

The Draft Common Technology Roadmap on Renewable Heating and Cooling

Javier F. Urchueguía / GEOPLAT / UPV / Geothermal Panel



What if we could?

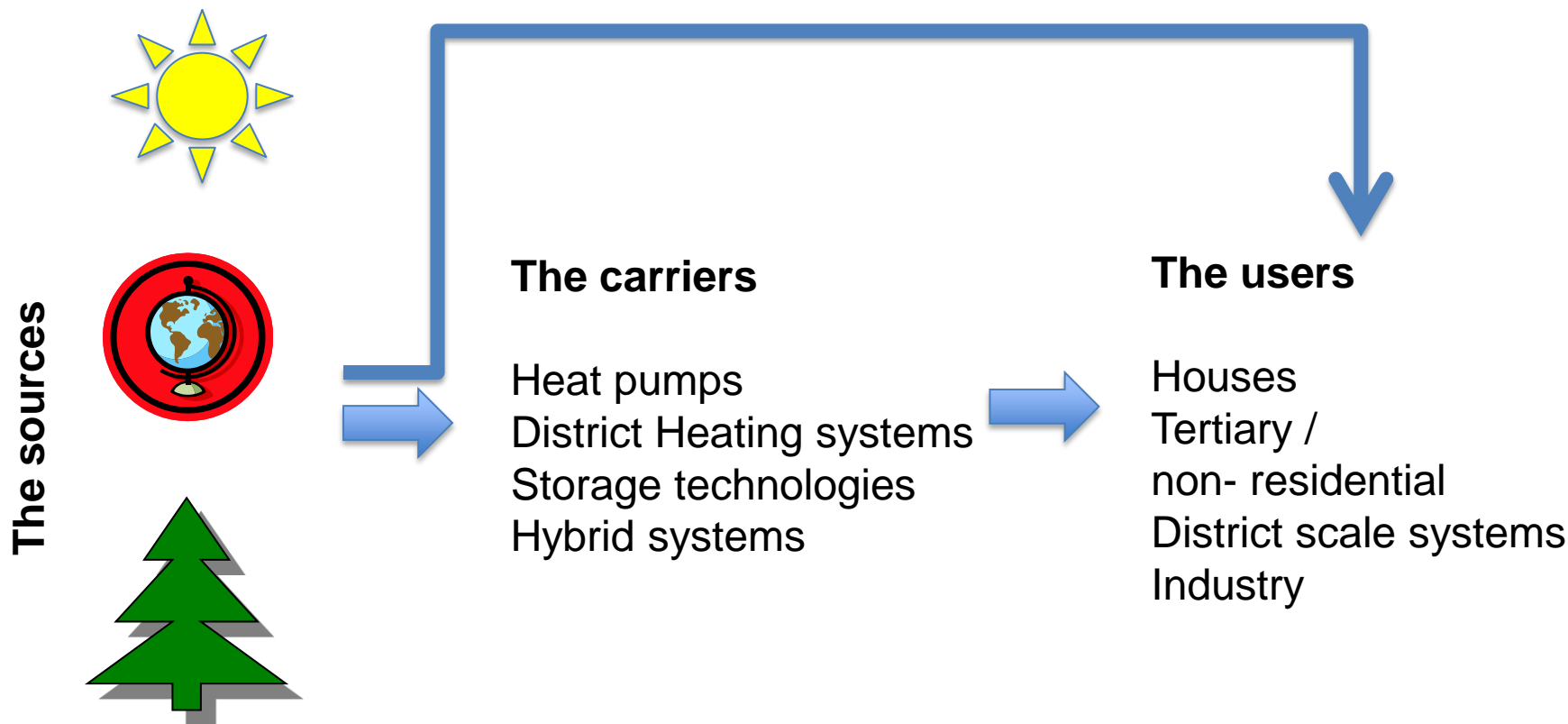
- Heating and cooling amounts to almost 50% of final energy demand in Europe
- go the RHC way!
 - Substantially increase our Energy Supply Security
 - Accelerate Energy Decarbonization
 - Avoid imports and save resources (tens of b€/year)
 - Strengthen our big potential for Industrial Leadership



But ... let's consider the challenges!

- Heat is more difficult to “understand” (than electricity)
 - It is produced, stored, transported, delivered in many ways
 - That means: different markets, technologies and people...

BUT... if we want the system to be: smarter, more competitive and more integrated...



The Common Roadmap KEY ELEMENTS

To characterize the Heating and Cooling Market as a whole

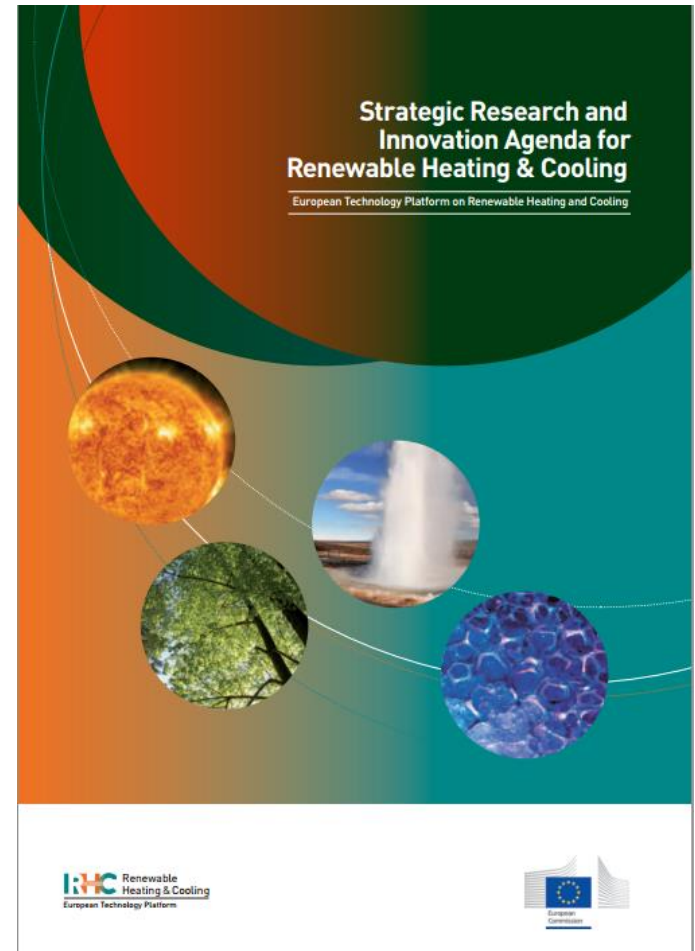
- Demand profiles
- Actors and market structures
- Regulation ... Future trends



To quantify the potential of renewables, its strengths, limitations and complementarities

To understand the central role of the carriers and its relationship to the sources

Strategic Research and Innovation Agenda



The Common Roadmap KEY ELEMENTS

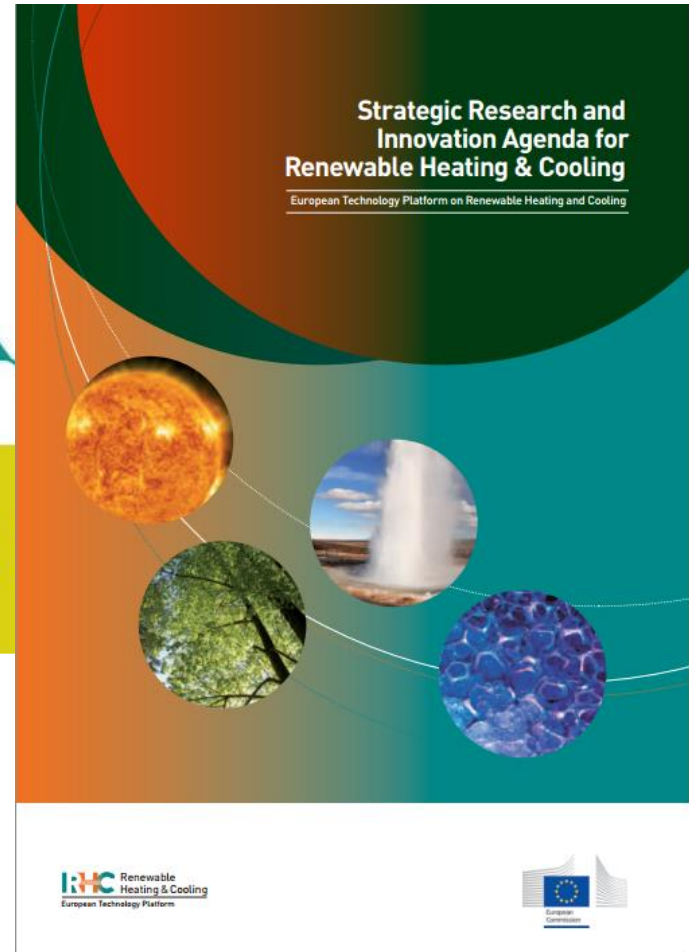
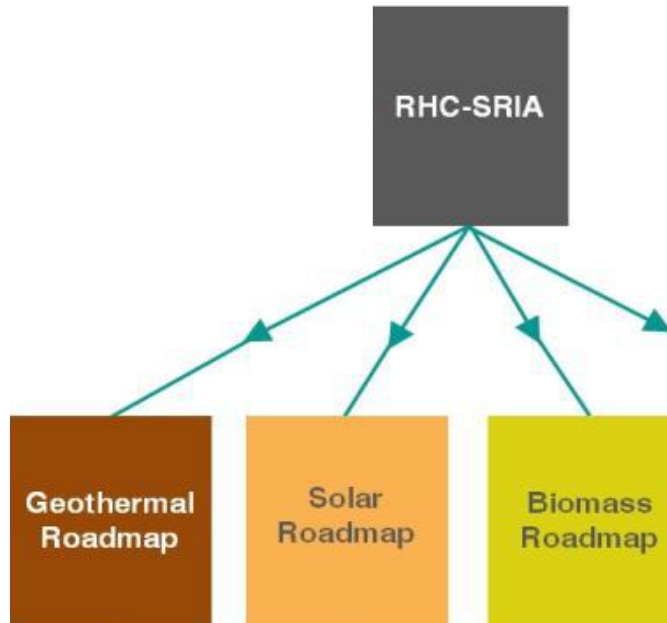
To identify the most promising Research and Innovation actions

- For the sources
- For the carriers



To indicate timelines and prioritize actions in regard to the given Research framework and schemes

The implementation Roadmaps





The Role and Scope of the Common Roadmap

- As a strong communication tool
- To highlight synergies and relationships
- To introduce new elements
 - R&I financing tools
 - Quantification of benefits

European Technology Platform on Renewable Heating and Cooling

Common Technology Roadmap for Renewable Heating and Cooling

AUTHORS

Javier F. Urchueguía Schölzel, GEOPLAT, ES - Lead Author

Luisa F. Cabeza – Universitat de Lleida, ES

Inga.Berre - Christian Michelsen Research, NO

Eija Alakangas –VTT, FI

Walter Haslinger – Bioenergy 2020+, AU

Panagiotis Grammelis - Certh, GR

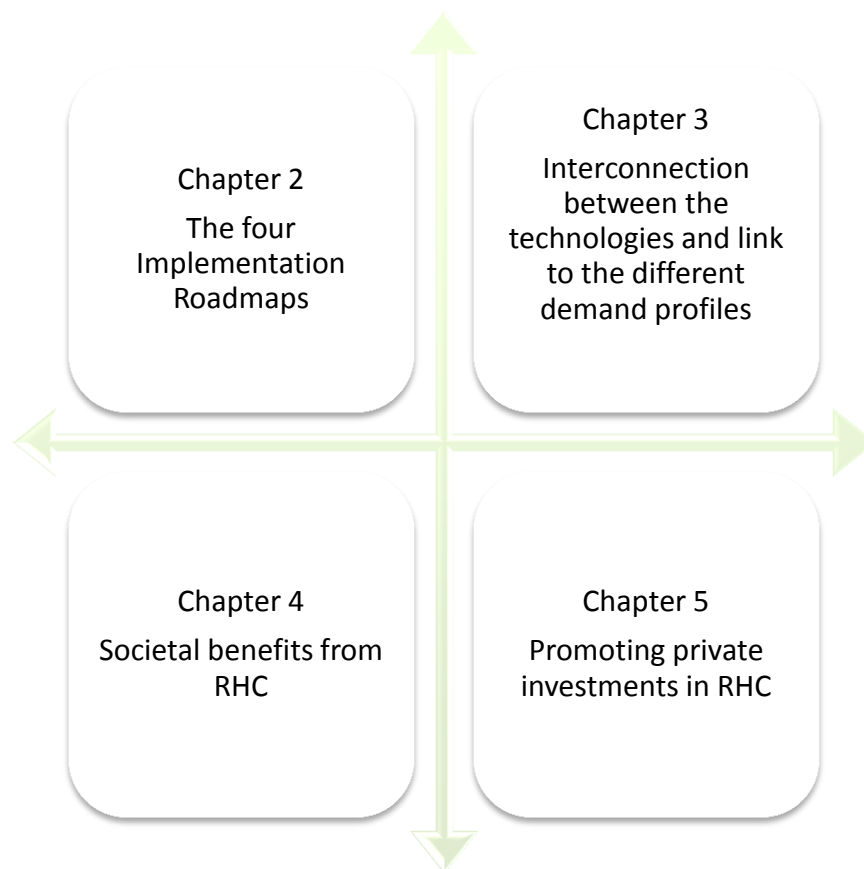
Daniel Mugnier - TECSOL, FR

Gerhard Stryi-Hipp - Fraunhofer ISE, DE

Philippe Papillon – CEA-INES, FR

Roland Hellmer - Vattenfall Europe , DE

The Common Roadmap structure



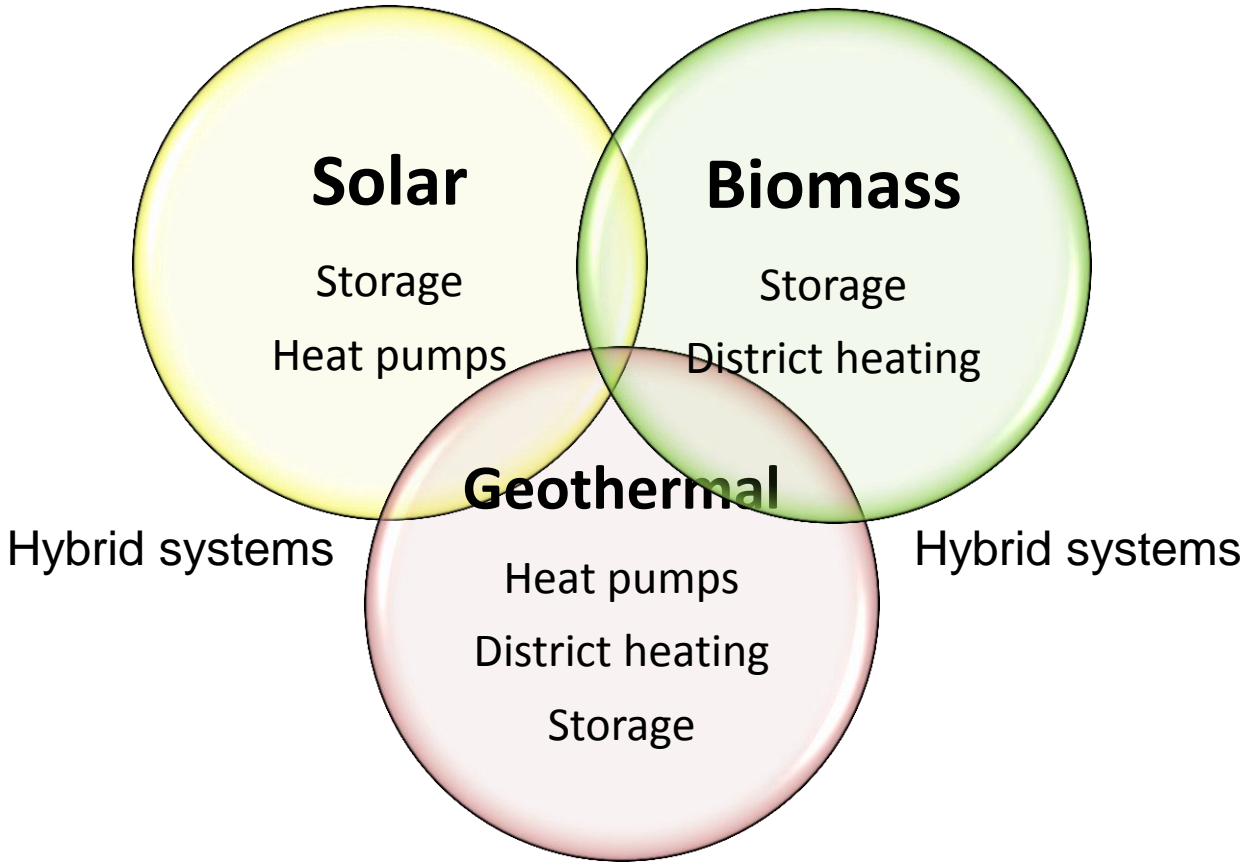


A very brief look into Chap 2 and Chap 3...



Just a brief sentence...

House owners don't want to buy heating components like solar collectors, water storage, backup-heater and other equipment, they want to buy a solution for domestic hot water (DHW) and/or space heating and/or cooling (such as Combisystems).

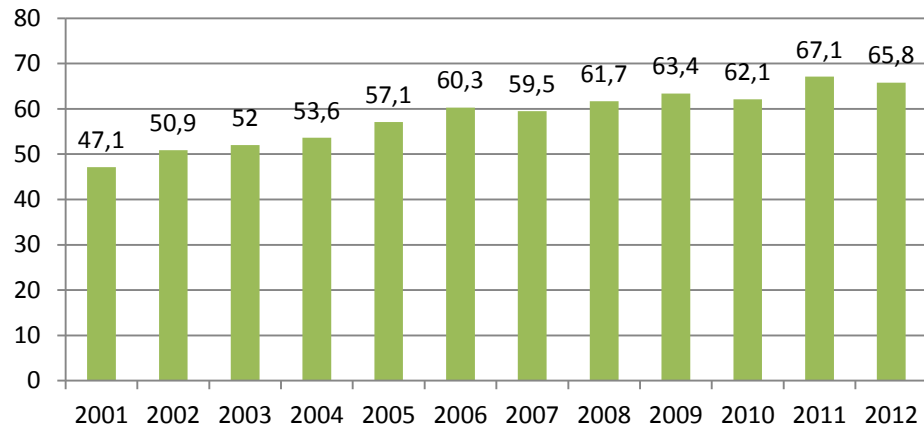


Chapter 4... the benefits

- Security of supply
 - Natural gas as heating source is **increasingly imported**

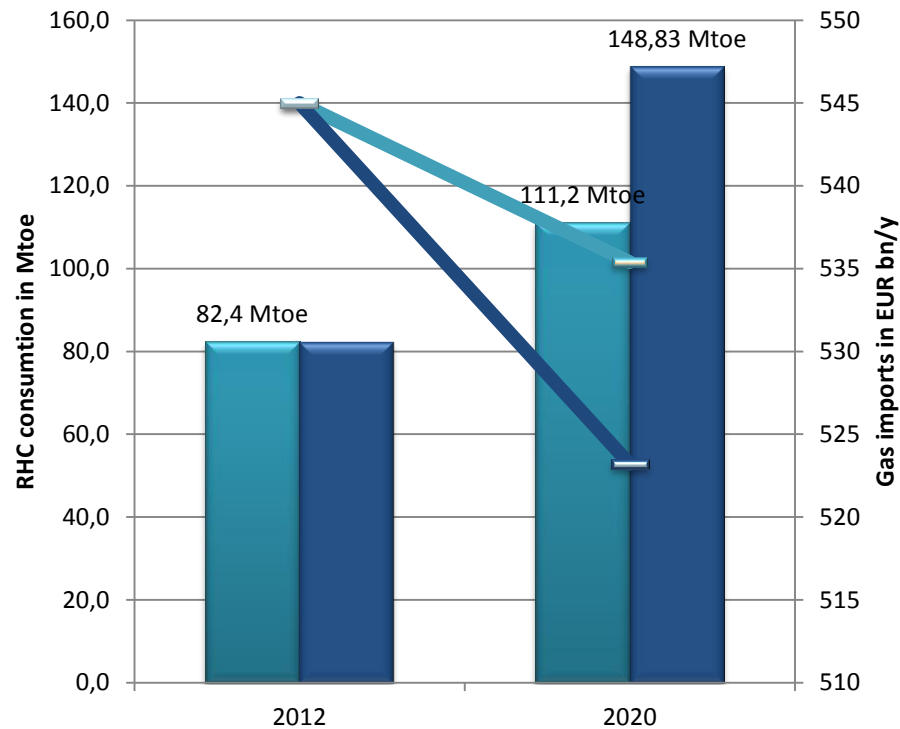
2012:
€545 billion imports
4,2% GDP

Natural gas dependency rate, EU-28,
2001-2012 (%)



RHC and imports

Avoided fossil fuel imports caused by RHC

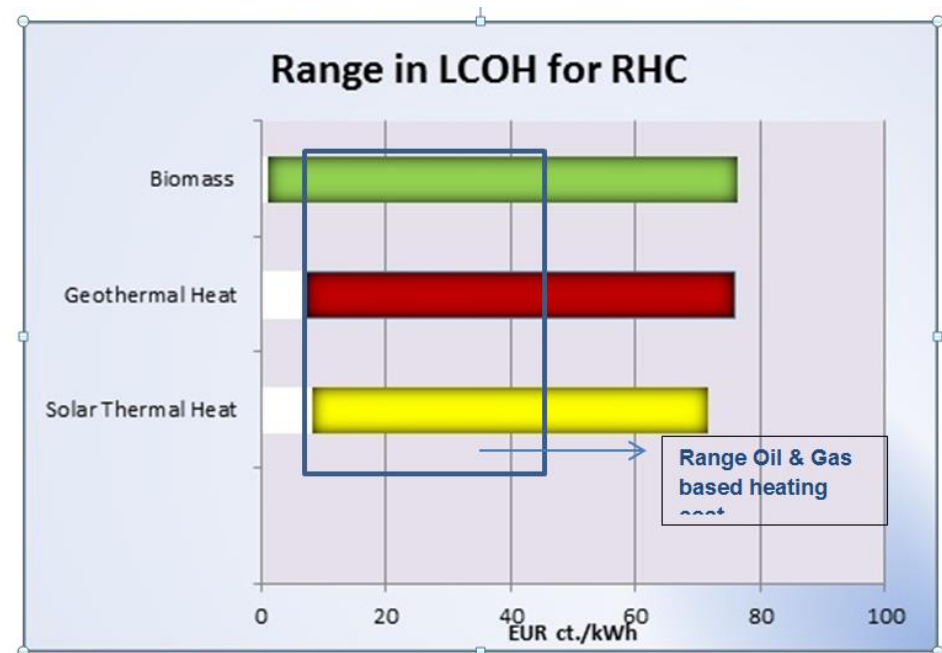


2020 NREAP (21%):
Additional 28.7Mtoe
and €9.6 billion saved

2020 RHC (25%):
Additional
65Mtoe and €21.4 billion
saved

The cost of energy..

- RHC is a tool to reduce energy costs and increases price stability



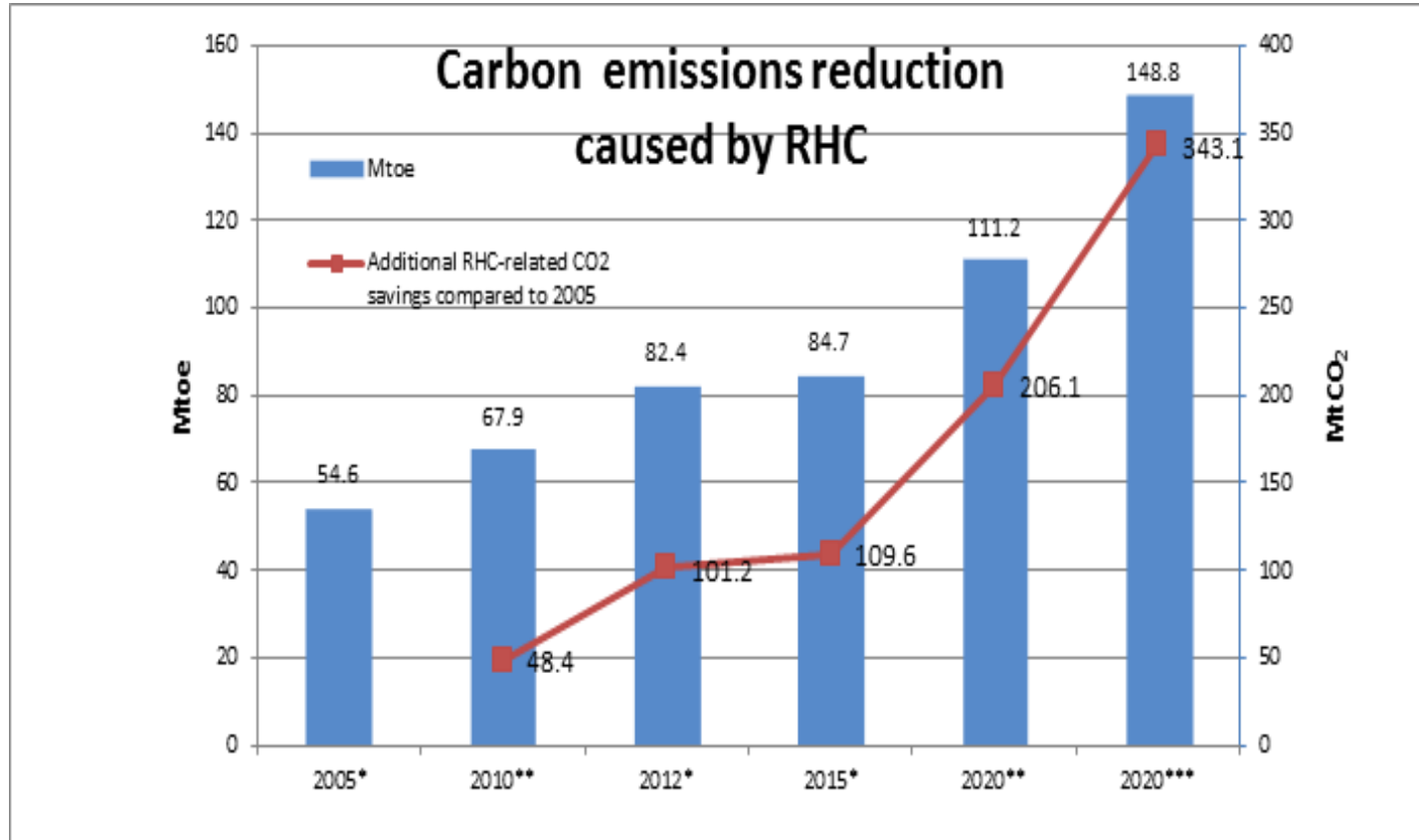
Jobs and industrial leadership

Estimate of direct and indirect employment in the RHC sector (thousands jobs)				
Sector	Germany	Spain	Other EU	Total EU
Biomass and biogas (including for electricity)	107	40	198	345
Geothermal (including for electricity)	14	0.3	37	51.3
Solar Thermal	11	1	20	32
Heat Pumps (excl. geoth.) (source: EHPA, 2014)	-	-	-	31.6
Total	131	41.3	255	459.9

Table: Estimate of direct and indirect employment in the RHC sector. Source: IRENA, EHPA¹⁹

EUROPE = Global Player in many RHC technology intensive sectors

And not least.... CO2 emissions reduction



Chapter 5 ... Resources and private investment

- 2014 - 2020, on avg €576 mln to be allocated annually to RHC R&I activities (60% private / 20% EU / 20% MS)
- Investment scenarios and framework to attract additional private capital into RHC are analysed
 - Analysis of the barriers
 - Indicative actions to promote private investm (policy and financial instruments)



Thank you for your attention