildings – accompanying the Communication from the Commission to the European Parliament and the Council – Implementing the Energy Efficiency Directive' and in light of the choice of an alternative approach to meeting the requirement of Article 5 of the Directive owing to the high proportion of historic buildings, a commitment was made for the annual energy saving required, which is equivalent to the renovation of 3 % of the energy reference area of those buildings that do not meet the required energy performance of buildings.

The above-mentioned 37 central government institutions own and occupy 772 buildings with an energy reference area of over 250 $m^2$ and with a total energy reference area of 2 400 512 $m^2$. **Of these, as of 2017 586 buildings with a total non-compliant energy reference area of 1 565 217 $m^2$ do not meet energy performance rating C (energy-efficient building).**

**Figure 10:** Energy reference area of central government institution buildings covered by Article 5 of the Directive




Key: Energy reference area for calculating the commitment in 2017

Current energy reference area after renovations

Compliant energy reference area of buildings

Non-compliant energy reference area of buildings

**Based on the calculation, the objective of the volume of savings achieved as a result of the energy-saving measures in the buildings of central government institutions was set at 5.3 TJ/year before the inclusion of the buildings of the Czech Prison Service** (i.e. in 2014) **and 20.7 TJ/year after updating the commitment to include them** (i.e. in 2017).

Compliance with the 2018 commitment was assessed in March 2019 on the basis of data collected as part of regular monitoring under Section 9b(3) of Act No 406/2000. **In 2018, energy-saving measures were implemented in 14 central government buildings and on 36 Prison Service sites, resulting in savings for 2018 of 9.78 TJ. In particular these were construction measures such as replacing windows, renovating the heating system or replacing the lighting.**

**Table 3:** Summary of and progress towards the annual commitment under Article 5 of the Directive

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | total |
|---|---|---|---|---|---|---|---|---|
| **Annual energy savings commitment [TJ]** | 5.3 | 5.3 | 5.3 | 20.7 | 20.7 | 20.7 | 20.7 | **98.7** |
| | **Actual** | | | | | **Planned** | | |
| **Annual energy savings [TJ]** | 4.1 | 12.3 | 7.8 | 22.2 | 9.8 | 40.3 | 25.0 | **121.6** |
| **Progress towards the commitment (plan – commitment) [TJ]** | -1.2 | 7.0 | 2.5 | 1.6 | -10.9 | 19.7 | 4.3 | **22.9** |
| **Cost of renovations [CZK million]** | 31.2 | 195.6 | 120.4 | 149.6 | 148.1 | 738.9 | 1 463.9 | **2 847.8** |

The Czech Republic set a commitment in advance in 2014 based on an unsatisfactory energy reference area for the whole period 2014-2020. In 2017, the commitment was recalculated in view of the inclusion of buildings of the Czech Prison Service following the rejection by the European Commission of an exemption from the renovation obligations laid down in Article 5 of the Directive. The Czech Republic was in breach of this obligation for the period 2014-2016 by 26.29 TJ; the commitment from this institution was not foreseen, and this amount was added to the commitment for the period 2017-2020 (see Table 3).

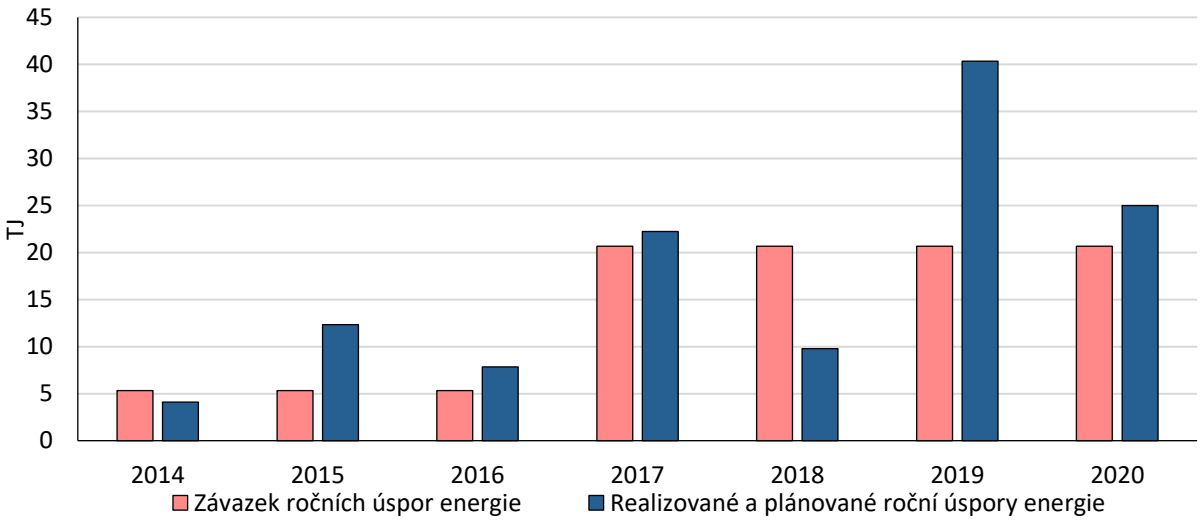
Based on the investment plans of individual institutions, by early 2019 renovation led to an increase in the eligible energy reference area in class C – a saving of 75 508 $m^2$. Based on the recalculation of the commitment due to the reduction of the non-compliant energy reference area of buildings owned and occupied by central institutions, the Czech Republic should achieve energy savings in central government institution buildings of 13.34 TJ in 2019.

In 2018, the Czech Republic has a deficit in the implementation of the commitment. At the same time, however, in 2014-2017 the Czech Republic has an 'over-compensation' in the implementation of energy savings. In view of the possibility of applying Article 5(3) of Directive 2012/27/EU, counting the excess of annual savings in any of the three previous or following years, the deficit as of 1 January 2019 is therefore 1.0 TJ. in view of this, in 2019 the Czech Republic must implement energy savings of 14.34 TJ. According to the investment plan for the reconstruction of buildings owned by central government institutions according to the rules set out in Article 5 of Directive 2012/27/EU, this commitment is expected to be met; see Table 3.

In addition to the planned saving measures set out in table 3, consumption monitoring of central government institutions identified a further 38 projects totalling CZK 261.1 million with the potential to reduce final energy consumption. The implementation of these projects by 2020 or 2030 depends on the availability of financial and administrative resources. Based on the cost of measures already implemented, the expected benefit from these 'potential' projects is 24.5 TJ in energy savings. Given that these projects are not currently set out in the investment plans of individual institutions, **they have not been considered in terms of meeting the Czech Republic's commitment at this stage**.

The following chart shows that in 2019-2020 there is increased interest in renovation from the organisations concerned. Achieving these objectives should compensate for the lack of fulfilment in 2018, with the Czech Republic exceeding the overall annual energy-saving commitment under Article 5 of the Directive by approximately 22.9 TJ.[11]

**Figure 11:** Progress towards the commitment under Article 5, 2014–2020




Key: Annual energy savings commitment Annual energy savings implemented and panned

# 5. Energy efficiency obligation scheme

## 5.1. New energy savings target under Article 7 of the Directive

As part of the National Energy Efficiency Action Plan update, new targets for energy savings were reviewed from 2017 under Article 7 of the Directive. In January 2017, Eurostat published a review of data on energy consumption in the Czech Republic (Statistical data of the Czech Republic and analysis of trends in energy consumption). The changes included increased values for final energy consumption in the reference period determined for calculating new energy savings targets under Article 7 of the Directive, and therefore increased the target. **The Czech Republic's target under Article 7 of the Directive was set at 51.10 PJ of new energy savings (i.e. an annual average of 7.3 PJ), or a total of 204.39 PJ cumulative energy savings by 2020.**

## 5.2. Notification of policy measures

[11] This is the commitment shown in Table 3, which is determined without taking into account an annual reduction of the non-compliant energy reference area as a result of the implementation of energy-saving measures, and does not envisage an increase in the non-compliant energy reference area due to the inclusion of additional buildings (pursuant to Section 9b of Act No 406/2000, a central government institution shall purchase only buildings that meet the energy performance requirements for buildings).

**In 2018, the policy measures listed below were included in the alternative scheme for fulfilling the obligation under Article 7 of the Directive, based on the development of methodologies for reporting the following measures:**

- Integrated Regional Operational Programme (IROP) – Public transport (SO 1.2);
- Environmental tax on motor fuels;
- Ban on the placing on the market of solid-fuel boilers in emission classes 1 and 2.

**These policy measures had already been implemented in 2014. However, due to the lack of methodologies for evaluating them, energy savings were not reported in previous years.** Following the drawing up of new methodologies by the Ministry of Industry and Trade in 2018, the energy savings achieved for the period 2014-2018 have been declared retrospectively. The notification of new measures under Annex V to the Directive is in Annex 1 to this report.

### 5.2.1. Integrated Regional Operational Programme – Public Transport (IROP SO 1.2)

As part of the policy measure, energy savings from investment projects aimed at modernising the public transport fleet are reported. In particular, this involves the replacement of obsolete diesel-powered public transport buses by more energy-efficient alternatives using CNG or electricity.

### 5.2.2. Environmental tax on fuels

This is a tax measure whereby energy savings arising from the introduction of an excise duty on fuels over and above the minimum level of taxation under Council Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity are reported. The energy savings are determined on the basis of the difference between the expected fuel consumption trend in the absence of the excise duty and actual fuel consumption. The effect of the excise duty was obtained by means of short-term price elasticity. The price elasticity of demand for a particular object in general reflects how consumers react to a change in the price of the good. In the case of excise duty on fuel, price elasticity reflects the reduction in fuel consumption on the basis of the introduction of the duty.

$$(actual\ tax - minimum\ tax\ level) * \frac{1}{energy\ price} = \Delta p$$

$$energy\ consumption * \frac{1}{1 + \Delta p * price\ elasticity} = energy\ consumption\ untaxed$$

$$energy\ consumption\ untaxed - energy\ consumption = energy\ savings$$

The energy savings were calculated based on the following formula:

In 2019, a study entitled “An estimate of price elasticity in demand for petrol and diesel in the Czech Republic” was drawn up, resulting in a quantification of energy savings from excise duty on petrol. Energy savings from excise duty on other fuels, including diesel used in transport and electricity, natural gas and solid fuel in households, have not been reported as the study did not focus on estimating short-term price elasticity for these commodities. The Ministry of Industry and Trade plans to provide an estimate of the price elasticity of fuel used by households in the course of 2019 with a view to reporting savings in the 2020 Progress Report.

The estimate of price elasticity for petrol has been developed by the ‘Center for Economy in Regulated Sectors’ at the University of Economics. For the purpose of the study, quarterly data were used in the time series 2001-2017 for the following variables:

- fuel price
- fuel consumption
- number of vehicles
- outputs, costs and road passenger transport, including urban public transport
- per capita gross domestic product
- average nominal gross monthly salary
- nominal USD/CZK exchange rate
- inflation

The price elasticity study is attached to this report.

Energy savings basically have a one-year life cycle, i.e. the objective of cumulated energy savings will be taken into account for a given year only, so that the effect is not cumulated in a subsequent period, as is the case for long-term measures, such as investment measures.

### 5.2.3. Marketing ban for solid-fuel boilers in emission classes 1 and 2

In 2014, the **marketing ban for solid-fuel boilers in emission classes 1 and 2 came into effect pursuant to Section 16 (1) of Act No 201/2012 on air protection, as amended** (‘Act No 201/2012’).[12] These are regulatory measures laying down minimum standards for energy-related products which are not laid down in any EU legislation. According to this provision of Act No 201/2012, persons may not place on the market in the Czech Republic a stationary combustion source with a rated thermal input of 300 kW or less which does not meet the emission requirements under Annex 10 to Act No 201/2012. This relates specifically to emission class 1 solid-fuel boilers with < 66 % efficiency and class 2 solid-fuel boilers with < 66-73 % efficiency. The energy savings correspond to the difference between the consumption of purchased class 1 and class 2 boilers and the consumption of the conventional and most likely alternatives available on the market. Energy savings have been taken into account since 2015, having regard to the fact that that in 2014, i.e. the year the ban came into effect, stored stocks of old boilers were sold off.

12 https://www.mzp.cz/www/platnalegislativa.nsf/9F4906381B38F7F6C1257A94002EC4A0/%24file/Z%20201_2012.pdf

### 5.3. State of play of the implementation of energy efficiency obligation tools

**The current analysis of fulfilment of the commitment shows that 29.6 PJ of new energy savings were achieved in 2014-2018. Between 2014 and 2018, therefore, the Czech Republic achieved 70 PJ in cumulative energy savings.**

In fulfilling the annual energy savings commitment, a deficit of 6.9 PJ arose due to a shortfall in fulfilment in 2014, 2015 and 2016; the cumulative savings deficit for 2014-2017 is 39.5 PJ. This deficit must be made good by accelerating progress towards fulfilling the commitment in the forthcoming 2019-2020 period.

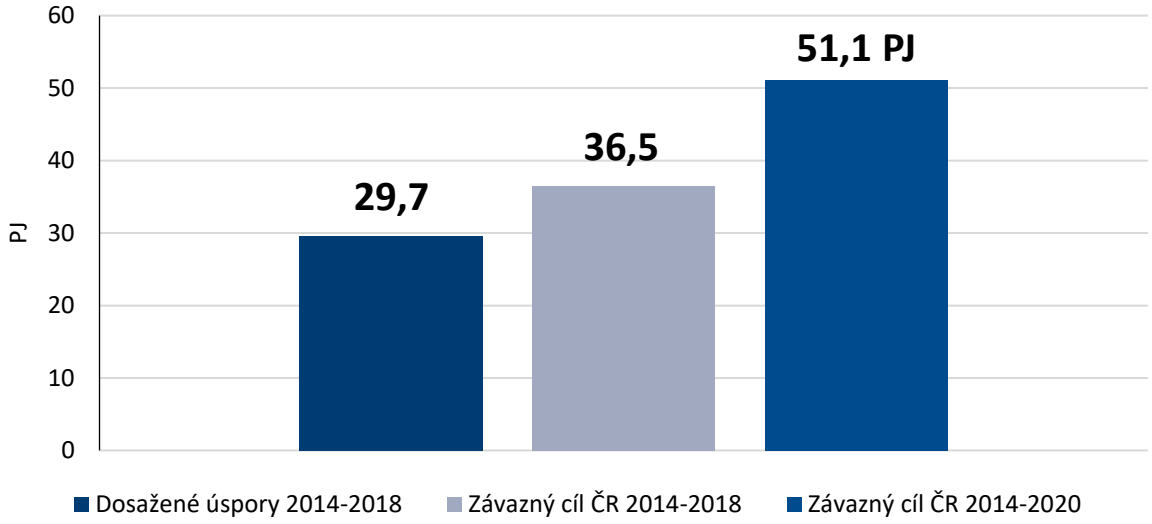



**Figure 12:** Fulfilment of new annual energy savings under Article 7 of the Directive

Key: Savings achieved 2014-2018 Binding target CR 2014-2018 Binding target CR 2014-2018

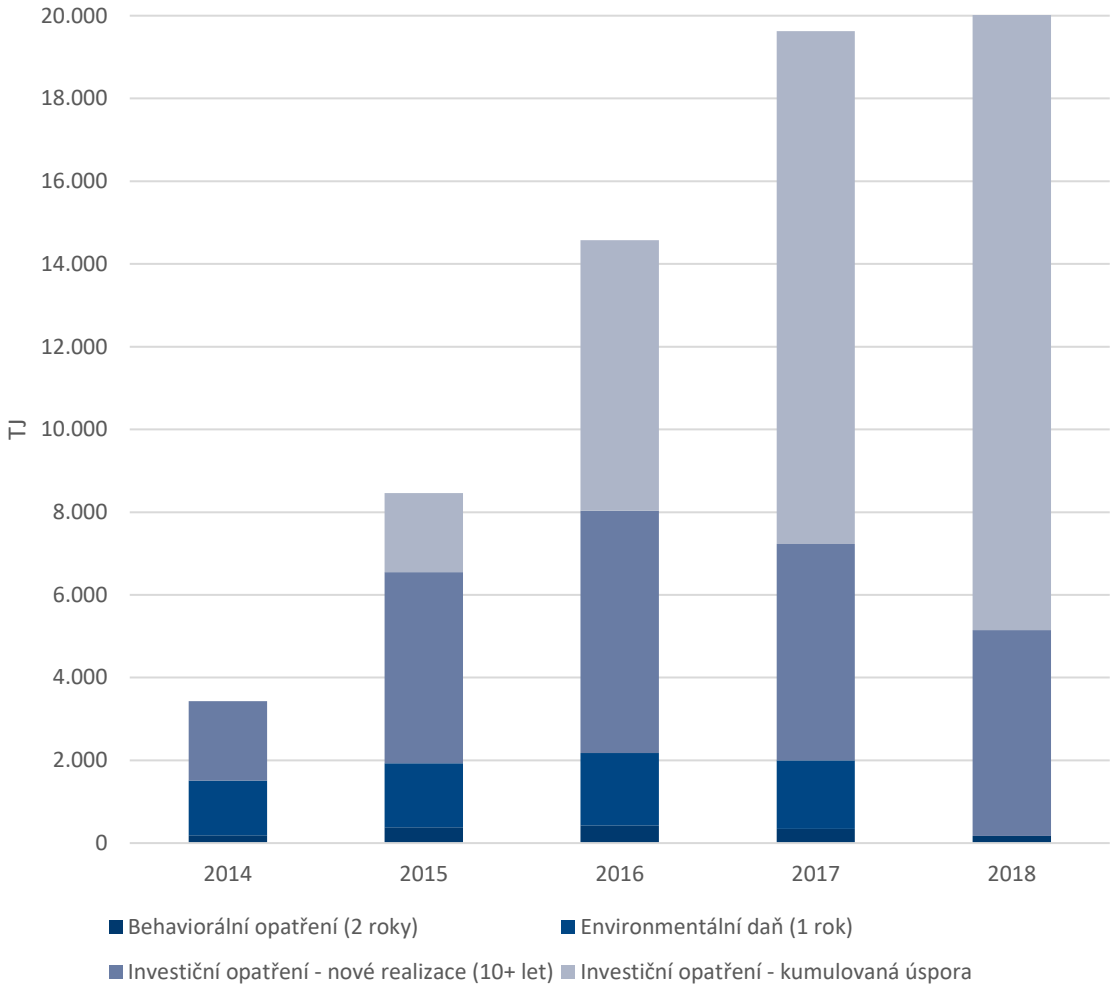



**Figure 13**: Cumulation of new annual energy savings under Article 7 of Directive 2012/27/EU

Key: Behavioural measures (2 years) Environmental tax (1 year)
Investment measure – new implementation (10+ yrs) Investment measure – cumulative savings

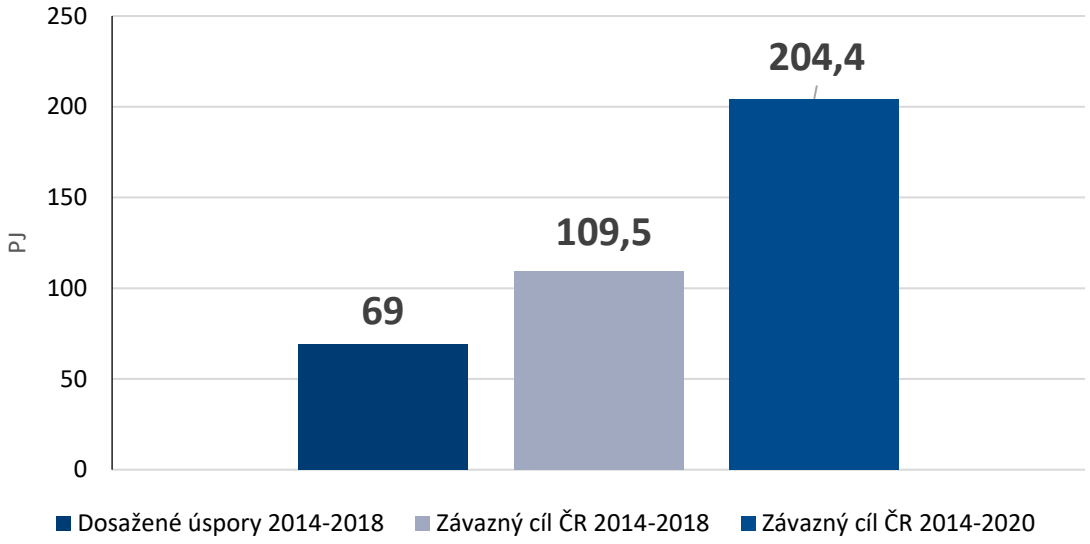



**Figure 14:** Fulfilment of cumulated energy savings under Article 7 of the Directive

Key: Savings achieved 2014-2018 Binding target CR 2014-2018 Binding target CR 2014-2018

**Table 3**: Implementation of the commitment for new annual energy savings (new actions implemented in a given year), 2014-2018

| Measure | | 2014 [TJ] | 2015 [TJ] | 2016 [TJ] | 2017 [TJ] | 2018 [TJ] | Total [TJ] |
|---|---|---|---|---|---|---|---|
| 1.1. | Regeneration of pre-fabricated apartment blocks – programmes PANEL/NEW PANEL (MoRD)/PANEL 2013+ | 26.3 | 54.7 | 31 | 17.9 | 14.3 | 144.1 |
| 1.2. | Green Savings Programme (MoE) | terminated | — | — | — | — | 0 |
| 1.3. | New Green Savings Programme 2013 (MoE) | 63.7 | 148.8 | 98.9 | terminated | terminated | 311.3 |
| 1.4. | New Green Savings Programme 2014-2020 (MoE) | 19.1 | 230.9 | 637 | 926.0 | 830.3 | 2 643.3 |
| 1.5. | JESSICA Programme (MoRD) | 14.4 | 40.3 | 19.2 | terminated | terminated | 73.9 |
| 1.6. | Integrated Regional Operational Programme (MoRD) | — | — | 16.8 | 191.7 | 176.2 | 384.7 |
| 1.7. | Joint Boiler Replacement Scheme (MoE) | 49.6 | 0 | terminated | terminated | terminated | 49.6 |
| 1.9. | Operational Programme Environment 2014–2020 (MoE) (Priority Axis 2 – SO 2.1) | — | 10.6 | 510.4 | 470 | 28.8 | 1 057.1 |
| 1.8. | Operational Programme Environment 2007-2013 (MoE) | 84.7 | 864.1 | 1 111.2 | terminated | terminated | 2 060 |
| 1.9. | Operational Programme Environment 2014–2020 (MoE) (Priority Axis 5 – SO 5.1) | — | 0 | 12.4 | 167.9 | 118.8 | 299.1 |
| 1.10. | State programmes to promote energy savings and the use of renewable energy sources (EFEKT) (MIT) | 344.4 | 274.2 | 279 | 1.3 | terminated | 898.8 |
| 1.11. | State programme to promote energy savings (EFEKT 2) (MIT) | — | — | — | 402.8 | 323.7 | 726.5 |
| 1.12. | OP Prague Growth Pole – Buildings section (City of Prague) | — | — | 0 | 21.4 | 2.1 | 23.5 |
| 1.13. | Operational Programme Enterprise and Innovation 2007–2013 (MIT) | 441.8 | 1 096 | 561 | terminated | terminated | 2 098.8 |
| 1.14. | Operational Programme Enterprise and Innovation for Competitiveness 2014–2020 (MIT) | — | 0 | 19 | 261.6 | 826.2 | 1 106.8 |
| 1.15. | ENERG Programme (Czech-Moravian Guarantee and Development Bank, ČMZRB) | — | — | — | 0 | 0 | 0 |
| 1.16. | Reasonable Energy Savings Programme (MIT) | — | — | — | — | under development | 0 |
| 1.17. | Alternative measures for increasing energy efficiency in Czech industry and in municipalities and regions | — | — | 32.4 | 61.3 | 16.1 | 109.7 |
| 1.18. | Transport Operational Programme (MoT) | — | 4.8 | 0 | 7.6 | 0 | 12.4 |
| 1.19. | Sustainable Development Strategic Framework | 1 064.5 | 1 916.1 | 2 554.8 | 2 554.8 | 2 554.8 | 15 845 |
| 1.27 | Integrated Regional Operational Programme (MoRD) — Public transport (IROP SO 1.2) | — | — | — | 54.5 | 148.1 | 202.6 |
| 1.28 | Environmental tax on fuels | 1 324.9 | 1 544.2 | 1 746.6 | 1 653.1 | Not assessed | 6 268.8 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1.29 | Marketing ban for solid-fuel boilers in emission classes 1 and 2 | 0 | 171 | 213 | 199 | Not assessed | 583.1 |
| **Total** | | **3 433.3** | **6 355.6** | **7 842.8** | **6 990.5** | **5 039.4** | **29 661.6** |

**Annex 1: Notification of additional policy measures in the Czech Republic's alternative scheme**

| | |
|---|---|
| **Measure number** | **1.27** |

| | |
|---|---|
| **TITLE OF MEASURE** | Integrated Regional Operational Programme (MoRD) — Public transport (IROP SO 1.2) |

| | |
|---|---|
| **Sector** | transport, public sector |

| | |
|---|---|
| **Concise description of the policy measure** | As part of the policy measure, energy savings from investment projects aimed at modernising the public transport fleet are reported. In particular, this involves the replacement of obsolete diesel-powered public transport buses by more energy-efficient alternatives using CNG or electricity. |

| | |
|---|---|
| **Eligible measure** | Replacement of obsolete public transport vehicles with more energy-efficient options using CNG and electricity. |

| | |
|---|---|
| **Regional application** | The measure can be implemented throughout the Czech Republic, excluding the Prague capital city region. |

| | |
|---|---|
| **Target group** | municipalities |

| | |
|---|---|
| **Implementing body** | Ministry of Regional Development |

| | |
|---|---|
| **Energy saving calculation method** | Relative savings |

| | |
|---|---|
| **Service life** | Lifetime 15-20 years.<br>The lifetime of energy savings depends on the normal life of buses |

| | |
|---|---|
| **Monitoring of the benefits of the measure** | Ex post report on the actual circulation of new vehicles for all actions carried out. |

| | |
|---|---|
| **Measure number** | **1.28** |

| | |
|---|---|
| **TITLE OF MEASURE** | Environmental tax on fuels |

| | |
|---|---|
| **Sector** | transport |

| | |
|---|---|
| **Concise description of the policy measure** | As a result of the policy measure, energy savings result from the introduction of an excise duty on fuels over and above the minimum level of taxation under Council Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity. The energy savings are determined on the basis of the difference between the expected fuel consumption trend in the absence of excise duty and actual fuel consumption. |

| | |
|---|---|
| **Regional application** | This measure is to be implemented throughout the Czech Republic. |

| | |
|---|---|
| **Segment of tax payers** | General population |

| | |
|---|---|
| **Implementing body** | Ministry of Finance |

| | |
|---|---|
| **Energy saving calculation method** | The effect of the excise duty was obtained by means of short-term price elasticity. The price elasticity of demand for a particular object in general reflects how consumers react to a change in the price of the good. In the case of an excise duty on fuel, price elasticity reflects the reduction in fuel consumption on the basis of the introduction of the duty. |

| | |
|---|---|
| | $$(skutečná\ daň - minimální\ úroveň\ daně) * \frac{1}{cena\ energie} = \Delta p$$<br>$$spotřeba\ energie * \frac{1}{1 + \Delta p * cenová\ elasticita} = spotřeba\ energie\ bez\ zdanění$$<br>$$spotřeba\ energie\ bez\ zdanění - spotřeba\ energie = úspora\ energie$$<br>(See p. 15)<br>The energy savings were calculated on the basis of the following formula:<br>The detailed methodology for the calculation of price elasticity is attached to the 2019 Progress Report. |

| | |
|---|---|
| **Estimated savings** | 2 PJ/year |

| | |
|---|---|
| **Length of measure** | 2014-2020 |

| | |
|---|---|
| **Measure number** | **1.29** |

| | |
|---|---|
| **TITLE OF MEASURE** | Marketing ban for solid-fuel boilers in emission classes 1 and 2 |

| | |
|---|---|
| **Sector** | households, industry, services, public sector |

| | |
|---|---|
| **Concise description of the policy measure** | This is a regulatory measure laying down minimum standards for energy-related products which are not laid down in any EU legislation.<br><br>In 2014, the marketing ban for solid-fuel boilers in emission classes 1 and 2 came into effect pursuant to Section 16 (1) of Act No 201/2012 on air protection, as amended. According to this provision, persons may not place on the market in the Czech Republic a stationary combustion source with a rated thermal input of 300 kW or less which does not meet the emission requirements under Annex 10 to Act No 201/2012. This relates specifically to emission class 1 solid-fuel boilers with < 66 % efficiency and class 2 solid-fuel boilers with < 66-73 % efficiency. |

| | |
|---|---|
| **Eligible measure** | Regulatory measure — the setting of a minimum standard for boilers placed on the market. |

| | |
|---|---|
| **Regional application** | This measure can be implemented throughout the Czech Republic. |

| | |
|---|---|
| **Target group** | Energy consumers |

| | |
|---|---|
| **Implementing body** | Ministry of the Environment |

| | |
|---|---|
| **Energy saving calculation method** | Savings under investigation<br><br>The energy savings correspond to the difference between the consumption of purchased class 1 and class 2 boilers and the consumption of the conventional and most likely alternatives available on the market. Energy savings have been taken into account since 2015, having regard to the fact that in 2014, i.e. the year the ban came into |

| | |
|---|---|
| | effect, stored stocks of old boilers were sold off. |

| | |
|---|---|
| **Service life** | Lifetime of 10 years. |

| | |
|---|---|
| **Monitoring of the benefits of the measure** | Ex post evaluation of market developments. |

**Annex 2: Estimate of price elasticity of demand for petrol and diesel in the Czech Republic**

Odhad cenové elasticity poptávky p