Energy Efficiency First: from principles to practice

Guidelines and examples for its implementation in decision-making in the energy sector and beyond

Expert meeting, 24-02-2021

Introduction

- The approach is similar to the guidelines on implementation of specific articles of the EED e.g. Article 7 guidelines: short recommendation + annex
- Following the guidelines will not automatically mean that any legal requirements are met
- Target audience: policy makers and regulators at the European, national and local level and to some extent market entities and investors.
- The text builds on the support study and additional research projects under Horizon 2020 (ENEFIRST, sEEnergies)

Definition

- Article 2(18) of the Governance regulation

  “ ‘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;”

- Other definitions could help better conceptualise the principle (ENEFIRST)
- The idea behind is to prioritise energy efficiency

Incorporation of the principle in the EED

- Recital 2

  "Directive 2012/27/EU of the European Parliament and of the Council is an element to progress towards the Energy Union, under which energy efficiency is to be treated as an energy source in its own right. ***The energy efficiency first principle should be taken into account when setting new rules for the supply side and other policy areas.*** *The Commission should ensure that* ***energy efficiency and demand-side response can compete on equal terms with generation capacity****. Energy efficiency needs to be considered whenever* ***decisions relating to planning the energy system or to financing*** *are taken. Energy efficiency improvements need to be made whenever they are more* ***cost-effective*** *than equivalent supply-side solutions. This ought to help* ***exploit the multiple benefits of energy efficiency*** *for the Union, in particular* ***for citizens and businesses****."*

- Article 1 : "This Directive contributes to the implementation of the energy efficiency first principle"

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Approach taken

- The principle aims at considering a wide spectrum of energy efficiency measures on the demand and supply side.
- Application of the principle should become part of relevant decision making processes.
- The principle applies to different types of decisions that relate to planning activities, policy design, preparation of investment projects and financing thereof.
- The principle is not limited to the energy sector, but energy efficiency could have a particularly relevant role in decisions regarding energy infrastructure

Implications of the approach taken

- To decide whether or not energy efficiency should be prioritised over other options, various aspects need to be considered, going beyond simple cost-effectiveness comparisons.
- In order to be able to consider all energy efficient options, various players need to have a sufficient level of information.
- While application of the principle is about “consideration” of various aspects, the main objective behind the principle is to pave the way for implementation energy efficiency solutions whenever they are identified as the right solutions.
  - Incorporation of the EE1st principle into policy making should also lead to removal of regulatory and non-regulatory obstacles;
  - Due to the nature of wider benefits of energy savings that could be bigger for society than investors, specific incentives or requirements might be necessary.

EE1st in the decision making process

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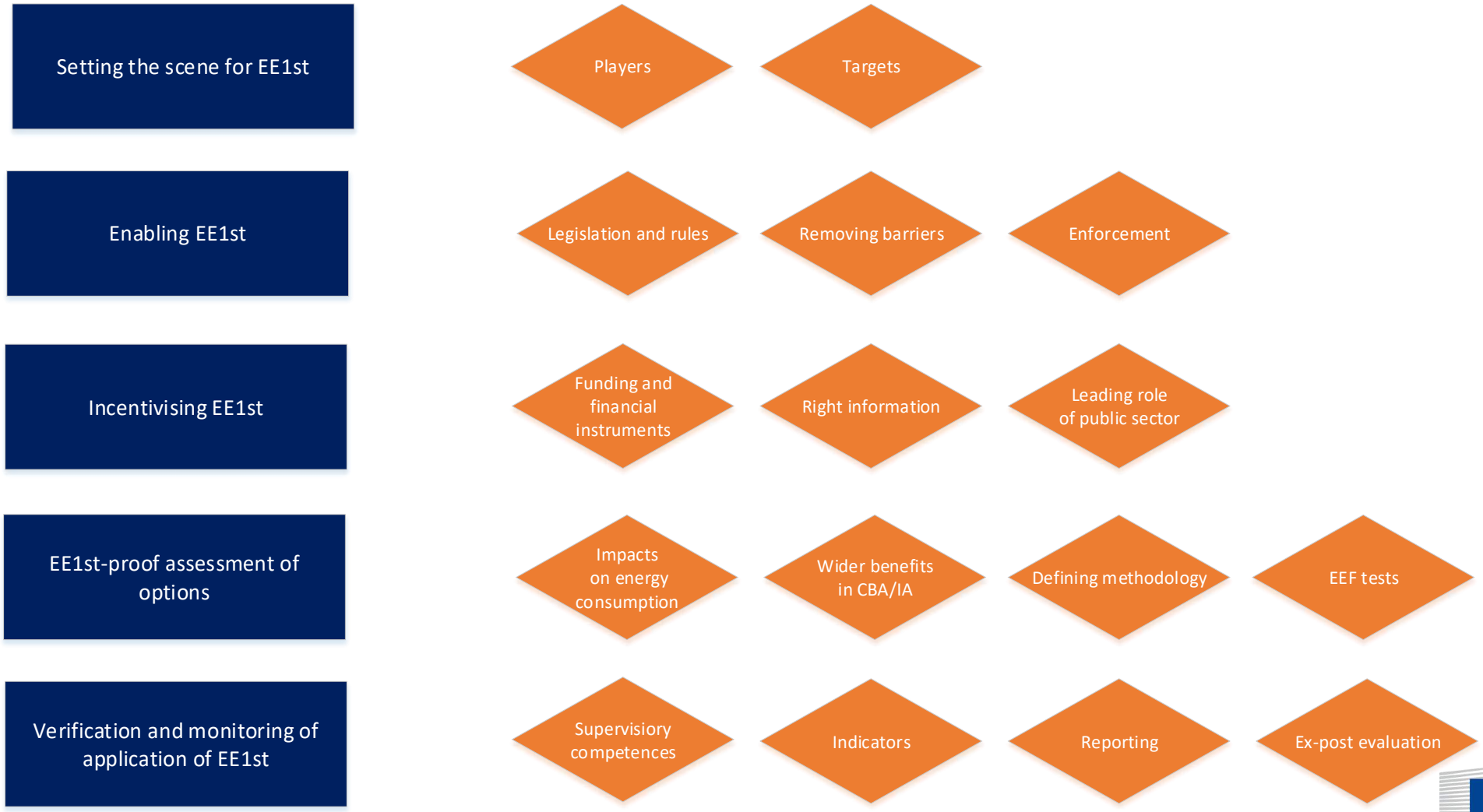
Various decision-makers and phases

Phase	Policy makers	Regulatory authorities	Market entities
Inception			
Preparation			
Validation			
Implementation			

Specific actions to be considered



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Identifying players and targets

- Policymakers (legislative and executive authorities)
- Regulators (regulatory authorities or agencies)
- Market entities → regulated and utility service providers/ contracting authorities

IMPORTANT to identify who has what role for the application of the principle (for each phase)

All players have their objectives and targets → targets should not eliminate EE from the start

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Setting the right framework rules

- EE1st relevance test
  - *Is the EE1st applicable?*
  - *Is it feasible to apply the EE1st?*
  - *Can EE1st lead to proper implementation?*
- Indication how the framework rules should be set
- Identification of the barriers and addressing them (ENEFIRST):
- Enforcement (setting specific requirements)

Incentives

- Funding and financial support – how to make funding schemes EE oriented
- Timely and tailored information – information to be available in the right form and moment of the decision making process (transparency and impacts on energy savings)
- Leading role of public sector
  - *Public buildings*
  - *Public procurement*
  - *Use of energy services*

EE1st in the decision making process

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EE1st in the assessment of options

- EE1st incorporated in CBA and impact assessments
  - Impacts on energy consumption
  - Sensitivity analysis (high energy efficiency options)
  - Assessment of wider benefits → providing right methodology and data
  - Societal perspective and discount rates
  - Coherence between of the preferred option with energy efficiency targets and actions
- EE1st test for energy infrastructure investments

Assessment of wider benefits - tools

Social impacts →
- health and well-being,
- energy poverty

Environmental impacts →
- reductions in greenhouse gas emissions,
- reductions in emissions of local air pollutants,
- impacts on ecosystem (water consumption)

Economic impacts → possible models to be used

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Approval and monitoring

- Defining supervisory competences – no new body, but ne competences
- Monitoring of implementation
  - Indicators
    - energy savings (additionality)
    - impact on energy consumption (rebound effects)
    - Investment costs and costs per energy saved
  - Reporting – use of the existing requirements and setting the thresholds
  - Evaluation - real impacts on energy demand

EE1st applied in specific contexts

Energy markets

- Encouraging demand response.
- Demand response providers, including aggregators, treated in a non-discriminatory manner and on the basis of their technical capabilities.
- Technical modalities for the participation in energy markets on the basis of participants' capabilities and market requirements.

Energy supply and distribution

- Consideration of demand-side resources
- Requirement to use cost-benefit analysis in the planning of regional district heating networks to identify the most cost-effective heat supply options and to assess these against reducing heat demand through energy efficiency in buildings and processes;
- Providing cost-optimal deployment of hydrogen infrastructures and alternative end-use efficiency measures through market design and regulation
- Evaluating the trade-off between utility-scale and behind-the-meter energy storage facilities vs. adoption of energy-efficient appliances/equipment and demand response schemes.

Energy demand

- Public procurement rules should require or encourage the procurement of energy-efficient goods and services in the public sector, based on integrated cost-benefit assessments.
- Strengthening material efficiency and energy-efficient technologies as counterparts to the production of materials and energy supply.
- Reuse of waste heat.

Buildings

- Access of buildings renovation programmes to finance that was so far reserved to generation, transmission, distribution and storage capacity.
- Integration of energy efficiency elements into local special planning and urbanistic permitting.
- Strengthening material efficiency and energy-efficient technologies in buildings as counterparts to the production of materials and energy supply.
- Building standards, modernisation and renovation of building stock.

Transport

- Ensuring that vehicles are designed and used in a way that is as energy efficient as possible, meaning that minimal energy is used in any particular journey;
- Assessment of the energy efficiency of different modes of transport, digital technologies, joint undertakings, and sustainable urban mobility plans (SUMPSs) but also energy- and cost-optimised national road and rail network planning and operation in the planning and management of urban and long-range mobility;
- Encouraging use of transport means based on efficiency and emission reduction potential/options for the transport of goods as well as cost-effectiveness.

Water

- Reducing the amount of energy used to produce and treat different types of water (e.g. by assessing the potential of the construction of two-tier system necessary for separate treatment of storm water and sanitary wastewater)
- Reducing water demand and network losses, which translates into lower energy requirements for pumping and treatment;
- Using smart technologies and processes.

ICT

- Promoting diffusion of energy-efficient data centre facilities, waste heat reuse, and adoption of self-use renewable generation systems.
- Evaluating the efficiency of the 5G network during its design, construction and utilisation and improving it based on available technologies.

Follow-up to the guidance

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Next steps and work on-going

- It is particularly important that the EE1st principle be applied in the areas beyond the energy sector, such as ICT, transport, agriculture and water, where energy efficiency measures are not in the core of policy considerations
- Additional work is on-going to support the EE1st principle in the financial sector
- Three research projects under Horizon2020 on-going
- Supporting the EE1st principle in the reviewed EED

Thank you

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QUESTIONS FOR DISCUSSION

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Approach to be taken

- Is the definition in the GOV the right one?
- How to draw a line between the EE1st and energy efficiency measures? Where there is a need for guidance and where for policies?
- What aspect to be looked to enable application of the EE1st? What are the main barriers?
- How to balance the need to make the guide universal and address specific issues depending on the sector and context? Shall the focus be on the common elements or a series of dedicated manuals are needed?
- Who should be the prime target audience of the guidance?
- How to build on the support study – complementing with a bit different approach or supporting and following the proposed approach?

EE1st in the decision making process

- How to address different decision makers types (policy makers, regulators financial institutions, investors, public authorities, regulated companies, private companies…) that participate indirectly or directly in the decision making process?
- How to distinguish the application of the EE1st principle between policy, planning and investment decisions?
- Is there a need to focus more on the implementation aspects of energy efficient solutions (implementation phase)?

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EE1st in the assessment of options

- How to integrate EE1st in CBA and impact assessments?
- How to approach the wider benefits?
- What methodologies, literature could be used? How to refer to them in the guidelines?
- How to make the necessary information, know-how and data available?
- How to define thresholds for the application of the principle?

EE1st applied in specific contexts

- What sectors to be covered: energy markets, energy supply and distribution, energy demand, transport, water, ICT?
- What are the specific issues to be considered, in particular on the demand side, e.g. different players, various objectives, information availability?
- How to treat demand response?
- How to address energy infrastructure planning?
- What best practices, experience and literature could be incorporated in the guidelines?
- How to apply the principle to the financial sector supporting and investing in energy related projects?

Follow-up to the guidance

- How to promote the guidelines?
- How to enforce and monitor application of the EE1st principle?
- What additional work is needed?