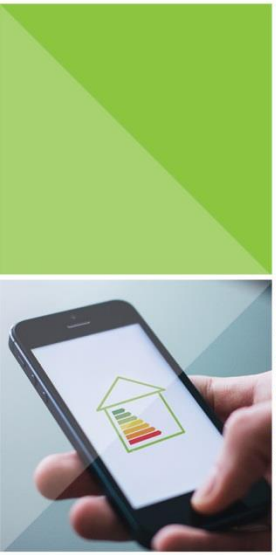
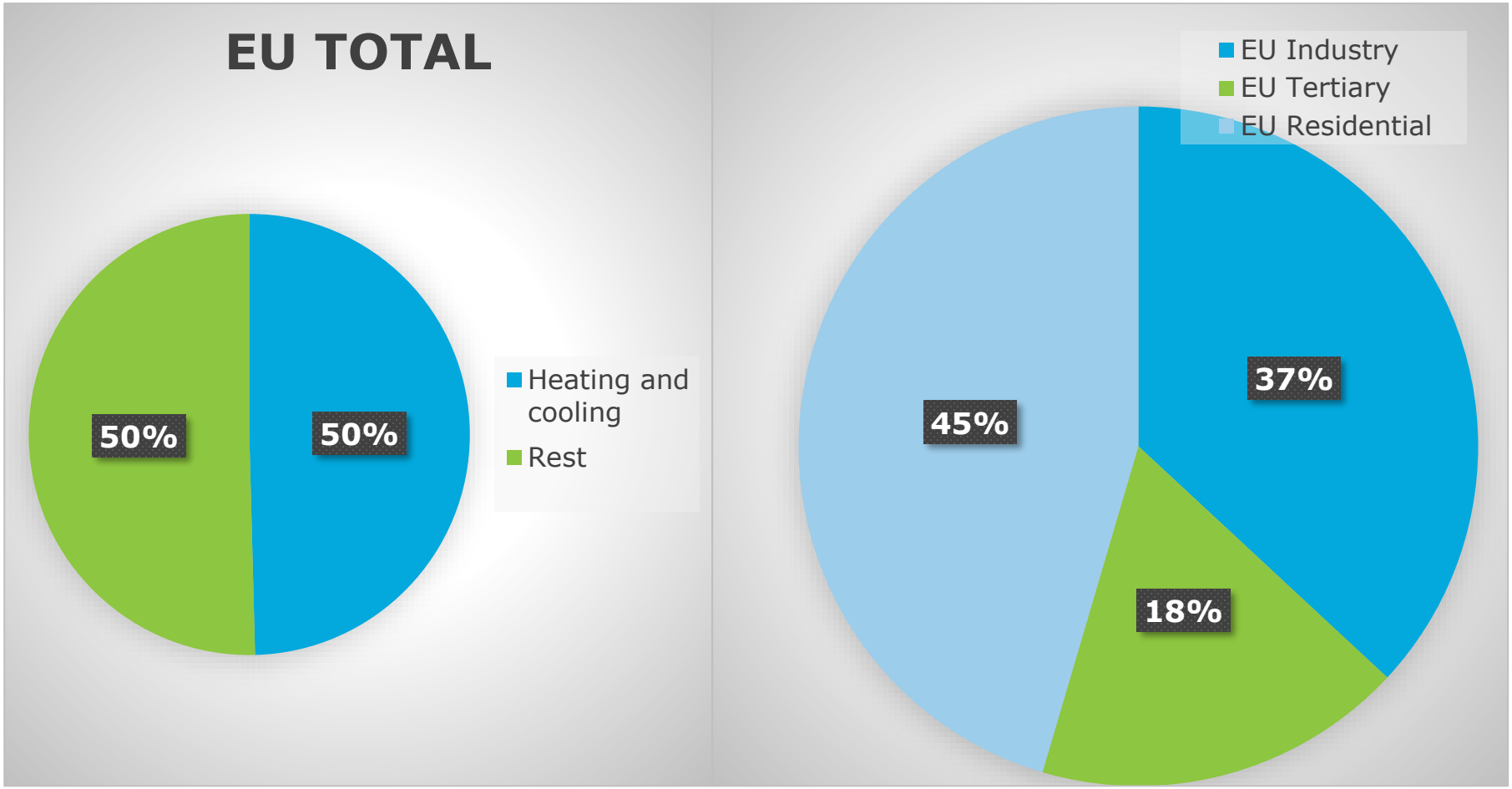





Eastern Partnership: EU Promotion of Renewables in Heating & Cooling

Eva Hoos, ENER C1
17 October 2019

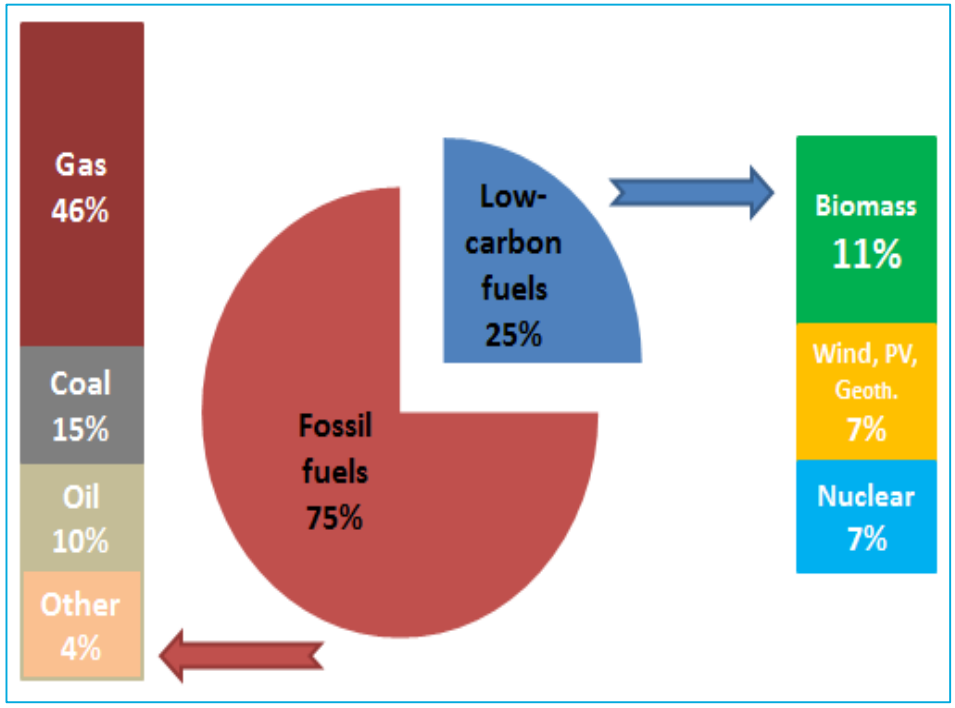
Heating and cooling is 50% of EU's final energy consumption

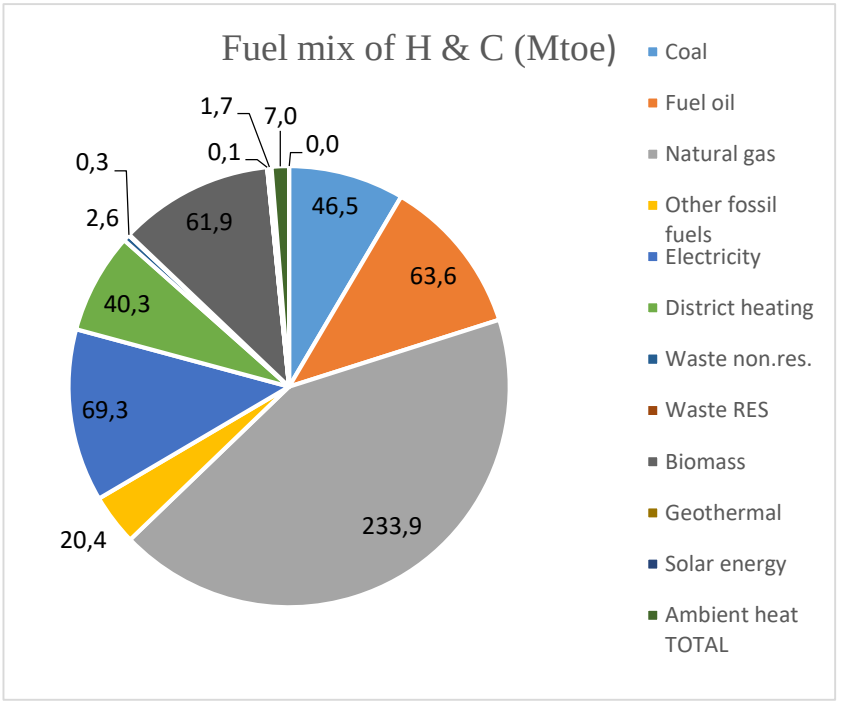


Buildings consumes ≈ 60% of heating and cooling, industry consumes most of the rest

European Commission

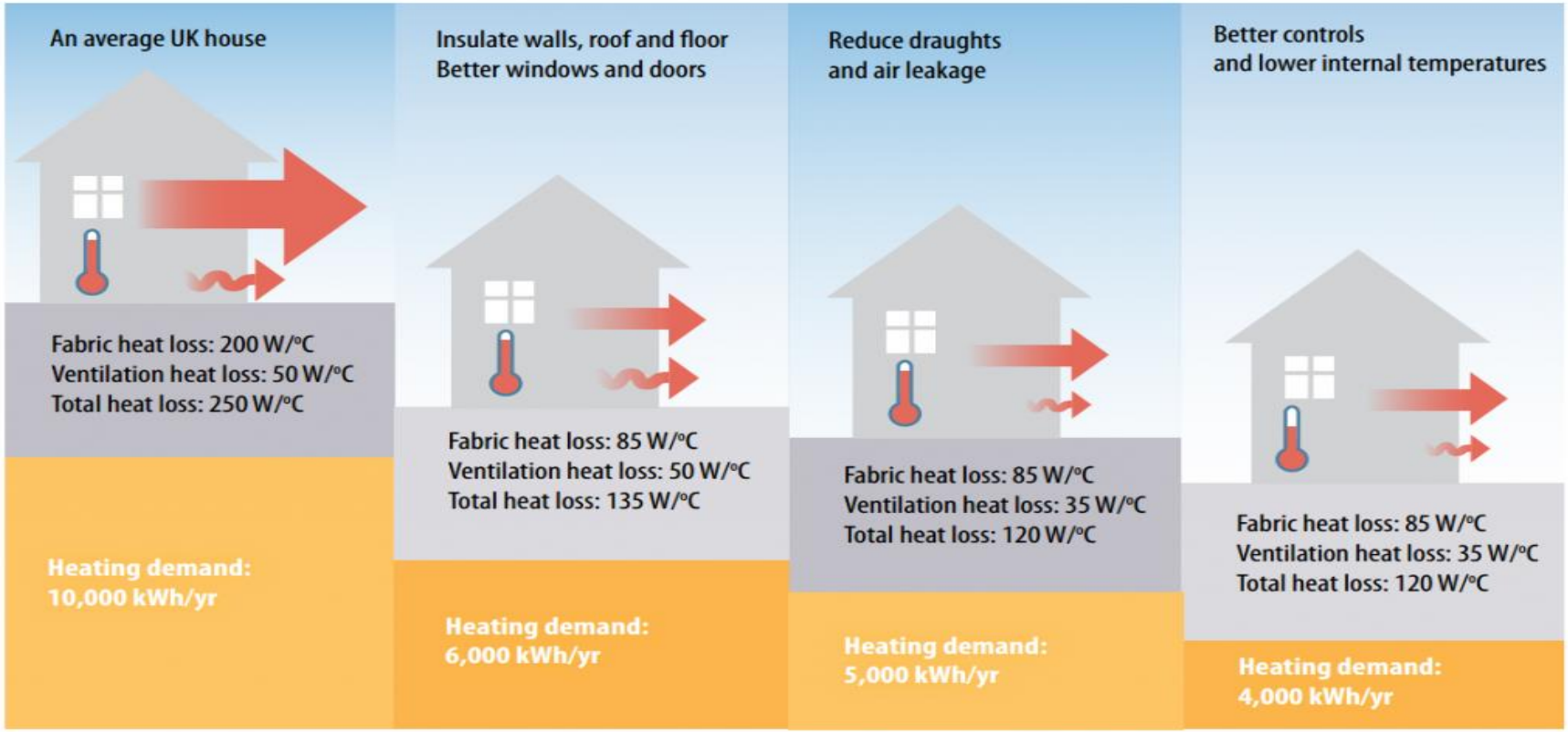
Most of it is fossil fuel



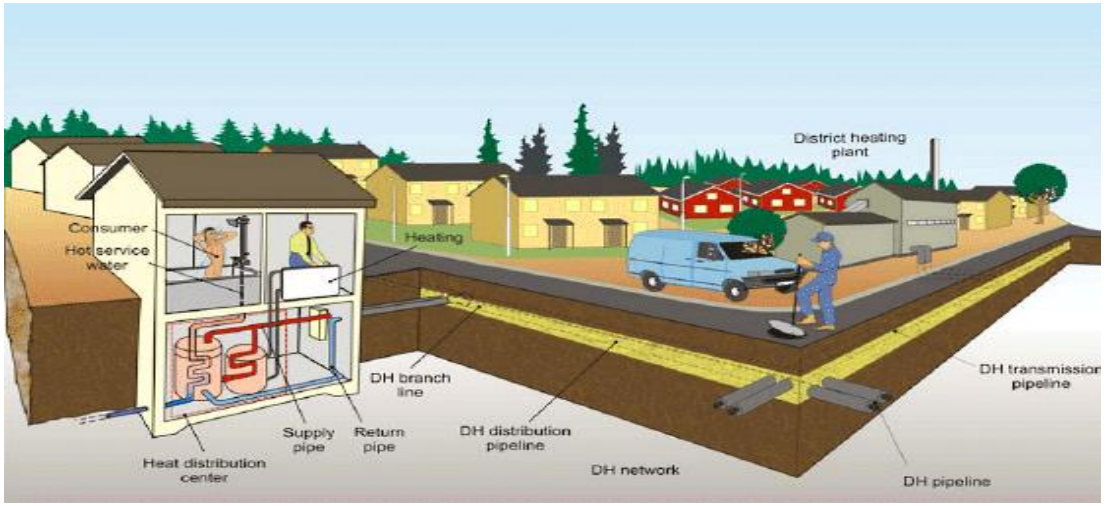


Natural gas is the dominant fuel

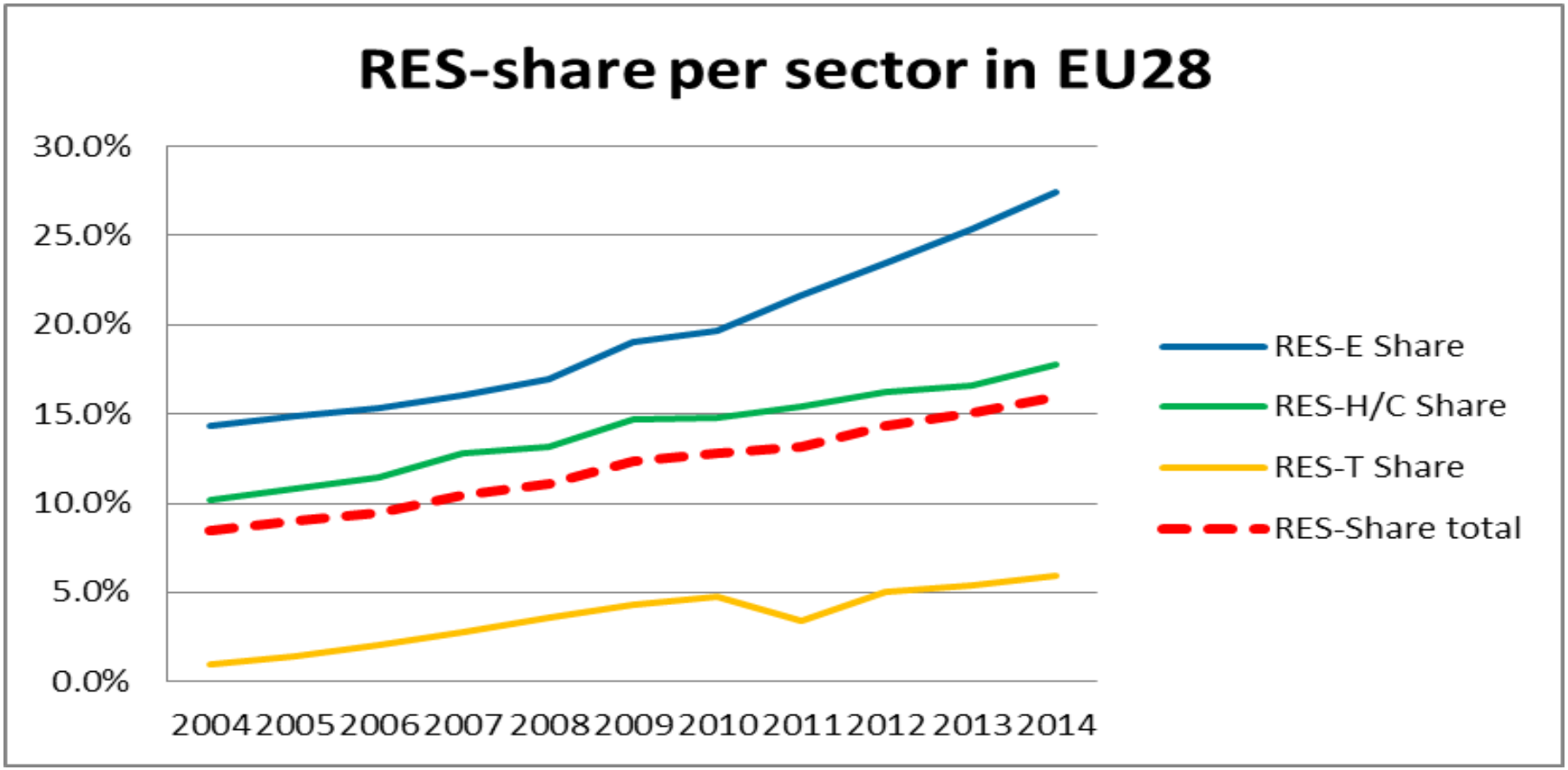
Used inefficiently in buildings … also in industry



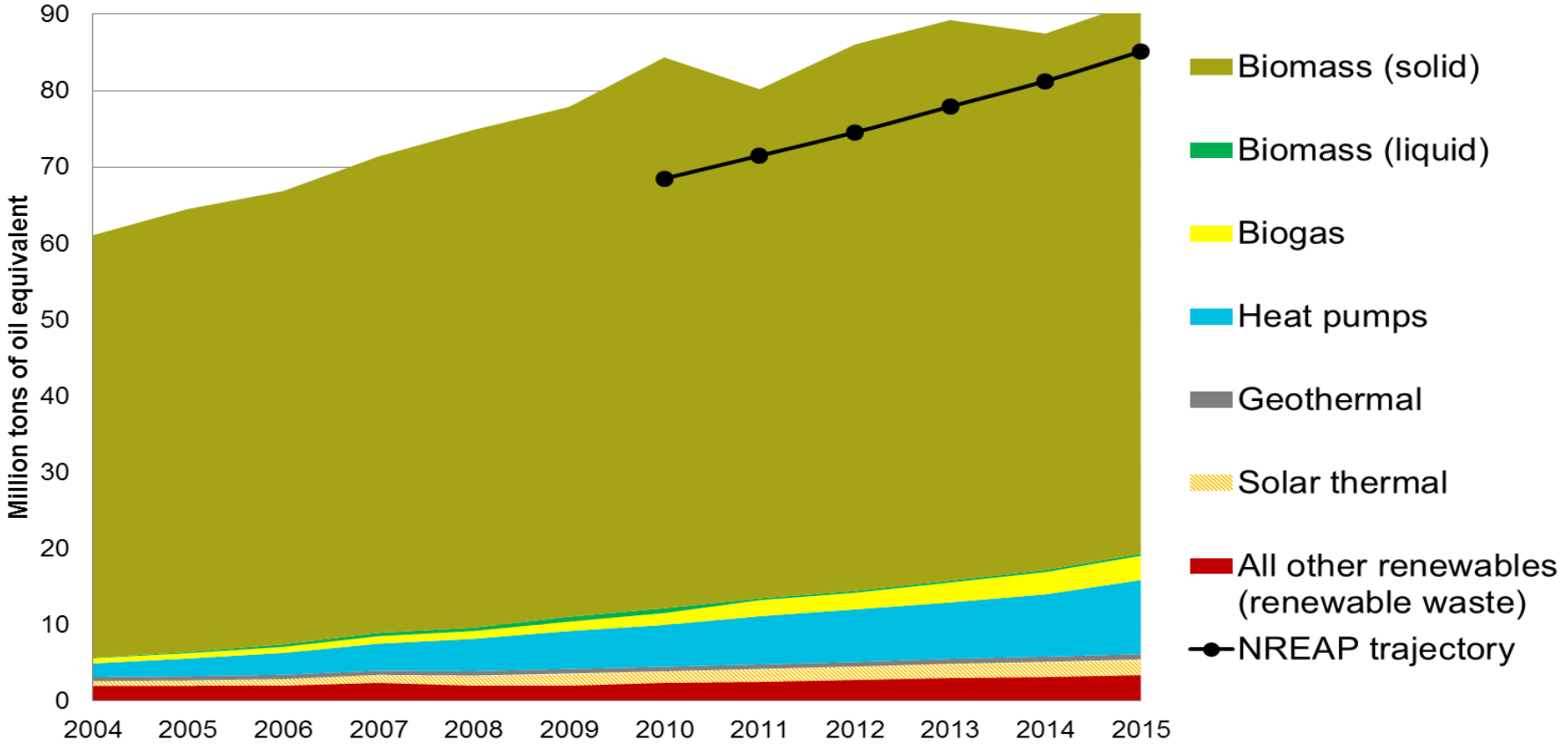
Produced in heating appliances (≈90%) and in district systems (≈10%) … many of which are old and inefficient …



STATE OF PLAY of RES - PROGRESS BY SECTORS

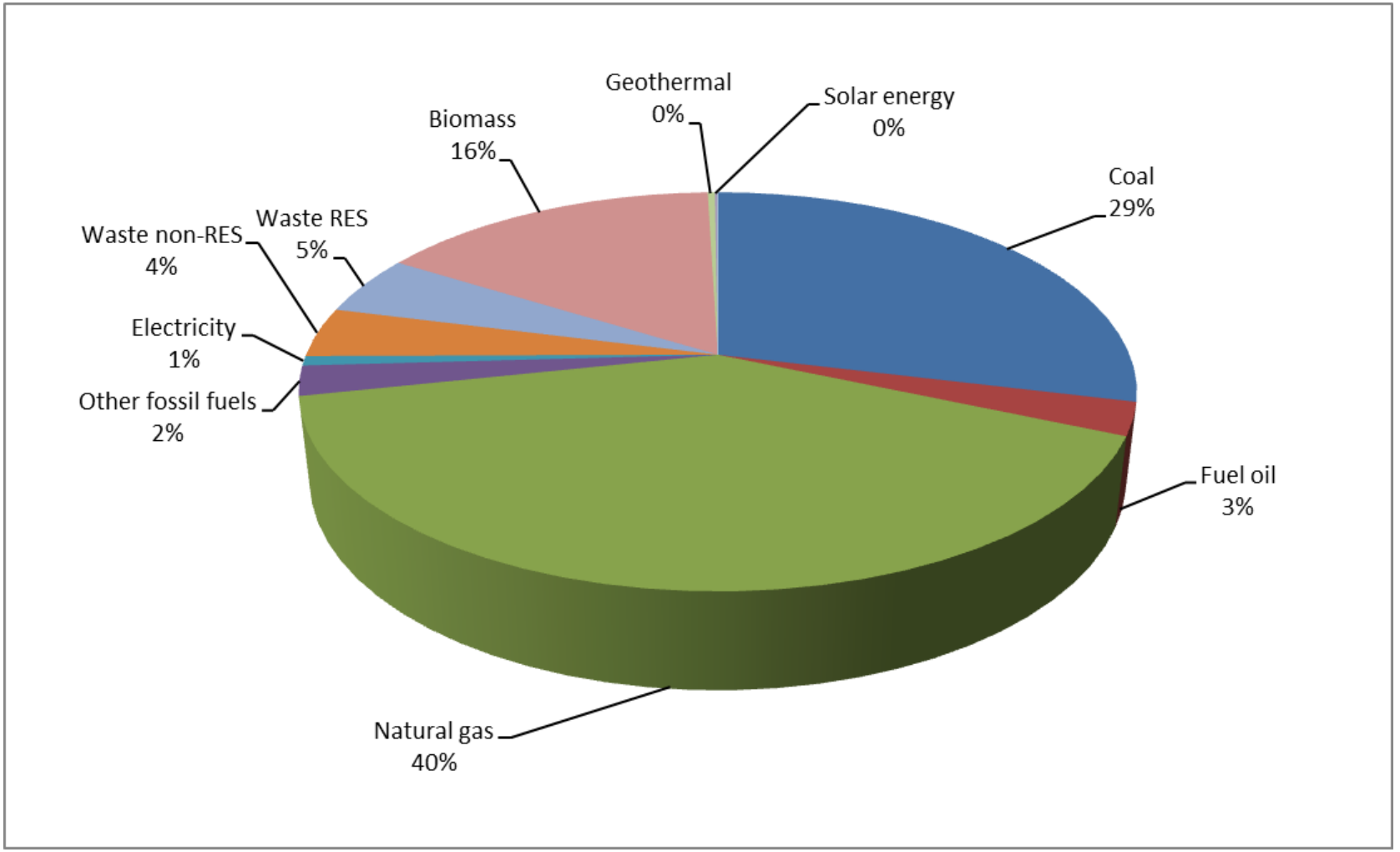


Source: EUROSTAT Shares 2014



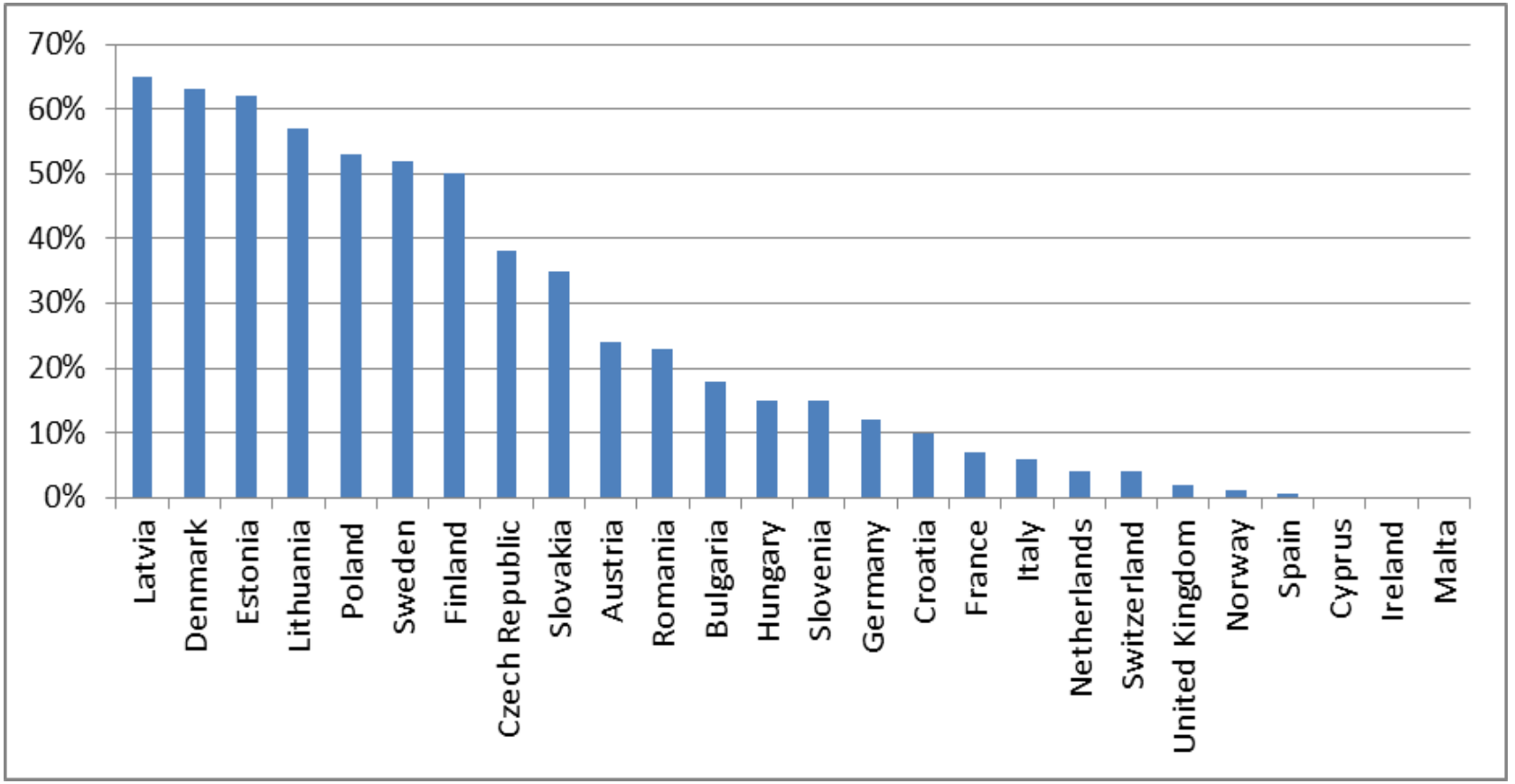
EU-28 renewable heating and cooling production by source
source: EUROSTAT, Öko-Institut

District Heat Primary Supply Sources in EU28 2012 (606 TWh)



Source: Commission services using Fraunhofer and alia, Heating and cooling data mapping … ENER/C2/2014/641

Percentage of the population served by district heating (2013)



Source: Commission services using data supplied by Euroheat and Power

Key factors (1)

- **Buildings: in focus because they are the largest energy users with high unused potentials for energy efficiency and renewable energy**
- **To achieve our decarbonisation objectives, buildings must be decarbonized.**
- **Building renovation: a key opportunity to reduce energy needs and replace old heating systems with efficient and renewable ones**
- **Cooling: is growing and mostly electric and inefficient**

Key factors (2)

- **Industry: still has potentials and can do a lot more for energy efficiency and renewable energy**
- **Utilise better waste heat and waste cold; there are potentials**
- **Link heating with electricity for flexibility and to integrate more renewables in both heating and electricity**

Key factors (3)

- **District heating and district cooling can be a tool for energy efficiency, renewable energy and flexibility**
- **Combined generation of heat and power remains one of the best ways to improve generation efficiency, help renewables and link heating with electricity for flexibility**
- **Thermal energy storage is an enabler of flexibility, renewable energy and energy efficiency**
- **Smart systems (building automation and control, heating appliances and networks) are enablers of energy efficiency, active consumers, demand response**

Key factors (4)

- **Comprehensive approach to energy efficiency and renewable energy to reduce the energy needs of buildings, speed up the replacement of obsolete fossil fuel boilers with efficient renewable heating and increasing the deployment of renewable energy in district heating and CHP;**
- **Supporting local authorities in preparing strategies for the promotion of renewable heating and cooling**
- **Support for innovation**
- **Supporting business case and financing**

Generic Barriers

- **Information, knowledge, expertise,**
- **Trained professionals**
- **Business models and case**
- **Regulatory frameworks**
- **Financing: high up-front investment costs (high CAPEX, low OPEX)**
- **Administrative capacity for integrated approach to strategies, policies and energy planning**
- **Split incentives**
- **Data and statistics**

Key elements for Heating & Cooling

- **Energy Efficiency** ➔ Energy efficiency 1st
- **Renewable Energy** ➔#1 in Renewables
- **Flexibility** ➔ sector coupling with electricity systems
  - Intelligent H&C
  - Storage
- **Consumer focus**
  - ➔ Renewable self-consumption
  - ➔ Renewable energy communities
- **Innovation, R&D**
- **RES & low-carbon gaseous & liquids fuels ➔ sector coupling (emerging)**

Clean Energy Package: 2030

Innovative

Inter-connected

Enabling Framework

Energy Union Governance

Inclusive

Socially fair

Energy Efficiency

32.5%

Renewables

32%

Electricity Market Design

Regulation and Directive on internal electricity market; Regulation on risk-preparedness, ACER regulation

Safe for all

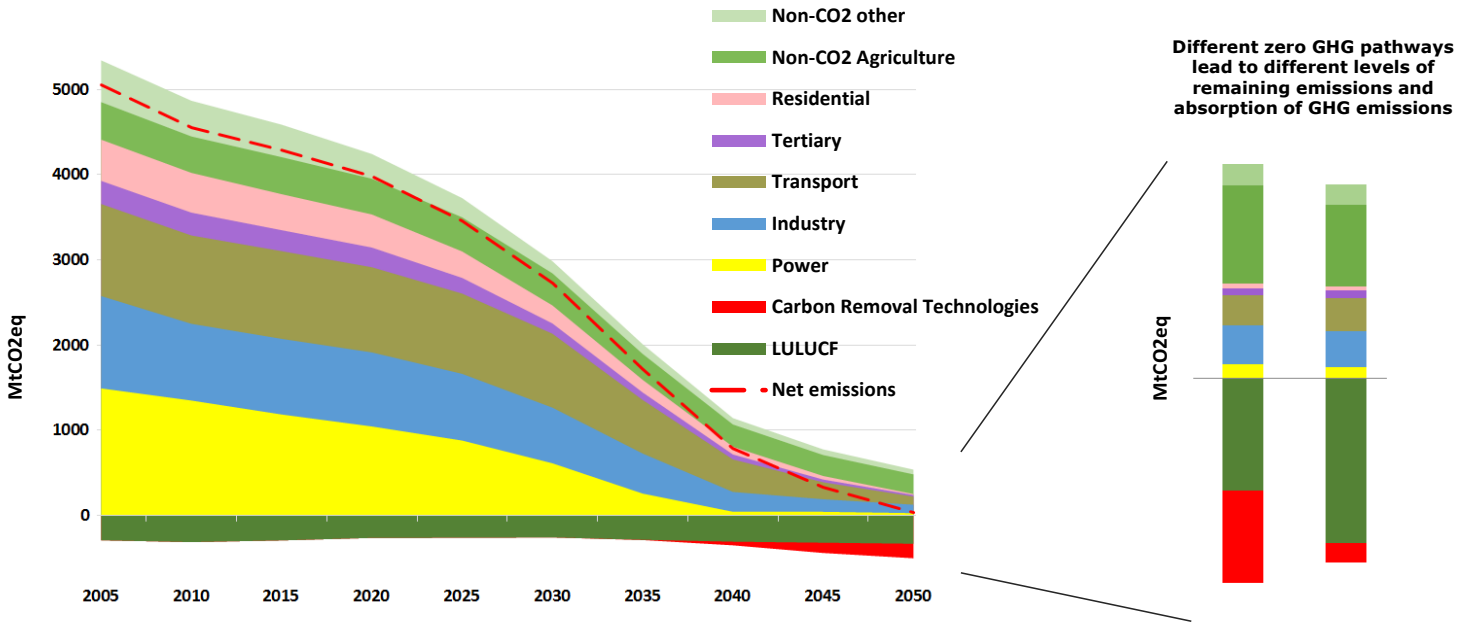
Digital

Investment-friendly

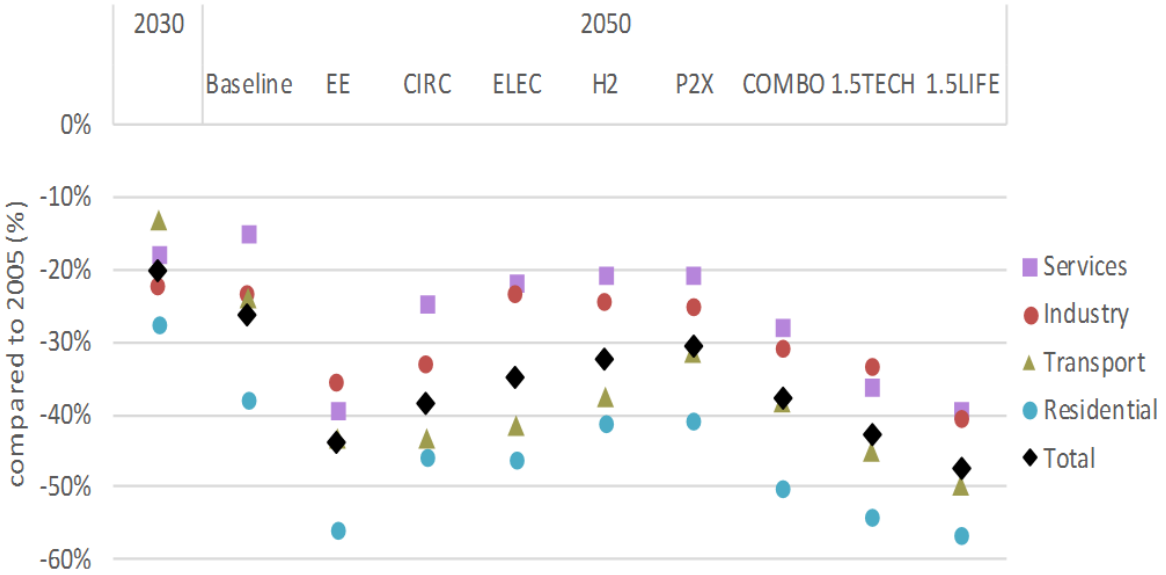
European Commission

+ 2050 Perspective: Long Term Strategy

- EU leads in clean energy transition and GHG emissions reduction. Ambitious 2030 targets. 60% reductions in 2050 with current policies – not in line with the Paris Agreement.
- Radical transformations necessary: central role of energy system, buildings, transport, industry, agriculture.
- There are a number of pathways for achieving a climate neutral EU, challenging but feasible from a technological, economic, environmental and social perspective.

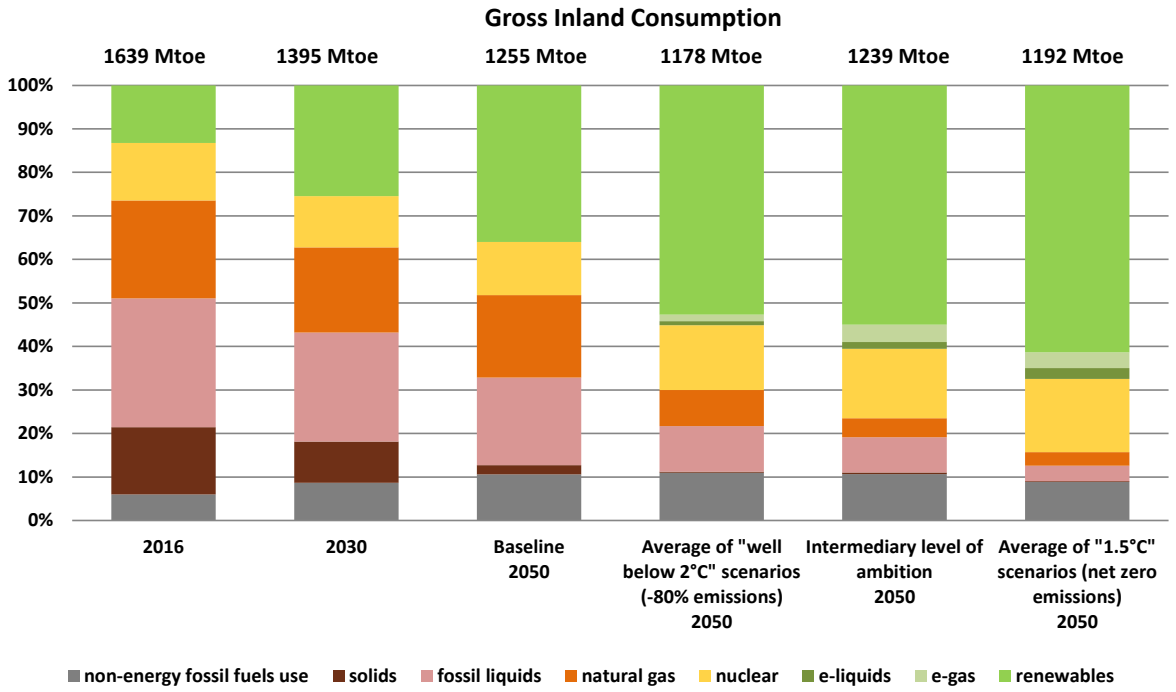


Changes in final energy consumption (2050 compared to 2005)



Deployment of renewables

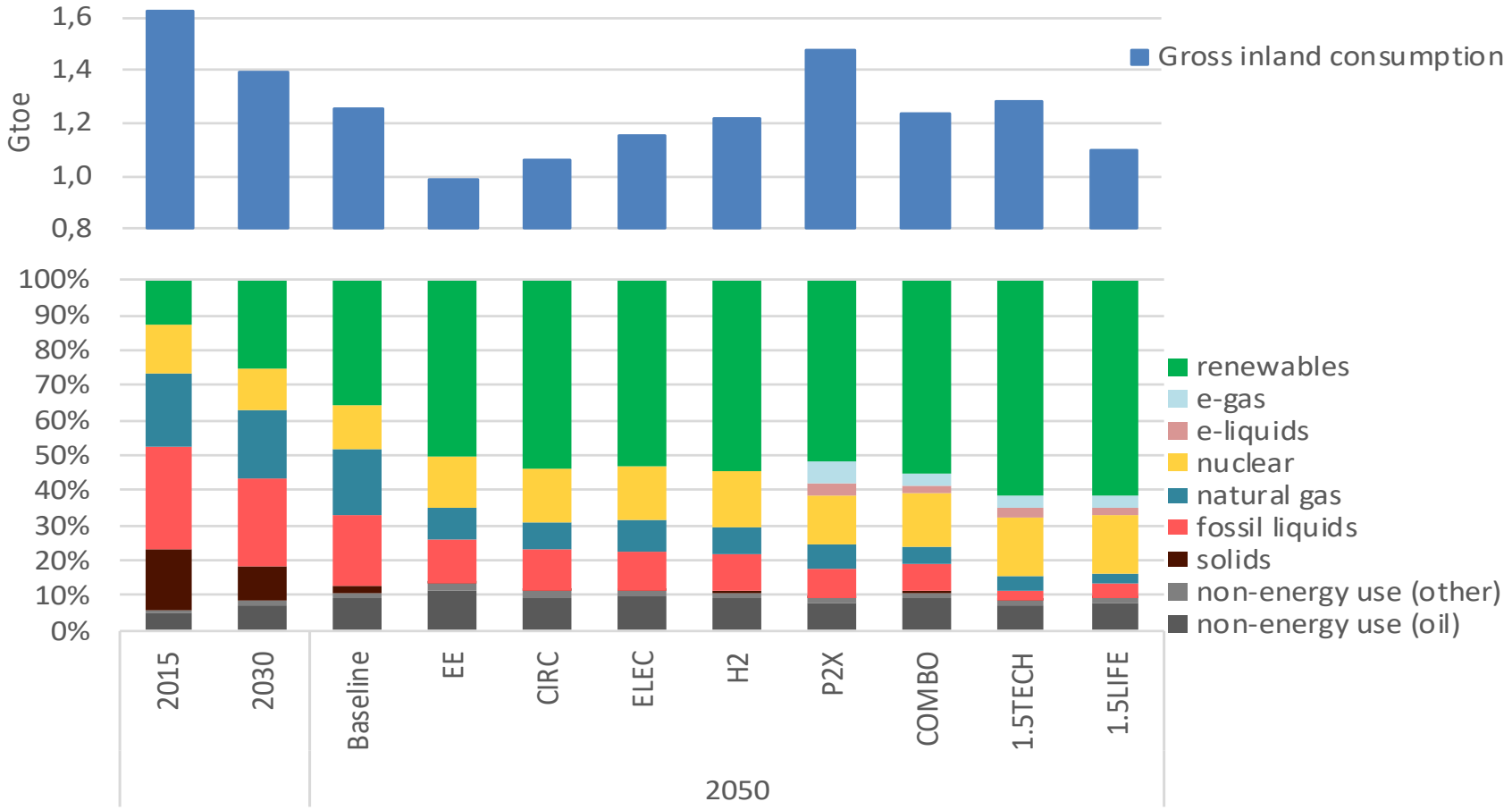
Primary energy in 2050 largely coming from renewable sources



European Commission

- > 60% of all energy produced from renewables
- > 80% of electricity produced by renewables
- energy efficiency (final energy) key in all scenarios
- EUR 2-3 trillion of energy import savings (2030-2050)

2050



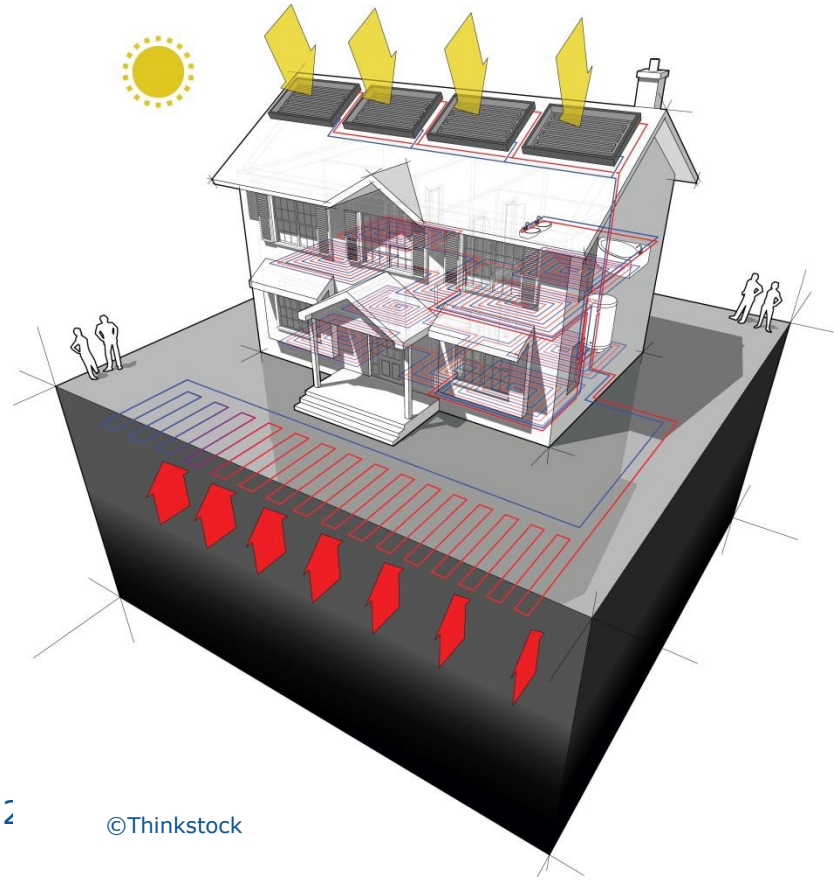
New Renewable Energy Directive

2018/2001/EU

Regional Policy

ADDRESSING THE UNTAPPED POTENTIAL OF HEATING & COOLING

- Target to increase renewables in heating and cooling by 1.3 percent point per year (2020-2030):



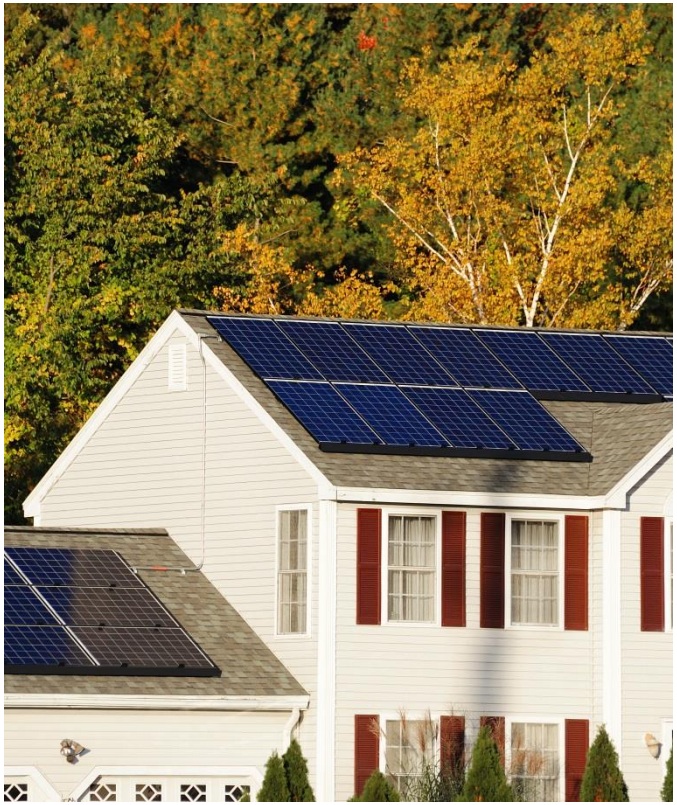
- Flexibilities: high RES MS, high natural gas or cooling shares, dispersed settlement structures, 40% allowance for waste heat/cold

- Illustrative list of measures leaving flexibility for Member States and accessibility

<u>District heating and cooling</u>

- 1 ppt increase in renewables and waste heat/cold
- Third Party Access for suppliers of renewables and waste heat/cold
- Right to disconnect from inefficient networks for consumers
- Right to be informed for consumers on renewables share and energy performance

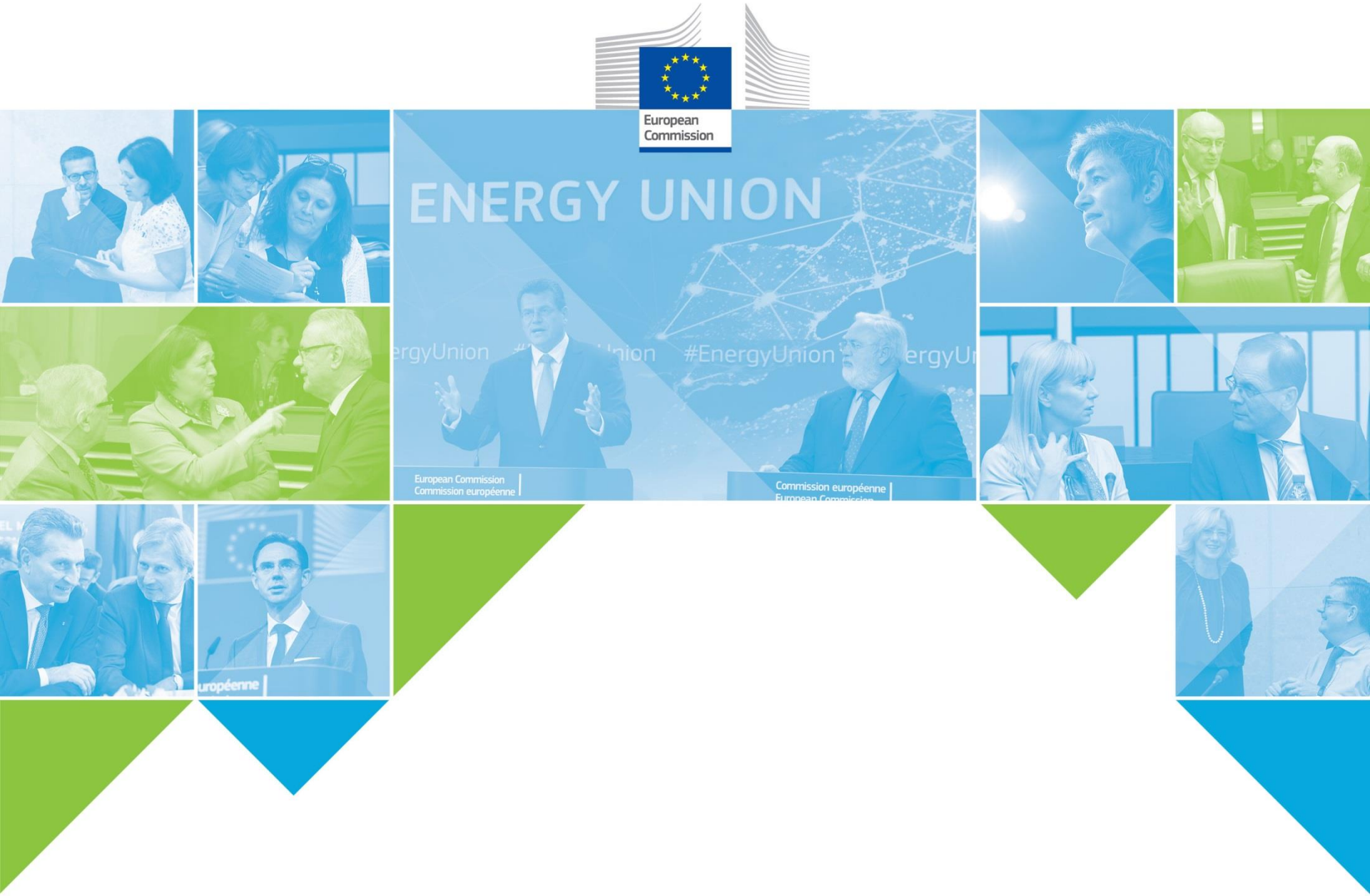
TOWARDS A DECENTRALISED ENERGY SYSTEM



- REDII will **empower citizens and local actors** to be active in the energy transition
- Objectives:
  - mobilise private capital
  - increase local acceptance
- For the first time, a definition and a new legal regime for **renewable self-consumption** and for **renewable energy communities**
- Facilitate uptake of long-term power purchase agreements (PPAs)

BIOENERGY SUSTAINABILITY

- Reinforced EU bioenergy sustainability criteria:
  - *Enhanced synergies with the circular economy (e.g. waste hierarchy principles)*
  - *EU criteria extended to cover* biomass for heat/cooling and power
  - *New risk-based criteria for forest biomass (ensuring sustainable harvesting & proper LULUCF accounting)*
  - *Higher* GHG emission saving *targets*
- New energy efficiency criteria for large-scale biopower
- Enhanced EU and national verification of the implementation of the sustainability criteria
- Full EU harmonization for biofuels, partial harmonization for biomass in heat & power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