Regulatory framework of the Energy Management (EM) and Monitoring, Reporting and Verification (MRV) in the buildings sector

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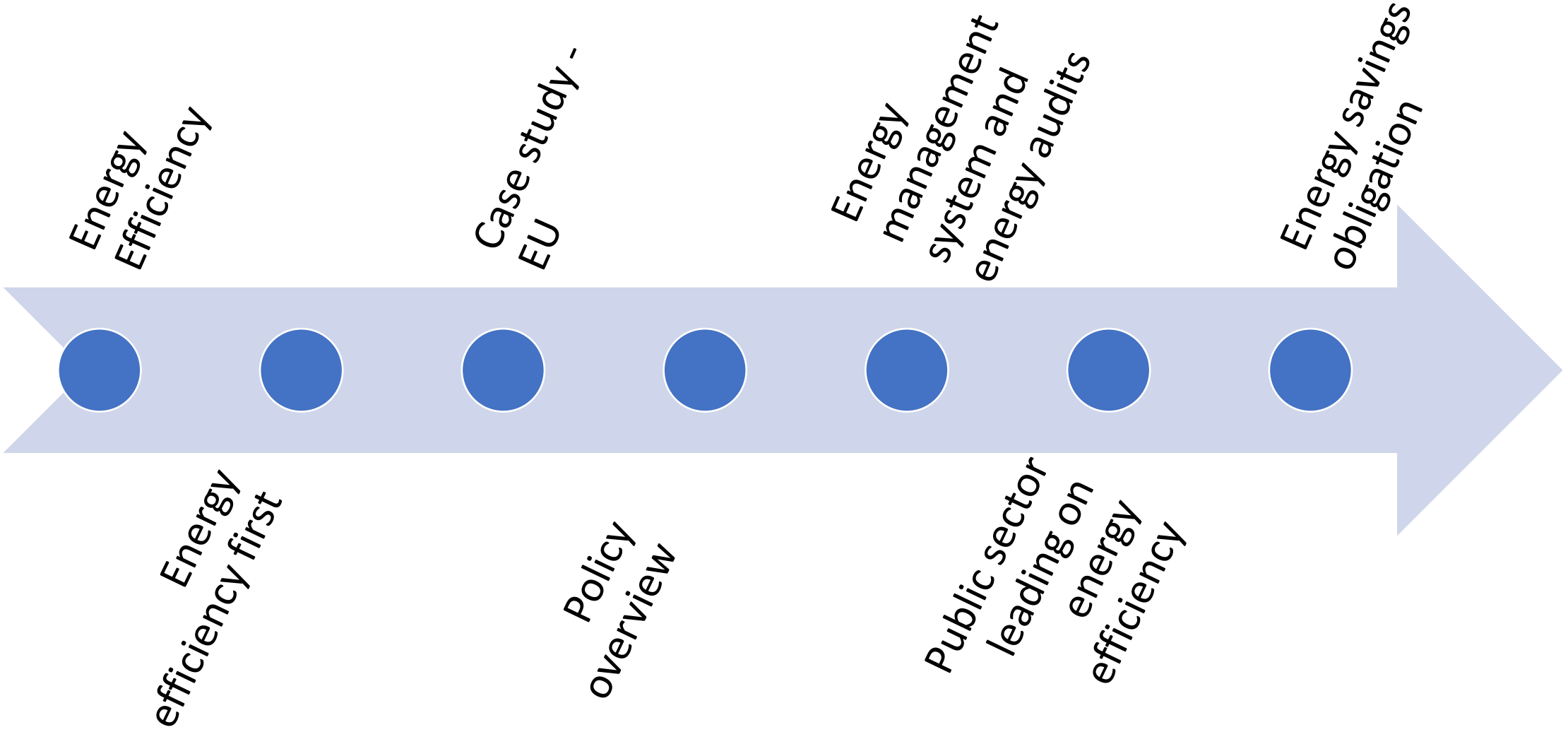


Energy efficiency

- Energy efficiency is one of the key pillars for meeting climate objectives – on a par with increasing the use of renewable energy.
- Often energy efficiency is underestimated in existing planning and investment programmes
- Cost-efficient energy efficiency measures should be taken into account when shaping energy policies and making relevant investment decisions
- Improving energy efficiency ensures that:
  - Only the energy really needed is produced
  - Investments in stranded assets are avoided
  - Demand for energy is reduced and managed in a cost-effective way

Energy efficiency

- Energy supply as well as demand needs to be more efficient, in particular by means of cost-effective end-use energy savings demand response initiatives and more efficient conversion, transmission and distribution of energy, whilst still achieving the objectives of the decisions taken.
- National policies should encourage actions in energy efficiency and energy demand management on an equal footing with alternative actions to respond to a specific need or objective, in particular when energy supply or energy infrastructure investments are at stake – whether public or private.
- Proper assessment of energy efficient solutions in cost-benefit analysis and impact assessments, taking a wider societal perspective. This requires proper cost-benefit analysis methodologies, which are adapted to different contexts and sectors.

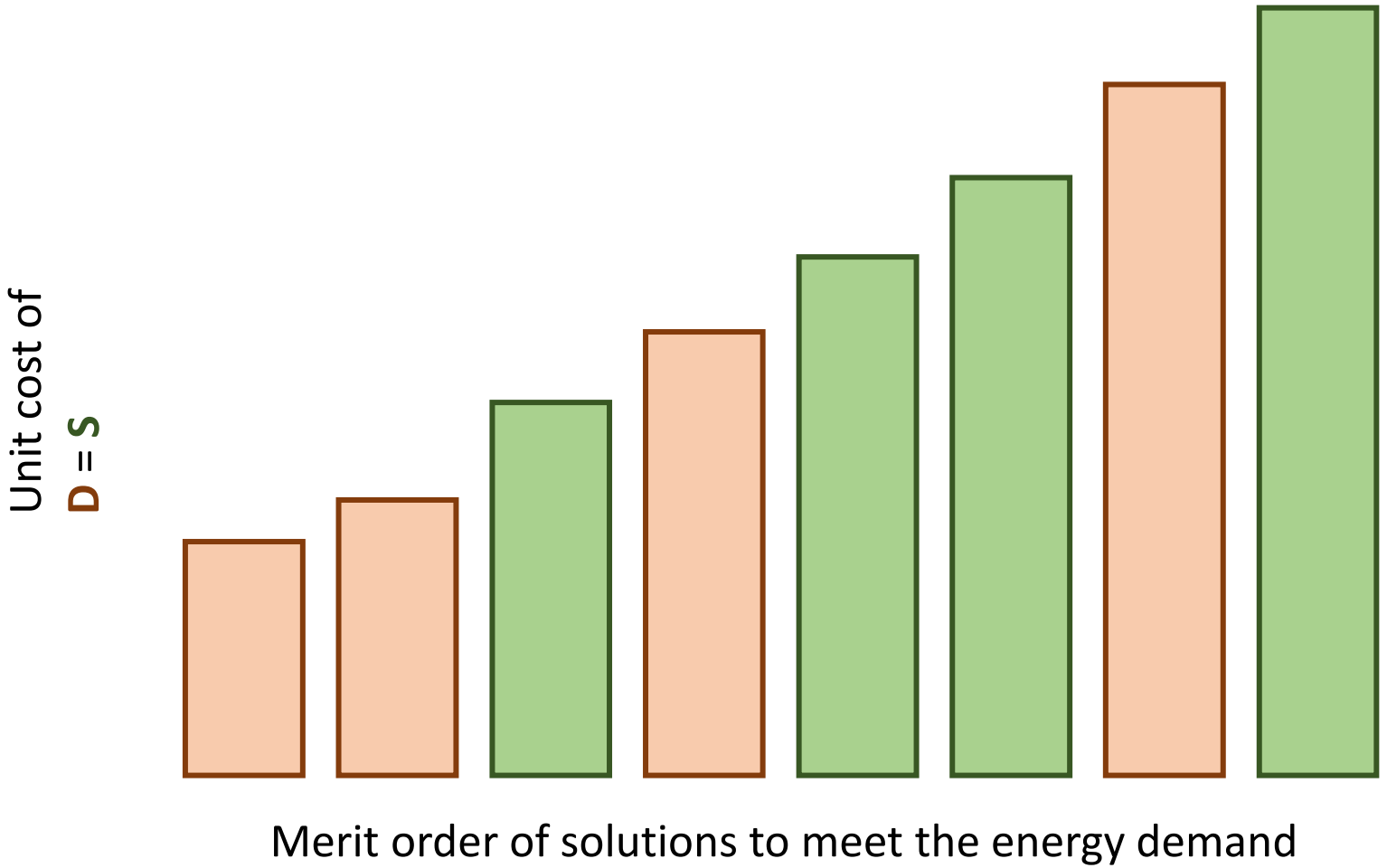
Why EE first?

Supply (S) = Demand (D)

- Not only in aggregate (hourly, monthly, annually sums) but also coincidentally (especially for the power sector!)
- S aligns with the given D (demand is forecasted)
- S means fuel availability (generation capacity) AND infrastructure to deliver it (networks)

- D is not fixed:
  - Consumers have certain willingness to pay for energy and might be happy to limit/shift their demand
  - If they are given the chance (if they have some incentive to do that)

A (yet theoretical) common-sense



Note: order and magnitude are purely illustrative

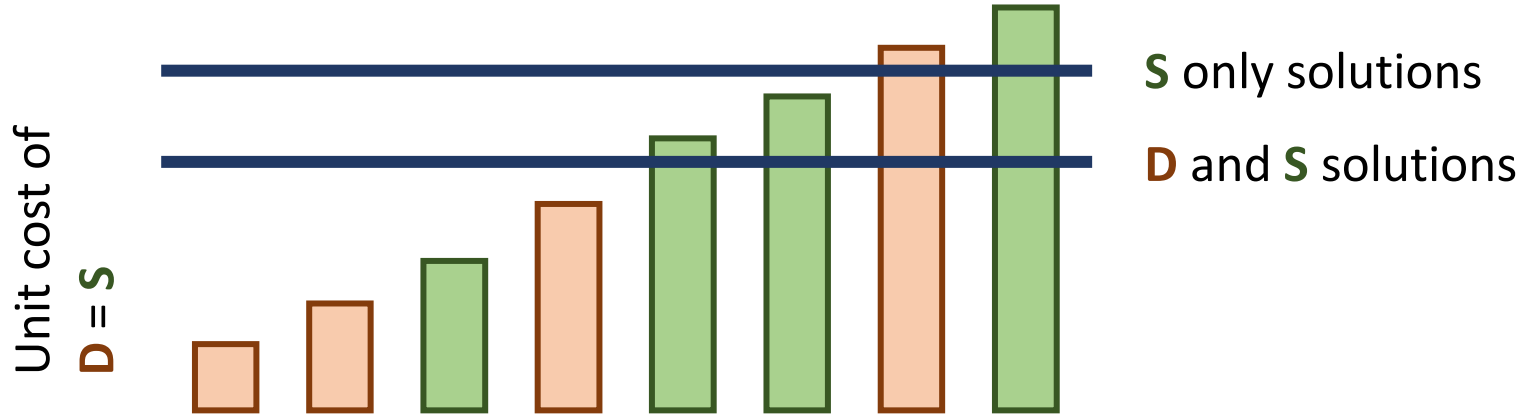
demand-side resources

supply-side resources

Barriers of equal treatment

- Mental: demand side options are new, demand might not be reliable
- Structural: consumers have smaller units, multitude of actors, various technologies with different capabilities
- Regulatory: limited access to markets (most regulation is designed for the supply options), biased incentives

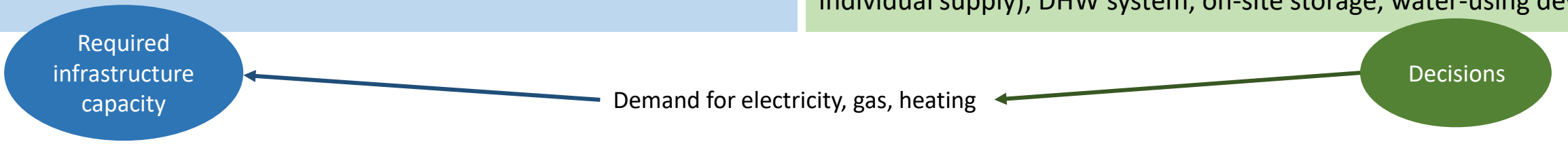
- Result:



EE1st

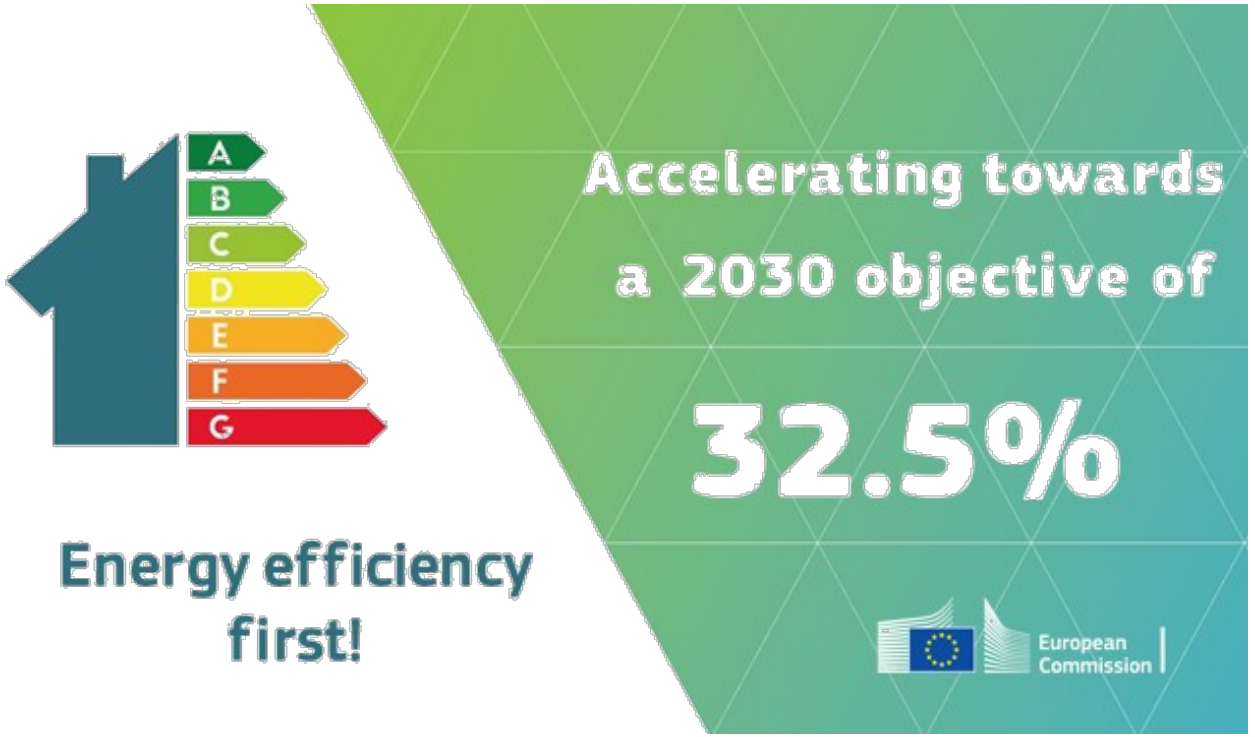
- Efficiency First (EE1st) is not just another name for energy efficiency
  - Efficiency first gives priority to demand-side resources whenever they are mor cost effective from a **societal perspective** than investments in energy infrastructure in meeting policy objectives. It is a decision principle that is **applied systematically** at any level to energy-related investment planning and enabled by an **"equal opportunity" policy design**.

In front of the meter / energy systems outside the buildings	Behind the meter / on-site or within the buildings
Power systems: Generation capacity (per technology), networks and storage **Gas systems**: sourcing, storage and networks **District heating/cooling systems**: fuel, generation, network and storage	**Power**: appliances (energy performance and DR readiness), smart meter, distributed/on-site generation and on-site storage **Heat/cooling**: building design, building envelope upgrade, heat fuel choice (including networked or individual supply), heating and ventilation systems, on-site storage, meters and regulation devices **Domestic hot water**: type of energy source (including networked or individual supply), DHW system, on-site storage, water-using devices

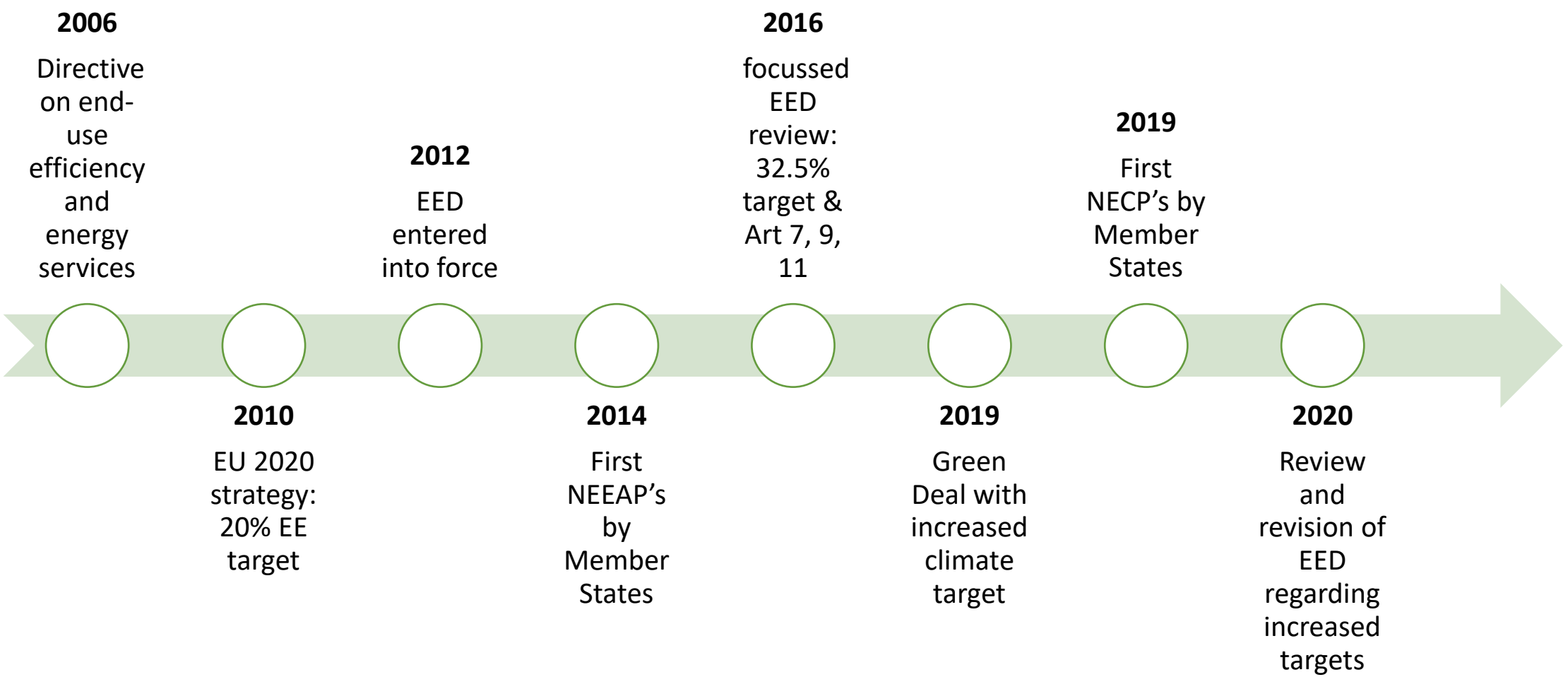


Case study – European Union

- Energy Efficiency = one of the five dimensions of the Energy Union
  - Putting **energy efficiency first** is a key objective of the EU, as energy savings are the easiest way of saving money for consumers and to reduce greenhouse gas emissions. The EU has set binding targets of reducing our energy consumption through improvements in energy efficiency by 2030 by at least 32.5%, relative to a "business as usual" scenario.



Case study – European Union



Case study – European Union (EE1st)

- European Commission's communication (COM(2016) 860 final) about "The Clean Energy for All Europeans" package:
  - "**Energy efficiency is the most universally available source of energy**. Putting energy efficiency first reflects the fact that the cheapest and cleanest source of energy is the energy that does not need to be produced or used. This means making sure that energy efficiency is taken into account throughout the energy system, i.e. actively managing demand so as to optimise energy consumption, reduce costs for consumers and import dependency, while treating investment in energy efficiency infrastructure as a cost-effective pathway towards a low carbon and circular economy."

Case study – European Union (EE1st)

- Governance Regulation EU(2018)1999
  - The Energy Union should cover five dimensions: energy security; the internal energy market; **energy efficiency**; decarbonisation; and research, innovation and competitiveness.
  - Article 2 *Definitions* (18): "**energy efficiency first**" means taking utmost account in energy planning, and in policy and investment decisions, of alternative cost efficient energy efficiency measures to make energy demand and energy supply more efficient, in particular by means of cost effective end use energy savings, demand response initiatives and more efficient conversion, transmission and distribution of energy, whilst still achieving the objectives of those decisions.
  - Article 3 *Integrated national energy and climate plans* (3): With regard to their **integrated national energy and climate plans**, Member States shall take into account the interlinkages between the five dimensions of the Energy Union, **in particular the energy efficiency first principle**.

Case study – European Union (EE1st)

- European Commission's communication (COM(2019)640) about "The European Green Deal"
  - Further decarbonising the energy system is critical to reach climate objectives in 2030 and 2050. The production and use of energy across economic sectors account for more than 75% of the EU's greenhouse gas emissions. **Energy efficiency must be prioritised**. A power sector must be developed that is based largely on renewable sources, complemented by the rapid phasing out of coal and decarbonising gas. At the same time, the EU's energy supply needs to be secure and affordable for consumers and businesses. For this to happen, it is essential to ensure that the European energy market is fully integrated, interconnected and digitalised, while respecting technological neutrality.
  - To address the twin challenge of energy efficiency and affordability, the EU and **the Member States should engage in a 'renovation wave' of public and private buildings**. While increasing renovation rates is a challenge, renovation lowers energy bills, and can reduce **energy poverty**. It can also boost the construction sector and is an opportunity to support SMEs and local jobs.

Case study – European Union (EE1st)

- Proposal for a DIRECTIVE of the European Parliament and off the Council on ENERGY EFFICIENCY (RECAST) (COM(2021)558 final)
  - New Article 3 *Energy efficiency first principle* providing legal basis for application of the principle in the Fit for 55:
    - **Obligation** for Member States to ensure that energy efficiency solutions are considered in **energy system** and **non-energy sectors** planning, policy and investment decisions
    - **Verification** of application in regulated areas
    - **Requirements** for Member States to develop and ensure application of appropriate cost-benefit assessment methodology
    - **Monitoring** by a dedicated entity
    - **Reporting** as part of the Governance Regulation

Supported with a dedicated recommendation and guidelines on application of the principle

Case study – European Union (EE1st)

- Recommendations:
  - Ensure that the EE1st is applied – in proportional way and taking the context into account
  - Treat the principle as an overarching policy in conjunction with other objectives
  - Take a system approach and wider societal perspective for CBA
  - Verify the application of the principle – identify relevant entities
  - Provide the framework conditions to enable application of the principle
  - Provide information, guidance and assistance to relevant parties (methodology for CBA)
  - Collect data and monitor energy efficiency development

Follow and promote the guidelines

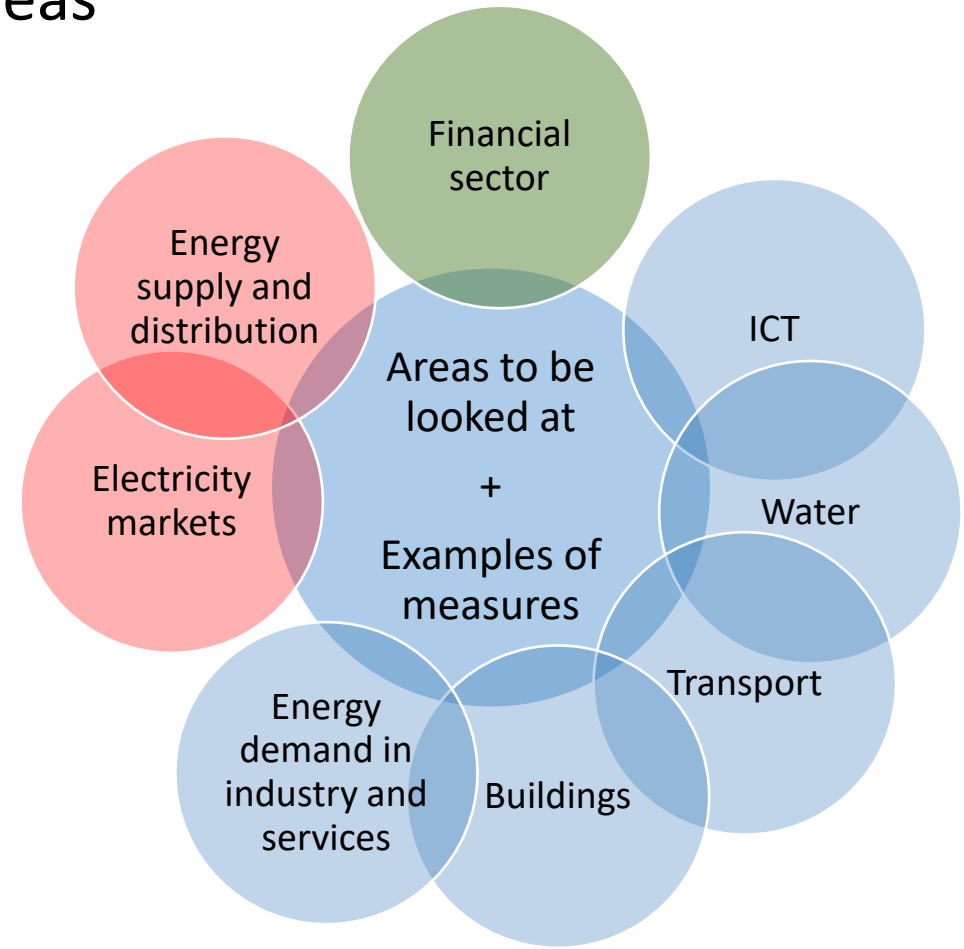
Case study – European Union (EE1st)

- Guidelines
  - Primary audience: public sector – inception and preparation phase
  - Based on a study: Analysis to support the implementation of the Energy Efficiency First principle in decision-making

Case study – European Union (EE1st)

- Checking, approval and monitoring
  - Defining supervisory competences – dedicated entity
    - Check the Impact assessment (IA) and Cost Benefit Analysis (CBA)
  - Take into account energy efficiency criteria in existing approval procedures
  - Monitoring
    - Indicators – energy savings, investment costs and contribution to energy consumption targets
    - Reporting – setting a right threshold
  - Evaluation – take into account behavioural and rebound effects

- Implementation in sectors and policy areas



Case study – European Union (EE1st)

- Proposal for a DIRECTIVE of the European Parliament and off the Council on ENERGY EFFICIENCY (RECAST) (COM(2021)558 final)
  - **Article 11** *Energy management system and energy audits* shifts the criterion for energy audits and **energy management systems** from the type of enterprises to the levels of energy consumption and requires a sign-off of the audit recommendations by the management of the company. It also **requires energy management systems for the largest energy using companies**, which are likely to be more effective at ensuring that more cost saving energy saving investments will be made while probably having a lower overall cost burden on the company. Finally, the Article **introduces an obligation for the monitoring of the energy performance of data centres** with the aim of later establishing a set of "data centre sustainability indicators".

Case study – European Union (EE1st)

- Proposal for a DIRECTIVE of the European Parliament and off the Council on ENERGY EFFICIENCY (RECAST) (COM(2021)558 final)
  - **ANNEX VI** – Minimum criteria for energy audits including those carried out as part of Energy Management Systems
  - The energy audits referred to in Article 11 shall be based on the following criteria:
    - Be based on up-to-date, measured, traceable operational data on energy consumption and for electricity) load profiles
    - Comprise a detailed review of the energy consumption profile of buildings or groups of buildings, industrial operations or installation, including transportation
    - Identify energy efficiency measures to decrease energy consumption
    - Identify the potential for cost-effective use or production of renewable energy
    - Build, whenever possible, on life-cycle cost analysis (LCCA) instead of Simple Payback Periods (SPP) in order to take account of long-term savings, residual values of long-term investments and discount rates
    - Be proportionate, and sufficiently representative to permit the drawing of a reliable picture of overall energy performance and the reliable identification of the most significant opportunities for improvement

Case study – European Union (EE1st)

- In accordance with the Energy Union Strategy and the principles of better regulation, **monitoring and verification rules** for the implementation of energy efficiency obligation schemes and alternative policy measures, including the requirement to check a statistically representative sample of measures, **should be given greater prominence**.
- Thanks to the EED-specific monitoring and reporting obligations, **Member States have to report on national measures and progress on the achievement of national energy efficiency targets** and the implementation of certain measures.
- This in turn increased the awareness amongst stakeholders and citizens of the efforts taken at the national level.
- This is in particular relevant for **Articles 5 and 7** (*article 8 in the recast*), which contain specific annual reporting requirements on the energy savings achieved.

Case study – European Union (EE1st)

- **Article 5 – Public sector leading on energy efficiency** – member states shall ensure that the total final energy consumption of all public bodies combined is reduced by at least 1.7% each year, when compared to the year X-2 (with X as the year when this Directive enters into force). Member States may take into account climatic variations within the Member State when calculating their public bodies' final energy consumption.

- **Article 8 – Energy savings obligation** – Member states shall achieve cumulative end-use energy savings at least equivalent to:
  a) New savings each year from 1 January 2014 to 31 December 2020 of **1,5% of annual energy sales to final customers by volume**, averaged over the most recent three-year period prior to 1 January 2013. Sales of energy, by volume, used in transport may be excluded, in whole or in part, from that calculation.
  b) New savings each year from 1 January 2021 to 31 December 2023 of **0,8% of annual final consumption**, averaged over the most recent three-year period prior to 1 January 2019. By way of derogation from that requirement, Cyprus and Malta shall achieve new savings each year from 1 January 2021 to 31 December 2023 equivalent to 0,24% of annual final energy consumption, averaged over the most recent three-year period prior to 1 January 2019.
  c) New savings each year from 1 January 2024 to 31 December 2030 of **1,5% of annual final energy consumption**, averaged over the three-year period prior to 1 January 2020.

Q&As

Thank you for your attention!

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