



2050

Heat Roadmap Europe

A low-carbon heating and cooling strategy

2015 Final Heating & Cooling Demand in Austria



Country presentation
October 2017

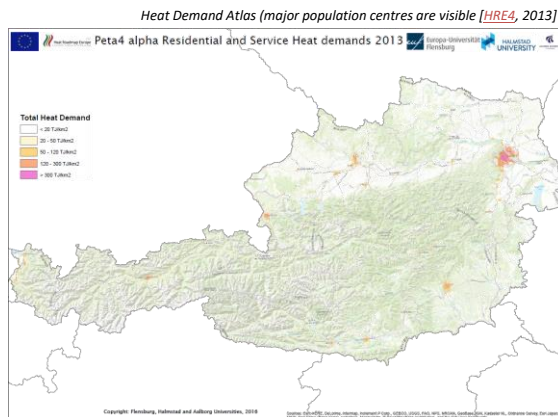
Austrian context





General context

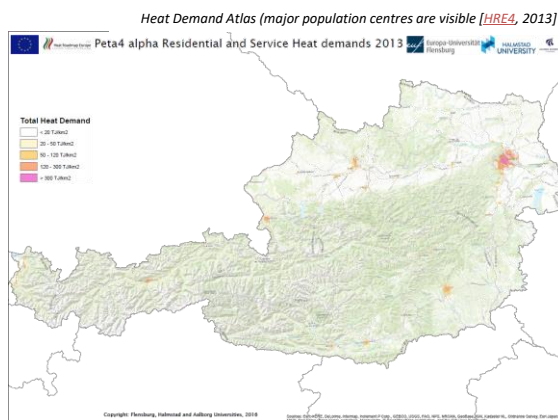
- **Population** ^[1]: 8.5 million
 - 1.7% of EU28
- **GDP** ^[1]: 329 billion EUR
 - 2.5% of EU28
- **Heating degree days** ^[2]: 3,318 HDDs/year
 - 6th coldest of EU28
 - 3rd among the 14 HRE countries



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

General context – Energy intensity

- **Total final energy demand (FED)** ^[3]: 318 TWh
 - 2.5% of EU28
 - 10th highest of EU28
- **FED per capita** : 37.4 MWh/Capita
 - 4th highest of EU28
 - 3rd highest of HRE14
- **Final energy from renewable sources** ^[4]: 104.9 TWh
 - 33% of total FED
 - 4th highest share of EU28
 - 3rd highest share of HRE14
- **Final energy from renewable sources for H&C** ^[4]: 52.8 TWh
 - 32% of the total H&C
 - 10th highest share of EU28
 - 3rd highest share of HRE14



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





Climate and emissions

- Austria has committed to reduce GHG emissions by 16% ^[5], 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]
7,787	216	2,028
7 th lowest among the 14 HRE	3 rd lowest among the 14 HRE	6 th highest among the 14 HRE
2014 data ^[1]		

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

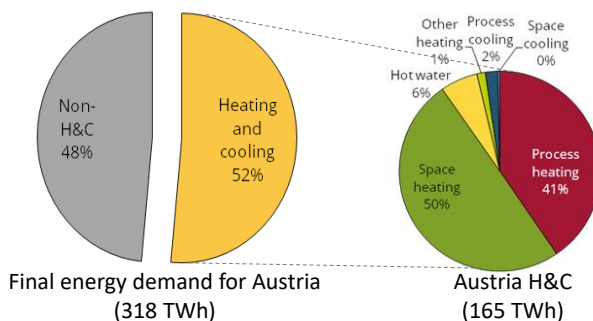
5. Official Journal of the European Union, [Decision No. 406](#) (2009)

Current national energy situation



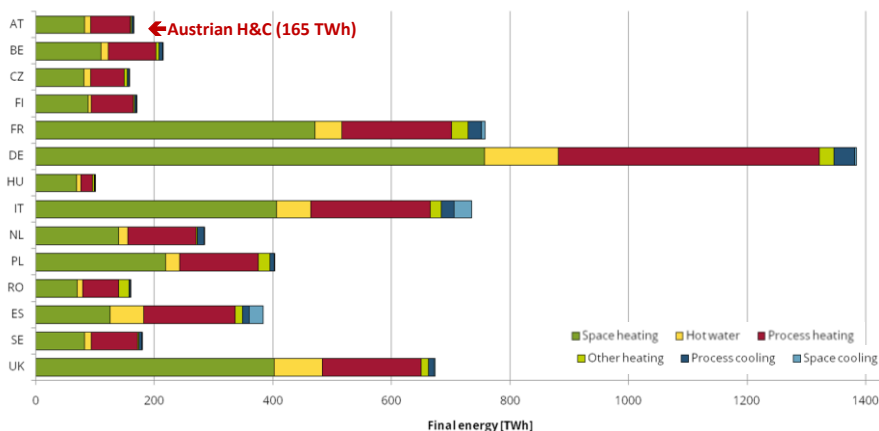
Austria: H&C energy by purposes

- Austrian H&C comprises roughly half of its final energy demand.
- Very little cooling process needs, but very high need for space and process heating



14 HRE: H&C energy by purposes

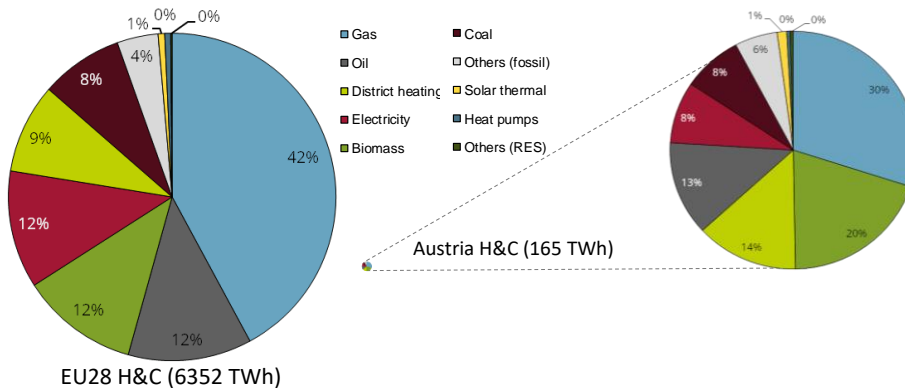
- Austria has the 3rd lowest final energy demand for H&C among the 14 HRE countries.





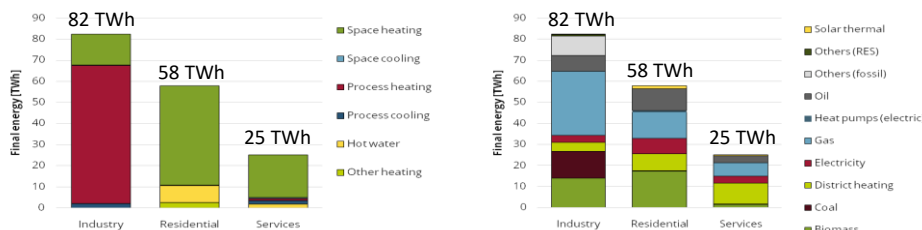
H&C energy by energy carriers

- Austria accounts for only 3% of the EU28's total delivered H&C demand.
- Compared to the EU28, Austria uses less gas and electricity and more biomass and district heating.



Sectors by purposes and energy carriers

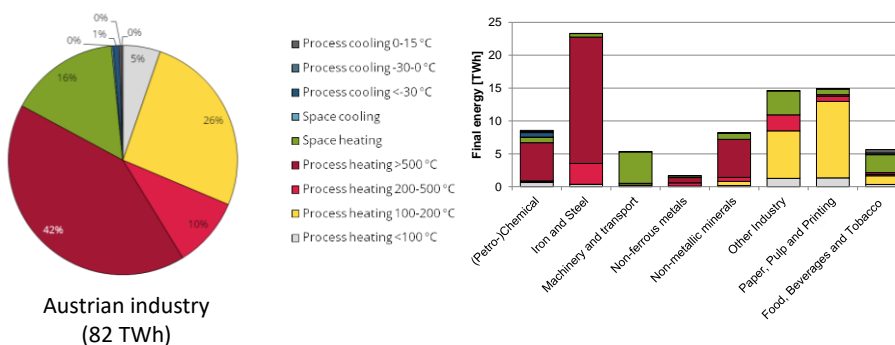
- Austrian industries are overwhelmingly dominated by process heating, other sectors by space heating.
- Its industry relies much more on fossil fuels, especially coal and gas, while biomass has made significant in-roads among homes and district heating is very strong in the service sector.
- The service sector is the main market for cooling.





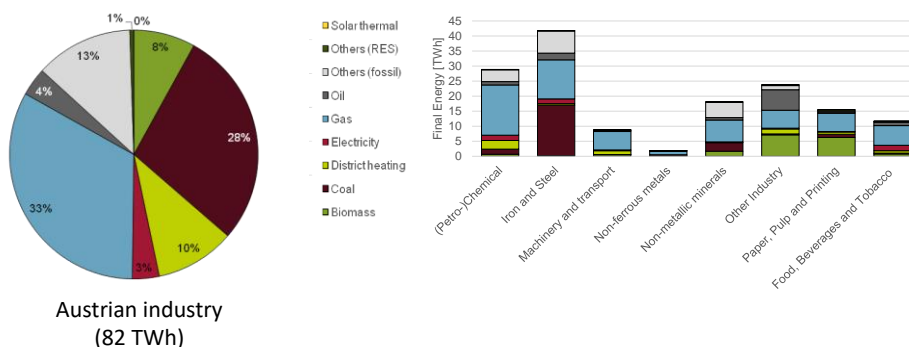
Industry sub-sectors by H&C purposes

- Austria's industry is overwhelmingly dominated by higher temperature heating processes.
- Most of this is used for the metals industry, (petro-)chemicals and non-metallic minerals.



Industry sub-sectors by energy carriers

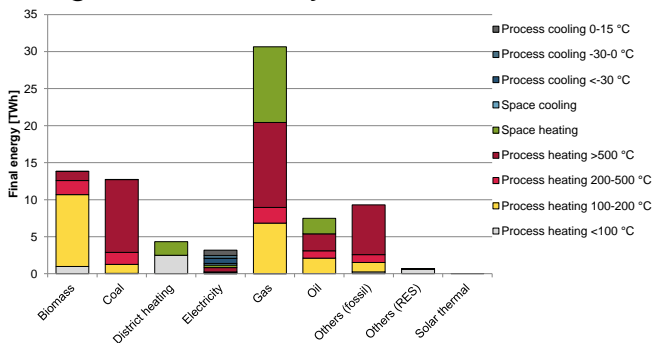
- To attain such high temperatures, Austrian industry relies on fossil fuels.
- Only the paper and "other" industries make significant use of biomass.





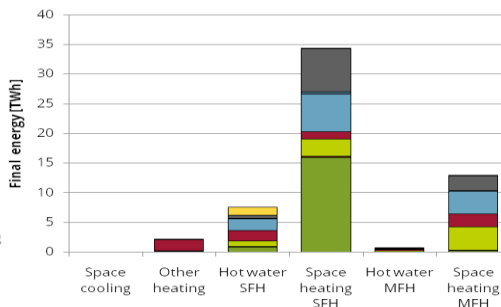
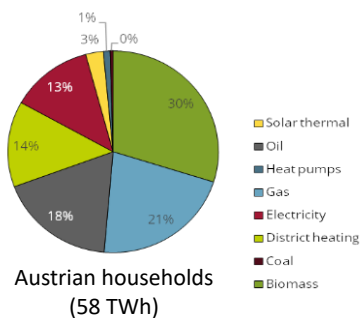
Industry Space Heating

- Austrian Industry uses mainly gas and oil for space heating, although there is some district heating and electricity too



Residential sub-sectors by energy carriers

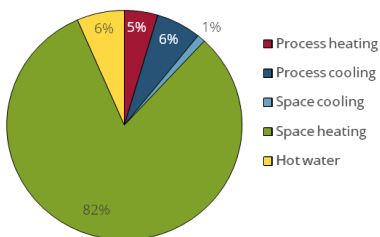
- Austrian households use a varied mix of H&C sources
- Single-family homes lead the way in biomass and solar (for hot water).
- Multi-family homes seem to be a primary market for district heating.



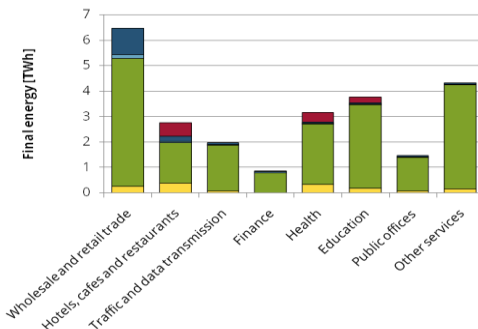


Service sub-sectors by H&C purposes

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

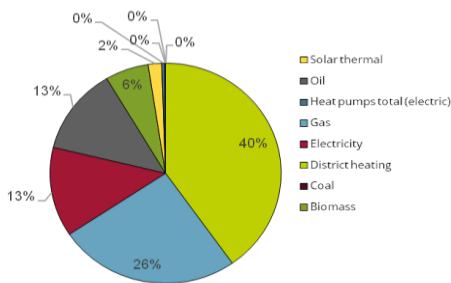


Austrian services (25 TWh)

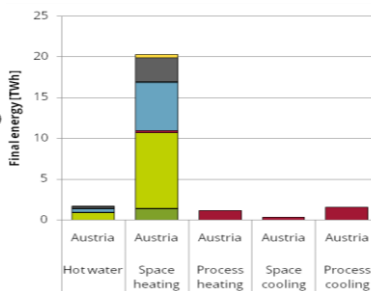


Service sectors by energy carriers

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



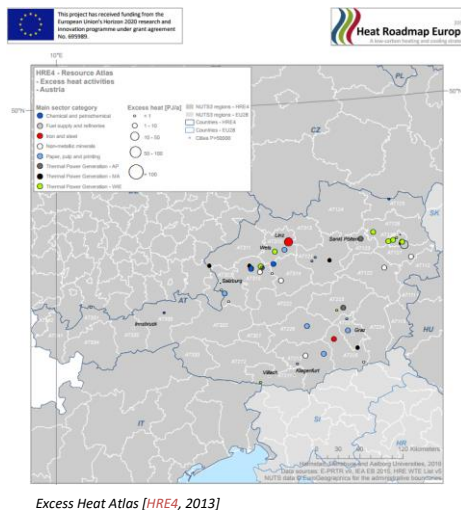
Austrian services (25 TWh)





Excess heat sources

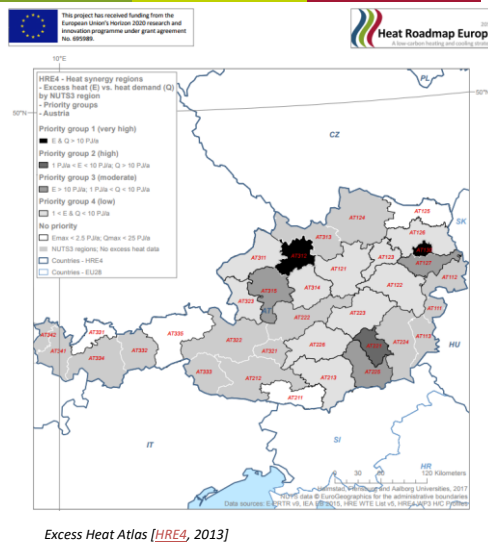
- **Excess Heat:**
At least 38 Twh*
 - Would cover 49% of the final energy demand for Space heating and Hot water
- The biggest excess heat sources are concentrated in the northern regions of the country.



* Calculated from the 53 biggest facilities in Austria, using [Peta 4.2](#)

Heat Synergy Regions

- Two regions have a very high potential for district heating
- One region has a high potential for district heating





Main references cited

1. DG Energy's 2014 data from [Austrian 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)