Renewable heating and cooling policy workshop

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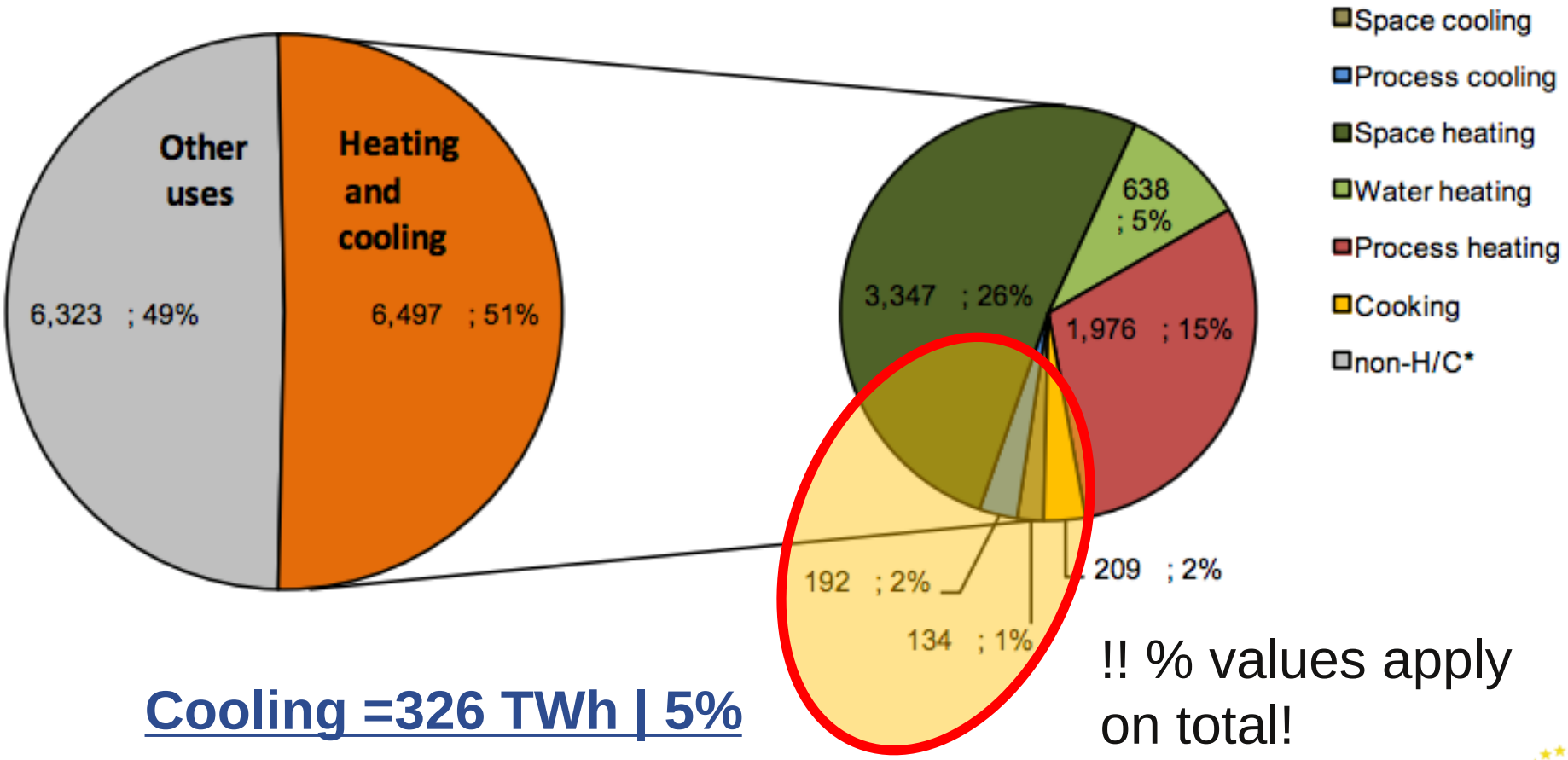
Final energy demand for EU28 by end-use for H/C in all sectors in 2012 [total: 12 820 TWh]



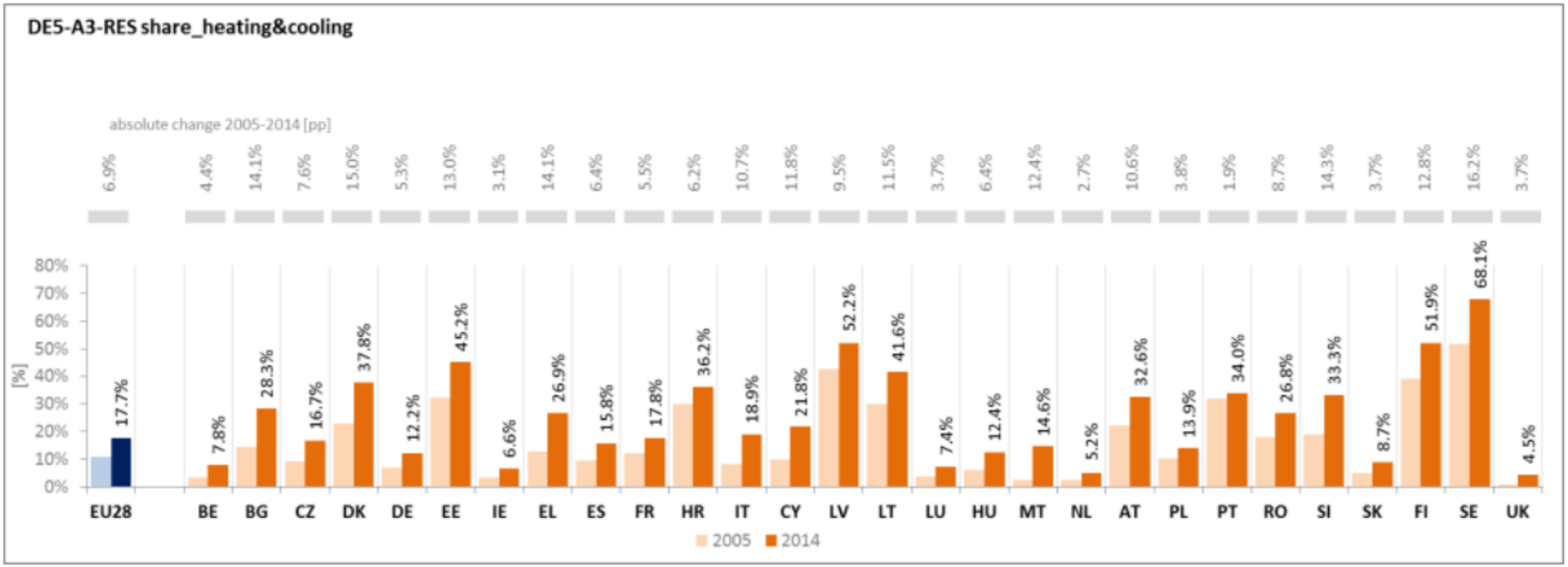
Cooling =326 TWh | 5%

!! % values apply on total!

Source: Fraunhofer ISI et al. (2016): Report WP 1, p.83

RES share in heating and cooling at EU level

- **2014 17.7%**
- **2005 10.8%**



Source: https://ec.europa.eu/priorities/sites/beta-political/files/swd-energy-union-key-indicators_en.pdf

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HP related legislation in the European Union

Year	Name	Focus
2009	Renewable Energy Sources Directive (RES Directive)	European Union / Member State
2010	Energy Performance of Buildings Directive (EPBD)	Building
2009	Ecodesign for Energy related Products-Framework Directive (ErP)	Product/system
2009	Energy Labelling Directive	Product/System
2010	Energy Efficiency Directive (EED)	European Union / Member State
2013	Regulation on Ecodesign for heaters and water heaters	Product/System
2013	Regulation on the energy label for heaters and water heaters	Product/System
2014	F-Gas regulation (review of 2006 regulation)	European Union / Member State
2014	Ecolabel Framework Directive with the Ecolabel for heat pumps, for hydronic heating systems and for office buildings	Product/System
2014	Green Public Procurement	Product/System

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What policies have been most effective in increasing renewable/low-carbon heat deployment? What are the key success factors and remaining challenges?

- **RES Directive**
  - general recognition of air, water, ground as renewable source, NEW: equivalent treatment for waste energy
  - Statistics
- **EPBD**
  - Definition for heat pumps covering heating/cooling
    Article 2, para 18: 'heat pump' means a machine, a device or installation that transfers heat from natural surroundings such as air, water or ground to buildings or industrial applications by reversing the natural flow of heat such that it flows from a lower to a higher temperature. For reversible heat pumps, it may also move heat from the building to the natural surroundings;
  - Energy efficiency requirements, esp. nZEB that are beneficial for heat pumps
- **EED**
  - Energy efficiency obligation schemes
  - Integration of conversion factors: primary energy factor for electricity

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How essential are district heating networks for the roll-out of renewable heat? What policy approaches have worked to incentivise district heating?

- Important for the distribution of heat in densely populated areas
- Largest heat pumps worldwide operate in district heating and cooling
- Open access important to allow for most efficient solutions
- Right to switch and disconnect for end users

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What role can local authorities & local energy companies play? What instruments do they have at their disposal?

- **Very important role,**
  - provide planning guidance for heating/cooling infrastructure
  - connect to end-users and (have to)
  - Local financing: incentives/subsidies
- **Heating and cooling plans**
  - Energy efficiency Directive (Art. 14)
  - http://www.heatroadmap.eu/

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What role should efficient heat electrification play in low-carbon heat policy?

- Important to connect electric and thermal sectors!
- Biggest growth potential to replace fossil energy together with other RES shares
- Efficient electrification should aim at connecting RES electricity with heating as much as possible, highlighting the advantage of decentral solutions and demand response.
  ➔ should value integrative solutions

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Are there any trade-offs between energy efficiency and renewable/low-carbon heat policy?

- **Answer: „No“ – tradeoff should not be artificially created!**
- **Energy efficiency/RES policy**
  Both should be treated the same – the impact of integrating RES and energy efficiency measures on energy demand is the same!
- **Energy efficiency/low carbon heat**
  A carbon price is essential for correcting the distorted price of energy with regards to its reflection of true cost of fossil energy!
  - Strong ETS that includes heating/cooling & transport
  - Carbon floor pricing
  - RES only policy without inclusion of heating in ETS is counter productive (➔ HP are covered by RES, fossil heating is not)

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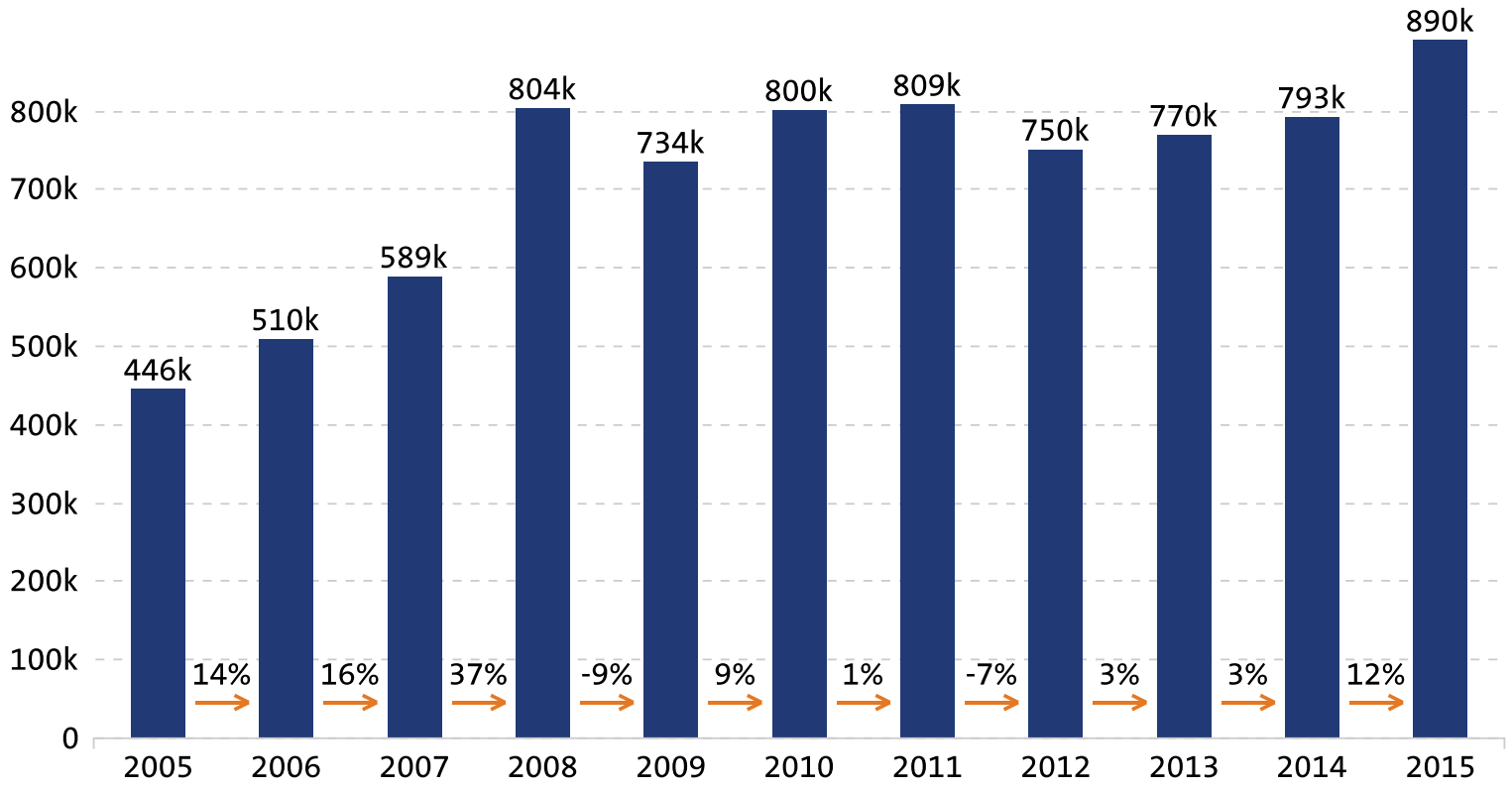
Is it possible to identify 5-10 key policy recommendations that are transferable to different countries and circumstances?

- **Stop fossil fuel subsidies immediately to create true cost competitiveness of RES heating/cooling technologies!**
- **Distribute cost of energy transition to all energy carriers (NOT only electricity)!**
- **Establish time-variable electricity tariffs for end-consumers and aggregators.**
- **Apply a transparent, method based primary energy factor (PEF)**
- **Apply nZEPTrequirements from EPBD also to renovation.**
- **Use decarbonisation vision/target as major benchmark for all investments.**
  - Support only for “2050 ready technologies”
  - Add fuel switch requirements in case of renvoation
  - Decarbonisation trajectory with staged targets (www.decarbheat.eu)
- **General information for end users (for example front project front-rhc.eu)**

Background HP markets

Development of sales across Europe



The heat pump stock of 8.4m units in 2015 contributed:

298 (11%) GW storage capacity	148 (12%) TWh heat produced
94.7 (11%) TWh renewable energy	52.8 (12%) TWh electricity used
24.4 (11%) Mt CO2 saved	121 (11%) TWh energy saved

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