The background features abstract, overlapping geometric shapes in various shades of blue, ranging from light to dark, creating a modern and professional aesthetic. The shapes are primarily triangles and polygons, some with thin white outlines, set against a white background.

# The effects of policy frameworks in achieving energy savings in the building sector in Austria and Czech Republic.

Luigi Bottecchia And Matous Rozanek

# Agenda

- ▶ Background and Motivation
- ▶ The EU context
- ▶ Energy Savings in Austria
- ▶ Energy Savings in Czech Republic
- ▶ Conclusions

# Background and Motivation

The consequences of climate change and global warming are numerous and so are the causes of it.

- ▶ Increase in temperatures
- ▶ High CO<sub>2</sub> emissions
- ▶ Use of fossil fuels
- ▶ Increase in **energy consumption**



# Background and Motivation

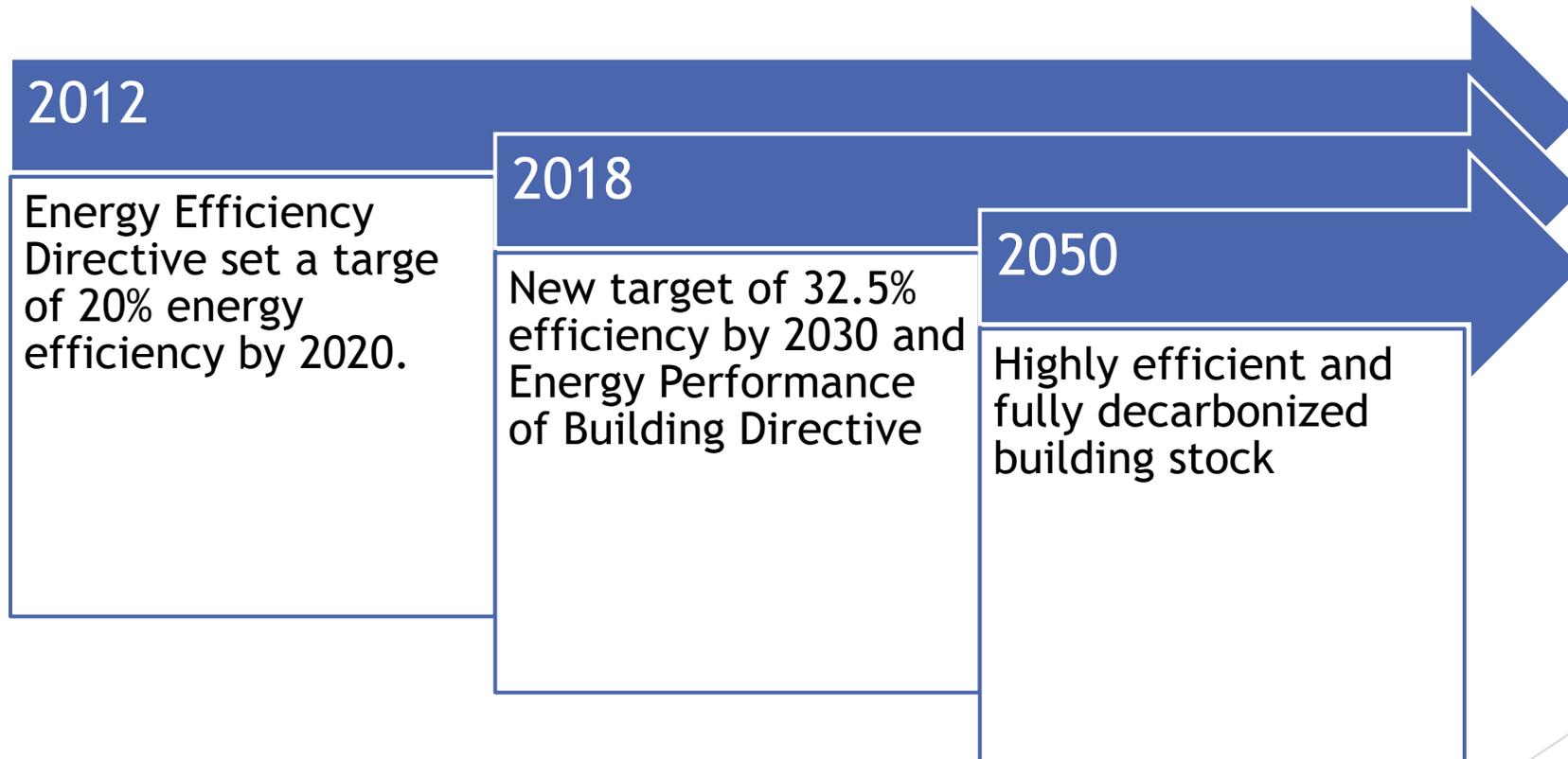
Globally the household sector accounts for **20%** of the final energy consumption and at EU level this is even higher and reached **26%** in 2018. [1]

Energy savings are one of the most powerful instrument in order to solve this issue

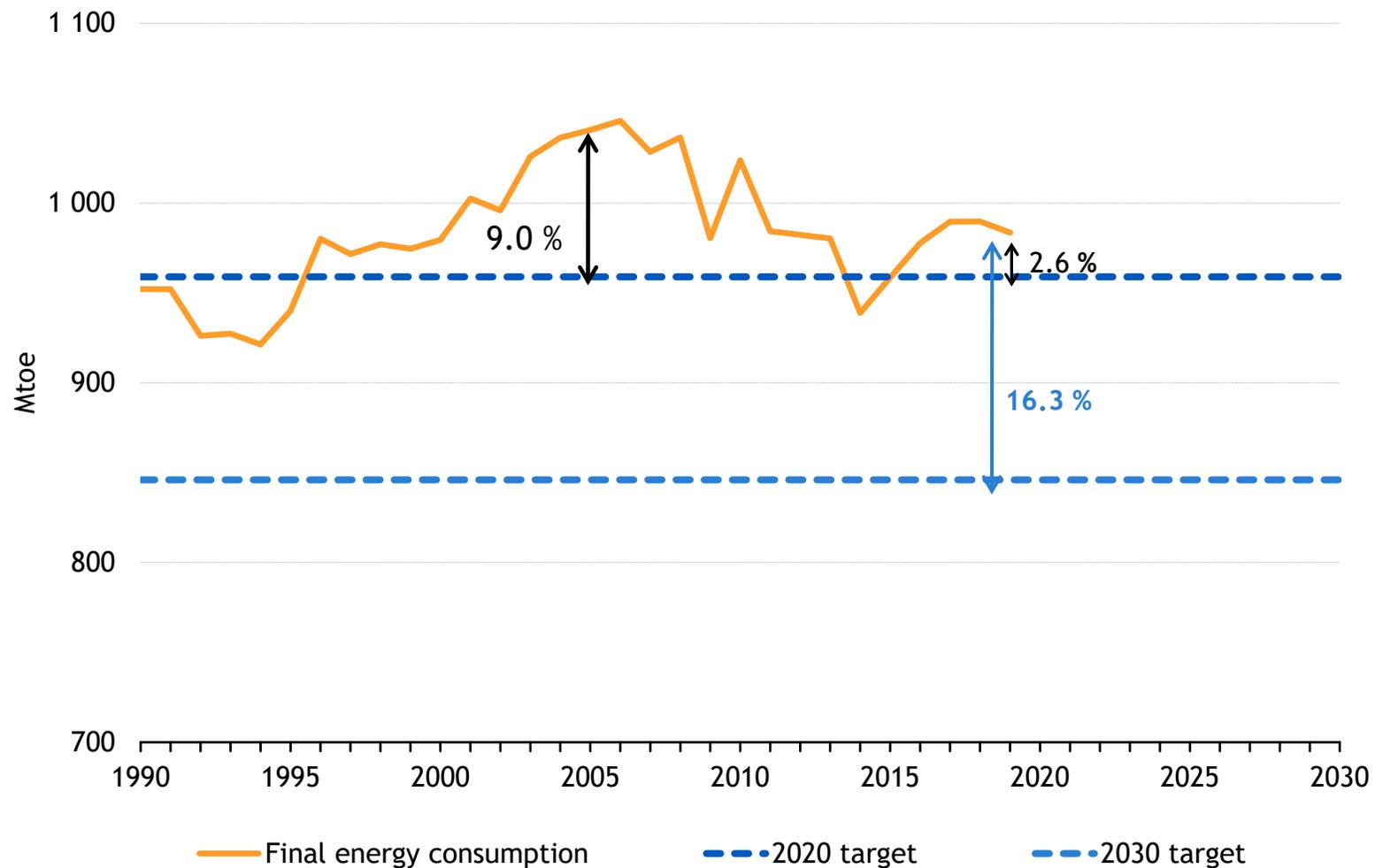


[1] Eurostat. (2019). *Statistics | Eurostat—Final Energy Consumption By Sector*. <https://ec.europa.eu/eurostat/databrowser/view/ten00124/default/table?lang=en>

# The EU context



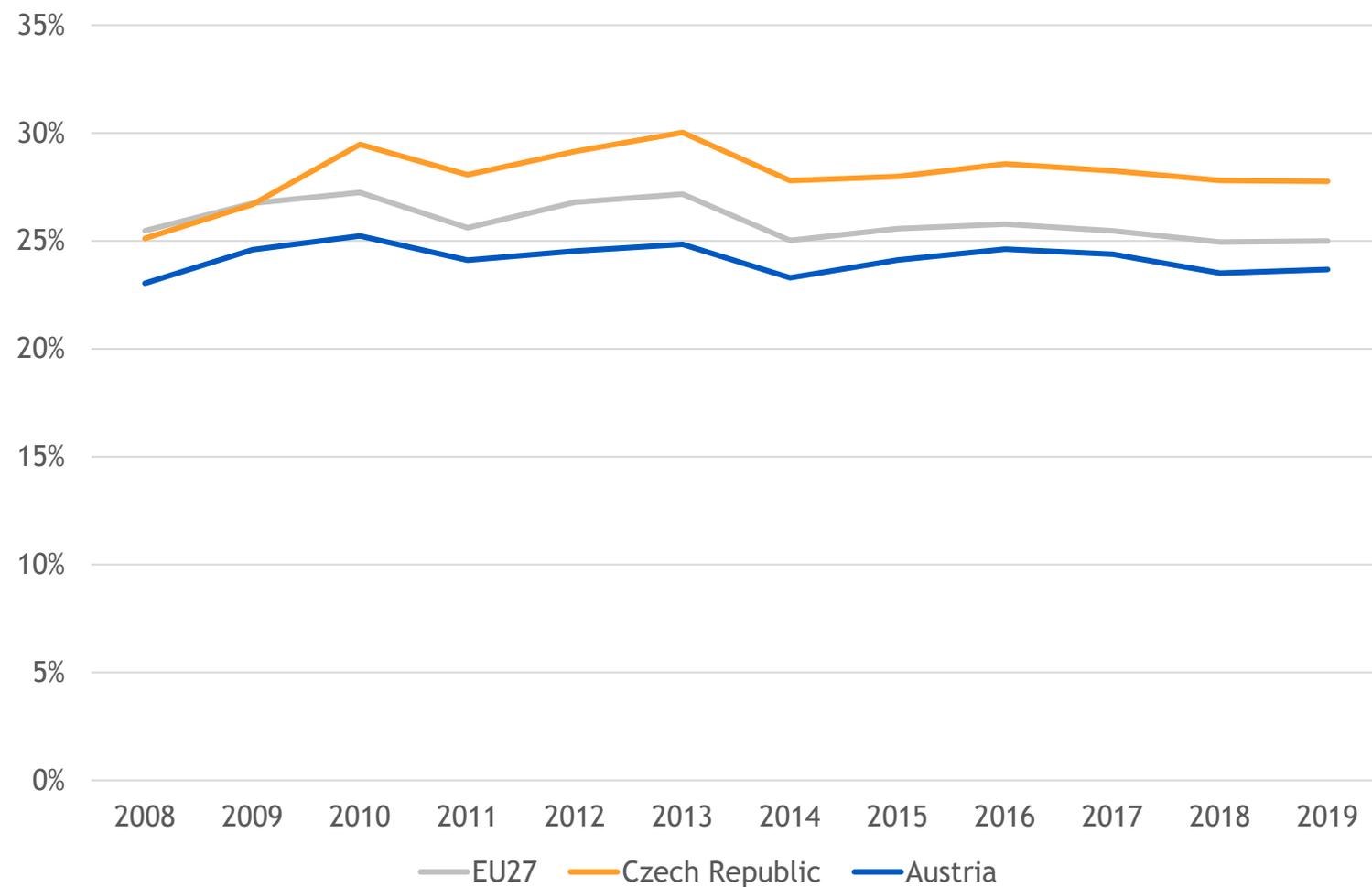
# The EU context



Distance to 2020 and 2030 targets for final energy consumption in EU27. [2]

[2] Eurostat. (2021b). Energy saving statistics—Statistics Explained. [https://ec.europa.eu/eurostat/statistics-explained/index.php/Energy\\_saving\\_statistics#Primary\\_energy\\_consumption\\_and\\_distance\\_to\\_2020\\_and\\_2030\\_targets](https://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_saving_statistics#Primary_energy_consumption_and_distance_to_2020_and_2030_targets)

# The EU context



Share of household sector in final energy consumption [1]

[1] Eurostat. (2019). *Statistics | Eurostat—Final Energy Consumption By Sector.*  
<https://ec.europa.eu/eurostat/databrowser/view/ten00124/default/table?lang=en>

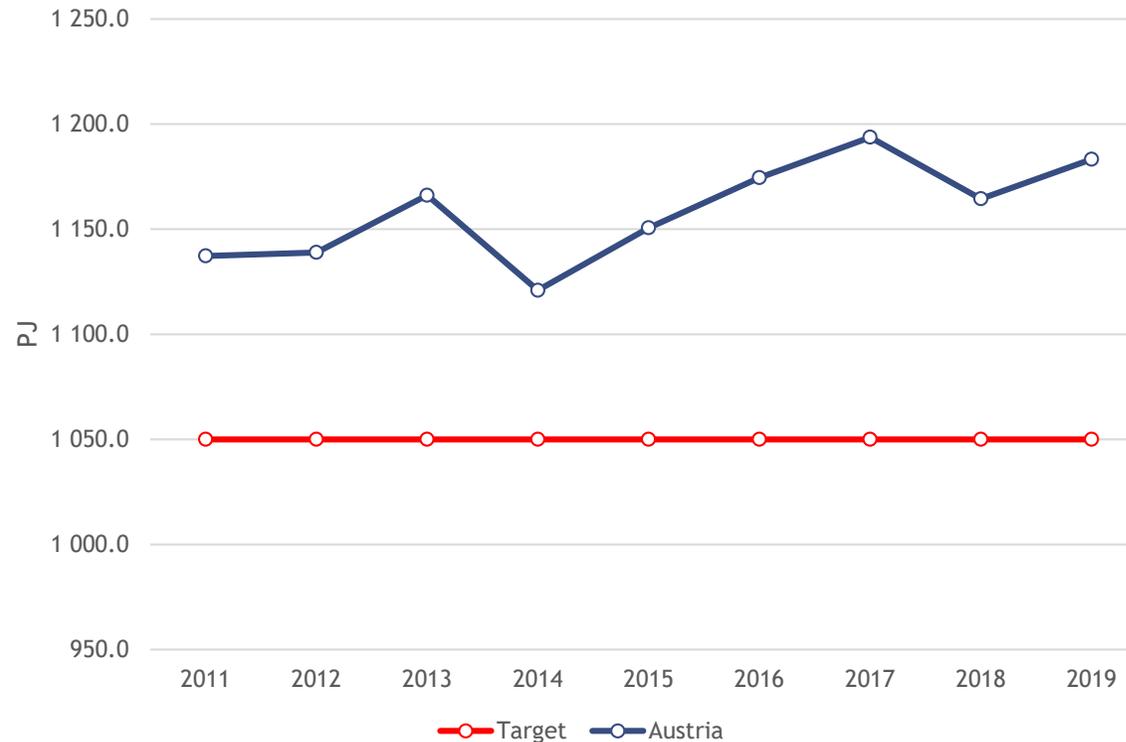
# The Eu Context

Article 3,5,7 of the 2012 European Directive set 3 targets to be achieved by Member states.

1. Article 3 - Non binding target to a 20% reduction in Final Energy Consumption
2. Article 5 - Obligation of 3% renovation of government buildings or used by government
3. Article 7 - Obligation of cumulative savings corresponding to an annual reduction in final energy consumption of 1.5% by 2020

# Energy Savings in Austria

- ▶ The implementation of the 2012 EU Directive in Austria happened through the Federal Act on Increasing Energy Efficiency within the industry and the federal states [3] which set a target of 1050 PJ of final energy consumption by 2020.



Final Energy Consumption 2008-2019 in Austria compared to target. [4]

[3] Eurostat. Republic of Austria. (2017). Federal Act amending the Environment Promotion Act and repealing the Federal Energy Efficiency Act. <https://www.ecolex.org/details/legislation/federal-act-amending-the-environment-promotion-act-and-repealing-the-federal-energy-efficiency-act-lex-faoc165899/>

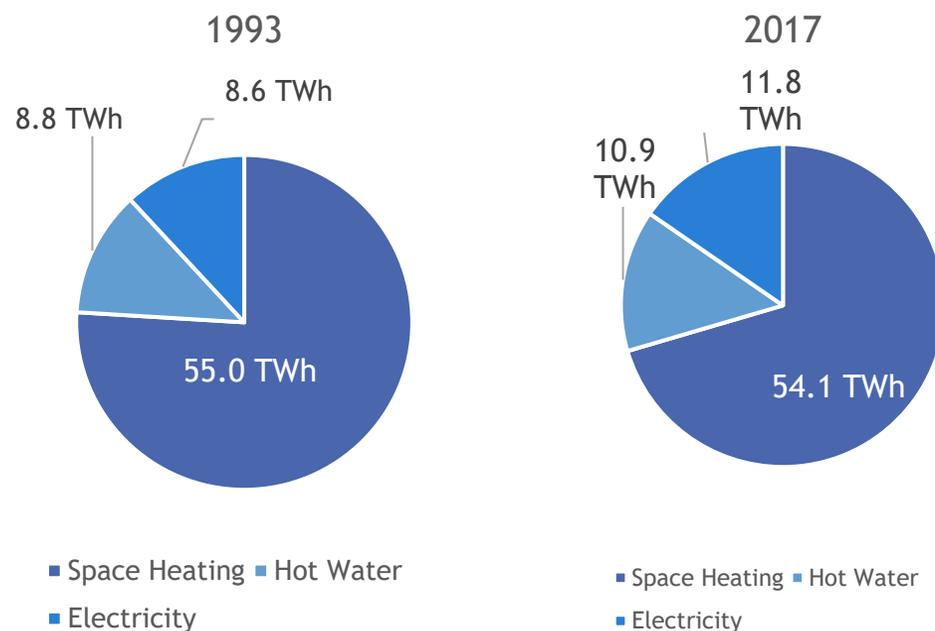
[4] Eurostat. (2019a). Statistics | Eurostat—Final Energy Consumption. [https://ec.europa.eu/eurostat/databrowser/view/t2020\\_34/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/t2020_34/default/table?lang=en)

# Energy Savings in Austria

- ▶ Implemented policies allowed to reach consistent savings in the period 2014-2017

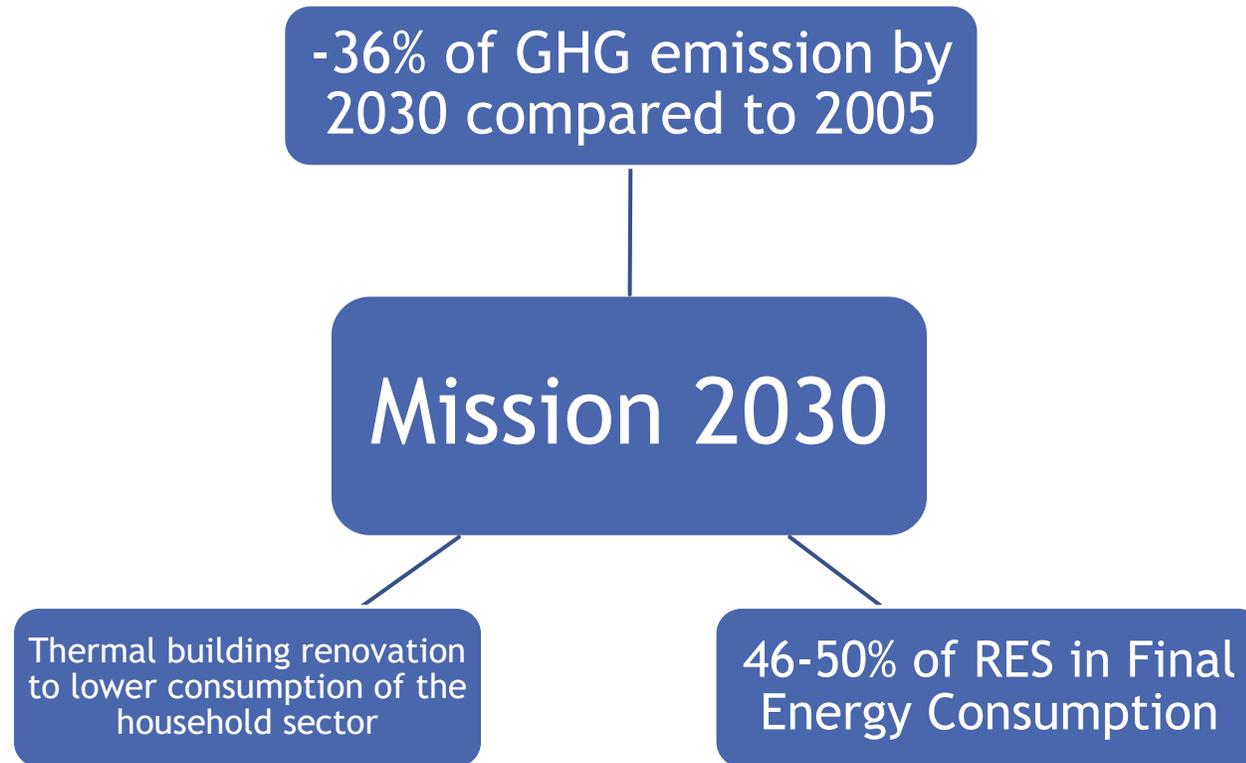
| Measure                                                             | Cumulative Saving in TJ (2014-2017) |
|---------------------------------------------------------------------|-------------------------------------|
| Energy efficiency obligation scheme for energy suppliers            | 64.6                                |
| Provincial support for housing construction, energy and environment | 28.26                               |
| Domestic Environmental Support ([Umweltförderung im Inland] UFI)    | 22.87                               |
| Federal support for green electricity                               | 1.8                                 |
| Energy taxation                                                     | 39.21                               |
| Motorway tolls for HGVs                                             | 0.84                                |
| Austrian Federal Government's 'renovation initiative'               | 3.35                                |
| klimaaktiv mobil                                                    | 0.18                                |
| Climate and Energy Fund                                             | 7.06                                |
| Federal Government property                                         | 0.12                                |
| <b>Rounded Total</b>                                                | <b>168.29</b>                       |

# Energy Savings in Austria



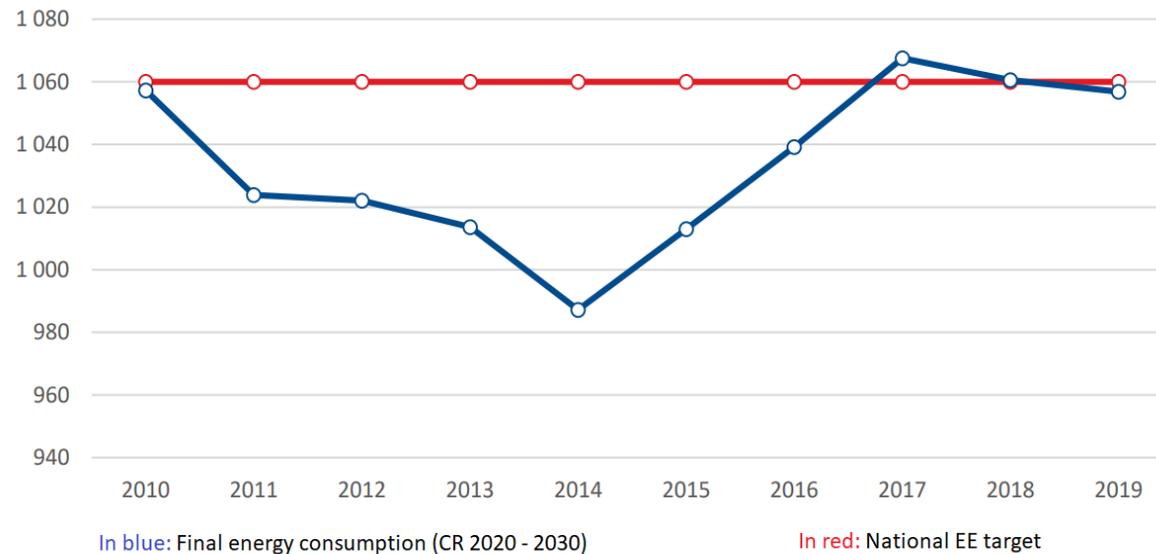
*Energy consumption in the housing sector 1993-2017 in Austria. Adapted from [5]*

# Energy Savings in Austria: future plans



# Energy Savings in Czech Republic

- ▶ The implementation of the 2012 EU Directive in Czech Republic happened through the Energy law which set a target of 1060 PJ of final energy consumption by 2020.



*Final Energy Consumption 2010-2019 in Czech Republic compared to target. [1]*

# Energy Savings in Czech Republic

- ▶ Implemented policies allowed to reach consistent (but not enough) savings in the period 2014-2020

| [TJ]                             | 2014         | 2015         | 2016          | 2017          | 2018          | 2019          | 2020          |
|----------------------------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|
| Behavioral measures              | 147          | 221          | 101           | 139           | 214           | 119           | 8             |
| Environmental tax                | 1 325        | 1 544        | 1 747         | 1 653         | 1 378         | 1 550         | 0             |
| Investment measures - new        | 1 977        | 4 796        | 6 083         | 5 226         | 6 003         | 5 267         | 5 399         |
| Investment measures - cumulative |              | 1 977        | 6 773         | 12 856        | 18 082        | 24 085        | 29 352        |
| <b>Total</b>                     | <b>3 449</b> | <b>8 538</b> | <b>14 703</b> | <b>19 874</b> | <b>25 676</b> | <b>31 021</b> | <b>34 833</b> |

*Table 4 – Overview of annual fulfilment for the calculation of compliance with the cumulative energy savings obligation*

# Energy Savings in Czech Republic

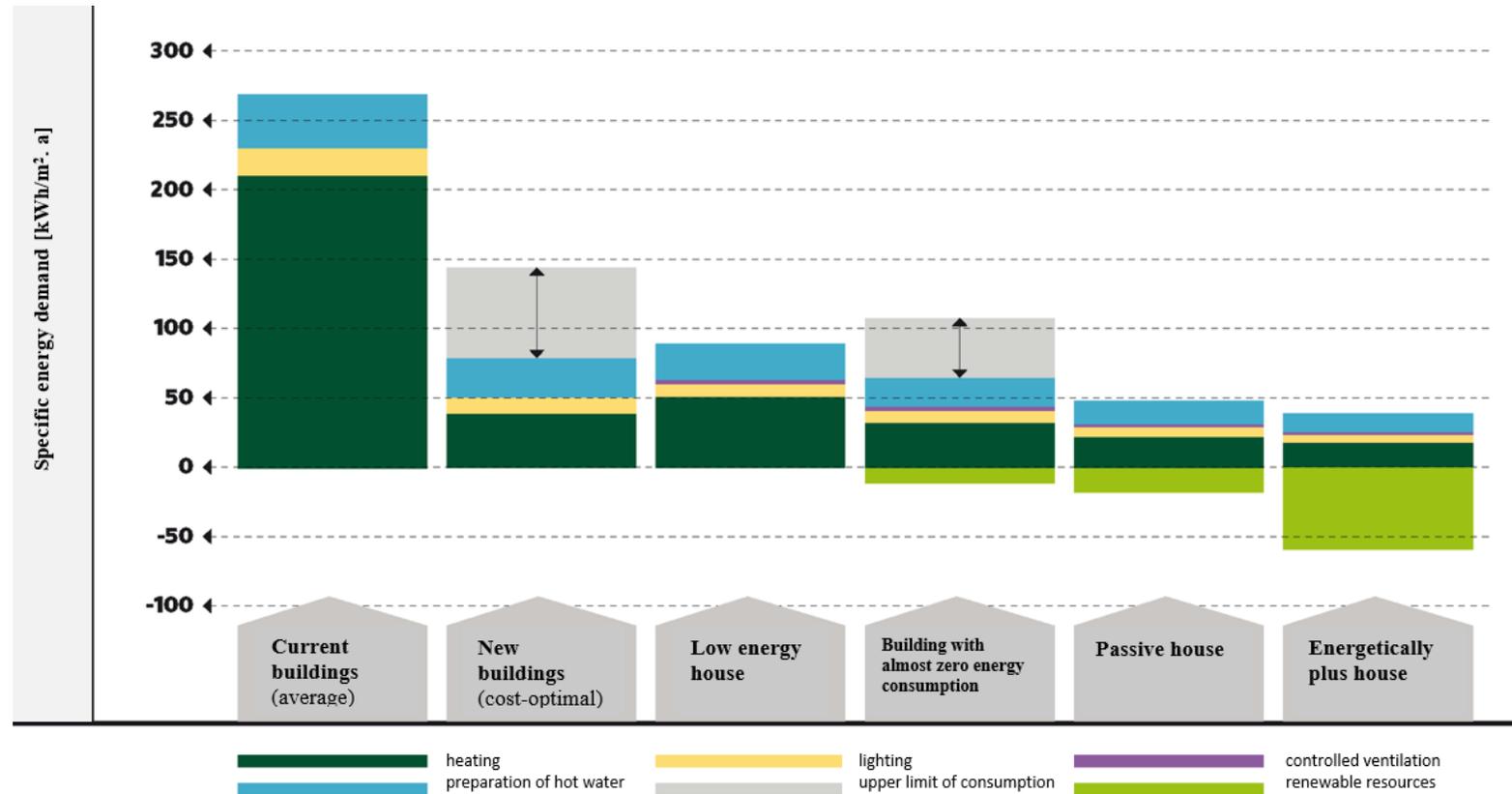


Figure 16 – Comparison between energy standards, source Šance pro budovy (Energetické standardy budov, n.d.)

# Energy Savings in Czech Republic: future plans

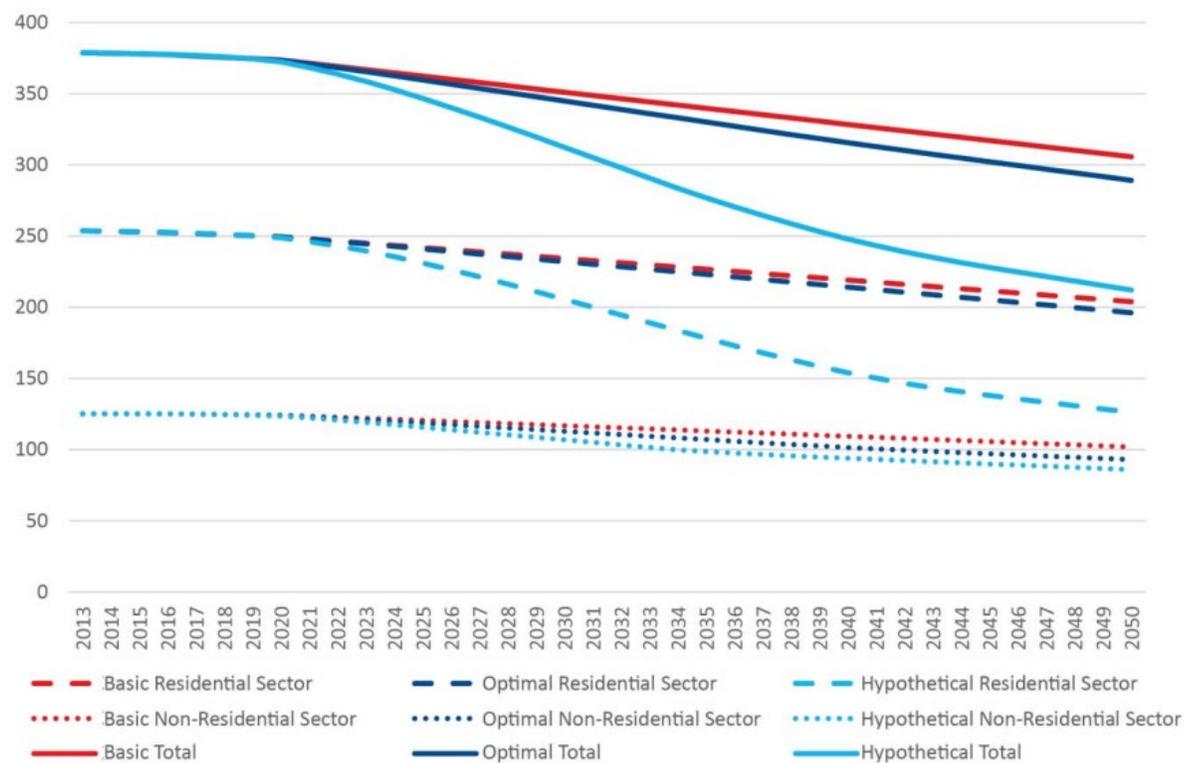


Figure 18 – Model final energy consumption in buildings [PJ]

# Conclusions

- ▶ The two countries in exam presented a similar profile in terms of final energy consumption.
- ▶ Czech Republic seemed to be more efficient in achieving the targets set by the EU directive of 2012

|                | Article 3 | Article 5 | Article 7 |
|----------------|-----------|-----------|-----------|
| Austria        | Not Met   | Not Met   | Met       |
| Czech Republic | Met       | Met       | Not Met   |