



*Iceland Geothermal Conference - IGC 2016*

# The European Energy Union

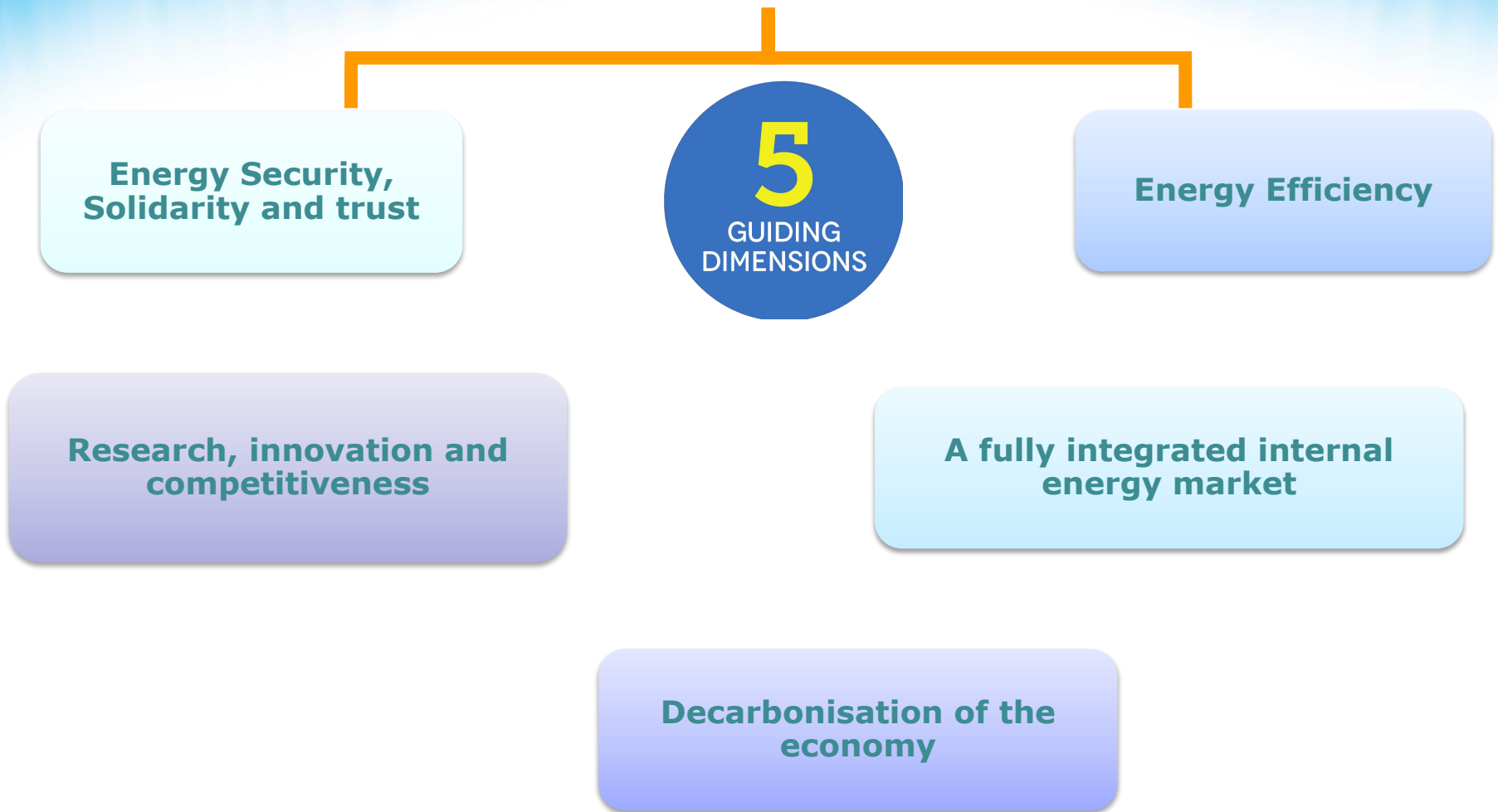
**Marie Donnelly**, Director  
European Commission  
Directorate General for Energy

28 April 2016, Reykjavík

# Outline

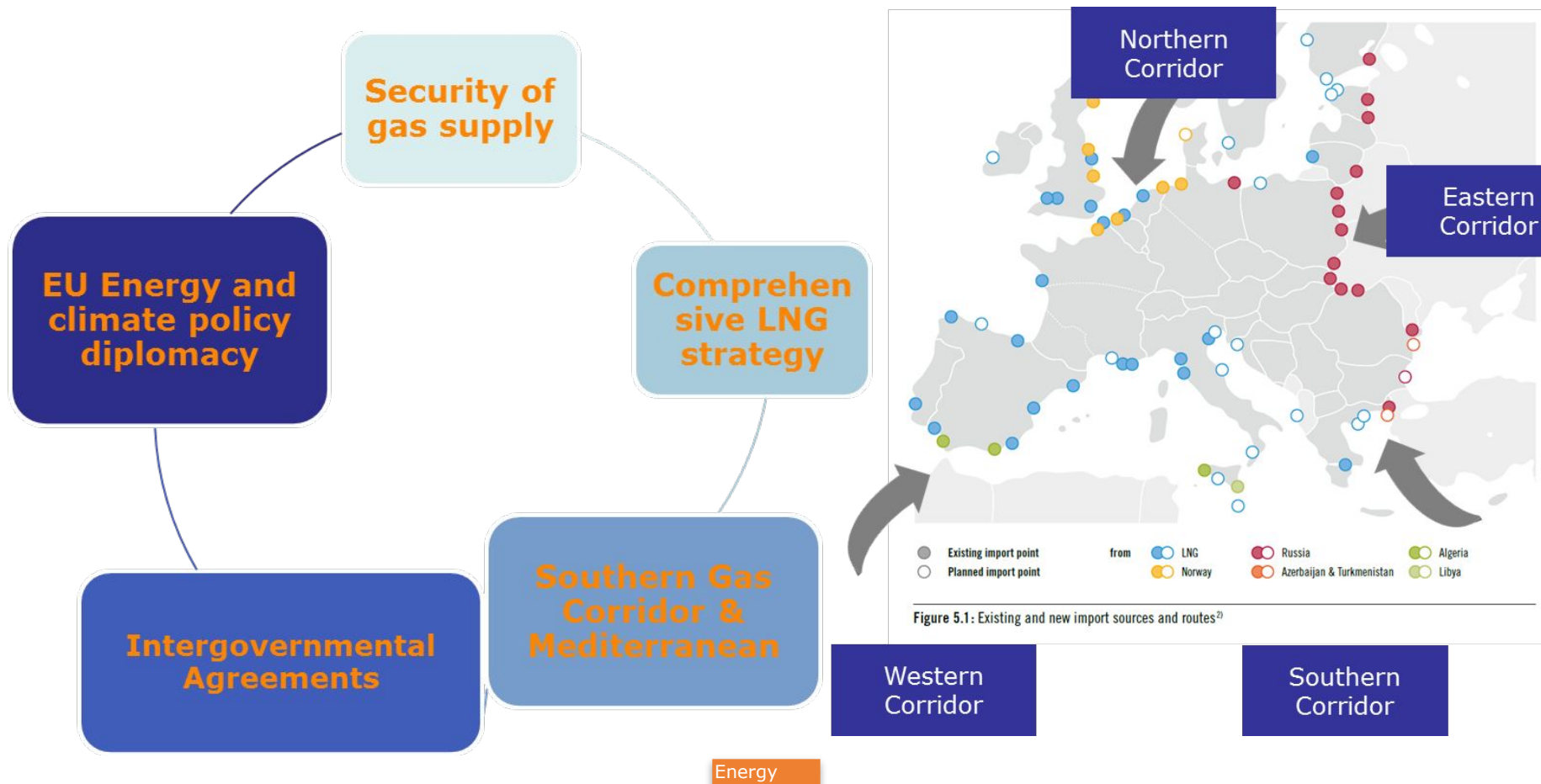
- ✓ The Energy Union and its five dimensions
- ✓ Major policy initiatives under preparation
  - Market design
  - Revised Renewable Energy Directive
  - Energy Efficiency package
- ✓ Supporting investments in energy technology innovation
  - Innovation strategy: the Strategic Energy Technologies (SET) Plan
  - EFSI (European Fund for Strategic Investments)
  - Horizon 2020
  - InnovFin
- ✓ Final remarks

# Energy Union Strategy



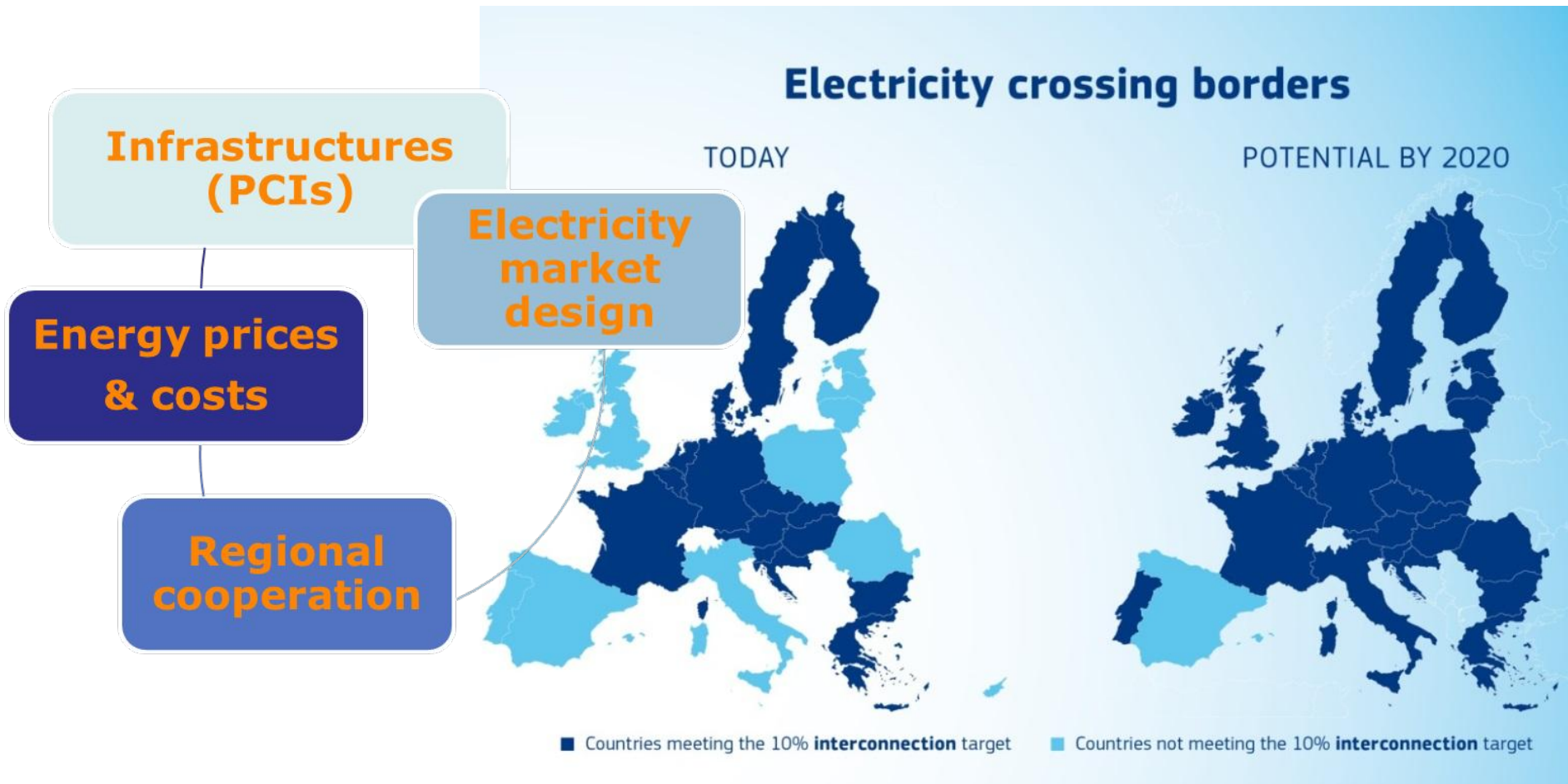
# Energy Security, solidarity and trust

Diversify sources, suppliers and routes



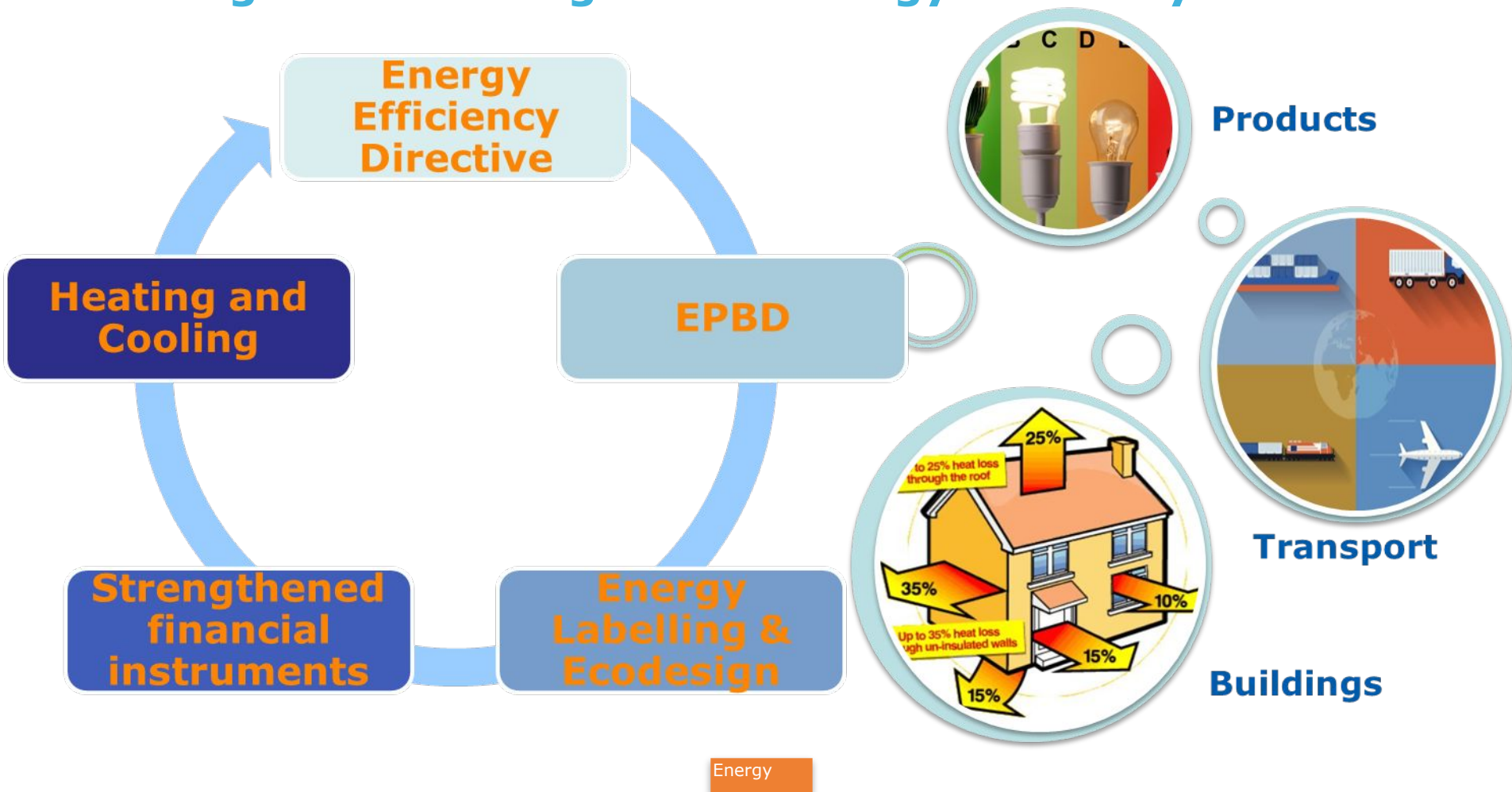
# A fully-integrated internal energy market

## Connecting markets and upgrading their software



# Energy efficiency

Meeting the 2030 target and "energy efficiency first"





# Decarbonisation of the Economy

## Meeting 2030 targets and COP21

**Achieve the  
40% GHG  
target**

**Alternative  
fuels and clean  
vehicles**

**Decarbonization  
of transport**

**Renewable  
Energy Package**

**40%** of the world's  
**wind turbines**  
are built by EU  
companies

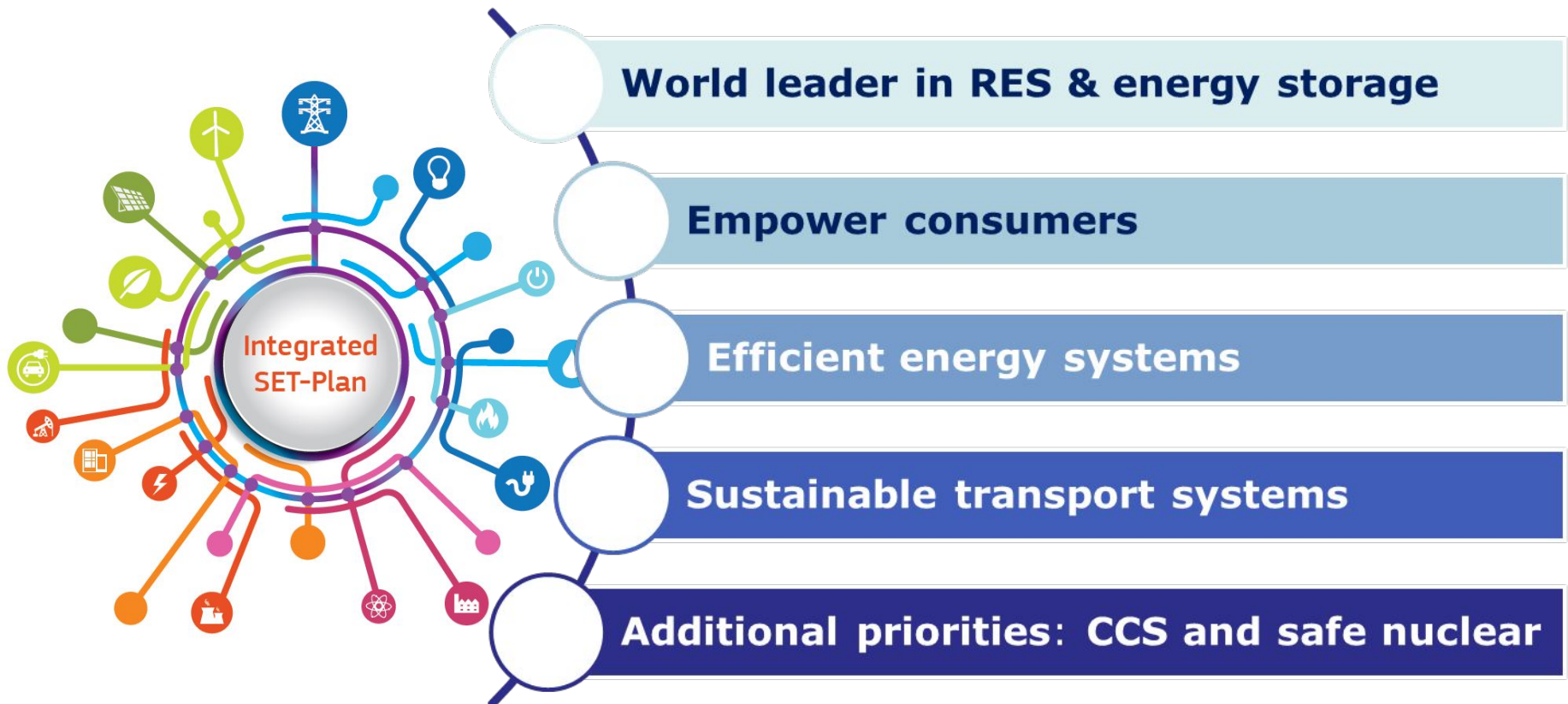
**EU is ahead of  
China and the USA**  
in terms of renewable  
share in total power  
generation

**40%** of world's  
**patents**  
are held by EU  
companies

**EU has 3 times  
more renewable  
power** per capita  
than the rest of the  
world put together

# Research, innovation and competitiveness

## How to maintain global leadership?





# Major policy initiatives

## ✓ *Market design*

- proper market based signals for investment in generation, including renewables, and demand to facilitate a cost effective energy transition

## ✓ *Revised Renewable Energy Directive*

- consumer change, technological innovation and cost reduction and market integration of renewables and mechanisms to guarantee achievement of target

## ✓ *Energy Efficiency package*

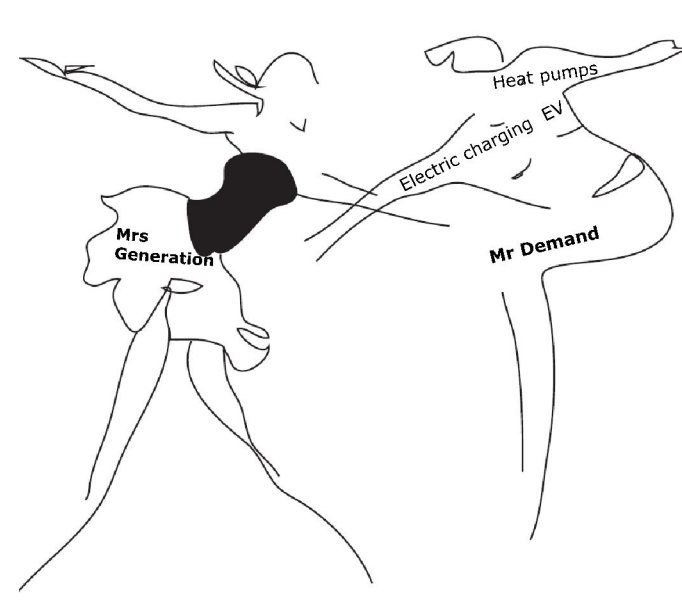
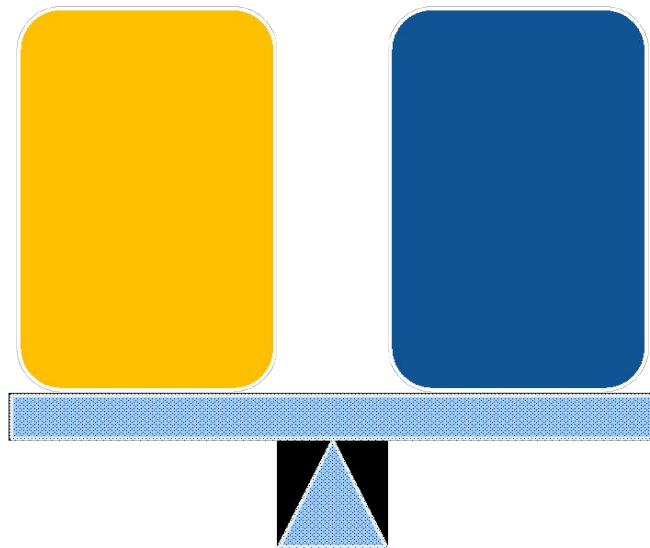
- Align horizon of legislative instruments with 2030 target



# New electricity market design

- ✓ Today's 16% to at least 27% renewables share
  - from current 27,5% to 50% of RES produced electricity
- ✓ The new electricity market design
  - Needs to make this happen at *least cost* by removing the remaining obstacles to better integrate renewables into the internal market
  - Sets the conditions that will allow RES investments to be eventually be driven by the market
  - 5 main chapters: Governance, security of supply, flexibility and balancing, Retail, TSO cooperation

# New electricity market design foundation of 2030 framework



**For 2030 we will move from today's 16% (27.5% of its electricity requirements coming from RES) to at least 27% renewables share (around 50% of RES produced electricity)**

# Strategic Energy Technologies Plan

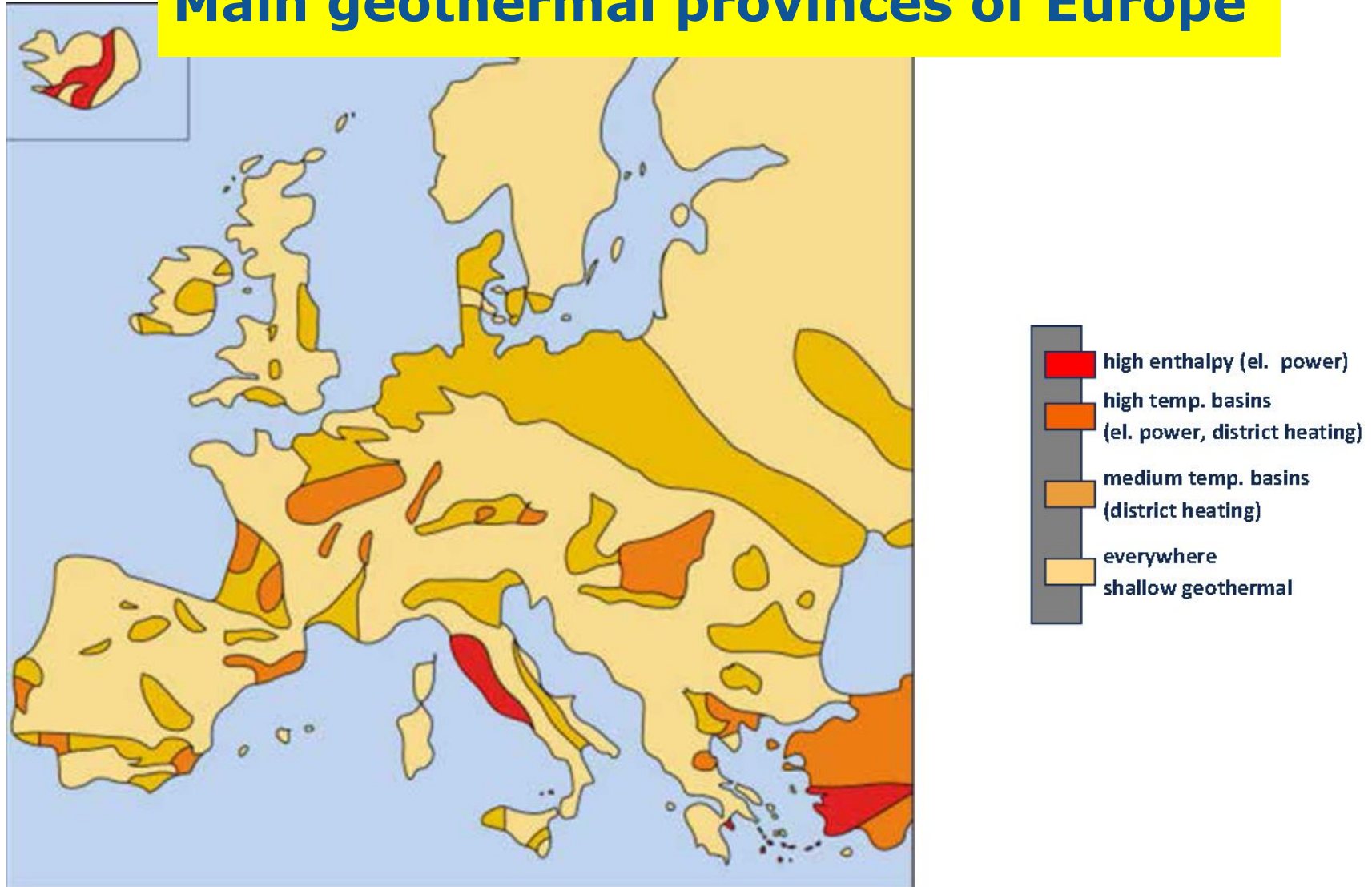
- ✓ *Align investments in R&D for greater efficiency of our spending, for the whole EU: Member States and the Commission*
- ✓ *10 actions proposed in new SET Plan, for 4+2 research priorities (No.1 in RES, energy system, energy efficiency, transport + CCS and nuclear)*

# Geothermal

- ✓ *50% Europe's final energy consumption for H/C: natural gas (45%), fuel oil (12%), coal (9%), electricity (12%), biomass (12%), and DH (8%)*
- ✓ *DH/C networks appealing for coupling with geothermal energy sources*



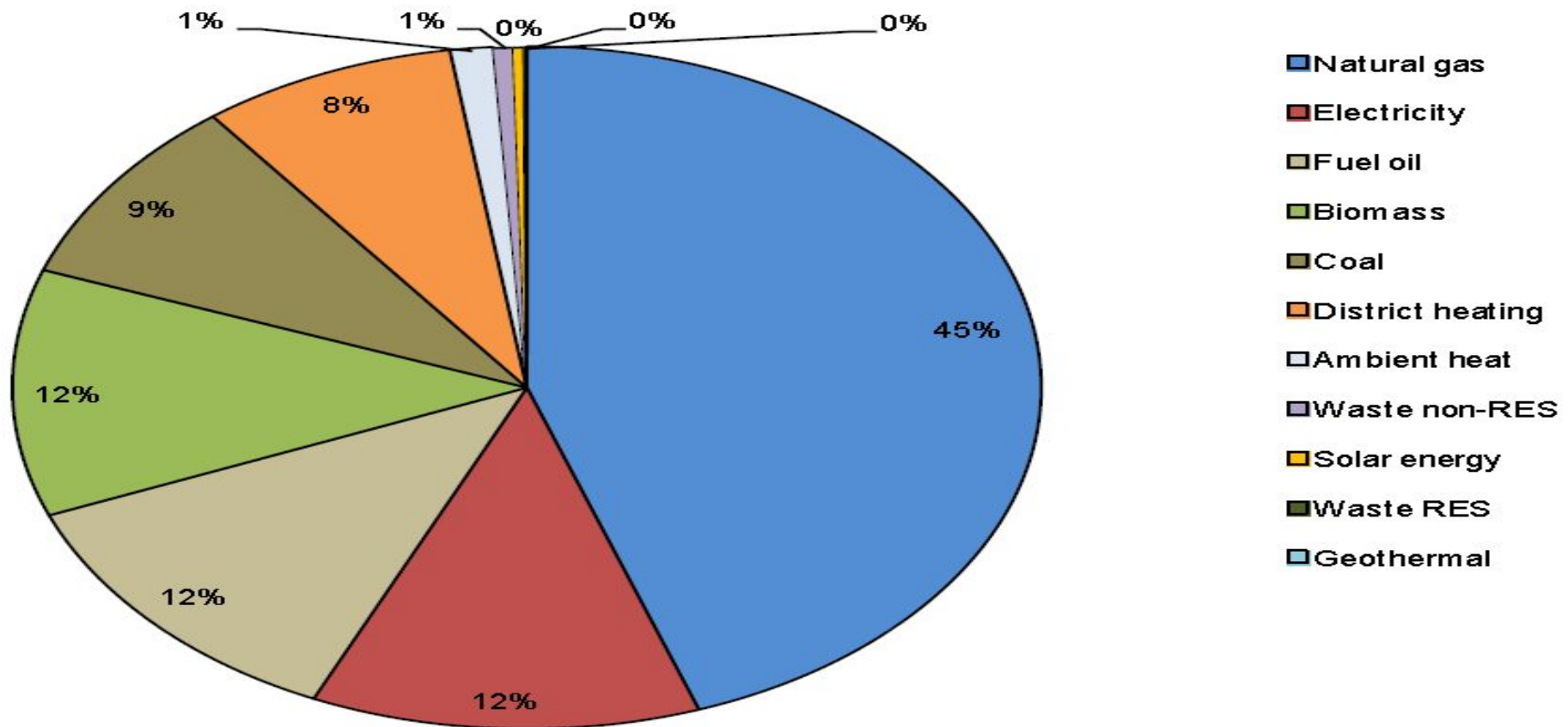
# Main geothermal provinces of Europe



source: EGE



# EU28 Final energy demand for H/C by carrier (%)

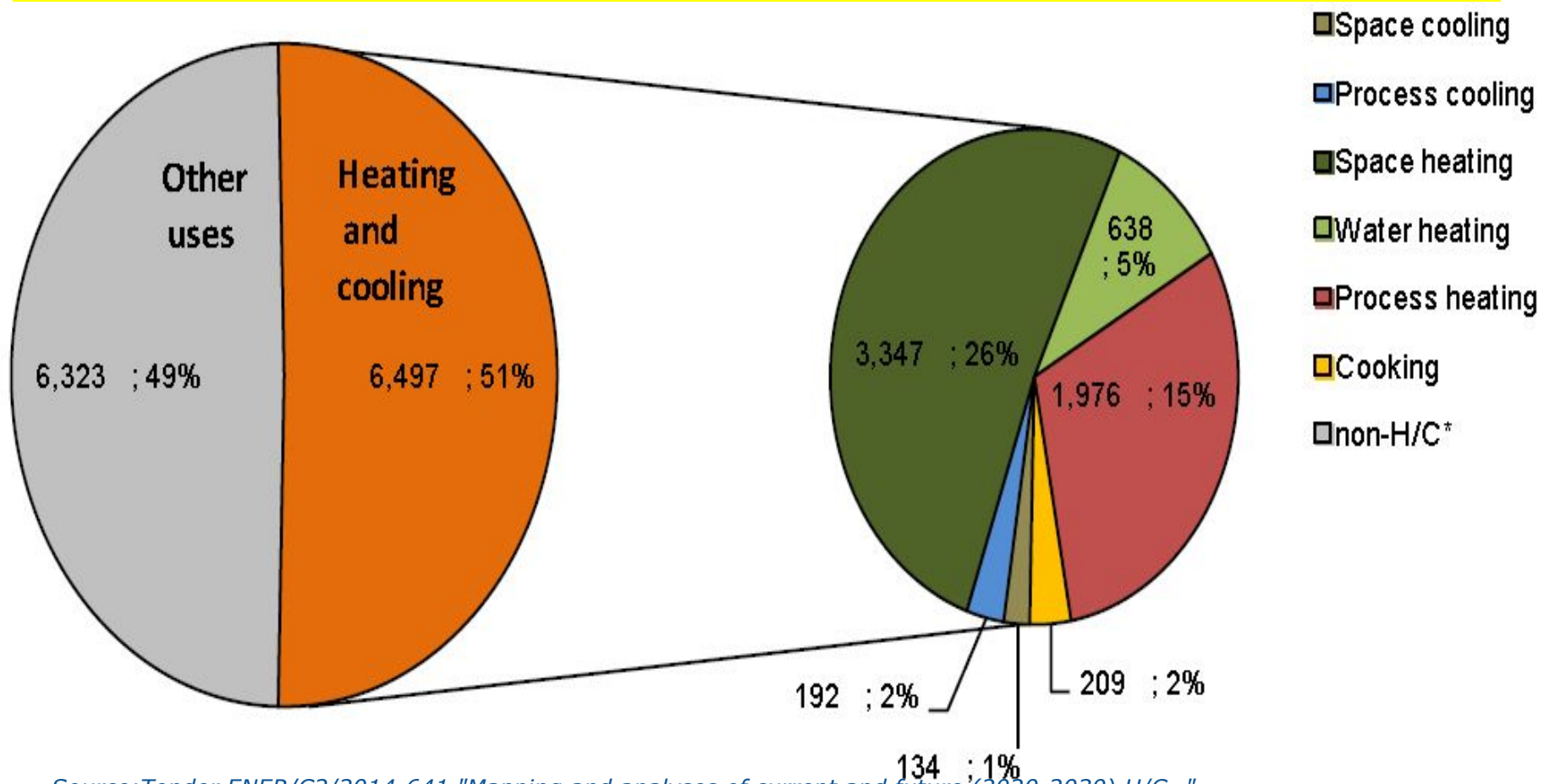


Source: Tender ENER/C2/2014-641 "Mapping and analyses of current and future (2020-2030) H/C..."



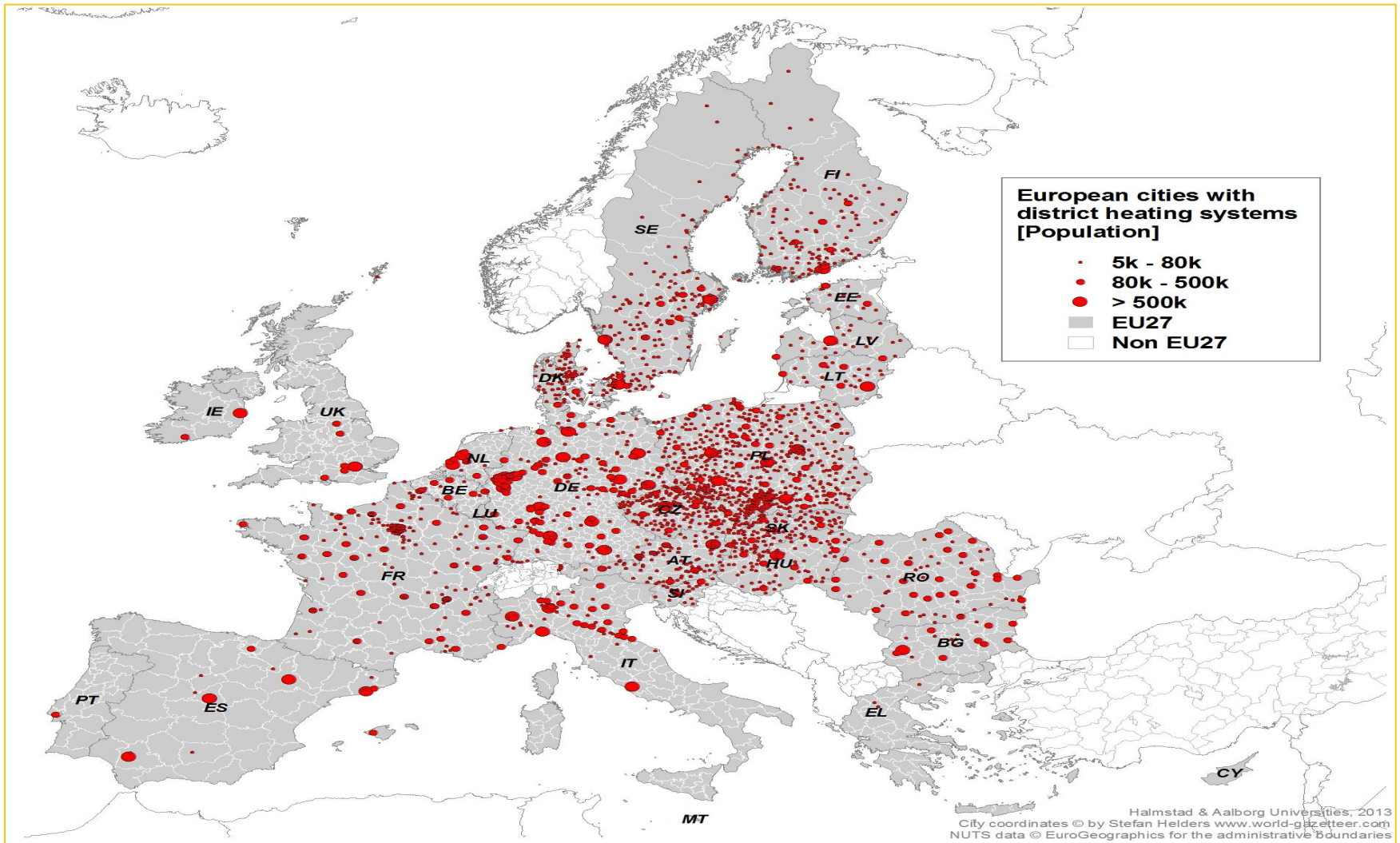
# EU28 Final energy demand for H/C

(year 2012) [TWh, %]



Source: Tender ENER/C2/2014-641 "Mapping and analyses of current and future (2020-2030) H/C..."

Other uses comprises transportation, mechanical energy in industry and residential and service sector appliances



# Geothermal 'electricity' capacity in Europe\*

Country	Installed capacity at end 2015 (MW)	Specified NREAP targets for 2020 (MW)	NREAP target reached
Belgium	0	3,5	N
Bulgaria	-	-	
Czech Republic	0	4,4	N
Denmark	-	-	
Germany	27	298	N
Estonia	-	-	
Ireland	-	-	
Greece	0	120	N
Spain	0	50	N
France	16	80	N
Croatia	0	10	N
Italy	916	920	N
Cyprus	-	-	-
Latvia	-	-	-
Lithuania	-	-	-
Luxembourg	-	-	-
Hungary	0	57	N
Malta	-	-	-
Netherlands	-	-	-
Austria	1	1	in 2002
Poland	-	-	-
Portugal	29	75	N
Romania	0	-	-
Slovenia	-	-	-
Slovakia	0	4	N
Finland	-	-	-
Sweden	-	-	-
United Kingdom	-	-	-
Switzerland	-	-	-
Iceland	665	715	N
Norway	-	-	-

\*preliminary data

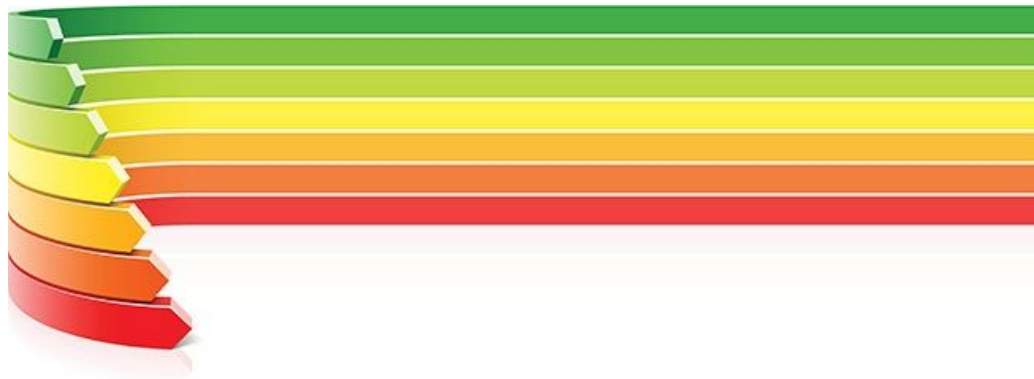


# Investment in Innovation

✓ *In addition to policy initiatives, Commission supports investment in innovation*

- **EFSI** (European Fund for Strategic Investments), EUR 10,6 billion of EIB/EIF finance already approved for energy projects, yielding EUR 76,1 billion total investment
- **Horizon 2020** (2014-2020) supports the EU research and innovation
  - EUR 80 billion committed, EUR 5,9 billion for non-nuclear energy
  - Commission supports the development of the next RES generation (included geothermal)
- EU support to Geothermal Energy R&I **increasing**:
  - FP6 (2003/6)+FP7(2007/13) ≈ EUR 50 million
  - H2020 (**only** 2014/2015 WPs) ≈ EUR 70 million
- **InnovFin** InnovFin provides risk financing in the form of loans, equity and guarantees.

# Thank you for your attention!



***Marie Donnelly***

***DG ENER, European Commission***

***Website: [http://ec.europa.eu/energy/efficiency/index\\_en.htm](http://ec.europa.eu/energy/efficiency/index_en.htm)***