



2050
Heat Roadmap Europe

A low-carbon heating and cooling strategy

2015 Final Heating & Cooling Demand in the Netherlands



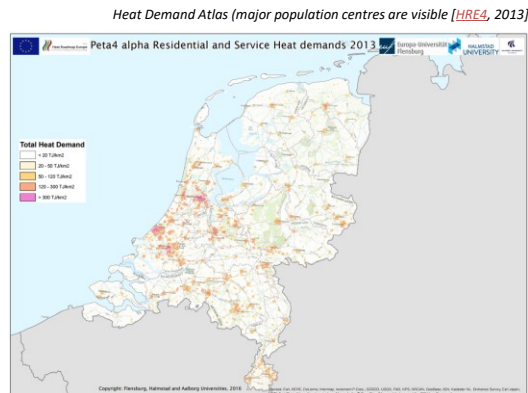
Country presentation
October 2017

Context of the Netherlands



General context

- **Population** ^[1]:
16.8 million
 - 3.3% of EU28
- **GDP** ^[1]:
663 billion EUR
 - 5.1% of EU28
- **Heating degree days** ^[2]:
2625 HDDs/year
 - 11th warmest of EU28
 - 5rd warmest of the 14 HRE countries

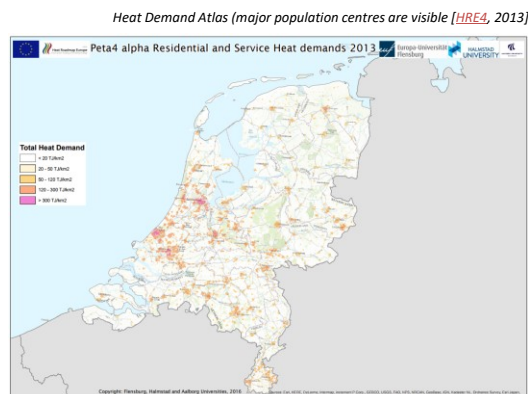


1. DG Energy's 2014 data from the [datasheet for the Netherlands](#) (2016)

2. Eurostat's 2015 data on **HDDs** in the Netherlands (2016)

General context – Energy intensity

- **Total final energy demand (FED) ^[3]:**
564 TWh
 - 4.5% of EU28
 - 7th highest of EU28 and HRE14
- **FED per capita :**
33.5 MWh/Capita
 - 6th highest of EU28
 - 5th highest of HRE14
- **Final energy from renewable sources ^[4] :**
32.9 TWh
 - 5.8% of total FED
 - 26th highest share of EU28
 - Lowest share of HRE14
- **Final energy from renewable sources for H&C ^[4]:**
15.6 TWh
 - 5.5% of the total H&C
 - Lowest share of EU28



3. Eurostat's 2015 data on **annual energy quantities** in the Netherlands

4. Eurostat's RES Shares 2015 results



Climate and emissions

- The Netherlands have 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]
10,031	264	2,198
2 nd highest among the 14 HRE	7 th lowest among the 14 HRE	7 th lowest among the 14 HRE
2014 data ^[2]		

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

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

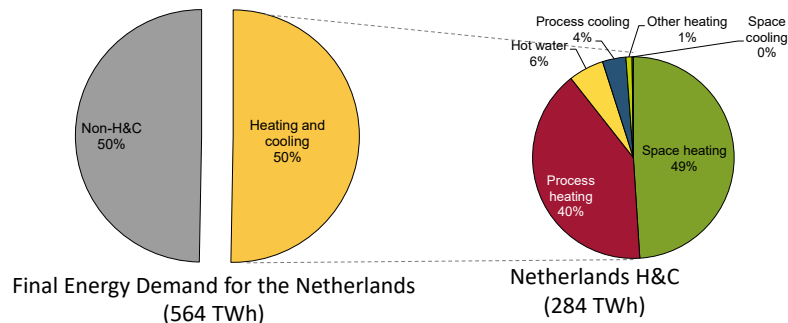
Current national energy situation





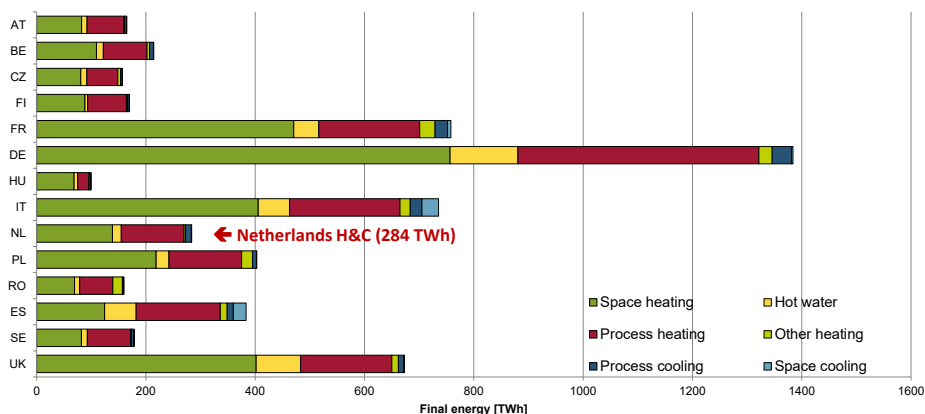
Netherlands: H&C energy by purposes

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



14 HRE: H&C energy by purposes

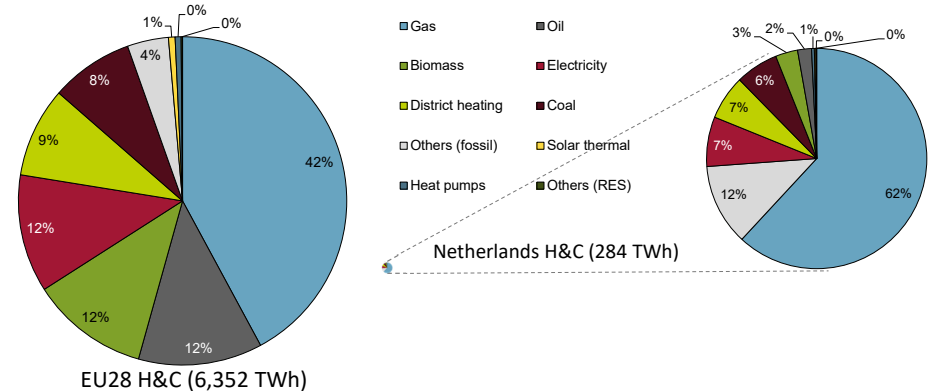
- The Netherlands have the 7th highest final energy demand for H&C among the 14 HRE countries.





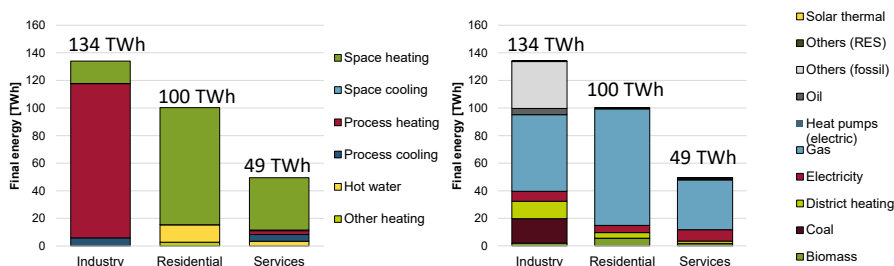
H&C energy by energy carriers

- The Netherlands account for only 5% of the EU28's total delivered H&C demand.
- Compared to the EU28, the Netherlands use way more gas and other fuels (fossil) while using less biomass, district heating electricity and oil.



Sectors by purposes and energy carriers

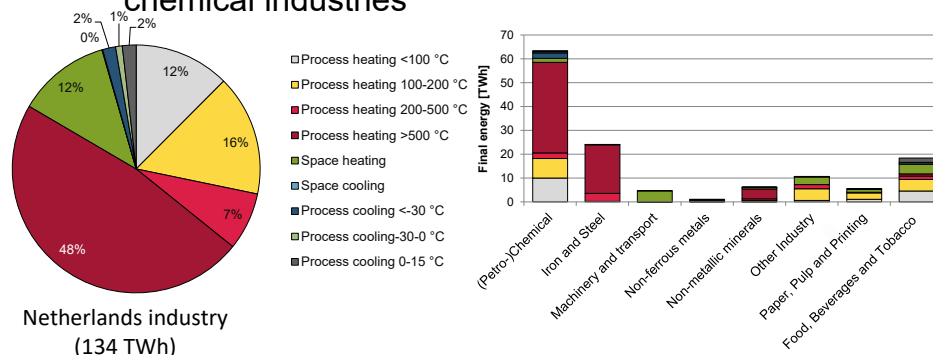
- Industries in the Netherlands are overwhelmingly dominated by process heating, other sectors by space heating.
- Its industry relies much more on fossil fuels, especially gas, coal and others (fossil).
- The residential and service sectors use mostly gas





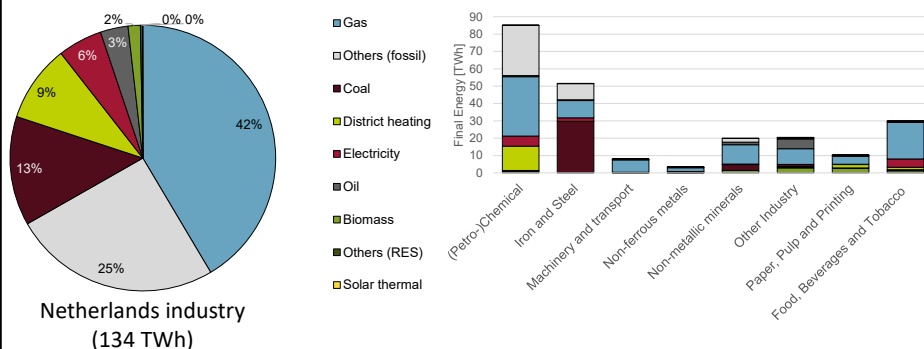
Industry sub-sectors by H&C purposes

- Industry in the Netherlands is overwhelmingly dominated by higher temperature heating processes.
- Most of this is used for the metals and (petro-) chemical industries



Industry sub-sectors by energy carriers

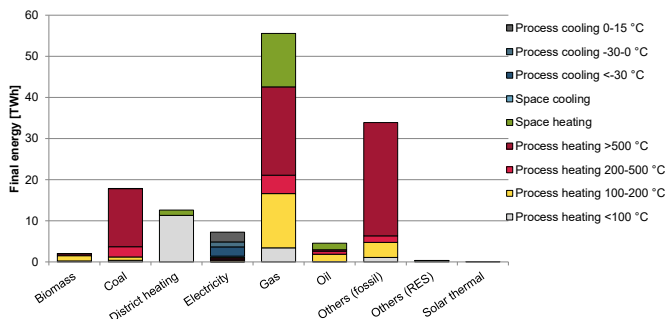
- To attain such high temperatures, industry in the Netherlands relies on fossil fuels.
- Biomass only accounts for 2%





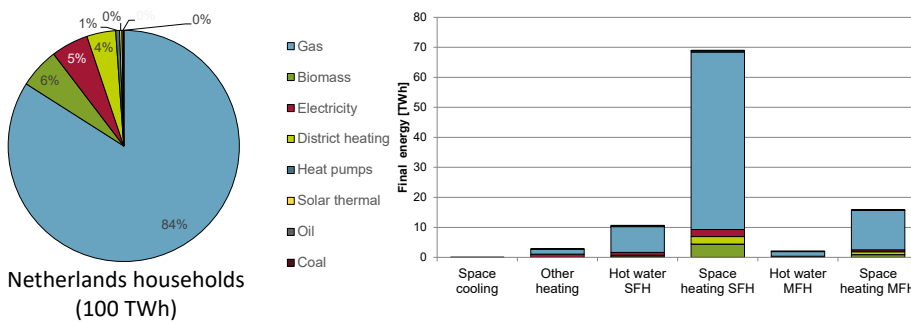
Industry Space Heating

- Netherlands' Industry uses mostly gas for space heating, although it also uses some district heating and oil



Residential sub-sectors by energy carriers

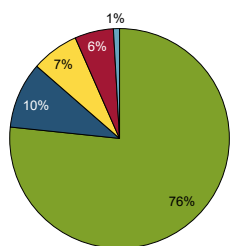
- Households in the Netherlands use mostly gas for heating
- Single-family homes lead the way in biomass and district heating



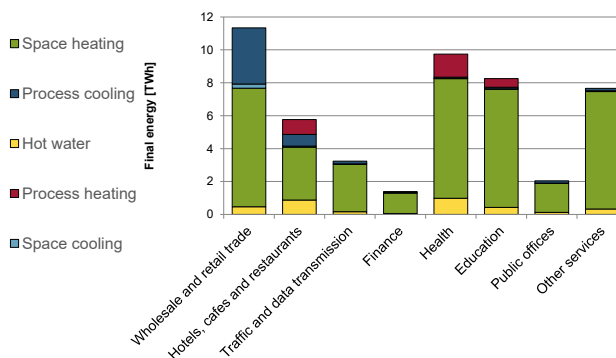


Service sub-sectors by H&C purposes

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

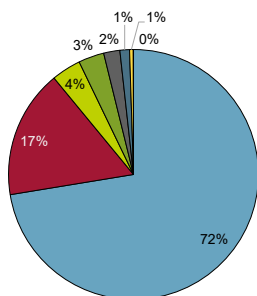


Netherlands services
(49 TWh)

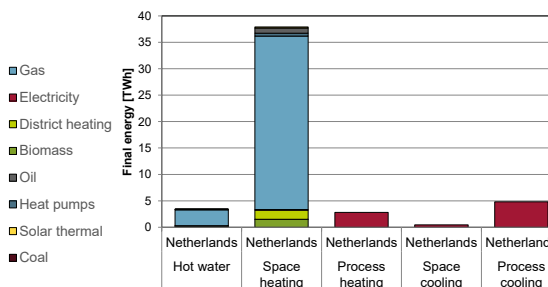


Service sectors by energy carriers

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



Netherlands services
(49 TWh)



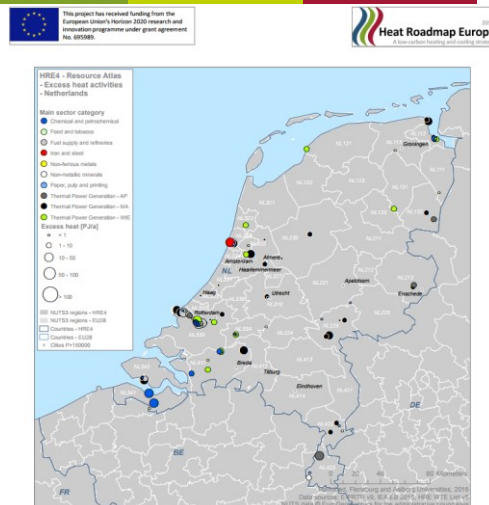
Excess heat sources

- Excess Heat:**

At least 155 Twh*

- Would cover 99% of the final energy demand for Space heating and Hot water in the Netherlands

- The biggest excess heat sources are located in the west regions, and especially around Rotterdam metropolitan area.

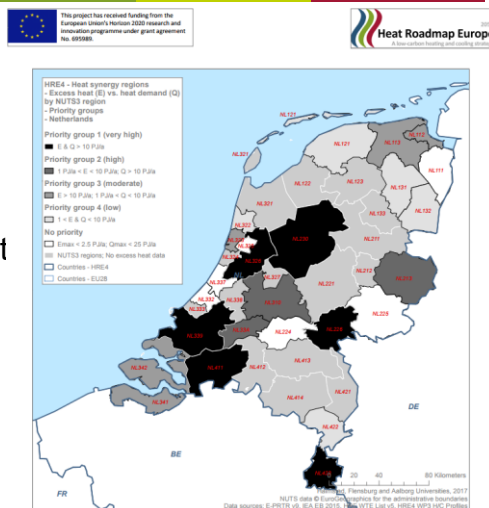


Excess Heat Atlas [HREA, 2013]

* Calculated from the 95 biggest facilities in the Netherlands using [Peta 4.2](#)

Heat Synergy Regions

- 6 regions present a very high potential for district heating
- 3 regions other present a high potential for district heating



Excess Heat Atlas [HREA, 2013]



Main references cited

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