Renewable and Efficient Heating and Cooling

GOLDSTEIN
European Commission, 27 November 2018

Opportunity framework

- **Political guidance**
- **Trends**
- **Need for action**

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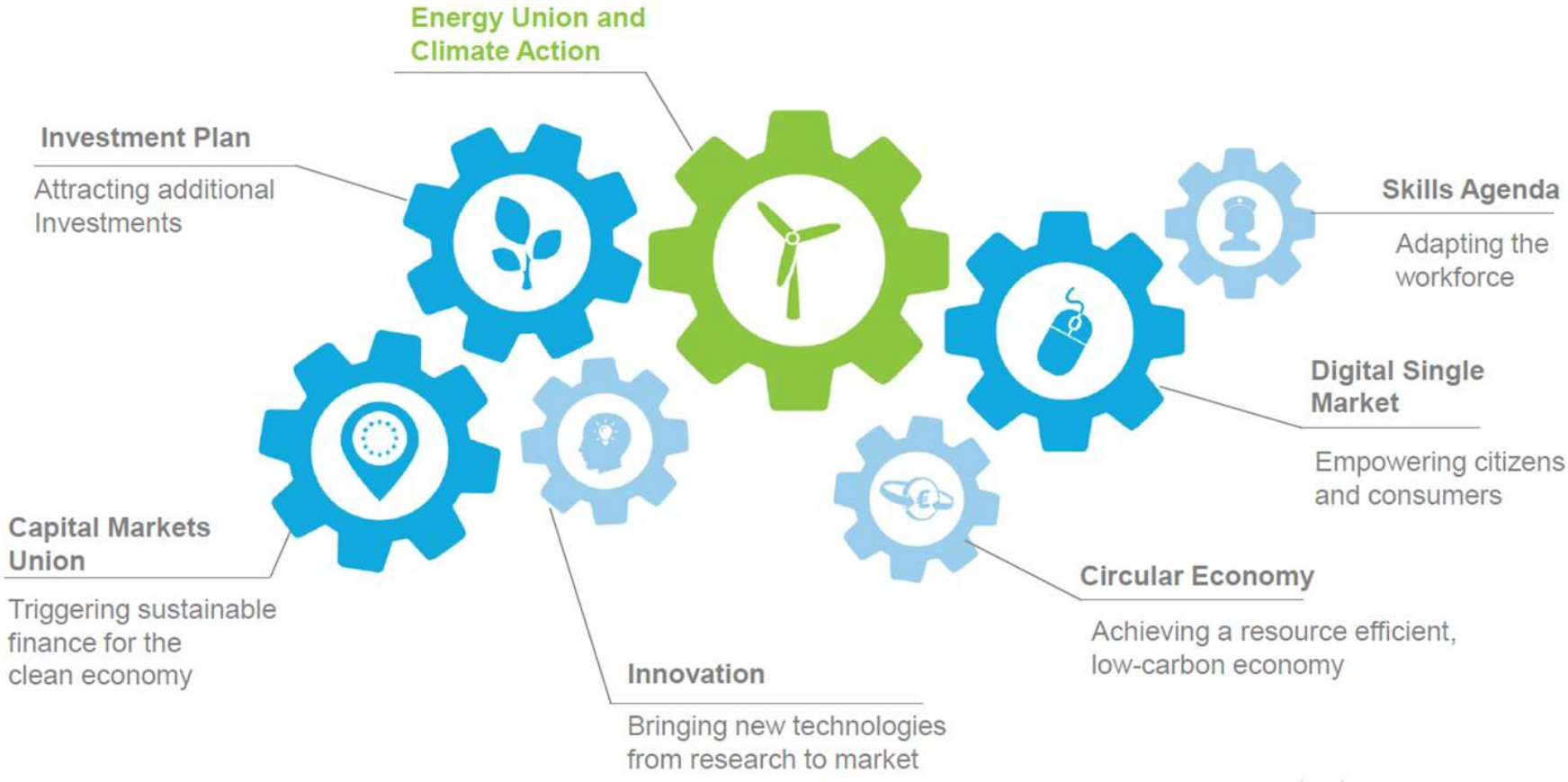
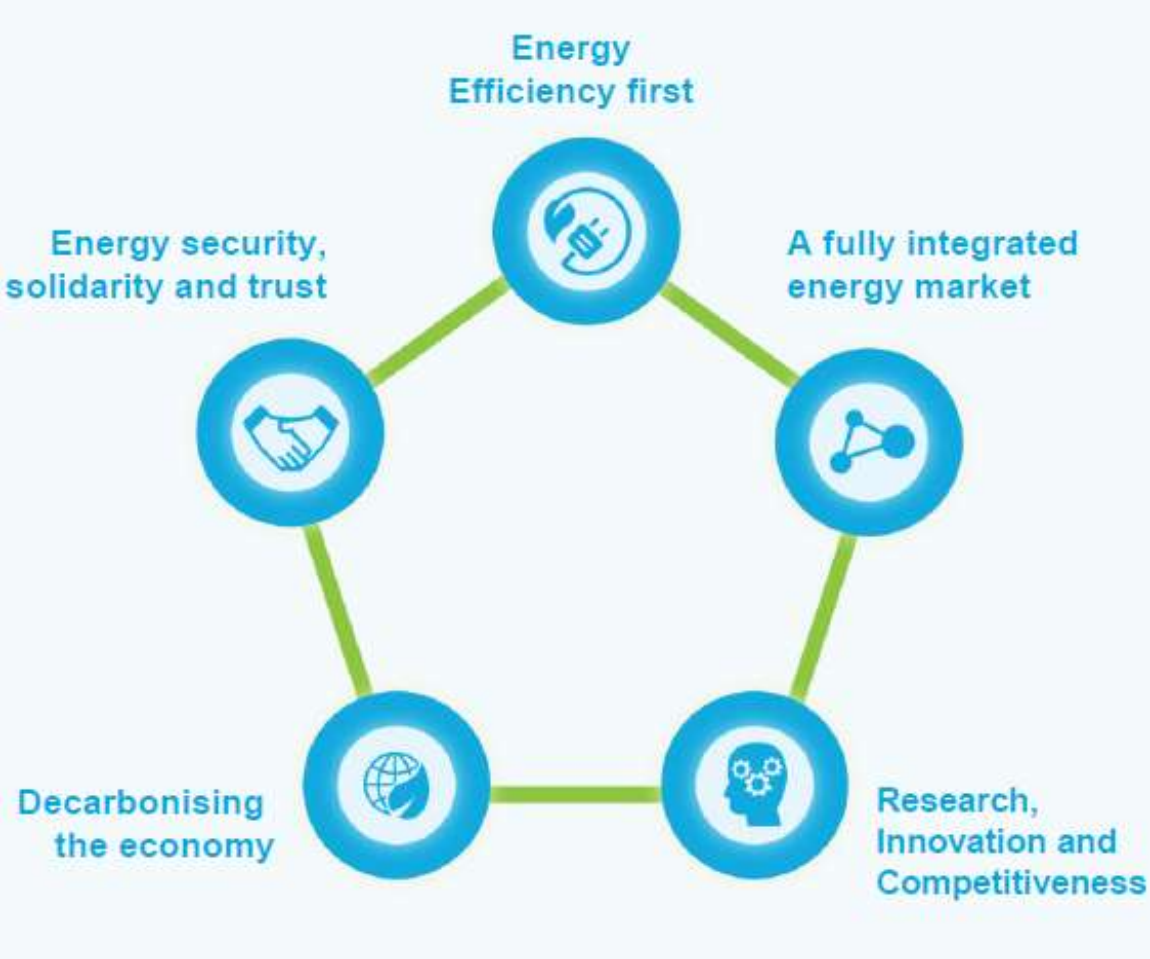
The role of the energy and climate policy



5 DIMENSIONS OF THE ENERGY UNION



Targets 2020-2030

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Energy union and renewables

√ ***Energy union governance*** *regulation*

- MSs notify their integrated **energy and climate plans** (*NECP*, containing national GHG, RE, EE and x-border connection pledges for 2021-2030)
- Then **report on progress** from 2021 bi-annually (excl. Annex IX biomass & annual EE progress, oil reserves annually)
- **Intermediary evaluations** in 2022, 2025 ning 2027
- By 01.01.2021 COM will set up a **RE fund**

√ ***Renewable energy*** *directive*

- **Binding EU target 32%** RE share (~320 GW additional generation capacities; target may be revised upwards in 2023)
- MS pledges assessed against a formula in the governance reg., Annex II
- Indicative EU trajectory: 20% RE baseline in 2020 and shoud grow by 18% - 2022, 43% - 2025 ja 65% - 2027

Energy union and efficiency

√ *Amended **energy efficiency** directive*

- **EU target of 32.5%** (target may be revised upwards in 2023)
- National pledges shall take into account, that in 2030 the EU **primary energy consumption** must remain below 1273 Mtoe and/or the **final energy consumption** must remain below 956 Mtoe
- MSs should reach at least **0.8% annual savings** (*EEOS* or alternative policy measures), unless in 2027 EC decides it is not nexessary
- **Ambition is 11% higher than in 2014-2020**

√ ***Energy performance for buildings** directive*

- **Entered into force** 9 June 2018
- MSs draw up long-term renovati onstrategies to decarbonise their building stock by 2050 and set measurable progress indicators for **2030, 2040 and 2050**
- **Support for electromobility** – at least 1 recharging point installed in a new/reconstructed building with more than 10 parking places
- **More technical checks for H/C systems**
- **EC shall put in place a *Smart Readiness Indicator***

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SETTING THE SCENE

- **Falling costs of renewables worldwide**
- **EU first mover** – today, 173 countries have renewable energy targets
- **How to retain leadership?**
  - Explore new areas for competitiveness: integrated systems, offshore, small-scale and decentralized solutions

- **Domestic benefits:**
  - ~ 1.4 million jobs
  - Reduced import dependency

- **Looking ahead:**
  - Increase efforts across sectors
  - Integrate high RES shares
  - Decentralize + empower consumers

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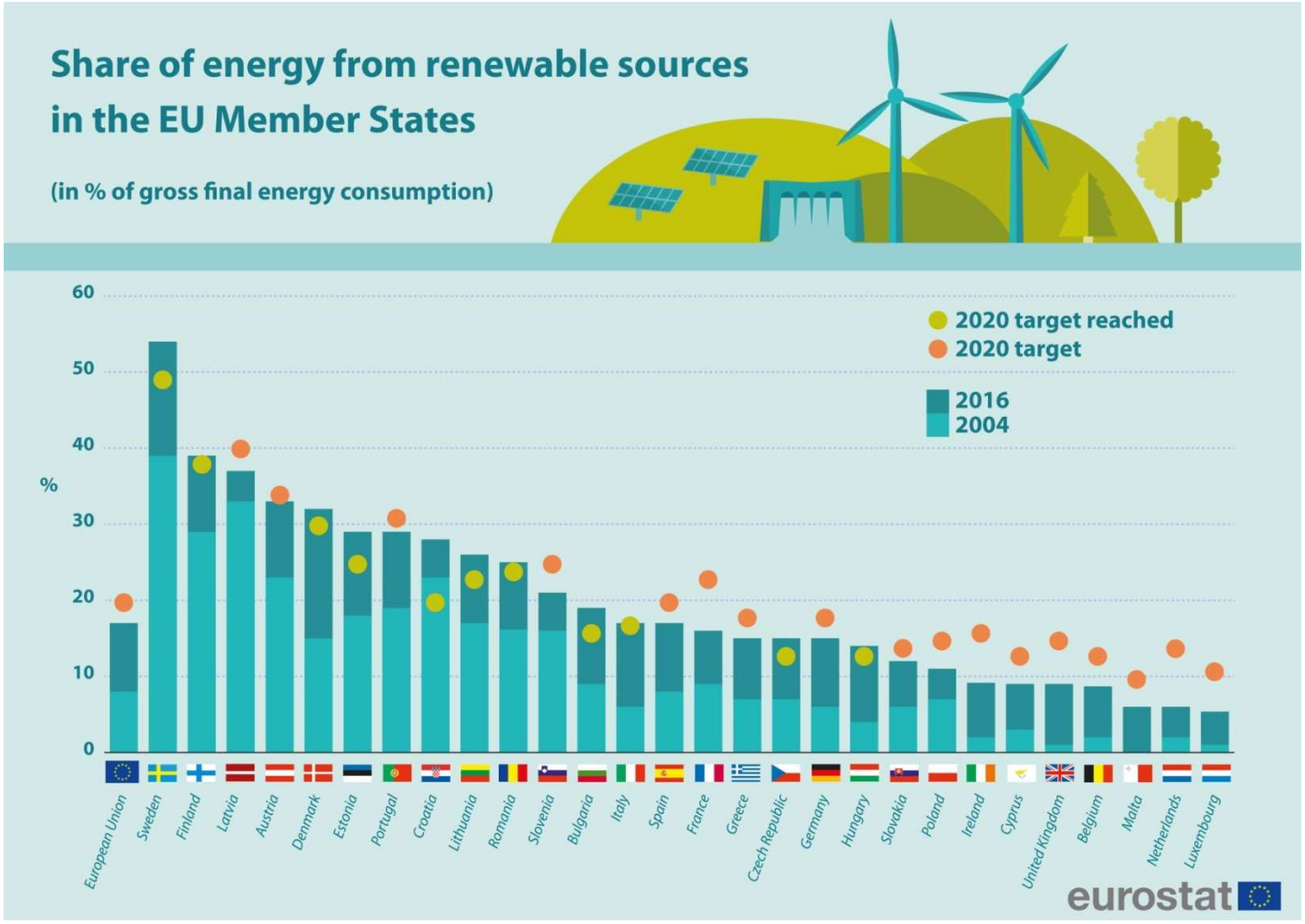
STATE OF PLAY - PROGRESS TOWARDS NATIONAL 2020 TARGETS



Source: EUROSTAT Shares 2016

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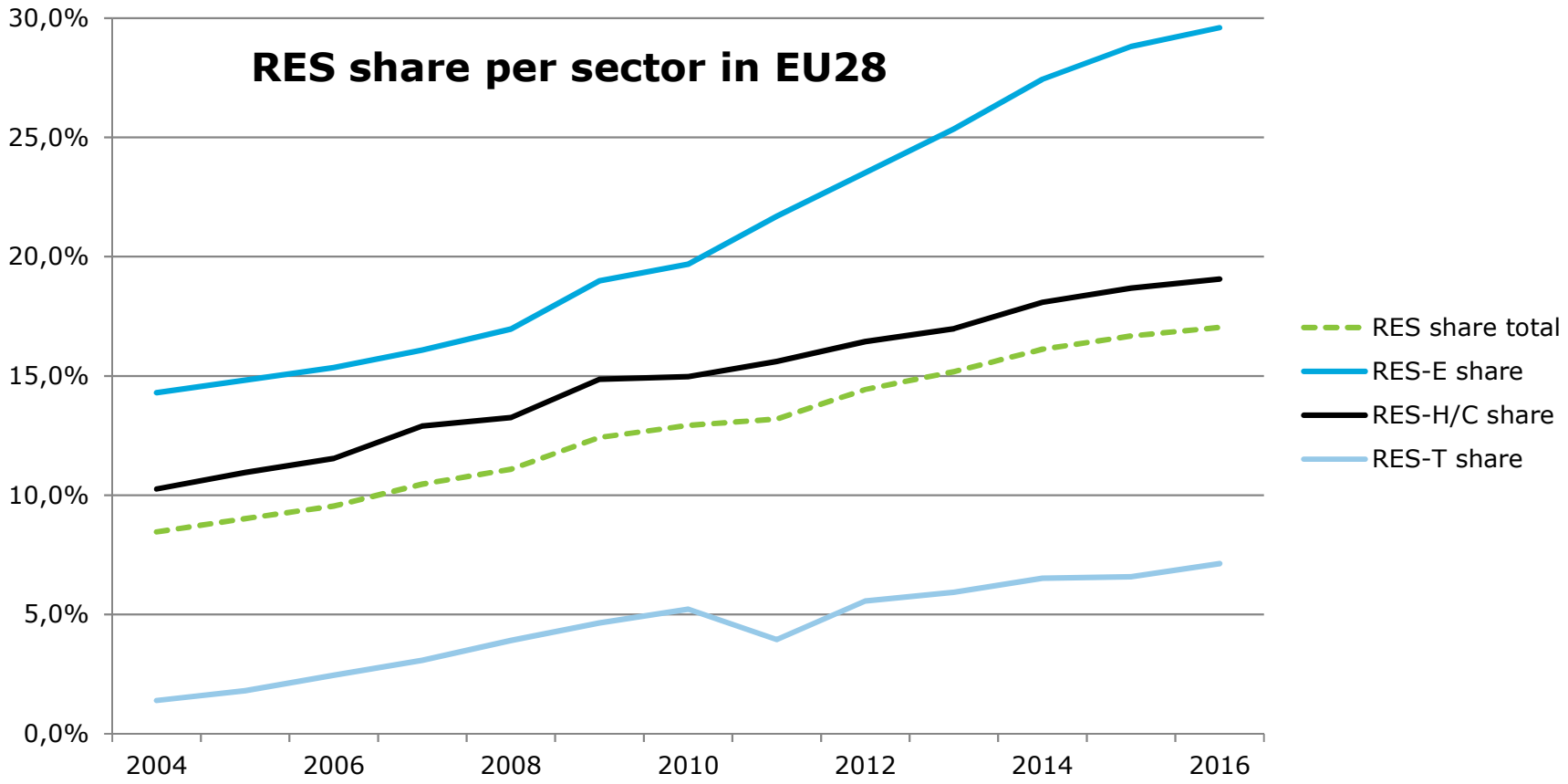
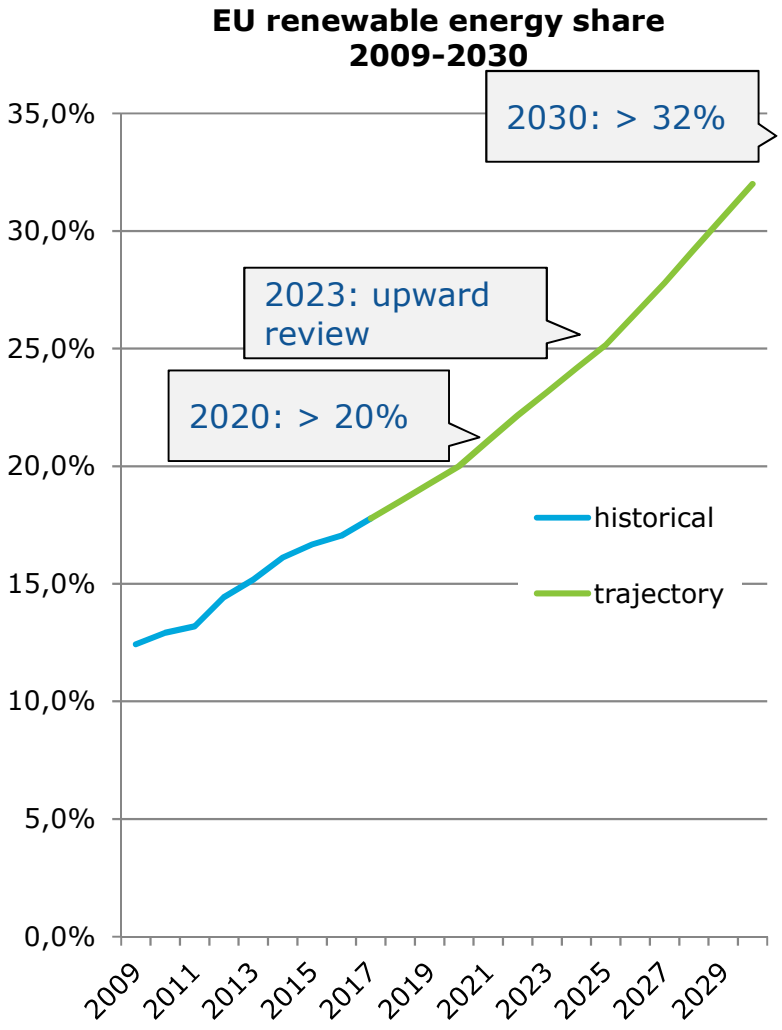
STATE OF PLAY - PROGRESS BY SECTORS



Source: EUROSTAT Shares 2016

A NEW EUROPEAN APPROACH TO RENEWABLES



- **Binding EU-target of at least 32%** (upward review in 2023)
- Underpinned by **national contributions**
- **Formula** to assess contributions (in case of ambition gap)
- **Collective responsibility** of target achievement
- **Joint measures** (EU financial platform)

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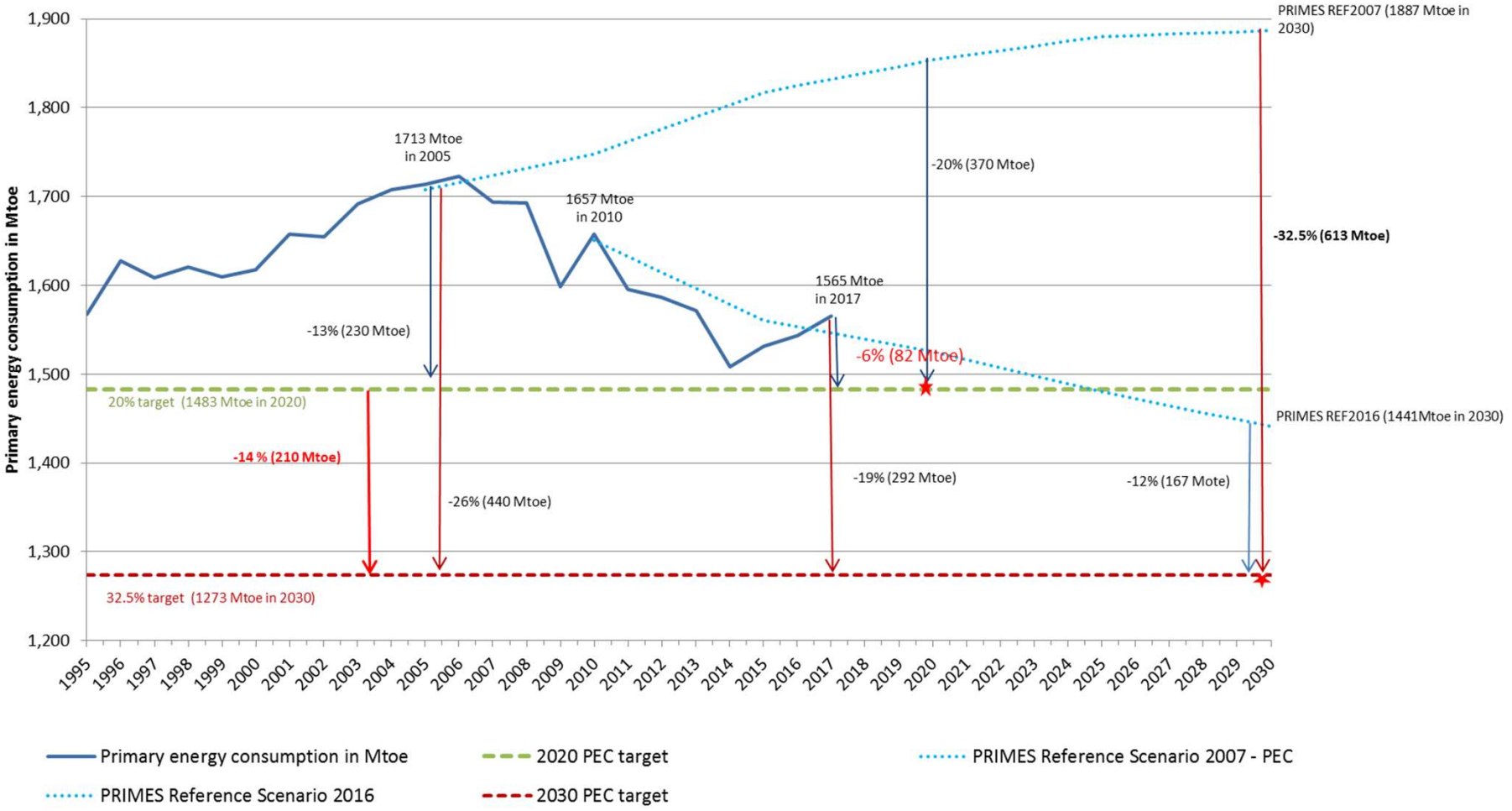
EU 32.5% Primary Energy Consumption Target



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Energy Efficiency targets for 2030 (Art. 1 & 3)

Headline target of at least 32.5% to be achieved collectively by the EU in 2030

- Nature of the target is not specified.
- The target is calculated relative to the projections from the PRIMES REF2007 for 2030 (same methodology as before).
- The target translates into **1273 Mtoe** of primary energy consumption **(PEC) and/or 965 Mtoe** of final energy consumption **(FEC)**. This means PEC should be reduced by 26% and FEC by 20% compared to 2005 levels.
- The Commission is required to assess the target and to **propose revising it upwards by 2023** in case of substantial cost reductions resulting from economic or technological developments, or where needed to meet the Union's international commitments for decarbonisation.

National energy efficiency contributions (Governance) – ambition and progress

In case of an ambition gap the Commission may issue recommendations to Member States whose contributions it deems insufficient and shall take EU measures if the contributions are insufficient in the final plans

The Commission shall assess the progress made at Union level and made by each Member States by 31 October 2021 and every two years thereafter

- *In case of **collective delivery gap** the Commission may issue recommendations to all MS and if appropriate take EU measures.*
- *Additional assessment in 2022, 2025 and 2027 → if progress towards collectively achieving the Union's target is insufficient the Commission shall propose EU measures.*
- *If progress made by Member States towards meeting their targets is insufficient (**individual delivery gap**), the Commission shall issue recommendations to MS concerned*

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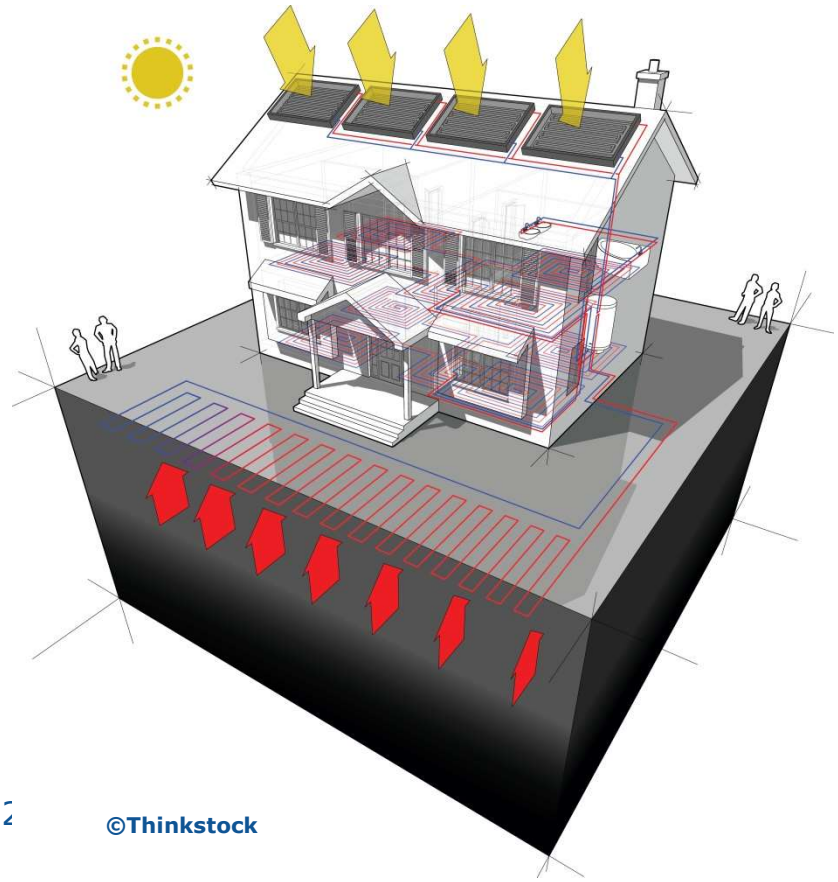
ADDRESSING THE UNTAPPED POTENTIAL OF HEATING & COOLING

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



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- **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

ENSURING 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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- **What next?**

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IT
becomes the Fourth Dimension

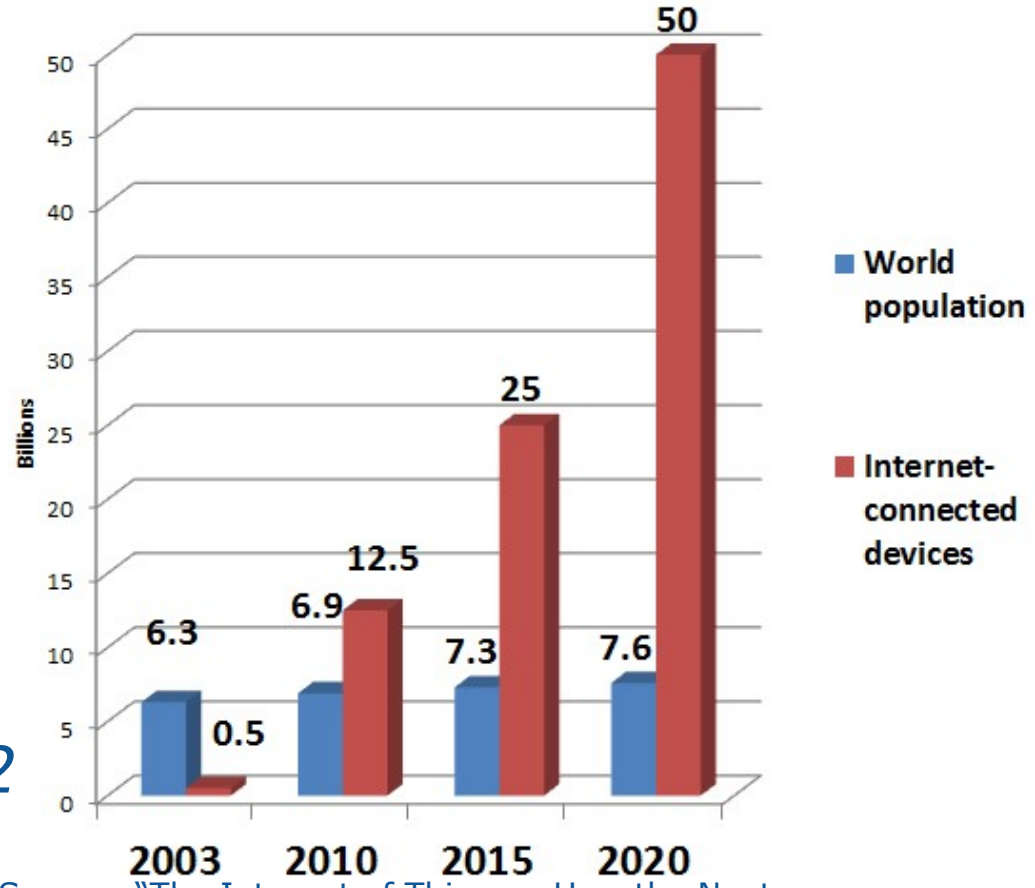
The Internet of Things (IoT)

IoT = device + sensors, controllers, actuators and the Internet

Meteoric rise driven by

- *Miniaturisation*
- *Affordability*
- *De-wireization*

Economic impact: $2.7-6.2 trillion annually by 2025 (McKinsey)



Source: "The Internet of Things – How the Next Evolution of the Internet is Changing Everything", Dave Evans, Cisco, April 2011, p3

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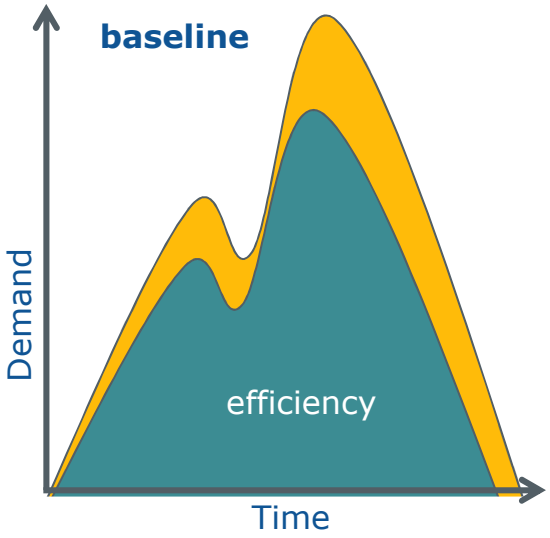
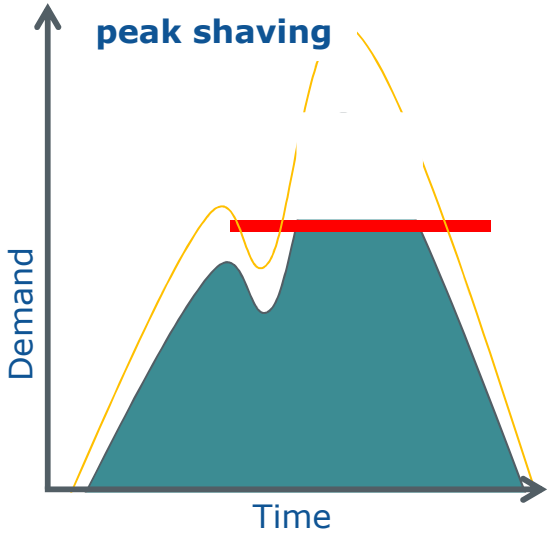
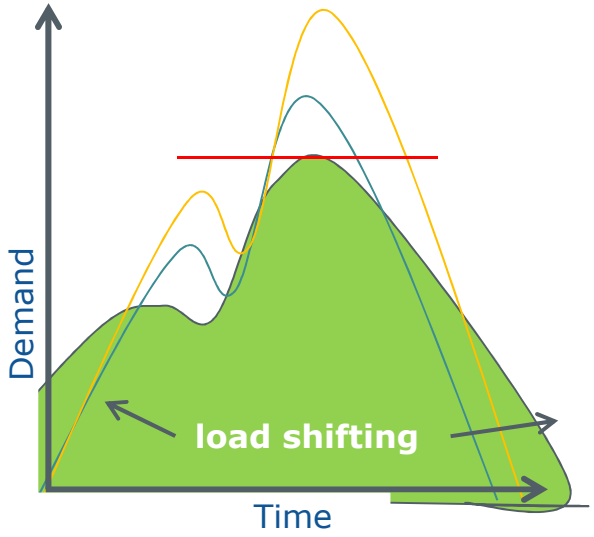
Smart grids

Probes
Storage
Demand / Supply
BigData (historical usage, weather forecast…)







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Thank you

KARLIS.GOLDSTEIN @EC.EUROPA.EU