



2050  
**Heat Roadmap Europe**

A low-carbon heating and cooling strategy

# 2015 Final Heating & Cooling Demand in Romania



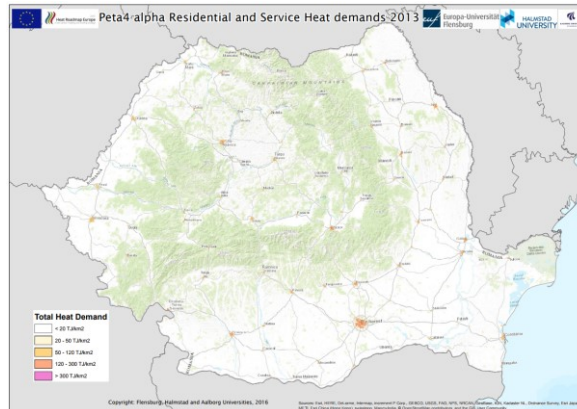
Country presentation  
October 2017

Romanian context



## General context

- **Population** <sup>[1]</sup>:  
19.9 million  
• 3.93% of EU28
- **GDP** <sup>[1]</sup>:  
150 billion EUR  
• 1.15% of EU28
- **Heating degree days** <sup>[2]</sup>:  
2,786 HDDs/year  
• 15<sup>th</sup> coldest of EU28  
• 8<sup>th</sup> coldest among the 14 HRE countries

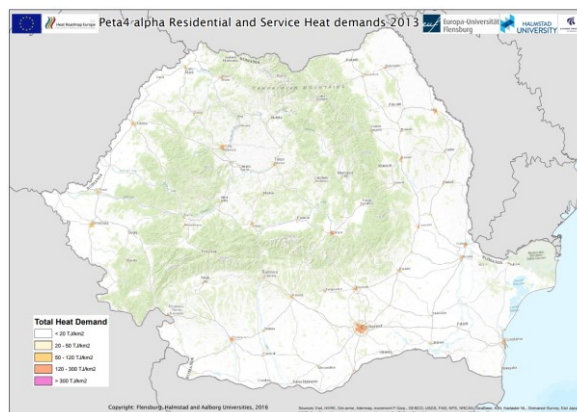


Heat Demand Atlas (major population centres are visible [HRE4, 2013])

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

## General context – Energy intensity

- **Total final energy demand (FED)** <sup>[3]</sup>:  
255 TWh  
• 2% of EU28  
• 13<sup>th</sup> highest of EU28 and HRE14
- **FED per capita** :  
12.8 MWh/Capita  
• Lowest of EU28
- **Final energy from renewable sources** <sup>[4]</sup>:  
63.1 TWh  
• 24.8% of total FED  
• 10<sup>th</sup> highest share of EU28  
• 4<sup>th</sup> highest share of HRE14
- **Final energy from renewable sources for H&C** <sup>[4]</sup>:  
41.4 TWh  
• 25.9% of the total H&C  
• 13<sup>th</sup> highest share of EU28  
• 4<sup>th</sup> highest share of HRE14



Heat Demand Atlas (major population centres are visible [HRE4, 2013])

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



## Climate and emissions

- Romania has committed to not increase its GHG emissions more than 19%<sup>[5]</sup> by 2020, compared to 2005 levels.

Carbon per capita [kg CO <sub>2</sub> /person]	Carbon per GDP [ton CO <sub>2</sub> /billion EUR]	Carbon Emission per tone of energy carrier (carbon intensity) [kg CO <sub>2</sub> /toe]
3,709	538	2,291
<i>The lowest among the 14 HRE</i>	<i>6<sup>th</sup> highest among the 14 HRE</i>	<i>3<sup>rd</sup> highest among the 14 HRE</i>
2014 data <sup>[1]</sup>		

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

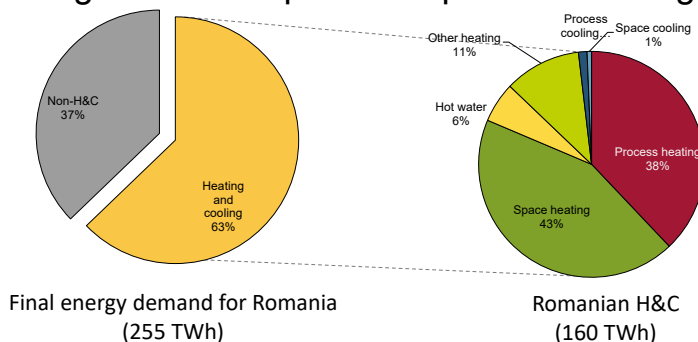
5. Official Journal of the European Union, [Decision No. 406](#) (2009)

## Current national energy situation



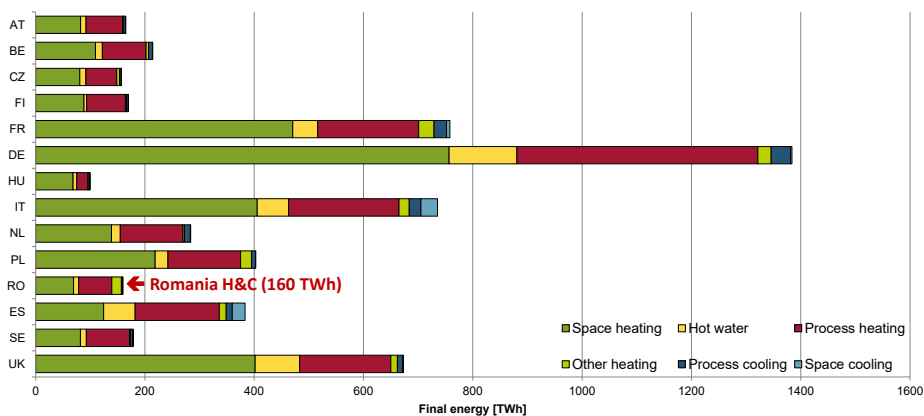
## Romania: H&C energy by purposes

- H&C comprises 63% of Romania'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

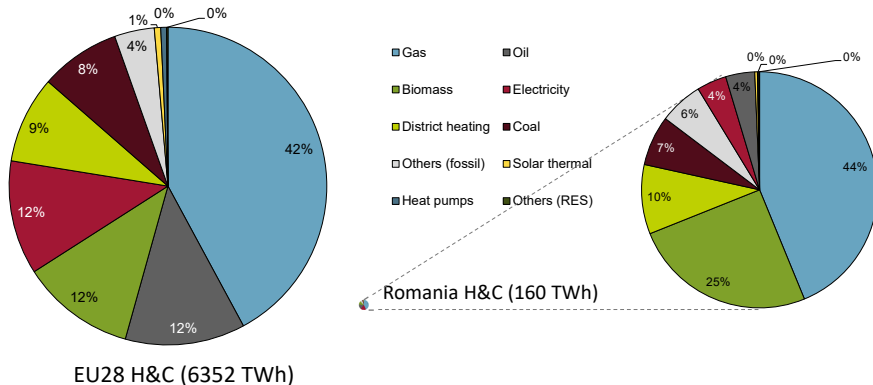
- Romania has the 2<sup>nd</sup> lowest final energy demand for H&C among the 14 HRE countries.





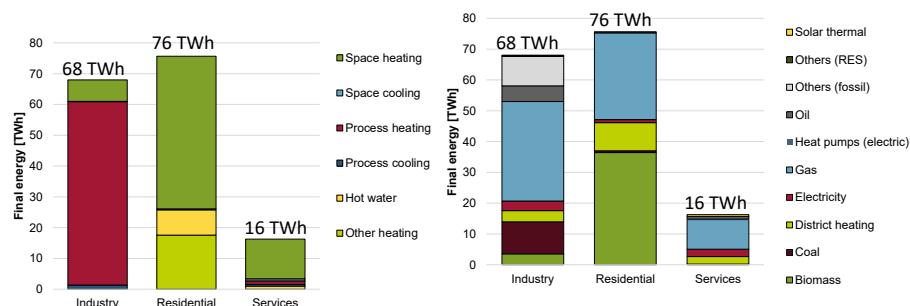
## H&C energy by energy carriers

- Romania accounts for 3% of the EU28's total delivered H&C demand.
- Compared to the EU28, it uses more biomass and less electricity for H&C.



## Sectors by purposes and energy carriers

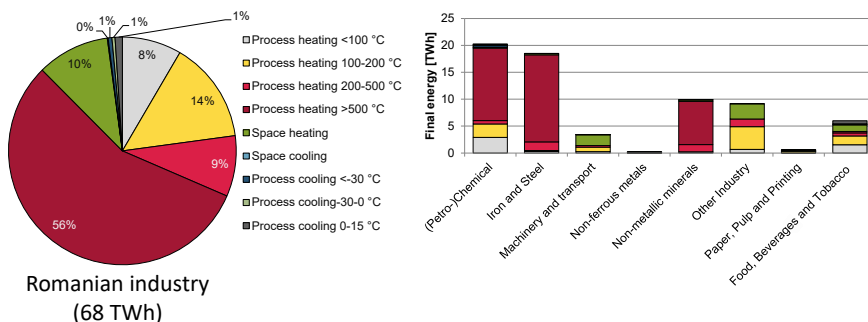
- Romanian industries are overwhelmingly dominated by process heating and the other sectors by space heating.
- Industry and services rely mainly on gas, while households' H&C are dominated by both gas and biomass





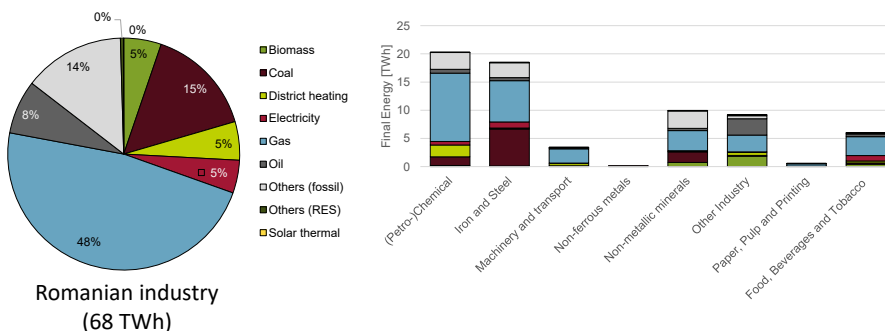
## Industry sub-sectors by H&C purposes

- Romanian industry is dominated by high temperature heating processes.
- Most of this is used for the metals industry, (petro-)chemicals and non-metallic minerals.



## Industry sub-sectors by energy carriers

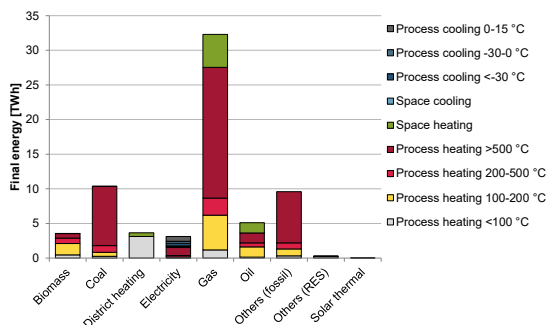
- To attain such high temperatures, Romanian industry relies almost exclusively on fossil fuels, especially on gas and coal.
- The Iron and Steel industry is the one that more relies on coal.





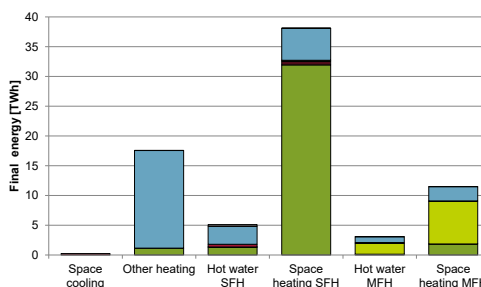
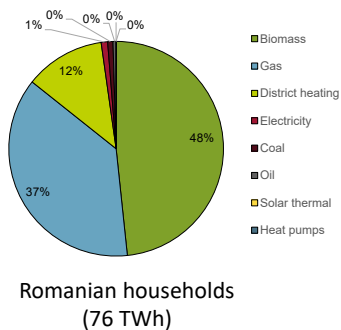
## Industry Space Heating

- Romanian Industry uses mostly gas and oil for space heating, although there is some district heating too



## Residential sub-sectors by energy carriers

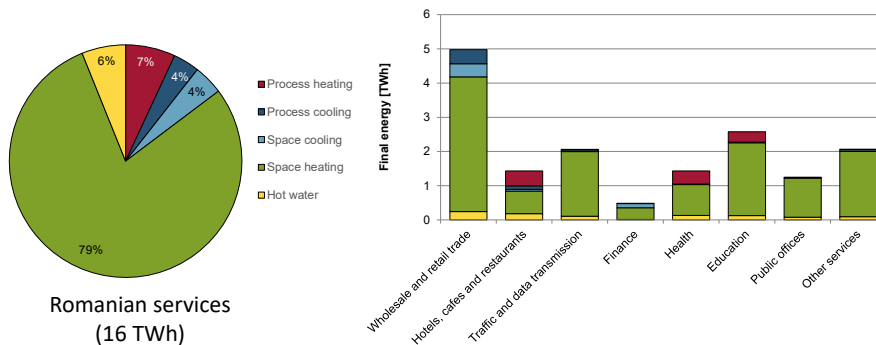
- Romanian households use mostly biomass and gas for H&C
- Single-family homes lead the way in biomass
- Multi-family homes are the primary market for district heating





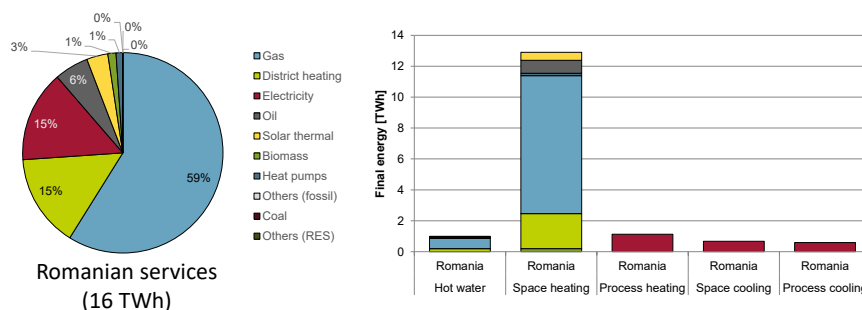
## Service sub-sectors by H&C purposes

- Space heating is the main concern for the Romanian service sector



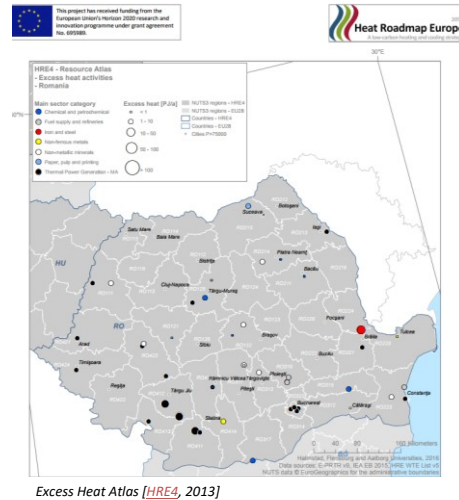
## Service sectors by energy carriers

- The Romanian service sector relies mostly on gas.
- Almost all delivered energy for heating is for space heating, while there is also some district heating being used.
- All cooling, and process heating, are powered by electricity only.



## Excess heat sources

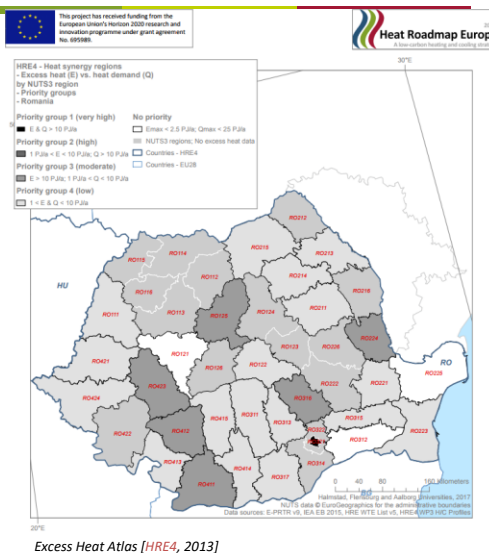
- **Excess Heat:**  
At least 57 Twh\*
  - Would cover 72% of the final energy demand for Space heating and Hot water
- The biggest excess heat sources are located in the East and Southwest areas of the country.



\* Calculated from the 49 biggest facilities in Romania using [Peta 4.2](#)

## Heat Synergy Regions

- Bucharest region has very high potential for district heating
- 6 other regions present a high potential for district heating





## Main references cited

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1. DG Energy's 2014 data from the [Romanian 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)