

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

9 March 2022

IEECP lunch seminar

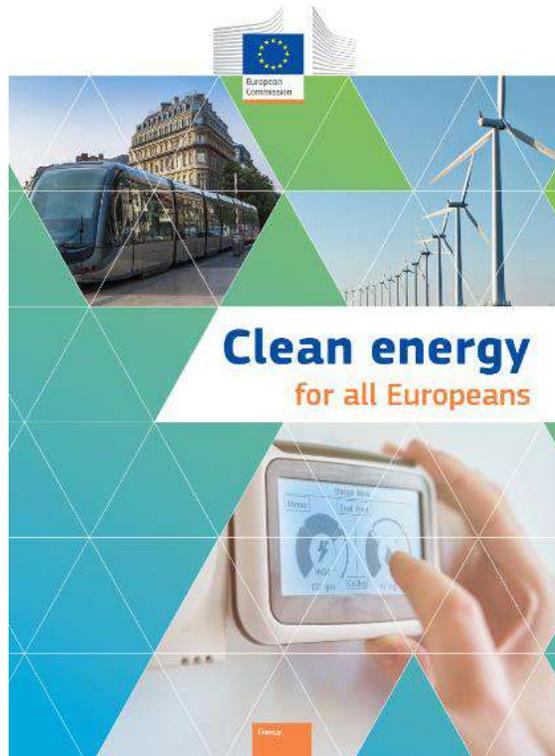
Jean-Sébastien Broc

Presentation prepared as part of the **enefirst.** project



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Energy Efficiency First?

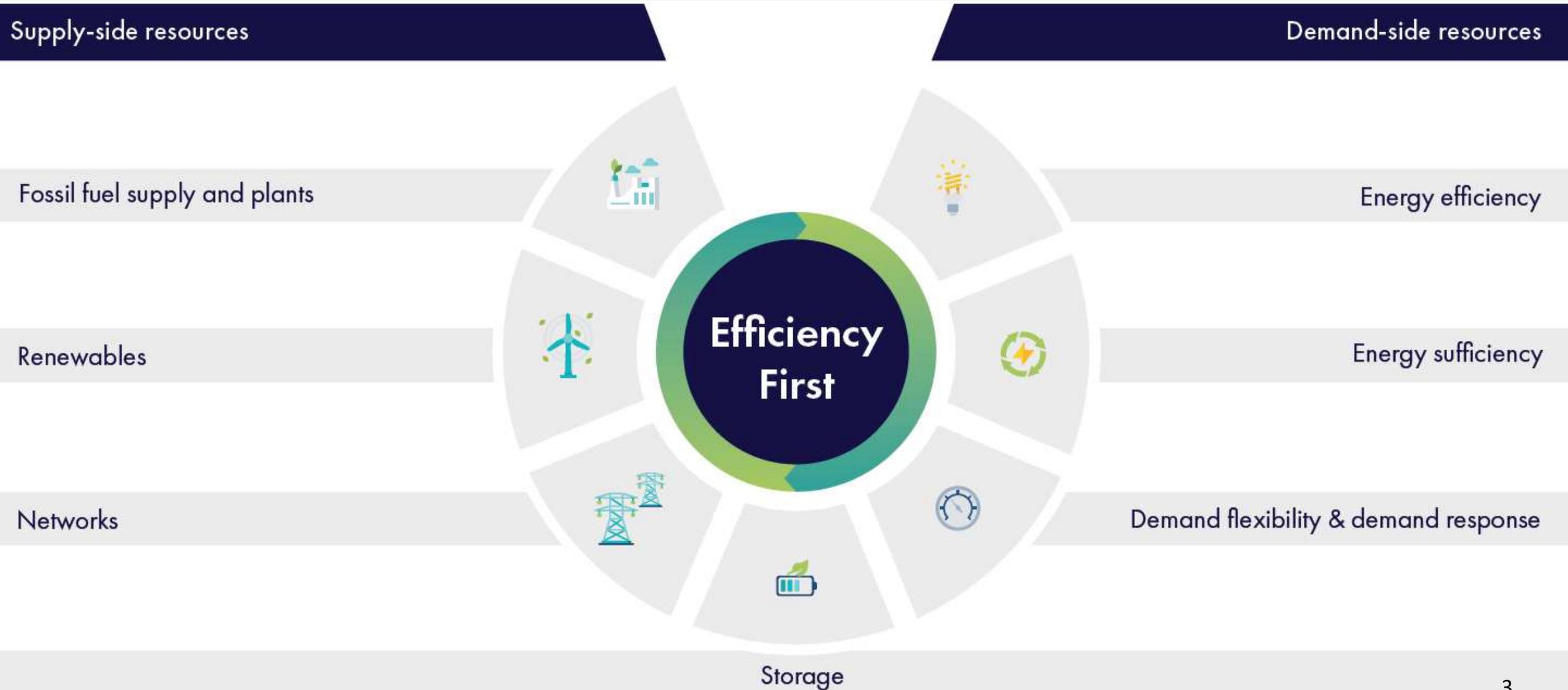


'energy efficiency first' means taking utmost account in energy planning, and in policy and investment decisions, of alternative cost-efficient energy efficiency measures to make energy demand and energy supply more efficient, in particular by means of cost-effective end-use energy savings, demand response 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.](#)

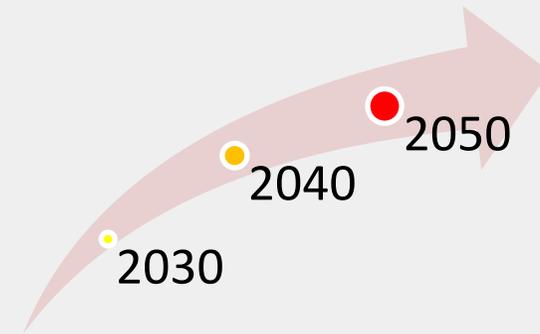
Considering energy systems as a whole



Society's perspective

Multiple impacts = + Long-term perspective

- REDUCED GHG EMISSIONS
- IMPROVED HEALTH
- REDUCED ENERGY POVERTY
- REDUCED INVESTMENT NEEDS
- CONTRIBUTE TO 100% RES
- ...



European Commission logo at the top left. The main text reads: "Going CLIMATE-NEUTRAL by 2050". Below this, it says: "A STRATEGIC LONG-TERM VISION FOR A PROSPEROUS, MODERN, COMPETITIVE AND CLIMATE-NEUTRAL EU ECONOMY". The background is teal with various icons related to climate and industry.

Check-list for implementing EE1st

- 1) Are demand-side resources **considered** when comparing / planning / deciding investments?
(especially when planning / deciding investments in energy infrastructure)
- 2) Are demand-side resources **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 **priority** given to demand-side resources when relevant?

See [‘real-life’ examples](#) on the ENEFIRST website

EE1st in the fit-for-55 package / proposed EED recast

https://ec.europa.eu/commission/presscorner/detail/en/ip_21_3541

https://ec.europa.eu/info/files/proposal-directive-energy-efficiency-recast_en



Brussels, 14.7.2021
COM(2021) 558 final

2021/0203 (COD)

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

on energy efficiency (recast)

(Text with EEA relevance)

{SEC(2021) 558 final} - {SWD(2021) 623 final} - {SWD(2021) 624 final} -
{SWD(2021) 625 final} - {SWD(2021) 626 final} - {SWD(2021) 627 final}

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.](#)

Relevant now?

8 March 2022:

REPowerEU: Joint European Action for more affordable, secure and sustainable energy

[COM\(2022\) 108 final](#)

“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>

Action 1



No new gas supply contracts with Russia

Impact: Taking advantage of expiring long-term contracts with Russia will reduce the contractual minimum take-or-pay levels for Russian imports and enable greater diversity of supply.

Action 2



Replace Russian supplies with gas from alternative sources

Impact: Around 30 bcm in additional gas supply from non-Russian sources.

Action 3



Introduce minimum gas storage obligations to enhance market resilience

Impact: Enhances the resilience of the gas system, although higher injection requirements to refill storage in 2022 will add to gas demand and prop up gas prices.

Action 4



Accelerate the deployment of new wind and solar projects

Impact: An additional 35 TWh of generation from new renewable projects over the next year, over and above the already anticipated growth from these sources, bringing down gas use by 6 bcm.

Action 5



Maximise generation from existing dispatchable low-emissions sources: bioenergy and nuclear

Impact: An additional 70 TWh of power generation from existing dispatchable low emissions sources, reducing gas use for electricity by 13 bcm.

Action 6



Enact short-term measures to shelter vulnerable electricity consumers from high prices

Impact: Brings down energy bills for consumers even when natural gas prices remain high, making available up to EUR 200 billion to cushion impacts on vulnerable groups.

Action 7



Speed up the replacement of gas boilers with heat pumps

Impact: Reduces gas use for heating by an additional 2 bcm in one year.

Action 8



Accelerate energy efficiency improvements in buildings and industry

Impact: Reduces gas consumption for heat by close to an additional 2 bcm within a year, lowering energy bills, enhancing comfort and boosting industrial competitiveness.

Action 9



Encourage a temporary thermostat adjustment by consumers

Impact: Turning down the thermostat for buildings' heating by 1°C would reduce gas demand by some 10 bcm a year.

Action 10



Step up efforts to diversify and decarbonise sources of power system flexibility

Impact: A major near-term push on innovation can, over time, loosen the strong links between natural gas supply and Europe's electricity security. Real-time electricity price signals can unlock more flexible demand, in turn reducing expensive and gas-intensive peak supply needs.



Countries Fuels & technologies Analysis

Energy efficiency

The first fuel of a sustainable global energy system

In practice?

Sufficiency = #9

Energy efficiency (end-use) = #8

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/>



<https://energysufficiency.de/en/policy-database-en/>

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?

Energy

Turn down heating by 1C to reduce need for Russian imports, Europeans told

IEA says reducing temperature could help wean consumers off fuel that Russia is using as a weapon in Ukraine war

● [Ukraine-Russia crisis: latest updates](#)

Fiona Harvey *Environment correspondent*

Thu 3 Mar 2022 14.29 GMT



<https://www.theguardian.com/environment/2022/mar/03/turn-down-heating-reduce-need-russian-imports-europeans-told>



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

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

https://ec.europa.eu/energy/sites/default/files/eef_guidelines_ref_tbc.pdf

September 2021

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

https://ec.europa.eu/energy/sites/default/files/eef_recommendation_ref_tbc.pdf

General approach to apply EE1st in decision-making

PHASE	POLICY MAKERS	REGULATORY AUTHORITIES	MARKET ENTITIES
Inception	<ul style="list-style-type: none"> Define policy targets Define / update regulatory framework Analyse policy impact and alternatives 	<ul style="list-style-type: none"> Define market access rules for energy efficiency or demand-response solutions Carry out compliance check of business / project goal with policy targets and market access rules 	<ul style="list-style-type: none"> Define business / project goal
Preparation		<ul style="list-style-type: none"> Define CBA method in principle 	<ul style="list-style-type: none"> Define CBA method for concrete application Collect information Forecast energy service demand Identify other cost and risk Assess systematically based on the EE1st principle
Validation		<ul style="list-style-type: none"> Check the implementation plan and if relevant, approve it 	<ul style="list-style-type: none"> Propose the implementation plan
Implementation			<ul style="list-style-type: none"> Implement the plan, e.g. provide designed service, adopt energy-efficiency technologies, make investment decisions, etc.

- 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

Home > Data Tools > EE1: Energy Efficiency First

EE1: ENERGY EFFICIENCY FIRST

EE1: Energy Efficiency First Introduction Select a Country Case studies

> FRANCE

Select a country

IMPLEMENTATION BENCHMARK CHALLENGES POTENTIALS

About

Indicator	Implementation Status
Comparison of supply and demand	Green
Cost-benefit analysis	Yellow
Discount rates	Red
MBs	Yellow
Economic efficiency potentials	Yellow
Prevention of distorted markets	Green
Access to information	Yellow
Access to capital	Yellow
Risk and certainty	Yellow
Energy poverty	Green
Sufficiency	Red
Region and local level	Yellow
Monitoring	Yellow

More details NECP (Nation Energy and Climate Plans)

+ 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)

ENEFIRST, 2021. [Guidelines on policy design options for implementation of E1st in buildings and the related energy systems.](#) + [infographic](#) + [workshop](#) and [webinar](#) proceedings

Energy Efficiency First as a way to promote **integrated approaches...**

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

+ analysis of the **Fit-for-55** (July 2021) package

Chapter 3

Complementary approaches to implement E1st



Approaches for **integrated energy planning**

Integrated energy modelling

→ *basis for any integrated planning approach*

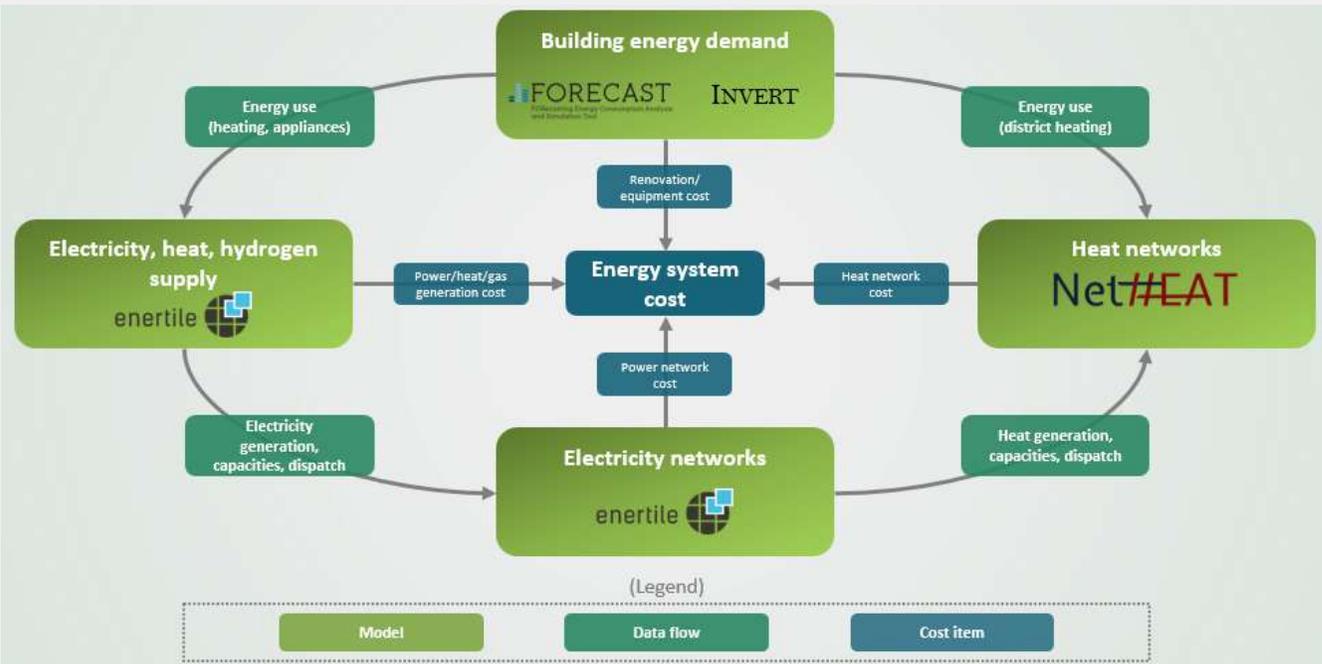
Integrated energy infrastructure planning

- Transmission and distribution utility provision
- Transmission and distribution company incentives
- Integrated district heating planning and operation

Integrated planning of energy demand & supply in buildings

- 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](#).

ENEFIRST (2021). [Concept development for a model-based assessment 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!



COMPREHENSIVE ASSESSMENTS OF ENERGY EFFICIENCY IN BUILDINGS AND CURRENT EU POLICY CHANGES

Date: 10.03.22 | 09:00 - 10:00 am

Organized by: sEnergies, BPIE, Aalborg University



VAST ENERGY EFFICIENCY WITHIN INDUSTRY IN ALL EU COUNTRIES

Date: 17.03.22 | 09:00 - 10:00 am

Organized by: sEnergies



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: sEnergies



ENERGY EFFICIENCY IN SMART ENERGY NETWORKS AND SMART GRIDS

Date: 31.03.22 | 09:00 - 10:00 am

Organized by: sEnergies 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: sEnergies



ENERGY EFFICIENCY – ENERGY SYSTEM MODELS

Date: 28.04.22 | 09:00 - 10:00 am

Organized by: sEnergies

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 E1st 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**

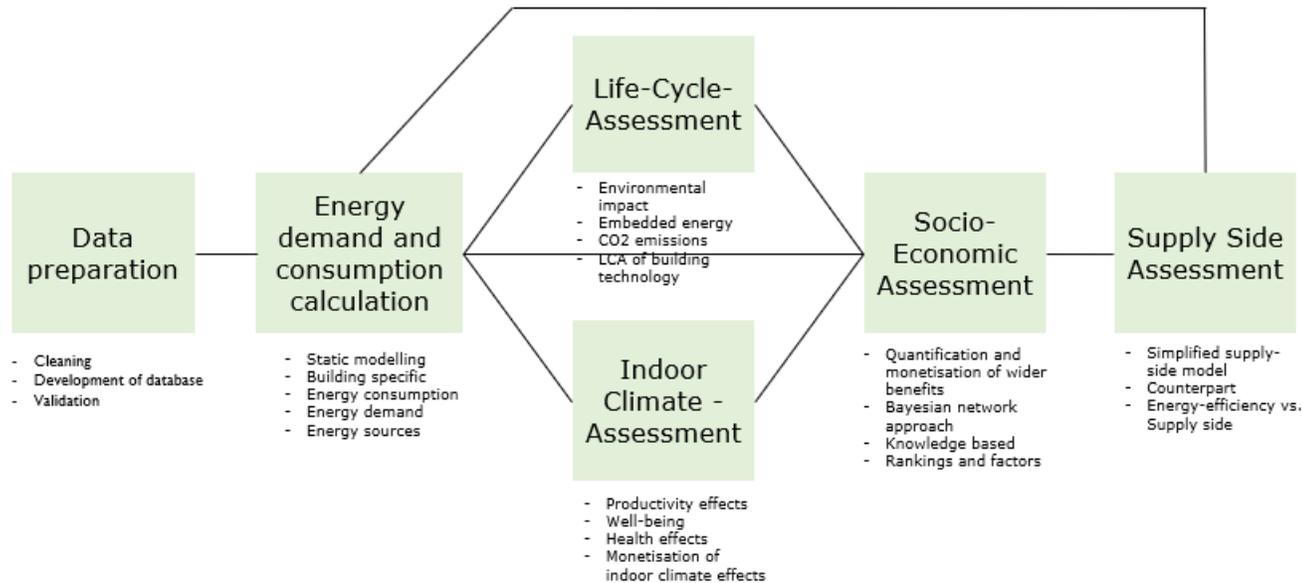
- Integration of EE1st principle into EU funding streams
- Carbon revenue recycling towards energy efficiency

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)



<https://micat-project.eu/>

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

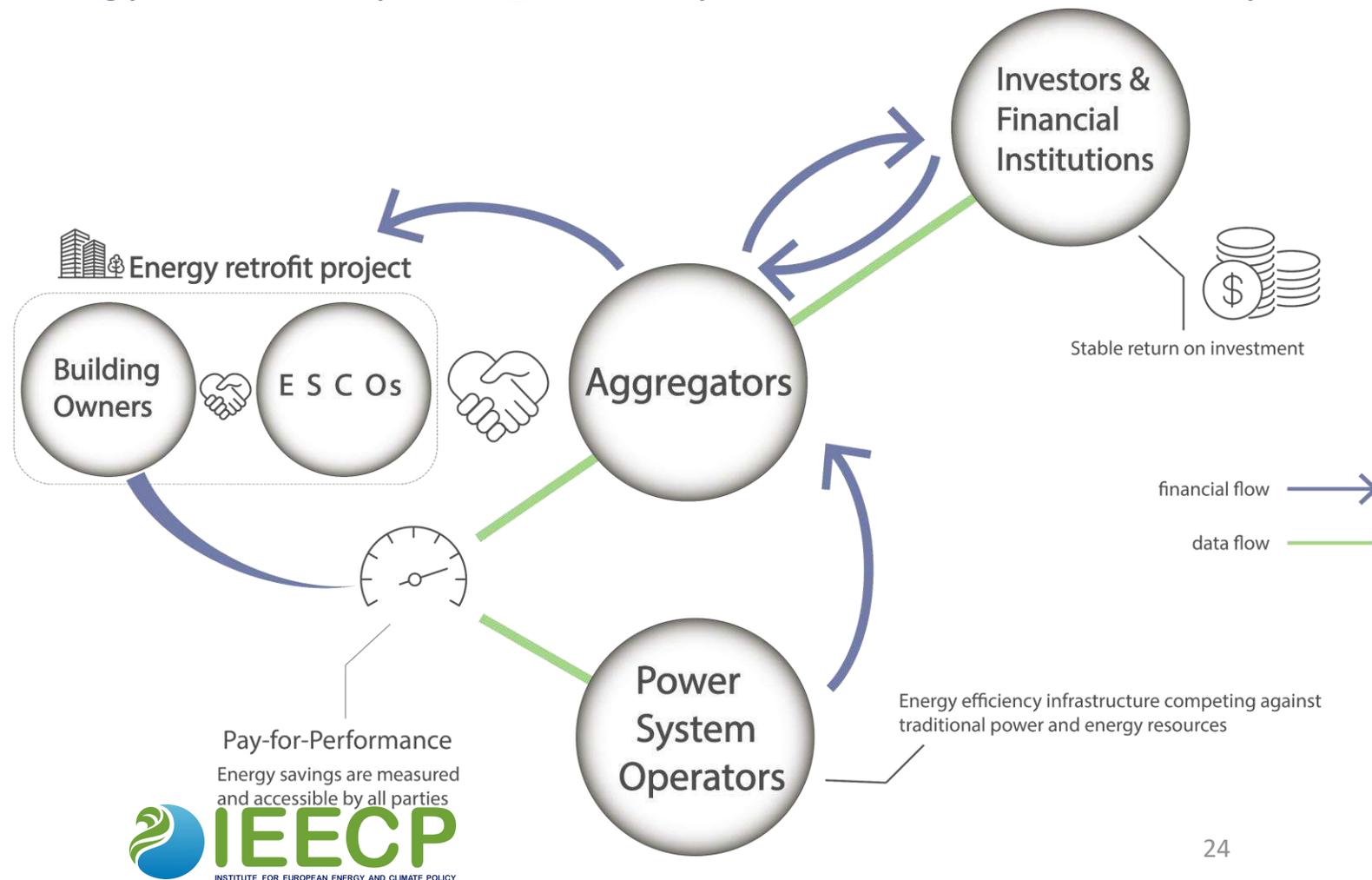
P4P can secure energy efficiency as a resource

Metered energy savings → 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!



www.ieecp.org



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