Introducing ENEFIRST

14 October 2020

Concerted Action EED
6th/7th plenary meeting
Session INFO7.5 ‘Energy efficiency first’

enefirst.

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 839509. The sole responsibility for the content of this presentation lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME nor the European Commission are responsible for any use that may be made of the information contained therein.

A brief history of the Energy Efficiency First concept

From the 1980's, development of approaches for energy planning to take into account that **acting on the demand is possible**

Mostly about the electricity sector + US + integrated utilities / vertical monopolies

Demand-Side Management

Least-Cost Planning

Integrated Resource Planning

Energy Efficiency as a Resource

Late 1990's / early 2000's: liberalization of the energy markets
→ new context to develop energy efficiency activities

Energy Efficiency Obligation Schemes

2010's: something more is needed
need to take into account demand-side resources **more systematically**
+ with a **broader perspective**
(cf. multiple impacts, long term)

First Fuel

Energy Efficiency First

2016: EC communication on Clean Energy for All Europeans

2018: Governance Regulation

See the first ENEFIRST report for more details !

Defining 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))

“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 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.”

ENEFIRST definition (report Defining and contextualizing the E1st principle)

Definition in the context of the ENEFIRST project

Setting priorities in decision making

Not only the investor
Multiple impacts + long term

End-use efficiency + demand response

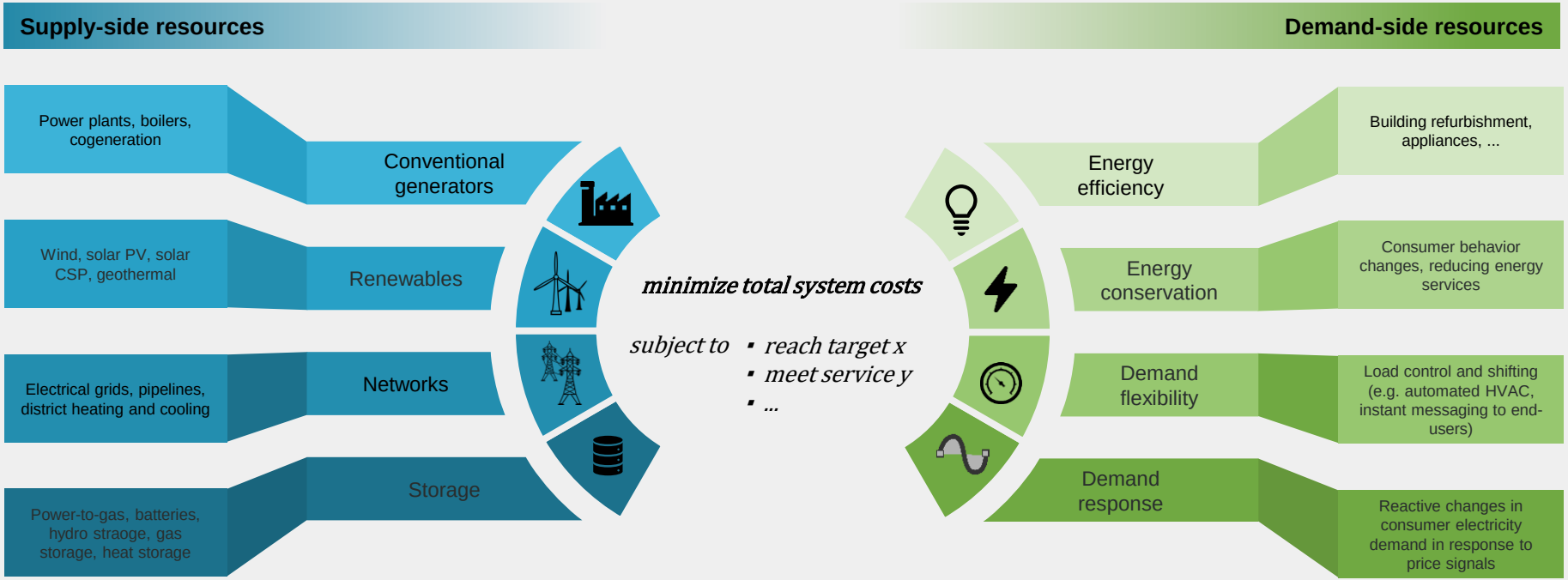
*'Efficiency First' gives **priority** to **demand-side resources** whenever they are more cost effective from a **societal perspective** than investments in energy infrastructure in meeting planning and **policy objectives**. It is a decision principle that is applied **systematically at any level** to energy-related investment planning and enabled by an '**equal opportunity**' policy design.*

= change in the decision process & culture at EU, national and local levels

Fair basis of comparison (level-playing field for supply-side and demand-side options)

Scope of comparison = function of the objectives (cf. timeframe and impacts to be taken into account)

Example at macro level: considering all options in long term scenarios (with a ‘total system cost’ perspective)



+ taking into account multiple impacts

Example of decision+policy at building level

Replacing the heating system → policy promoting RES/decarbonised heat

Efficiency **First**

→ Incentive IF minimum energy performance of the building envelope is met first (E1st conditionality)

- ✓ Right sizing
- ✓ Positive impacts on the whole energy system

Example: Fabric First Approach applied in the SEAI Heat Pump system grant

Efficiency **Last**

→ Incentive based on the expected heat demand or amount of heat produced

- ✓ Over-sizing
- ✓ Negative impacts on the whole energy system

(see e.g. Rosenow & Pato (2020). Efficiency First must tackle implementation issues to be effective)

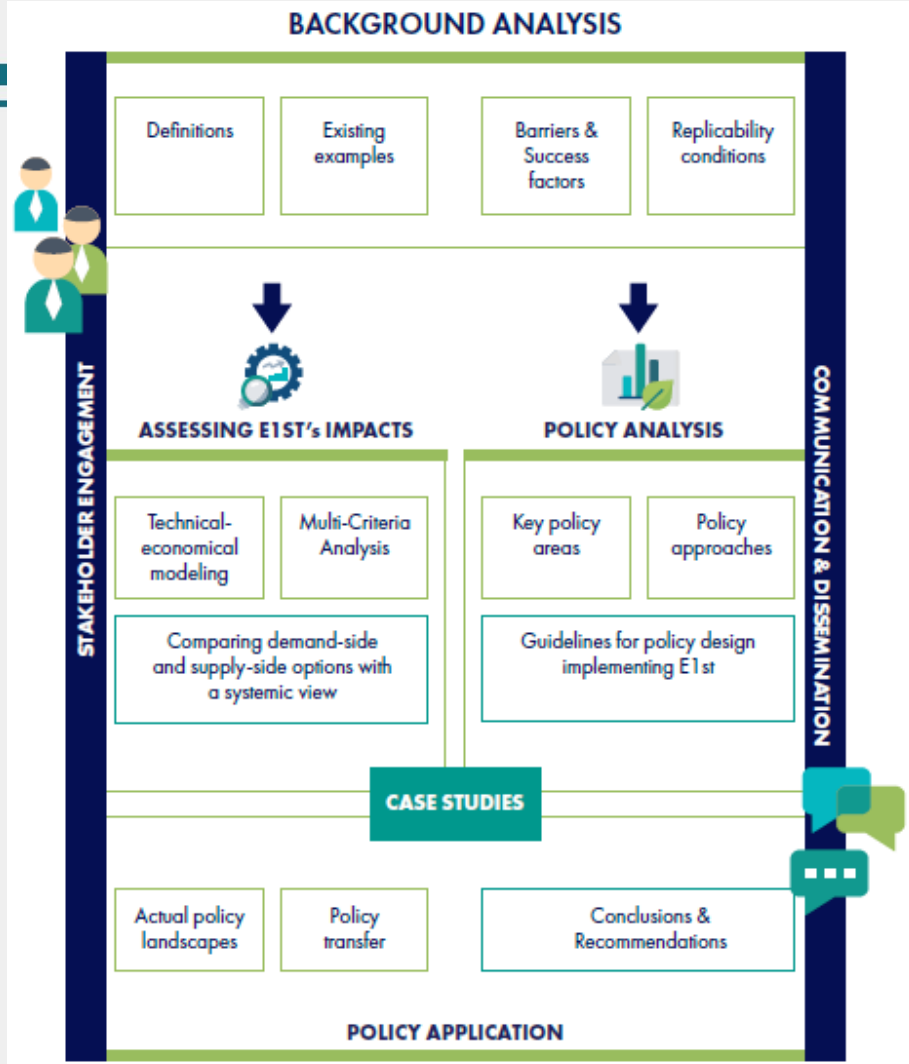
Introducing ENEFIRST ‘making the E1st principle operational’

Objectives

- To define the principle of E1st in practical terms
- To map how E1st has been applied internationally and in the EU
- To assess the value of applying E1st across different policy areas and to quantify potential impacts for buildings’ end use and related energy systems

➢ To develop policy proposals for the implementation of E1st

Focus on buildings’ end use and related energy systems



Approach

IDENTIFICATION of the most relevant policy areas where the E1st principle can be applied to achieve the highest impact in terms of energy system benefits

APPLICATION of E1st in existing policy instruments, through assessing the applicability & transferability of international E1st approaches and quantifying the impacts of E1st

ENGAGEMENT with stakeholders to apply E1st through the design of new policy instruments and analyse their application in country case studies

Introducing 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

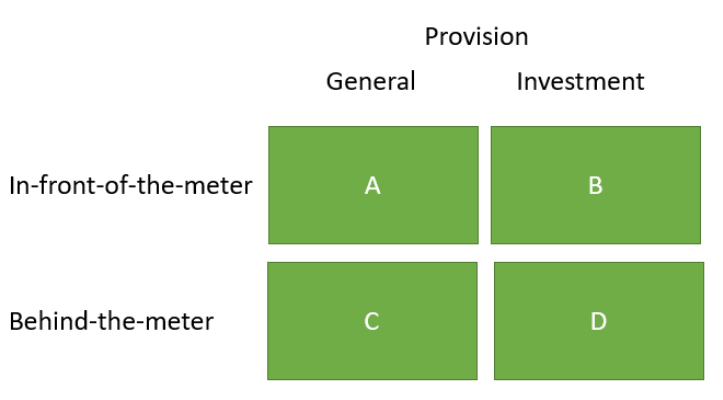
IREES
Institute for Resource Efficiency and Energy Strategies

16 examples analysed by the ENEFIRST team

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

Criteria to classify EXAMPLES implementing E1st

Categories of provisions to implement E1st



Level of requirements to implement E1st

1. **Allowing E1st** (e.g. experiments or voluntary
2. **Enabling E1st** (e.g. removing barriers, ensuring a level playing field in regulations)
3. **Requiring E1st-proof assessments**
4. **Evidence-based approval** (Approving only the investment or option that get the best ranking)
5. **Encouraging E1st** (e.g. through incentives)
6. **Requiring E1st** (e.g. requiring a minimum EE level/investment prior to investments in energy systems)

ENEFIRST (2020) Report on international experiences with E1st

Illustration with two of the 16 examples analysed in ENEFIRST

Example of “**allowing E1st**” (1) about “**in-front of the meter**” & “**general**” provision (A):

Social Constraint Management Zones to harvest demand flexibility

Possibility for the DSO to experiment programmes where they procure **demand-side resources as alternatives** to investments in the network infrastructures in congested areas

Example of “**requiring E1st**” (6) about “**behind the meter**” & “**investment**” provision (D):

Fabric First approach under the Better Energy Communities grant scheme

Projects for renovating dwellings should achieve a minimum energy performance level of the building envelope (**Fabric first approach**) → **Integrated** projects (instead of “product-led”)

Both examples were presented by their programme managers at the first ENEFIRST webinar

Further 18 examples identified from other sources

No.	Case
1.	Holyhead Powersave Project (Rosenow et al., 2016)
2.	French Riviera “Eco-Energy Plan” (Rosenow et al., 2016)
3.	C2C Capacity to Consumers (Rosenow et al., 2016)
4.	Krakow Energy Efficiency Project (Rosenow et al., 2016)
5.	Early Energy Efficiency Obligation Schemes to include energy efficiency in the regulatory framework
6.	EU-wide Covenant of Mayors for Climate & Energy (Rosenow et al., 2016)
7.	Early time-of-use tariffs (Rosenow et al., 2016)
8.	Loire time-of-use tariff (Rosenow et al., 2016)
9.	Energy efficiency as infrastructure in Scotland (Rosenow et al., 2016)
10.	Czech Green Savings Programme (Rosenow et al., 2016)
11.	Minimum energy efficiency requirement prior to renewable energy installation (Rosenow et al., 2016)
12.	The eFlex Project (pilot project about demand response and heat pumps) (Dong Energy, 2012)
13.	Energy efficiency as a means to expand energy access (de la Rue du Can et al. 2018)
14.	Energy efficiency as a resource in the ISO New England forward capacity market (Jenkins et al., 2011 ; Rosenow and Liu, 2018; SENSEI 2020)
15.	Ontario Save on Energy – Energy Performance programme (SENSEI 2020) (part of the Conservation First policy (Ontario 2013))
16.	NYSERDA’s Business Energy Pro programme (SENSEI 2020)
17.	Pacific Gas and Electric Company (PG&E)’s Residential Pay-for-Performance Programmes (SENSEI 2020)
18.	UK Electricity Demand Reduction Pilot (SENSEI 2020)

Barriers to E1st

These barriers ***not limited to the 'classical' barriers to energy efficiency*** *(cf. limitations or bias in the investment options considered or in the decision-making)*

- Lack of expertise, knowledge, awareness or understanding
- Habits and practices tending to give priority to supply-side options, disregarding demand-side options
- Making E1st a common practice implies making E1st 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
- better taking into account multiple impacts

Results from an online survey of 45 stakeholders. See ENEFIRST (2020). Report on barriers to implementing E1st in the EU-28.

Screening policy areas to determine what to focus on

On-going work

- Building (focus of ENEFIRST)
- Electricity markets & infrastructures
- Gas markets & infrastructure
- Renewable energy sources
- Heating & cooling
- Climate
- Energy efficiency
- Social &health policies
- Energy poverty
- Others?

ENEFIRST Timeline

Already available on the website:

- Reports on:
  - ✓ **Background** analysis and **definitions**
  - ✓ **Barriers to E1st**

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

- **Examples about implementing E1st**:

https://enefirst.eu/examples/

- Brochure in 7 languages

https://enefirst.eu/newsroom/

Coming soon:

- Report on **transferability**
- Report on **modelling approaches**

And then:

- Case studies
- Policy guidelines

Feel free to **contact us!**

Website:
https://enefirst.eu/

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

Thank you

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 839509. The sole responsibility for the content of this presentation lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME nor the European Commission are responsible for any use that may be made of the information contained therein.