Recent developments in the field of Energy Efficiency First (EE1st)

Presentation prepared as part of the enefirst. project

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IEECP lunch seminar
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Energy Efficiency First?

‘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.

Governance Regulation 2018/1999 (Article 2(18))

For more details about history, background and general frameworks for the concept of EE1st, see: ENEFIRST (2020). Defining and contextualizing the E1st principle.
Considering **energy systems as a whole**

Supply-side resources

- Fossil fuel supply and plants

Demand-side resources

- Energy efficiency
- Energy sufficiency
- Demand flexibility & demand response

Efficiency First

Storage
Society’s perspective

Multiple impacts + Long-term perspective

- Reduced GHG emissions
- Improved health
- Reduced energy poverty
- Reduced investment needs
- Contribute to 100% RES

2030 → 2040 → 2050

Going climate-neutral by 2050

A strategic long-term vision for a prosperous, modern, competitive and climate-neutral EU economy
Check-list for implementing EE1st

1) Are demand-side resources \textbf{considered} when comparing / planning / deciding investments? 
   \textit{(especially when planning / deciding investments in energy infrastructure)}

2) Are demand-side resources \textbf{assessed and valued on a fair basis} compared to supply-side investments (or other investment types)?

3) What is the ultimate decision-making rule once the assessment is done? Is a \textbf{priority} given to demand-side resources when relevant?

See \texttt{‘real-life’ examples} on the ENEFIRST website
EE1st in the fit-for-55 package / proposed EED recast


A new Article (Art.3) dedicated to EE1st:

• Clear legal basis for the application of EE1st

• Clear scope: “planning, policy and major investment decisions”

• Calling for an institutional framework, cf. “entity responsible for monitoring the application of the energy efficiency first principle”

+ other provisions relevant for EE1st in the proposed recasts of the EED, RED, ETS Directive

See the analysis of the fit-for-55 package in the introduction of: ENEFIRST (2021). Guidelines on policy design options for implementation of E1st in buildings and the related energy systems.
“The energy efficiency first principle is more relevant than ever and should be applied across all sectors and policies, with demand response measures complementing those on the supply side”
Recent example: IEA’s 10-Point Plan to Reduce the European Union’s Reliance on Russian Natural Gas

https://www.iea.org/reports/a-10-point-plan-to-reduce-the-european-unions-reliance-on-russian-natural-gas
Energy Efficiency First = changing the mindsets

Usual bias when dealing with energy = thinking first about energy supply (e.g., RES, electrification, H₂, smart grids...)

The logic should start with the needs:
1) What energy service is really needed? **SUFFICIENCY**
2) How can this service be best satisfied? **EFFICIENCY**
3) What energy supply is needed? **RENEWABLE**

Reversing the burden of proof

https://negawatt.org/en
https://www.energysufficiency.org/
Sufficiency does not mean the same change for all

Need to re-consider what is sustainable

Need to increase the service level to meet basic needs
Current crises = good momentum?

Climate crisis, pandemic, wars: what will it take to change the mindset?

https://www.theguardian.com/environment/2022/mar/03/turn-down-heating-reduce-need-russian-imports-europeans-told
Sounds obvious, so why would the EE1st principle be needed?

Barriers to EE1st

Beyond the ‘classical’ barriers to energy efficiency and the energy efficiency gaps → limitations or bias in the investment options considered or in the decision-making

- Habits and practices tending to give priority to supply-side options, disregarding demand-side options
- Lack of expertise, knowledge, awareness or understanding
- Making EE1st a common practice implies making EE1st part of everyone’s language & work
- Too narrow scope of cost-benefit analysis

→ need for:
  ✓ cultural change along the whole chain of actors
  ✓ resources, examples and experience sharing
  ✓ considering multiple impacts

Examples of resources for the implementation of the EE1st principle
European Commission’s guidelines


See also the Commission’s Recommendation (C(2021) 7014 final)

September 2021

General approach to apply EE1st in decision-making

<table>
<thead>
<tr>
<th>PHASE</th>
<th>POLICY MAKERS</th>
<th>REGULATORY AUTHORITIES</th>
<th>MARKET ENTITIES</th>
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<tbody>
<tr>
<td>Inception</td>
<td>Define policy targets</td>
<td>Define market access rules for energy efficiency or demand-response solutions</td>
<td>Define indicators / project goal</td>
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<td></td>
<td>Define / update regulatory framework</td>
<td>Carry out compliance check of business / project goal with policy targets and market access rules</td>
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<td>Analyse policy impact and alternatives</td>
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<td>Preparation</td>
<td>Define CBA method in principle</td>
<td>Define CBA method for concrete application</td>
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<td>Collect information</td>
<td>Collect information</td>
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<td>Forecast energy service demand</td>
<td>Forecast energy service demand</td>
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<td>Identify other cost and risk</td>
<td>Identify other cost and risk</td>
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<td>Assess systematically based on the EE1st principle</td>
<td>Assess systematically based on the EE1st principle</td>
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<tr>
<td>Validation</td>
<td>Check the implementation plan and if relevant, approve it</td>
<td>Propose the implementation plan</td>
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<tr>
<td>Implementation</td>
<td>Implement the plan, e.g. provide design and build services, adopt energy-efficiency technologies, make investment decisions, etc.</td>
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</tbody>
</table>

- Steps
- Actors
- Scoping
- Using CBA
- Monitoring the application

Providing examples and pointing areas to be looked at, for the implementation in relevant sectors:

- Electricity markets
- Energy supply and distribution
- Energy demand in industry and services
- Buildings
- Transports
- Water
- Information and Communication Technologies
- Finance

+ announcing a new working group on EE1st as part of EEFIG (Energy Efficiency Financial Institutions Group)

https://ec.europa.eu/eefig/index_en
New EE1st Facility: **indicator-based approach**

+ 3 case studies:
  - Energy Efficiency First Principle: Societal trend of working from home
  - Deep energy retrofit of the residential building stock
  - Addressing the Energy Efficiency First principle in the national energy and climate strategy of Cyprus (presented in a [webinar on 8 March 2022](https://www.odyssee-mure.eu/data-tools/ee1-tool.html))
Chapter 1  ...in energy planning

- Integrated energy modelling
- Integrated energy infrastructure planning
- Integrated planning of energy demand & supply in buildings

Chapter 2  ..in energy-related investments

- Considering multiple impacts in investment decisions
- EE1st in public financing
- EE1st in end user investment decisions
- Energy market regulations

Chapter 3  Complementary approaches to implement E1st

+ analysis of the Fit-for-55 (July 2021) package
Approaches for integrated energy planning

Integrated energy modelling

Integrated energy infrastructure planning

Integrated planning of energy demand & supply in buildings

→ basis for any integrated planning approach

- Transmission and distribution utility provision
- Transmission and distribution company incentives
- Integrated district heating planning and operation
- Individual planning tools in building renovation investments (e.g., building renovation passports)
- Municipal heat & renovation roadmaps
Integrated energy modelling: exploring scenarios to make the various complexities and uncertainties of energy systems more tangible

- Combining models to assess developments in the demand- and supply-side with fair levels of details about both
- Comparing scenarios with different ambitions on energy efficiency
- Assessing total system costs to account for the interactions between demand and supply

See
ENEFIRST (2020). Review and guidance for quantitative assessments of demand and supply side resources in the context of the E1st principle.

+ Proceedings of the workshop on Quantifying E1st in EU scenarios (23 February 2022).
SAVE THE DATES

Webinar series on modelling case studies at urban or building level
EE1st Wednesdays, at 2 pm CET

30 March 2022
Thermal retrofits, heat pumps
& district heating

13 April 2022
Commercial areas
Electrical appliances

27 April 2022
Insulation measures & RES for heating

More information, registration details, etc. soon at: https://enefirst.eu/events/
Innovative model-based assessments of energy efficiency potentials in buildings, transport, and industry

Upcoming webinar series in March-April on Thursdays at 9 am CET

Starting tomorrow with buildings!

https://www.seenergies.eu/seenergies-partnership-webinars/

COMPREHENSIVE ASSESSMENTS OF ENERGY EFFICIENCY IN BUILDINGS AND CURRENT EU POLICY CHANGES
Date: 10.03.22 | 09:00 - 10:00 am
Organized by: sEEnergies, BPfE, Aalborg University

VAST ENERGY EFFICIENCY WITHIN INDUSTRY IN ALL EU COUNTRIES
Date: 17.03.22 | 09:00 - 10:00 am
Organized by: sEEnergies

ENERGY EFFICIENCY WITHIN TRANSPORT. COUNTRY BREAKDOWN OF ELECTRIFICATION, MODAL SHIFT, AND POWER-2-X
Date: 24.03.22 | 09:00 - 10:00 am
Organized by: sEEnergies

ENERGY EFFICIENCY IN SMART ENERGY NETWORKS AND SMART GRIDS
Date: 31.03.22 | 09:00 - 10:00 am
Organized by: sEEnergies and WHY projects as well as Renewables Grid Initiative and Aalborg University

WEBINAR ON ENERGY EFFICIENCY AND SPATIAL POTENTIALS
Date: 21.04.22 | 09:00 - 10:00 am
Organized by: sEEnergies

ENERGY EFFICIENCY – ENERGY SYSTEM MODELS
Date: 28.04.22 | 09:00 - 10:00 am
Organized by: sEEnergies
Integrating EE1st in energy-related investment decisions

**Large / major investments**
(in EED recast: > €50 million)

**Enhanced CBA** = “that allow proper assessment of *wider benefits* of energy efficiency solutions from the *societal perspective*” (Art.3 EED recast)

- **CBA methodology**
- **Approval** by an *entity* in charge of verifying that EE1st is well implemented

➔ **included in the proposed EED recast**

**Individual / smaller investments**
(+ behaviours)

Need for **policies** to *fill the gap* between the *investor’s* and *society’s* perspectives

➔ *what types of approaches to make it happen?*

- **Multiple impacts** in policy design
- **Prioritization** in public funding allocation
- **Incentives or requirements** to promote decisions in line with national objectives
Approaches for energy-related investments

Considering **multiple impacts** in investment decisions

- Basis for a cost-benefit analysis (or other assessment) in line with the E1st principle

**EE1st in public financing**

- Integration of EE1st principle into EU funding streams
- Carbon revenue recycling towards energy efficiency

**EE1st in end-user investment decisions**

- Financial incentives for RES linked to energy performance
- Fabric first approach
- Minimum energy performance standards (MEPS)
- Dynamic tariffs
Decision Support Tool for comprehensive assessments of building renovations, considering multiple impacts (+ cases of municipal building stocks)

Video introducing the project and the Decision Support Tool

Final conference briefing paper (December 2021)

Recordings of the training workshop (16 January 2022)

Online tool for policy-makers and practitioners to conduct simplified analyses to compare scenarios and assess the relevance of their multiple impacts (for national and local levels) (under development)
Pay-for-Performance (P4P) to drive energy efficiency in Europe

**P4P can secure energy efficiency as a resource**

Metered energy savings $\rightarrow$ energy efficiency $=$ a precisely estimated commodity

EE can then be traded among parties, such as power system operators who wish to avoid investing in costly additional capacity, or financial institutions who wish a **verifiable impact** of their investments.

P4P can also support **integrated energy planning** by increasing the **reliability** of impacts expected from energy efficiency investments.

Integrated planning + increased reliability $=$ **easier to channel funds** to renovate the most inefficient buildings where most energy cost savings can be made.
SAVE THE DATES
meet us at

Days of Energy Efficiency First
in Brussels
Back-to-back final conferences

31 MAY 2022  1 JUNE 2022

More details soon!
Thank you!

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