Energy efficiency first policy landscapes for buildings: case studies in Germany, Hungary and Spain

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Equal/"just" comparison

End-use efficiency and DR

Beyond investors

Definition of Energy Efficiency First (E1st)
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.*

= changing decision methods and cultures

Basis for comparison = sum of targets (impacts, urgency, etc.)

EU, national, local + …

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

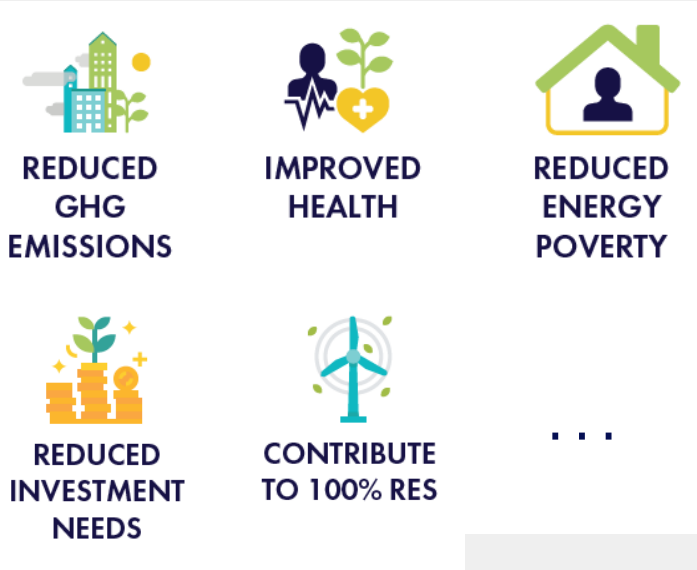
Considering **energy systems as a whole**

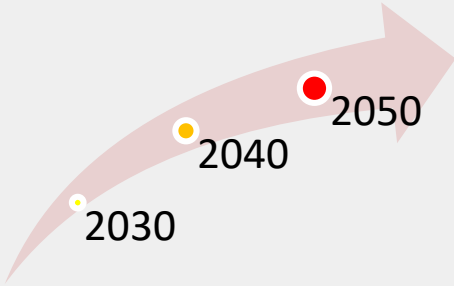
Supply-side resources		Demand-side resources
Fossil fuel supply and plants		Energy efficiency
Renewables		Energy sufficiency
Networks		Demand flexibility & demand response
	Storage	

With a societal perspective

=

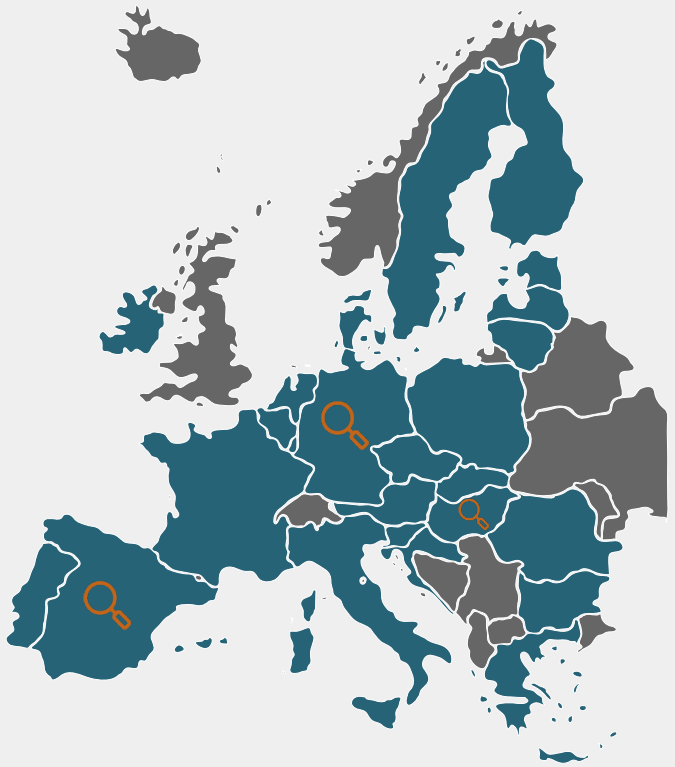
Multiple impacts + Long-term perspective





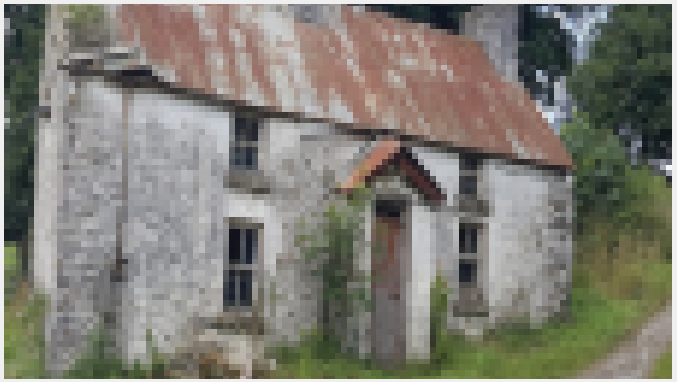
Aim of the policy assessment

1) Identify exemplary international experiences of EE1st
2) Challenge three case countries for adoption
    - Discuss the identified policy approaches
    - Assess applicability: barriers, relevance, design
3) Identify further EE1st options



No.	Case
1.	Ecowatt programme (voluntary Demand Response through instant messaging)*
2.	Using ToU (Time-of-Use) tariffs to engage consumers and benefit the power system
3.	Social Constraint Management Zones to harvest demand flexibility
4.	Demand flexibility in District Heating networks
5.	FACE (French fund for rural electrification) allowing Demand-Side Management projects as an alternative*
6.	Participation of Demand Response (DR) in French wholesale electricity market
7.	Enabling rules for Demand Response (DR) aggregators
8.	Decoupling utility sales and revenues
9.	Energy Efficiency Obligation Schemes as a way to involve energy companies in behind-the-meter investments*
10.	Replacing a polluting power plant with behind-the-meter resources
11.	Updating distribution system planning rules in Colorado and Nevada
12.	Assessing the value of demand-side resources
13.	Water heaters as multiple grid resources
14.	Building Logbook – Woningpas: Exploiting efficiency potentials in buildings through a digital building file
15.	Optimising building energy demand by passive-level building code
16.	Energy Efficiency as infrastructure*
17.	Deferring T&D (Transmission & Distribution) infrastructure investments through local end-use efficiency measures
18.	Building energy performance requirements of the Irish Heat Pump System grant
19.	Fabric First approach under the Better Energy Communities grant scheme
20.	Linking RES (Renewable Energy Sources) support to building energy performance

Factsheets: https://enefirst.eu/examples/



Optimising energy performance through passive-level building code

Brussels

The “passive house law” (PEB Regulation) of the Brussels’ region is part of a policy package developed over the years since 2002.

Fabric First approach

Ireland

Building design and renovation to maximise the energy performance of the components and materials that make up the building fabric itself.

Optimising energy performance through passive-level building code (1)

Policy package with gradual development & market preparation:

2002: Insulation requirements in thermal regulations (K55)

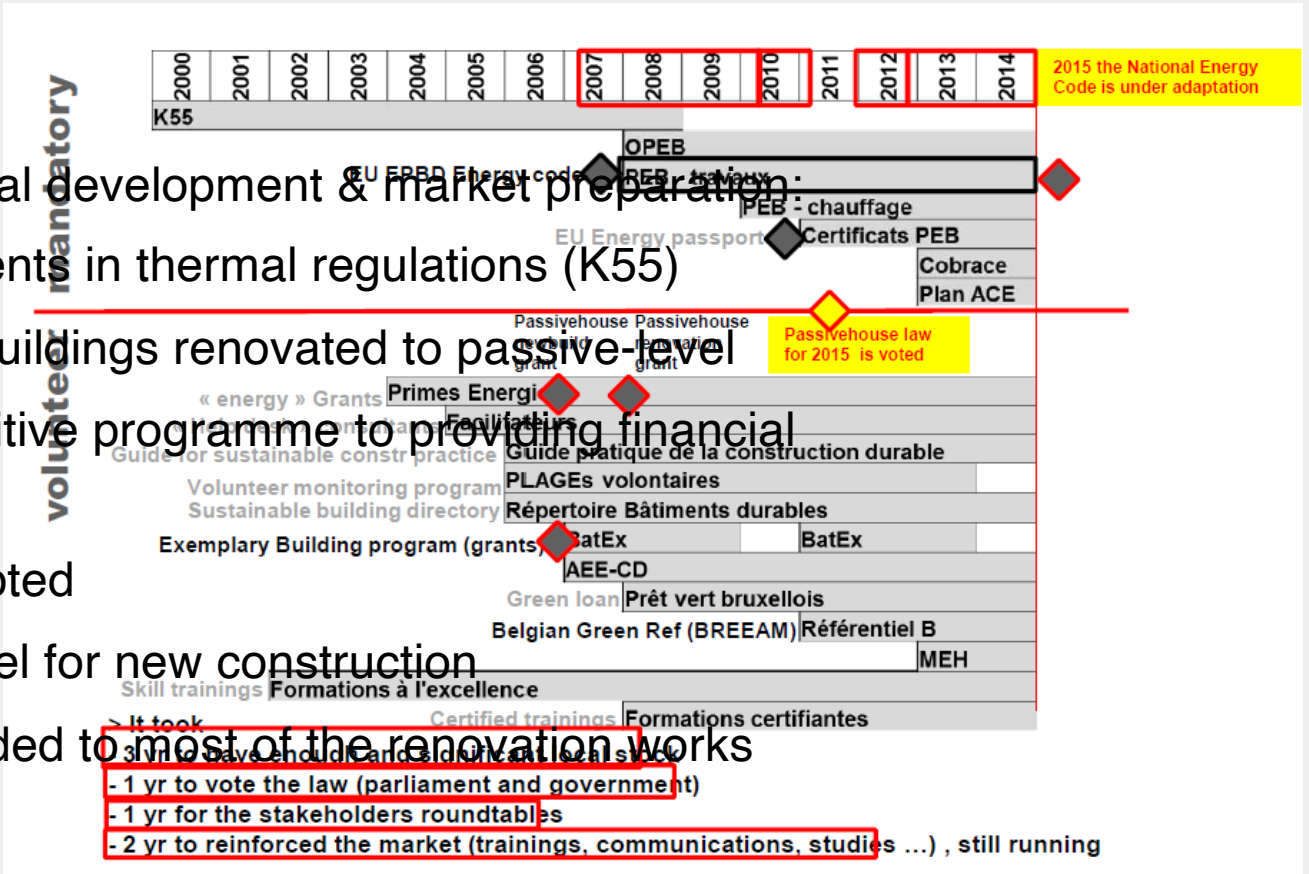
2006: demo sites: public buildings renovated to passive-level

2007-2013: BatEx competitive programme to providing financial support

2011: PEB regulation adopted

2015: close-to-passive level for new construction

2017: building code extended to most of the renovation works



Optimising energy performance through passive-level building code (2) Transferability

Germany

Buildings Energy Act (GEG) with relatively stringent energy performance requirements.

EPC provisions.

Revision in 2022.

- Opportunity in the GEG review: increase stringency.
- Combine with the building renovation passport and enforce monitoring.
- More awareness raising for renovations.

Spain

Building codes (CTE-DB-HE0) define performance requirement of primary energy/m2 for non-RES energy demand.

Specifies conversion coefficients.

Lead to supply change & oversizing.

- Introduce whole building approach and/or final energy requirements.
- Clarify and revise conversion factors.

Hungary

Building codes with relatively low ambition (ca. 100 kWh/m2/year).

nZEB implementation delayed.

EE and RES integration defined separately.

Strong passive house movement.

- Introduce whole building approach and increase stringency.
- improve enforcement and market incentives (remove utility price caps).

Optimising energy performance through passive-level building code (3) EE1st integration

- use a **broad scope of costs and benefits** to define the levels of minimum requirements;
- align these minimum requirements with the **national long-term objectives**;
- include methods to **enable fair comparison** between demand-side options (e.g., reducing the energy needs) and supply-side options (e.g., new or renewed generation, on-site RES, efficiency of distribution, etc.).

Fabric First Approach (1)

- to **maximise the energy performance of the components and materials** of the fabric,
- before considering the installation of heating systems and other building services

- an overarching principle applicable to all buildings' policies,
  - -building regulations
  - -incentive schemes for renovations
- Incentive scheme application in Ireland:
  - - Better Energy Communities (BEC), 2012
  - - SEAI Heat Pump system grant, 2012

- number of applicants reduced, overall savings increased
- very costly

-> needs for adjustments

Fabric First Approach (2)
Transferability

Germany

Previous incentive scheme (kfW) included performance-based incentive rates.

New schemes (BEG) coming up.

- Integrate FF approach in BEG,
- Combine appropriate measurement and monitoring
- couple BEG with the digital building logbooks and the energy advisor services.

Spain

Two key funding schemes: RRF and PREE
PREE promotes complex and ambitious renovations.

- Introduce whole building approach and/or final energy requirements in the rehabilitation scheme.
- increase level of ambition for PREE.
- Standardize definition of deep renovation.

Hungary

Large volume support programs, specific for technologies or processes.

Lack of monitoring the energy results.

- Combine grant programs and link EE requirements to supply solutions.
- TA for grant application.
- Integrated planning for community solutions: large renovation programs and e.g. district heating planning.

Fabric First Approach (2)
EE1st integration

How:

- Integrate requirements into (often existing) grant/loan instruments
- Need for additional measures (one stop shop, campaign + advice, vocational training)

Challenges:

- More complicated for applicants (fewer applications)
- Need for transparent monitoring and program revisions (but capacity and methods problems)

Benefits:

- Better use of public funds,
- Avoid lock-in,
- More significant help for vulnerable citizens.

Conclusions (1)

Implementing EE1st in national policies:

- Volume vs. performance level
- Market readiness & capacity of workforce
- Need for **complementary measures**:
    - Vocational training
    - Data availability and digital monitoring
    - Build institutional capacities, esp. cross-institutional level
    - Inform and empower citizens about Eest

A **flexible framework** is needed.

Conclusions (2)

Operationalizing EE1st in the Member States:

- helps **harmonize**:
    - the overall ambitions,
    - aligned with long-term objectives.
- brings **efficiency solutions into the balance**, while
    - improves **policy and decision** making, move away from silo thinking
    - prepares a **better and more equal future for all**,
    - integrates **external costs and co-benefits**.

Where to find more information

D2-2. Report on international experiences with E1st

D2-4. Report on barriers to implementing E1st in the EU-28

D4-1. Priority areas of implementation of the Efficiency First principle in buildings and related energy systems

D4-2. Implementation maps

D4-3. Guidelines on policy design options for the implementation of E1st in buildings and the related energy systems

D5-1. Report on in depth policy design analysis as a prerequisite for EE1st implementation

D5-2. Report on transferability of ENEFIRST lessons on integrating EE1St to policy instruments to EU MS

Thank you

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