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Opportunities for the implementation of E1st in practice: Integrated policy approaches in energy planning and investment schemes for buildings

Webinar

30th November 2021

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Introducing ENEFIRST

‘making the EE1st principle operational’

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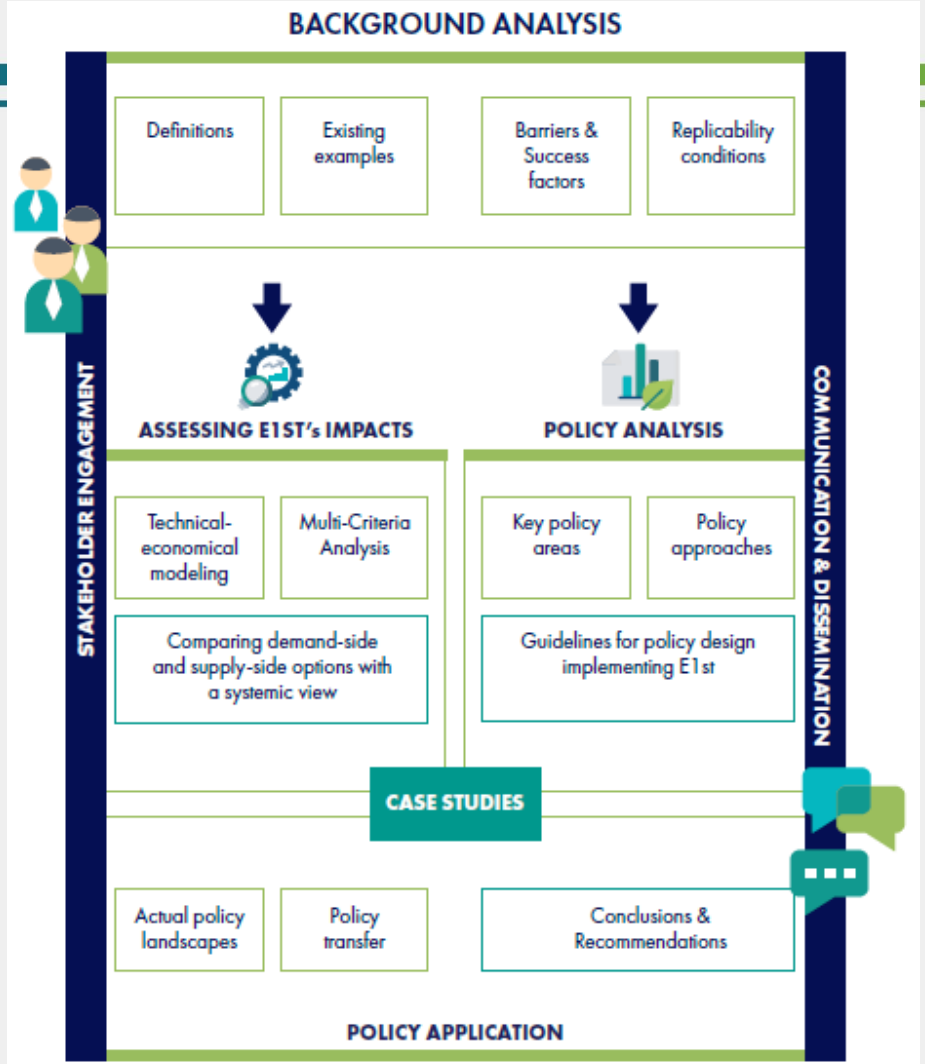
Objectives

- To define the EE1st principle in practical terms
- To map how EE1st has been applied internationally and in the EU
- To assess the value of applying EE1st across different policy areas
- To quantify potential impacts
- To develop & test policy proposals for the implementation of EE1st

Focus on buildings' end use and related energy systems

Other initiatives / projects on EE1st with broader scope

- European Commission's Recommendation and guidelines
- sEEnergies ; EERAdata ; ODYSSEE-MURE ; MICAT



IDENTIFICATION of the most relevant policy areas where the EE1st principle can be applied to achieve the highest impact in terms of energy system benefits

APPLICATION of EE1st in existing policy instruments, through assessing the applicability & transferability of international EE1st approaches and quantifying the impacts of EE1st

ENGAGEMENT with stakeholders to apply EE1st through the design of new policy instruments and analyse their application in country case studies

The ENEFIRST team

“policy analysis” team

RAP®

BPIE

+ communication & dissemination

CEU CENTRAL EUROPEAN UNIVERSITY

IEECP
INSTITUTE FOR EUROPEAN ENERGY AND CLIMATE POLICY

Coordinator

+ stakeholder engagement

“modelling” team

Fraunhofer ISI

TU WIEN TECHNISCHE UNIVERSITÄT WIEN Vienna | Austria

IREES research for future.

Energy Efficiency First (EE1st)- **What does it mean and how to implement it?**

Definition of Energy Efficiency First (EE1st)
in the context of the ENEFIRST project

*'Efficiency First' gives **priority to demand-side resources***
whenever they are more cost effective from a societal perspective
than investments in energy infrastructure
in meeting planning and 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.*

For more details, see the first ENEFIRST report about background analysis

Considering **energy systems as a whole**

Supply-side resources

Demand-side resources

Fossil fuel supply and plants

Energy efficiency

Renewables

Energy sufficiency

Networks

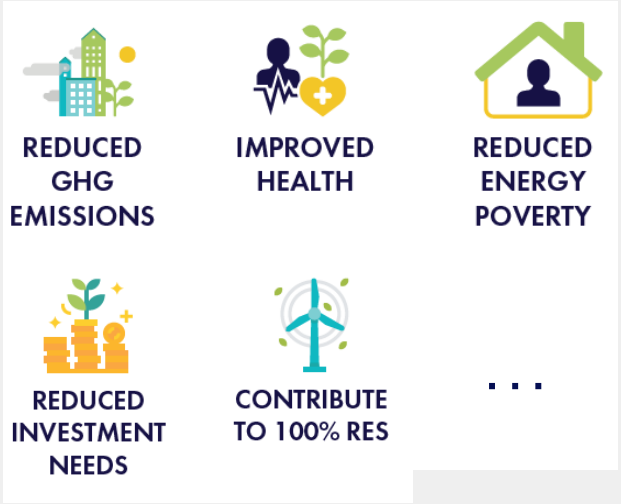
Demand flexibility & demand response

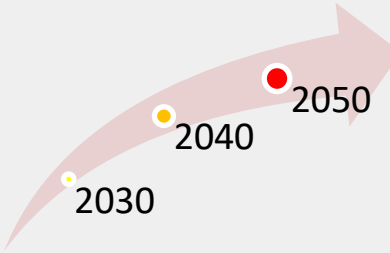
Storage

With a **societal perspective**

=

Multiple impacts **+** Long-term perspective





From EU legislation to implementation in practice

General EU framework

- ✓ **Energy Union**
- ✓ **EU Green Deal**
- ✓ **EU energy & climate targets**

Governance Regulation, (EU) 2018/1999

..enshrines EE1st principle in EU legislative framework

..sets broad definition of the concept

EU legislation

- ✓ **Clean Energy for All Europeans**
- ✓ **Fit-for-55**

EED, **EPBD**, **Electricity market** legislations, **RED**, …

..introduces legal basis for EE1st principle (Article 3 EED)

..EE1st as a guiding principle for more consistency and integration

+ guidance and support

EU COM **Recommendation and guidelines**

..formulates concrete recommendations and implementation guidelines

H2020 projects

ENEFIRST, sEEnergies, EERAdata, ODYSSEE-MURE

National transposition & implementation

Energy laws, energy market regulations, building codes, incentive schemes, …

..Integrated approaches for energy planning and investment schemes

Policy approaches to make EE1st a reality

Buildings

Heating

Power

EE1st implementation

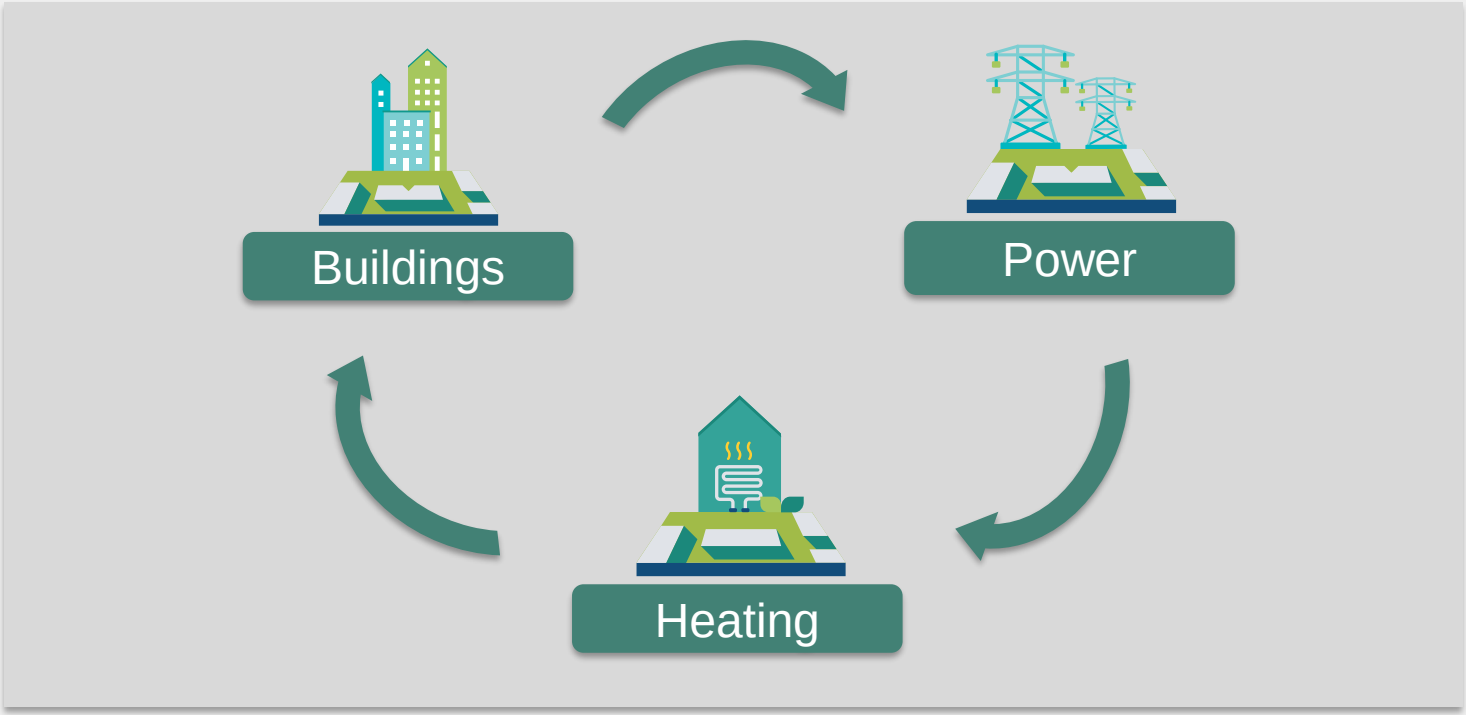
Buildings	Heating	Power
Fabric first approach	Integrated district heating planning and operation	Power market rules
Financial incentives linked to a certain energy performance level	Network access for third-party waste heat provider	T &D (transmission and distribution) utility provisions
Individual planning tools for building renovation	Municipal heat and renovation roadmaps	Dynamic tariff design

Report on priority areas for implementing EE1st

Implementation maps

Policy approaches to make EE1st a reality

EE1st implementation



Report on priority areas for implementing EE1st

Implementation maps

Promoting an integrated perspective of EE1st

.. to overcome silo thinking in policy making and implementation

.. to help policy officers, market actors and end-users to take other perspectives and consider implications for the whole energy system

.. to show how EU legislation should be better harmonized to enable integrated energy planning of supply- and demand-side options

Guidelines on policy design options for the implementation of EE1st in buildings and the related energy systems

*Promoting **Energy Efficiency First*** **through integrated approaches...**

...in energy **planning**

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

...in energy-related **investments**

- Considering **multiple impacts** in investment decisions
- EE1st in **public** financing
- EE1st in **end user** investment decisions

…in energy **market regulations**

Guidelines on policy design option for the implementation of EE1st

Guidelines on policy design options for the implementation of EE1st in buildings and the related energy systems

Promoting ***Energy Efficiency First*** **through integrated approaches...**

...in energy **planning**

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

- ✓ Energy demand forecasts should include the expected **impacts from energy efficiency policies**
- ✓ New energy infrastructures should be assessed against this "**EE1st forecast**" (energy efficiency + flexibility potentials)
- ✓ **National Energy and Climate Plans** should be real integrated plans based on model outcomes with a long-term perspective
- ✓ Decisions at the single building and municipal level should **jointly consider energy demand- and supply**

Guidelines on policy design options for the implementation of EE1st in buildings and the related energy systems

*Promoting **Energy Efficiency First*** **through integrated approaches...**

- ✓ **Cost-benefits analyses** should enable a comprehensive assessment of energy efficiency options (see Art. 3, EED recast)
- ✓ **Public funding streams** need to prioritise energy efficiency measures where cost-effective
- ✓ Public policies should **fill the gap between the investor's and society's perspectives** for energy-related decisions to be most beneficial for all

...in energy-related **investments**

Considering **multiple impacts** in investment decisions

EE1st in **public** financing

EE1st in **end user** investment decisions

…in energy **market regulations**

Example of a policy approach:
‘Fabric first’

A 'fabric first' approach to building design and renovation aims to maximise **the energy performance of the components and materials that make up the building fabric itself**, before considering the installation of heating systems and other building services in order to **achieve ambitious energy efficiency levels**. It can either be applied directly in building regulations to cover new as well as existing buildings or as general approach in renovation subsidy schemes.

Business as usual	EE1st scenario
Nearly zero-energy building (nZEB) standards calculated according to the EPBD Annex I methodology vary across MS, lack ambition and can be achieved with RES	Achieving an EU-wide low energy building standard by **prioritising the thermal performance of the building envelope** of existing and new buildings
Renovation subsidy schemes supporting both upgrades of heating systems and energy performance improvements depending on cost-optimality for the building owner	Renovation support schemes implement ‘fabric first’ through **eligibility criteria prioritising efficiency measures** and/or binding financial incentives to energy performance levels achieved

Building policy approach: Fabric first

Implementation map

BARRIERS

Policy design

Lack of knowledge/ awareness about multiple benefits of a high building energy performance

'Silo thinking' and lack of cooperation in professional cultures in building and construction industry

Lack of expertise and guidelines to achieve high energy performance requirements in optimal combination with renewable installations

Policy implementation

High investment and long pay-back of 'fabric first' energy efficiency measures

Quality issues (lack of monitoring of real energy savings achieved)

STAKEHOLDERS

EU institutions, National authorities

National authorities

National authorities, Local authorities

EU institutions, National authorities

Local authorities

EU institutions, National authorities

SOLUTIONS

Provide guidelines on multiple benefits for building owners; Integrate multiple benefits in energy performance certificates (EPCs)

Increase share of independent energy advisors and cooperation of contractors/ SMEs; Require BRPs to plan integrated, coordinated measures

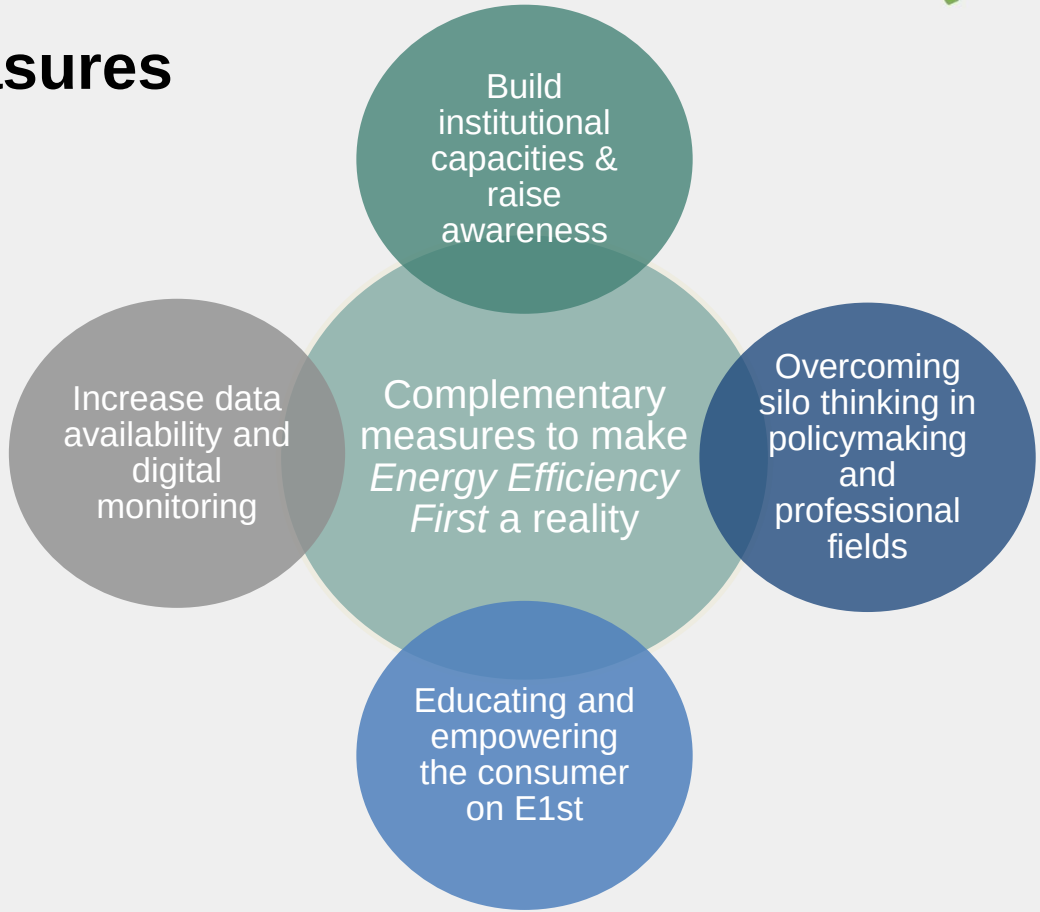
Educational programmes and upskilling of widely skilled energy efficiency experts and contractors; Trainings for integrated solutions

Innovative business models with long-term performance guarantees to de-risk investments

Performance-based renovation support schemes and a revised EPC scheme; trainings and better cooperation between building trades

Complementary measures to implement EE1st

Cross-cutting issues to promote the concept of EE1st across policy areas and among different stakeholder groups



Take aways to implement EE1st in an integrated way in practice

- ✓ Break the silos of policymaking and implementation, so that supply- and demand-side resources are considered jointly
- ✓ Apply integrated energy system models to determine which scenarios are more cost-effective in the long-term considering all societal benefits
- ✓ Consider, where possible, all multiple impacts of different options in investment decisions (wide scope of cost-benefits analyses)
- ✓ Enable the complementary measures as preconditions for a fair assessment of end use energy efficiency and other options

https://enefirst.eu/reports-findings/

Report on priority areas for implementing EE1st

Implementation maps

Guidelines on policy design option for the implementation of EE1st

Thank you!

Any questions?

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Coming next:

- Quantitative assessments (EU scenarios + micro case studies)
- Analyses on 3 countries and national workshops (Germany, Hungary and Spain)
- And more…

https://enefirst.eu/stay-in-touch/

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