



2050
Heat Roadmap Europe

A low-carbon heating and cooling strategy

2015 Final Heating & Cooling Demand The Czech Republic



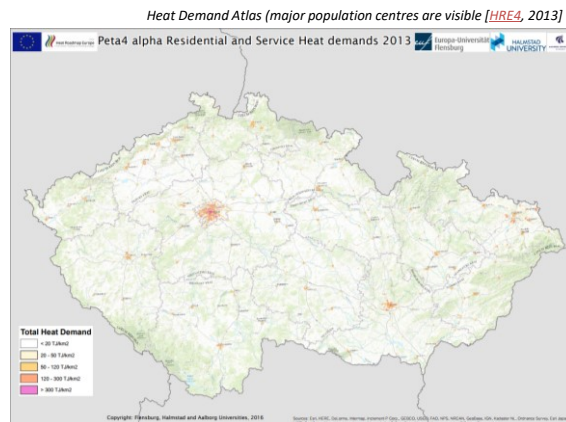
Country presentation
October 2017

Context of the Czech Republic



General context

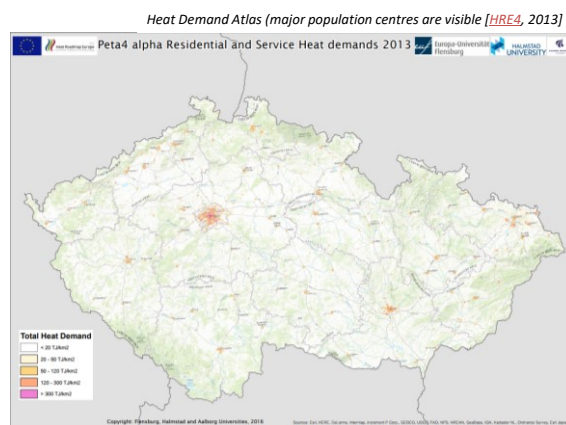
- **Population** ^[1]:
10.5 million
 - 2.1% of EU28
- **GDP** ^[1]:
155 billion EUR
 - 1.18% of EU28
- **Heating degree days** ^[2]:
3 090 HDDs/year
 - 9th coldest of EU28
 - 5th coldest among the 14 HRE countries



1. DG Energy's 2014 data from the [Czech datasheet](#) (2016)
2. Eurostat's 2015 data on [HDDs](#) in The Czech Republic (2016)

General context – Energy intensity

- **Total final energy demand (FED)** ^[3]:
281 TWh
 - 2.2% of EU28
 - 11th highest of EU28 and HRE14
- **FED per capita** :
26.8 MWh/Capita
 - 10th highest of EU28
 - 7th highest of HRE14
- **Final energy from renewable sources** ^[4]:
42.4 TWh
 - 15.1% of total FED
 - 13th highest share of EU28
 - 11th highest share of HRE14
- **Final energy from renewable sources for H&C** ^[4]:
31.1 TWh
 - 19.8% of the total H&C
 - 16th highest share of EU28
 - 6th highest share of HRE14



3. Eurostat's 2015 data on [annual energy quantities](#) in The Czech Republic
4. Eurostat's RES [Shares 2015 results](#)



Climate and emissions

- The Czech Republic has committed to a maximum GHG emission increase of 9% ^[5], compared with 2005 levels, by 2020, within the EU Climate and Energy Package

Carbon per capita [kg CO ₂ /person]	Carbon per GDP [ton CO ₂ /billion EUR]	Carbon Emission per tone of energy carrier (carbon intensity) [kg CO ₂ /toe]
9,918	651	2,515
3 rd highest among the 14 HRE	2 nd highest among the 14 HRE	3 rd highest among the 14 HRE
2014 data ^[2]		

1. DG Energy's 2014 data from the [Czech datasheet](#) (2016)

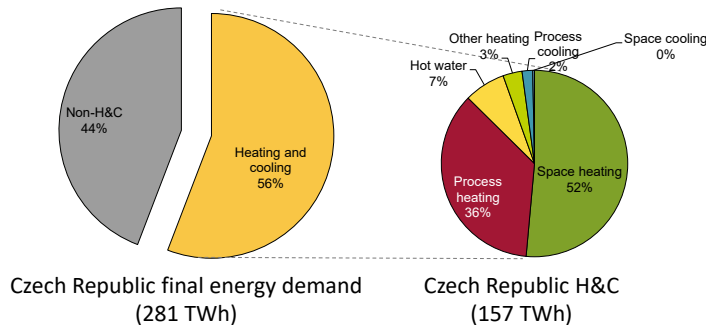
5. Official Journal of the European Union, [Decision No. 406](#) (2009)

Current national energy situation



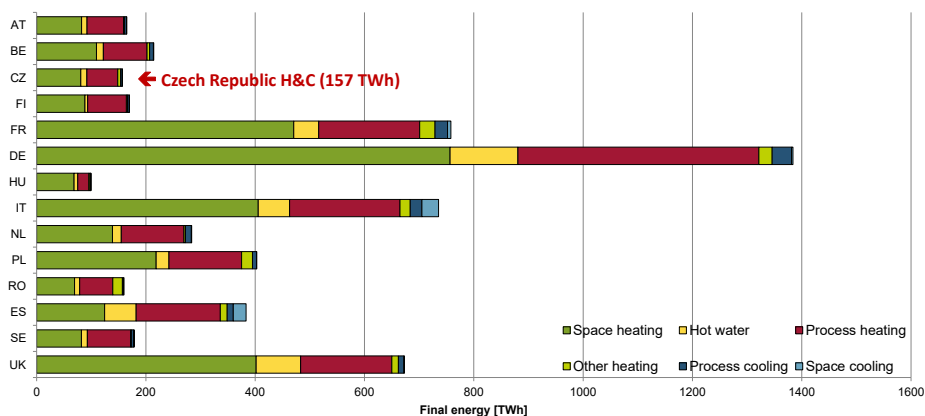
Czech Republic: H&C energy by purposes

- H&C comprises 56% of the Czech Republic's final energy demand.
- Very little cooling process needs, but very high need for space and process heating



14 HRE: H&C energy by purposes

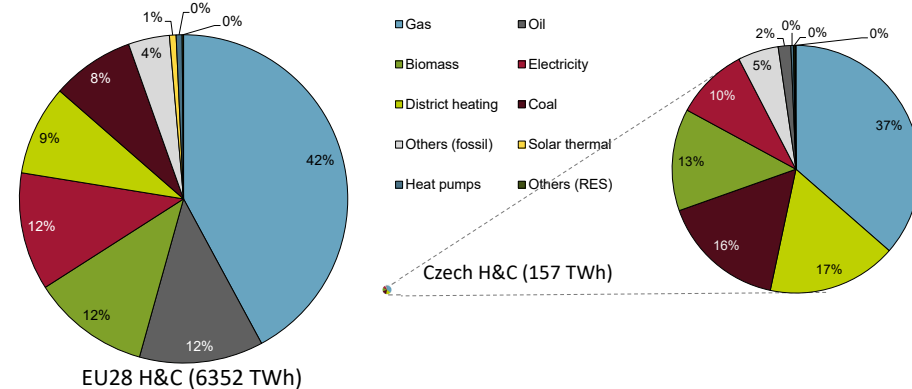
- The Czech Republic has the second lowest final energy demand for H&C among the 14 HRE countries.





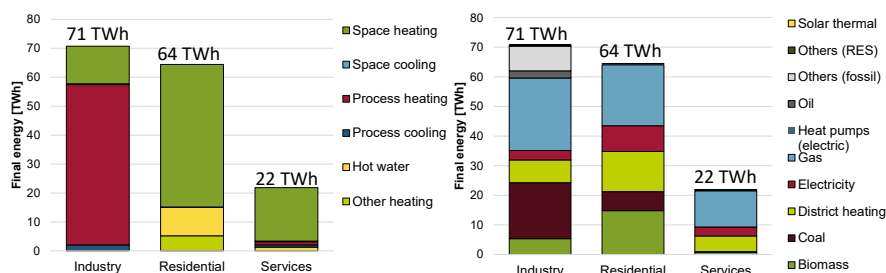
H&C energy by energy carriers

- The Czech Republic accounts for 3% of the EU28's total delivered heat demand.
- Compared to the EU28, it uses more coal while using less oil and gas.



Sectors by purposes and energy carriers

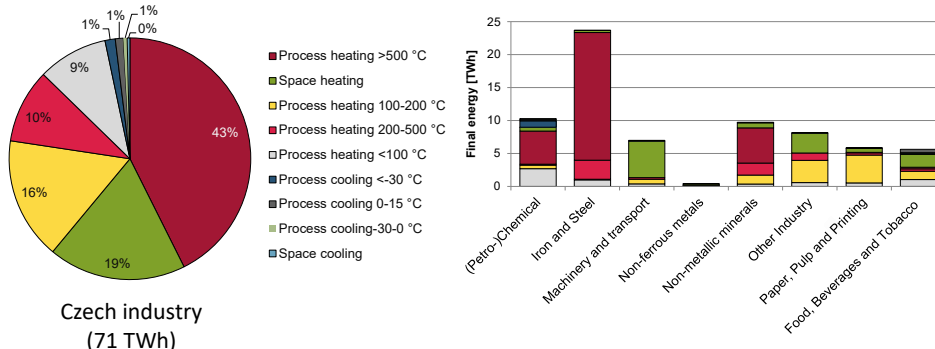
- Czech industries are overwhelmingly dominated by process heating, other sectors by space heating.
- Czech industry, residential and service sectors use a varied mix of fuels.





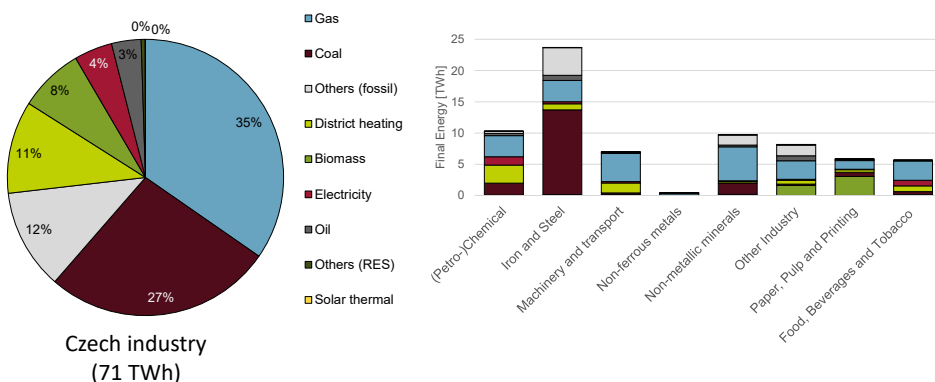
Industry sub-sectors by H&C purposes

- Czech industry is dominated by higher temperature heating processes.
- Most of this is used for the metals industry, (petro-)chemicals and non-metallic minerals.
- Space heating and lower temperature space heating are also substantial and used in most sectors.



Industry sub-sectors by energy carriers

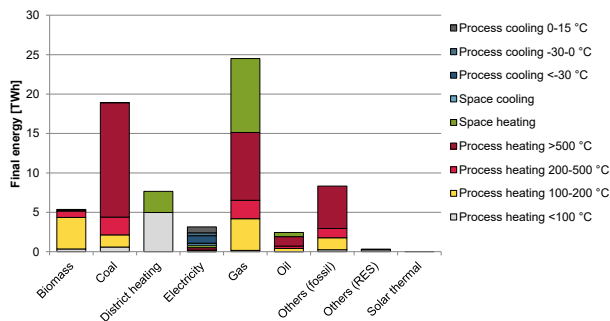
- To attain such high temperatures, Czech industry relies on fossil fuels, mainly gas and coal.
- Only the paper and “other” industries make significant use of biomass





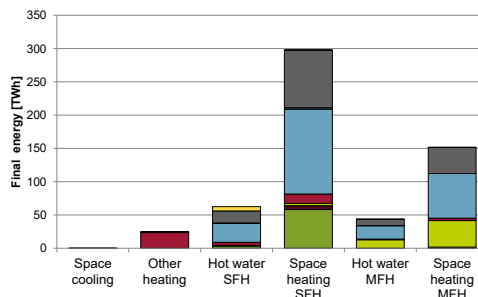
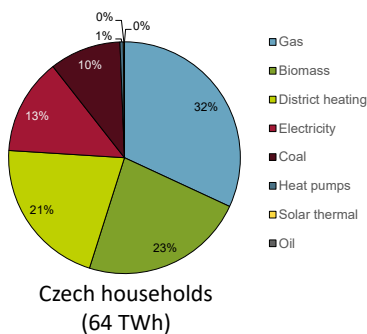
Industry Space Heating

- Czech Industry uses mainly gas for space heating, although it uses some district heating and oil too



Residential sub-sectors by energy carriers

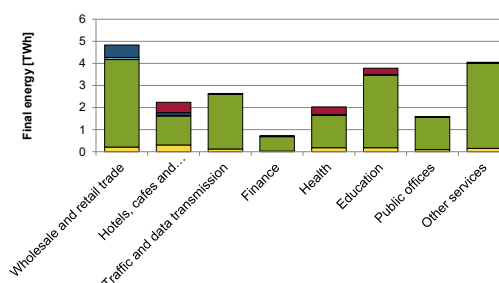
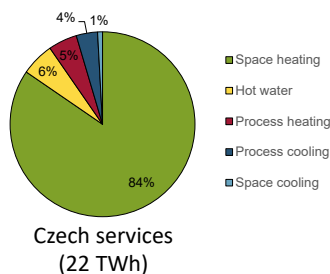
- Czech households use a varied mix of H&C sources including gas, biomass, district heating, electric.
- Single-family homes lead the way in biomass (for space heating) and solar (for hot water).
- Multi-family homes are the primary market for district heating.





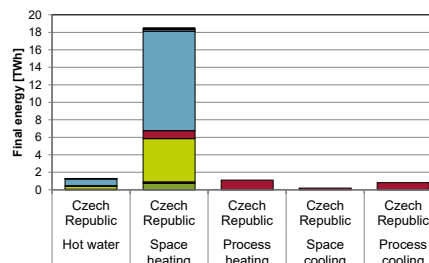
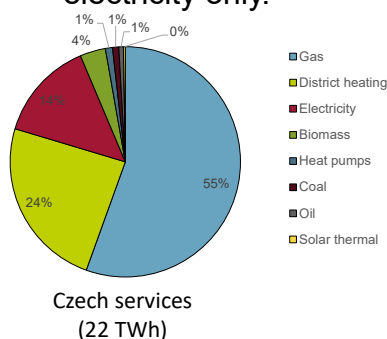
Service sub-sectors by H&C purposes

- Space heating is definitely the main concern for the Czech Republic's service sector.
- Their only significant cooling needs are from wholesale/retail trade, and some from hospitality facilities.



Service sectors by energy carriers

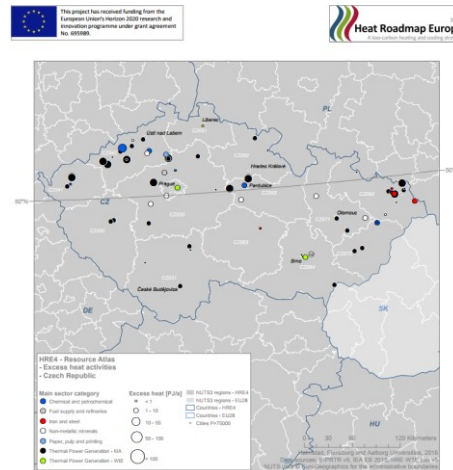
- The Czech Republic's service sector relies greatly on gas and district heating, most of which goes to space heating.
- All cooling, and process heating, are powered by electricity only.





Excess heat sources

- **Excess Heat:**
 - At least 90 Twh*
 - Would cover 97% of the final energy demand for Space heating and Hot water
- The biggest excess heat sources are concentrated in the Norwest and Noreast regions of the country.

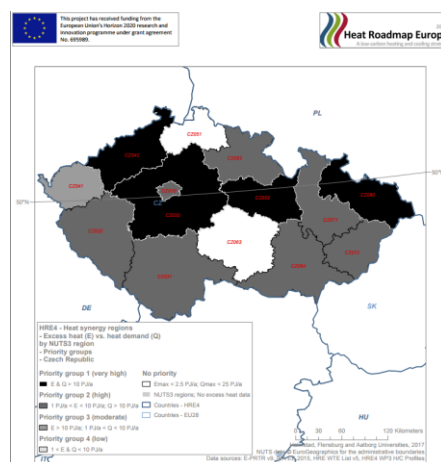


Excess Heat Atlas [HREA, 2013]

* Calculated from the 74 biggest facilities in Czech Republic, using [Peta 4.2](#)

Heat Synergy Regions

- There are 4 regions with very high potential for district heating
- 6 other regions present a high potential for district heating



Excess Heat Atlas [HREA, 2013]



Main references cited

1. DG Energy's 2014 data from [Czech datasheet](#) (2016)
2. Eurostat's 2015 data on [HDDs](#) (2016)
3. Eurostat's 2015 data on [annual energy quantities](#)
4. Eurostat's RES [Shares 2015 results](#)
5. Official Journal of the European Union, [Decision No. 406](#) (2009)