WEBINAR

ESCOS AND ENPCS: KEY ENERGY EFFICIENCY TOOLS TO DELIVER FIT FOR 55

Thursday
21 October

12:00 - 13:30
CEST

THE PANEL

- **VERONIKA JIŘÍČKOVÁ,** EUROPEAN COMMISSION, DG ENER
- **CHRISTIAN SPENGLER,** Siemens/eu.esco - European Association of Energy Service Companies
- **PASCAL GUILLAUME,** EFIEES - European Federation of Intelligent Energy Efficiency Services
- **JESSICA GLICKER,** BPIE - Buildings Performance Institute Europe

Moderator: ARIANNA VITALI ROSCINI, The Coalition for Energy Savings

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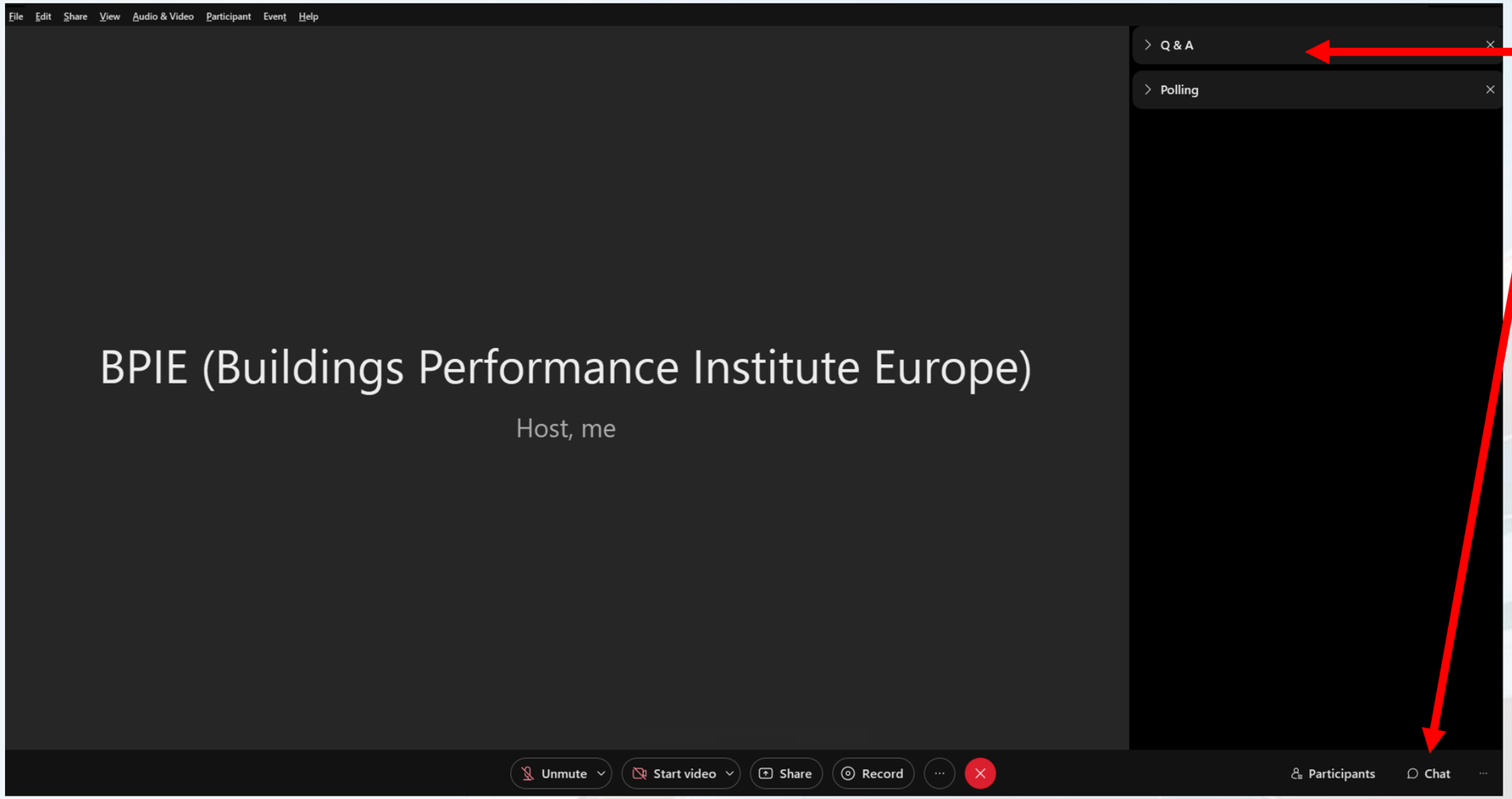

- Submit your text questions and comments using the Q&A panel
- If you have technical issues, please use the chat box
- Today's presentation is being recorded and will be provided to the participants along with the slide deck

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Give your answer in the Webex poll!

What type of organisation do you represent?

- National authority (3 votes)
- EU institution (1 vote)
- ESCO (2 votes)
- Manufacturer (3 votes)
- Industry association (7 votes)
- NGO (3 votes)
- Academy (1 vote)
- Other (6 votes)

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ESCOS AND ENPCS: KEY ENERGY EFFICIENCY TOOLS TO DELIVER FIT FOR 55

"EnPCs in Europe – Setting the scene"

VERONIKA JIŘÍČKOVÁ, EUROPEAN COMMISSION, DG ENER

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Fit for 55

Revision of the

Energy Efficiency Directive (EED)

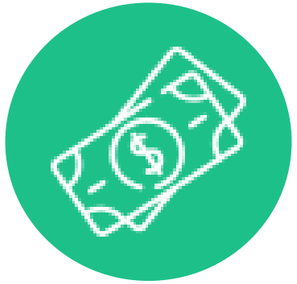
ESCOs and EnPCs: key energy efficiency tools to deliver Fit for 55
21 October 2021

Veronika Jiříčková
Energy Efficiency Unit, DG ENER.B2
European Commission

Energy Performance Contracting (EnPCs)

projects that pay for themselves

energy efficiency improvement investments are financed directly from cost savings



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Main elements of the EED revision

- Binding EU energy efficiency target & indicative national contributions
- ‘Energy Efficiency First’ Principle – making it an integral part of policy and investment decisions
- Strengthened energy savings obligation in end-use
- Stronger exemplary role of public sector
- Increased focus on alleviating energy poverty and consumer empowerment

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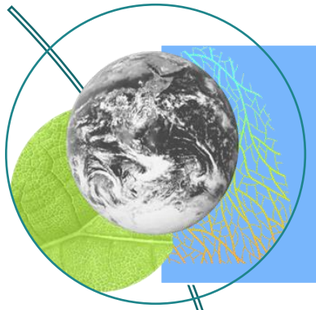
Energy services – Article 27



Uptake of EnPC by public bodies for renovation of large buildings

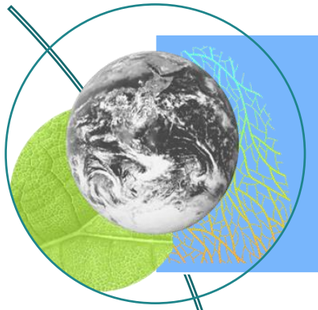
Renovations of **large non-residential buildings** (above 1000 m^2):

public bodies will have to assess <u>feasibility</u> of using an EnPC

Increased **role of advisory bodies,** independent market intermediaries, one stop shops

European Commission

Exemplary role of public sector: Articles 5-7



Obligation of annual reduction of energy consumption of 1.7% in public sector (MS to select public bodies)

NEW

Annual renovation of at least **3%** of useful floor area of **all** public buildings (>250 m^2)

Contracting authorities to assess the feasibility of long-term EnPCs in public procurement for contracts with significant energy content

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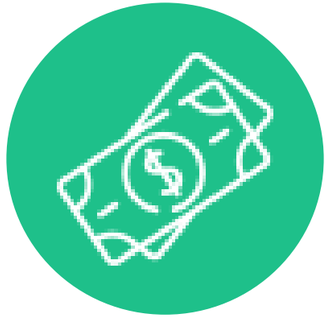
Links with articles 11, 26, 28

Energy audits

Change of criterion for obligation to carry out energy audit from SME to annual energy consumption (>10TJ)

Availability of qualification schemes

Member States shall ensure that qualification schemes and suitable training programmes, are available for energy efficiency professions (providers of energy services, providers of energy audits, energy managers, independent experts) corresponding to the market needs



Finance

Member States to set up project development assistance facilities at national, regional or local level to increase investments in energy efficiency in different sectors

European Commission

If you want to go further:

Fit for 55 package: EU economy and society to meet climate ambitions (europa.eu)

Proposal_for_a_directive_on_energy_efficiency_recast.pdf (europa.eu)

European Commission

Give your answer in the Webex poll!

ESCOs and EnPCs are key tools to deliver fit for 55

- Strongly Agree (22 votes)
- Agree (8 votes)
- Somewhat agree (4 votes)
- Somewhat disagree
- Disagree
- Strongly Disagree (1 vote)

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ESCOS AND ENPCS: KEY ENERGY EFFICIENCY TOOLS TO DELIVER FIT FOR 55

"Energy Performance Contracts- best practices and pooling of public tenders"

CHRISTIAN SPENGLER, SIEMENS/ EU.ESCO - European Association Of Energy Service Companies

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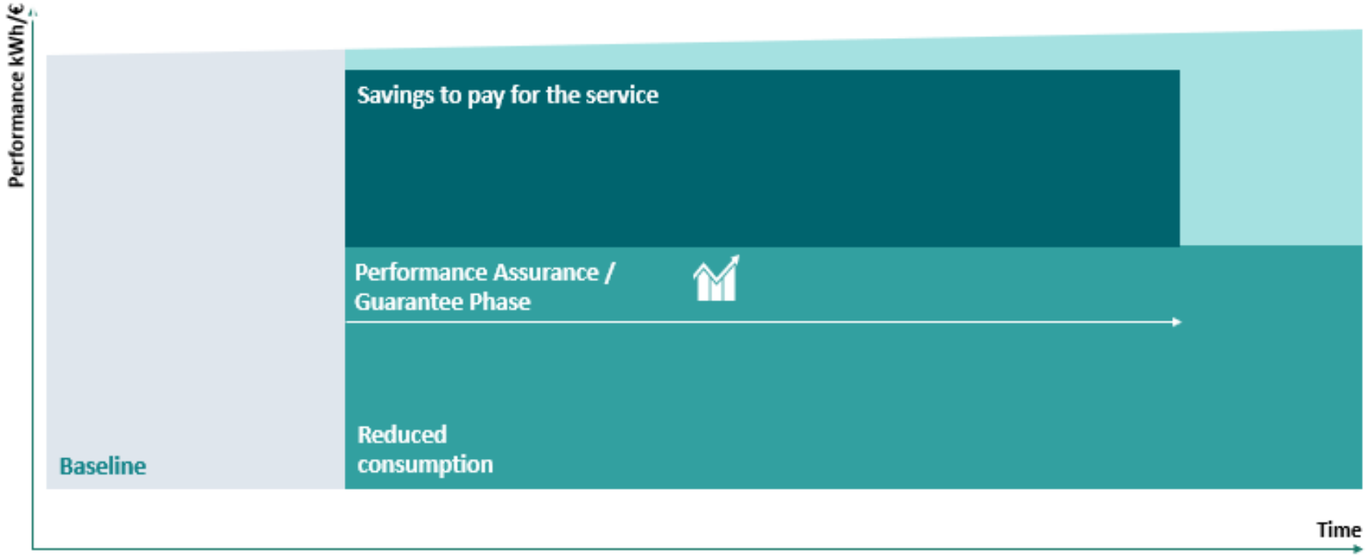
OUR VISION

"a world where the full potential of Energy Performance Contracts (EnPCs) is utilized to decarbonize the European building stock, improve the wellbeing of its citizens and contribute to reducing energy poverty”

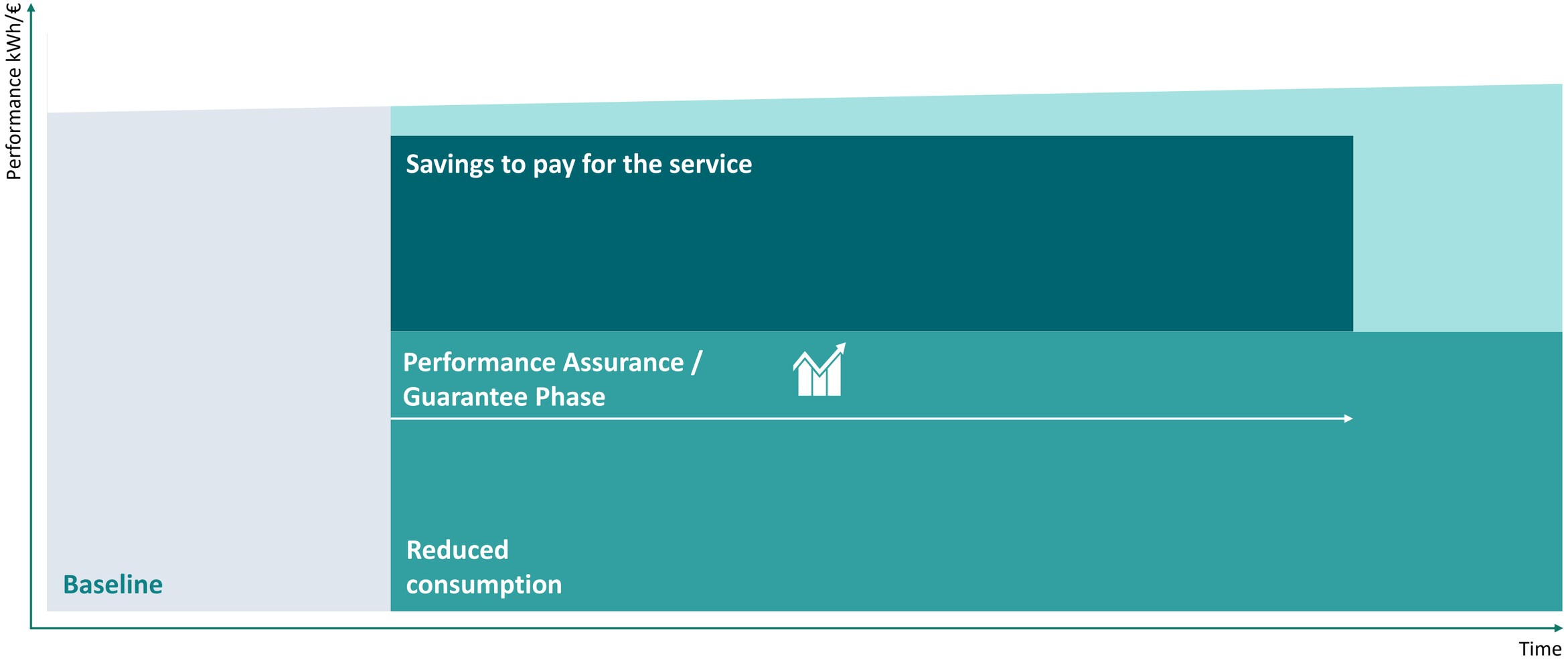
What is an EnPC?

Cost savings over contract lifetime are used to repay the upfront costs of the project. Once the agreement expires, 100% of the savings remain with the end-user:

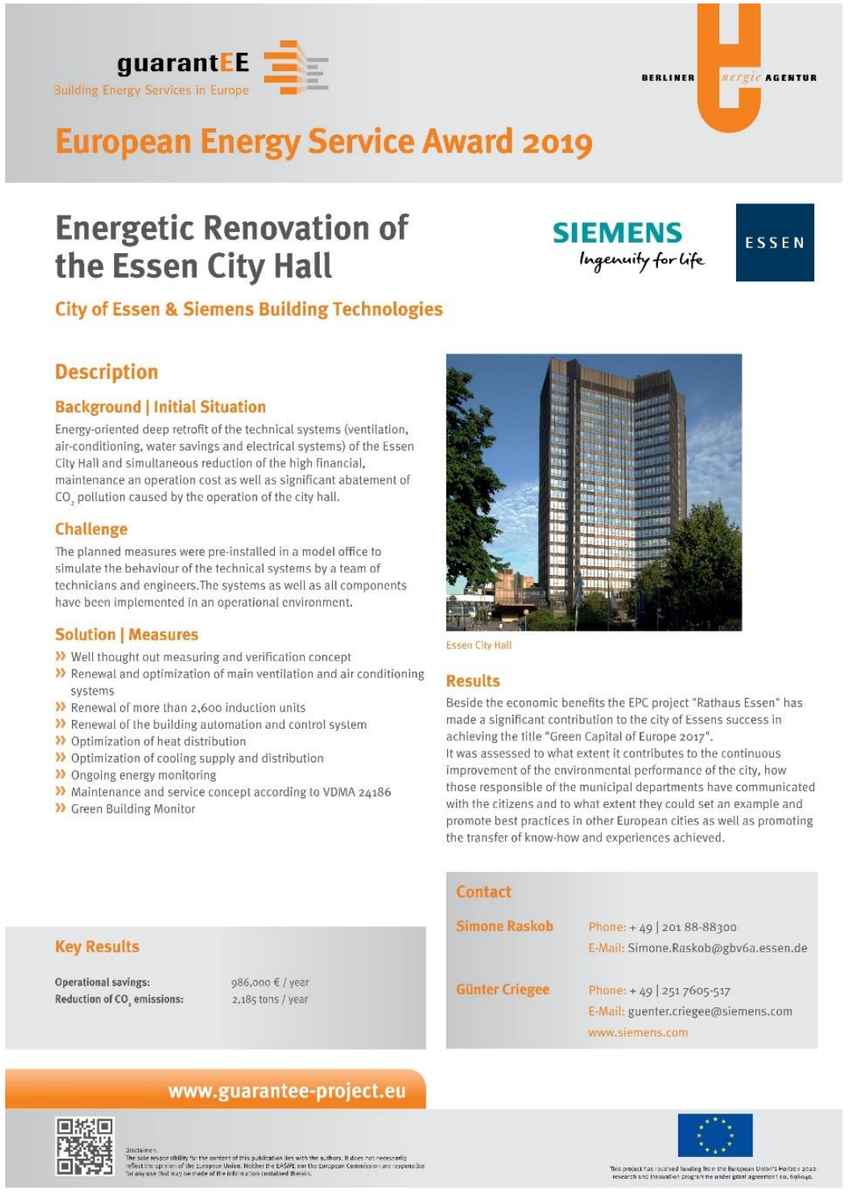


- Reduced investment and risk
- Reduced energy consumption
- Improved indoor environmental quality and building value
- Stimulate local economy
- Opportunity to save on aggregate projects
- Increased energy security

Energy Performance Contracting



City hall renovation in Essen



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Building Energy Services in Europe

BERLINER Energie AGENTUR

European Energy Service Award 2019

Energetic Renovation of the Essen City Hall

SIEMENS Ingenuity for life

ESSEN

City of Essen & Siemens Building Technologies

Description

Background | Initial Situation

Energy-oriented deep retrofit of the technical systems (ventilation, air-conditioning, water savings and electrical systems) of the Essen City Hall and simultaneous reduction of the high financial, maintenance an operation cost as well as significant abatement of CO_2 pollution caused by the operation of the city hall.

Challenge

The planned measures were pre-installed in a model office to simulate the behaviour of the technical systems by a team of technicians and engineers.The systems as well as all components have been implemented in an operational environment.

Solution | Measures

- Well thought out measuring and verification concept
- Renewal and optimization of main ventilation and air conditioning systems
- Renewal of more than 2,600 induction units
- Renewal of the building automation and control system
- Optimization of heat distribution
- Optimization of cooling supply and distribution
- Ongoing energy monitoring
- Maintenance and service concept according to VDMA 24186
- Green Building Monitor

Essen City Hall

Results

Beside the economic benefits the EPC project "Rathaus Essen" has made a significant contribution to the city of Essens success in achieving the title "Green Capital of Europe 2017".
It was assessed to what extent it contributes to the continuous improvement of the environmental performance of the city, how those responsible of the municipal departments have communicated with the citizens and to what extent they could set an example and promote best practices in other European cities as well as promoting the transfer of know-how and experiences achieved.

Key Results

Operational savings:	986,000 € / year
Reduction of CO_2 emissions:	2,185 tons / year

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 696092.

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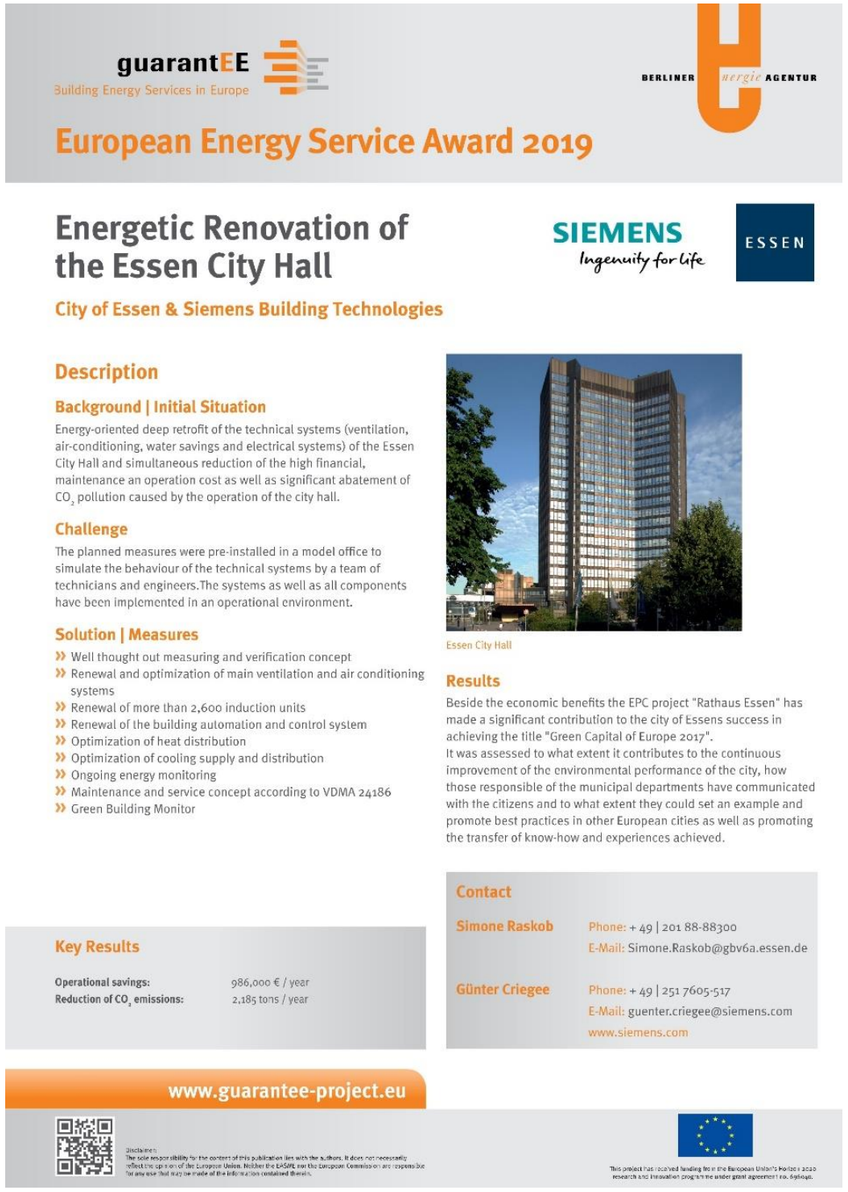
SIEMENS
Ingenuity for life

Installation time +/- 8 months

- Renewal and optimization of main ventilation and air conditioning systems
- Replacement of 2’600 induction units with Fan Coils
- Optimization of heat distribution
- Optimization of cooling supply and distribution
- Optimization of lighting system with LED
- Continuous energy monitoring
- Maintenance and service concept

City hall renovation in Essen



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SIEMENS
Ingenuity for life

Savings achieved:

- 2019: > MEUR 1’0
  123% of guaranteed savings
- 2020: > MEUR 1’0
  122 % of guaranteed savings
- 2021: > MEUR 0’7
  year to date until September 2021

The Energy Efficiency Market is evolving

Traditional Approach

- Energy Efficiency and Building Optimization

Today's Approach

+ Sustainability Advisory Services
+ Onsite Energy Supply
+ DER (*) Optimization and Grid Services / BESS (*)
- Energy Efficiency and Building Optimization

Tomorrow's Approach

+ Climate Risk Consulting
+ GHG Inventory
+ Sustainability Strategy
+ Decarbonization Planning
+ Sustainability Tracking
- Sustainability Advisory Services
- Onsite Energy Supply
- DER (*) Optimization and Grid Services / BESS (*)
- Energy Efficiency and Building Optimization

(*) DER = Distributed Energy Resource
BESS = Battery Energy Storage System

Energy Efficiency Directive (EED) revision suggestions

01 Public authorities should be mandated to use EnPCs where technically and economically feasible

02 The renovation rate for public buildings should be extended to 4%. Similar milestones should be set for the broader tertiary building stock

03 Technical assistance to aggregate renovations through EnPCs

THANK YOU!

Give your answer in the Webex poll!

Which legislative or non-legislative measures are key to unlocking the potential of EnPCs?

- Obligation for public bodies to use EnPCs (where economically feasible) (12 votes)
- Public body oversight through a dedicated national authority and standardization requirements (8 votes)
- Requirements to promote best practices (4 votes)
- Incorporating active elements (demand side response) (1 vote)
- Addressing the quality and lack of certified professionals (3 votes)
- Other (please specify in the chat box) (1 vote)

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"Ready to delivering for the fit for 55: managing the building's energies"

PASCAL GUILLAUME, EFIEES - European Federation of Intelligent Energy Efficiency Services

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Ready to deliver on Fit for 55: managing buildings' energy use

Pascal Guillaume, President, EFIEES

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EFIEES – Who we are

- A European trade association representing more than 100.000 professionals committed to decarbonising our economy on a daily basis in 12 EU Member States.

- Our Members: National associations representing **Energy Service Companies (ESCOs)** in their countries and private companies providing Energy Efficiency Services (EES).

Our members' activities:

- Design and implement **energy performance solutions, such as Energy Performance Contracts (EnPCs)** according to clients' specific needs;

- Proactively **manage the building**/asset of the clients to deliver the expected performance ;

- **Contractually guarantee the results over time** (notably energy and CO_2 savings).

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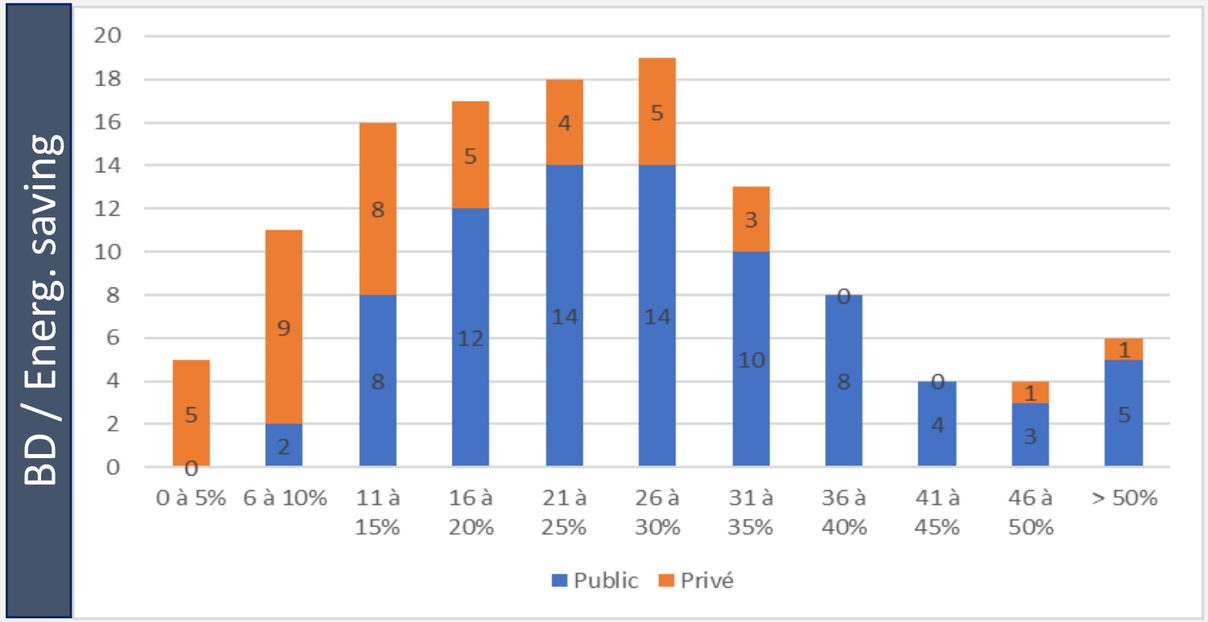
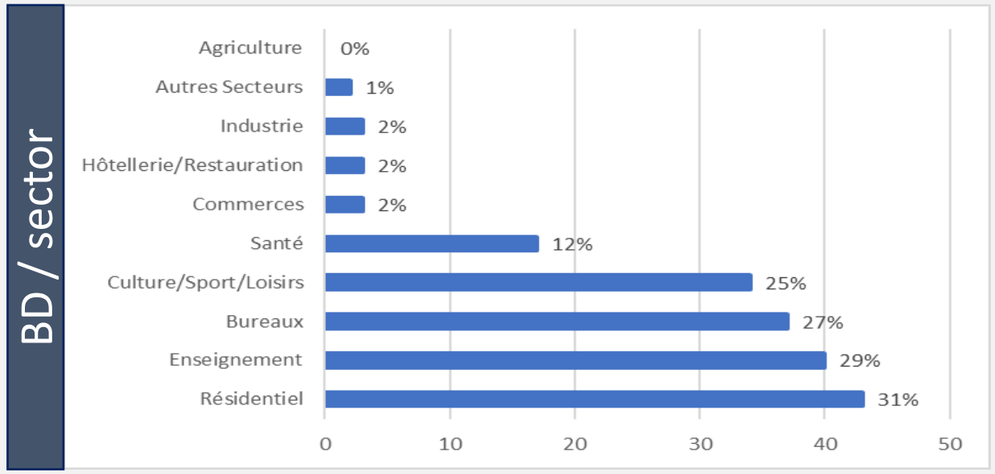
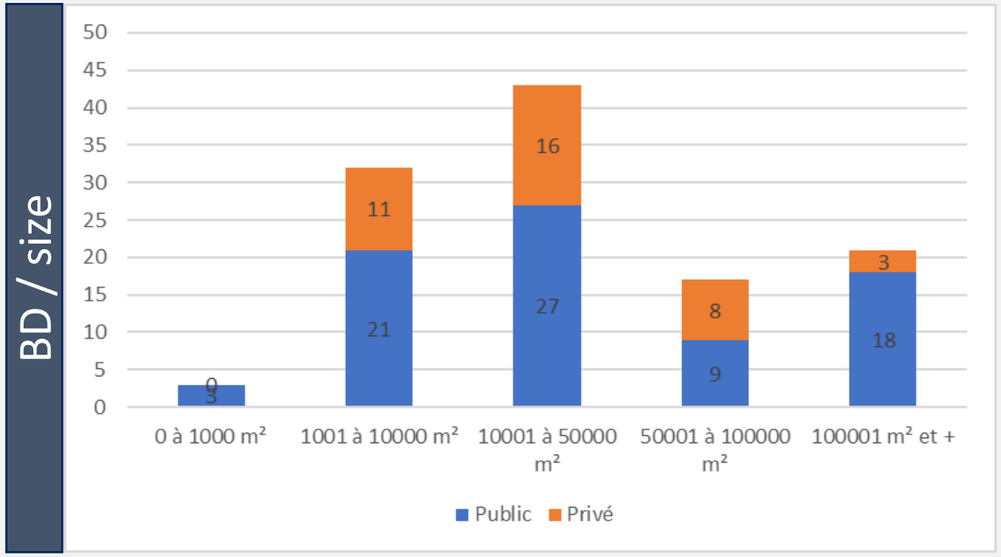
FEDENE (SNEC) 2020 survey on EPCs

- Over **150** EnPCs studied
- Representing 7,3 millions m² and around 3400 buildings
- Adaptation to the client's expectation
- That can reach over 40% energy savings







Residence Gonjon in Limoges

Context and solutions

- 50 appartements in a building
- Poor maintenance works for many years

Investment : 245 k€
Co-financing : operator & co-ownership.

- **Heating systems**
  - Condensation boilers
  - Network thermal insulation
- **Building**
  - Facade and floors insulation
  - Doors replacement
- **Automation**
  - Regulation through a digital platform
  - Ambiance sensors (temperature, humidity…)
- **Performance**
  - Maintenance and operation
  - Energy supply

Energy & climate transition commitments

- **→ 48 % GHG direct emissions reduction**
- **→ 48 % primary energy savings**

Commitment on the level of heating bill for tenants and owners – no cost increase.

Total guarantee on heat production equipment

Agreed protocol for measure and verification with a digital monitoring

EnPCs market: barriers and solutions

Challenges & Barriers	Answers & Solutions How EnPcs are in the heart of the Fit for 55
X Low/fluctuating energy prices	✓ Appropriate energy taxation / carbon pricing
X Lack of awareness	✓ Promotion of EES through regulatory and non-regulatory measures (legislative instruments, projects...) ✓ Public sector leading by example
X Lack of trust	✓ Quality insurance schemes (**QualitEE project**, **Transparense EPC Code of Conduct...)** ✓ Simplification ✓ Guarantee mechanisms
X Insufficient regulatory action & support	✓ Incentives: - Link financial support with performance improvements, provide a bonus for energy management solutions and EPCs, ensure favourable balance sheet treatment - Channeling financing (Taxonomy) - Make EES key players in renovation regulations (Renovation Wave, LTRS)

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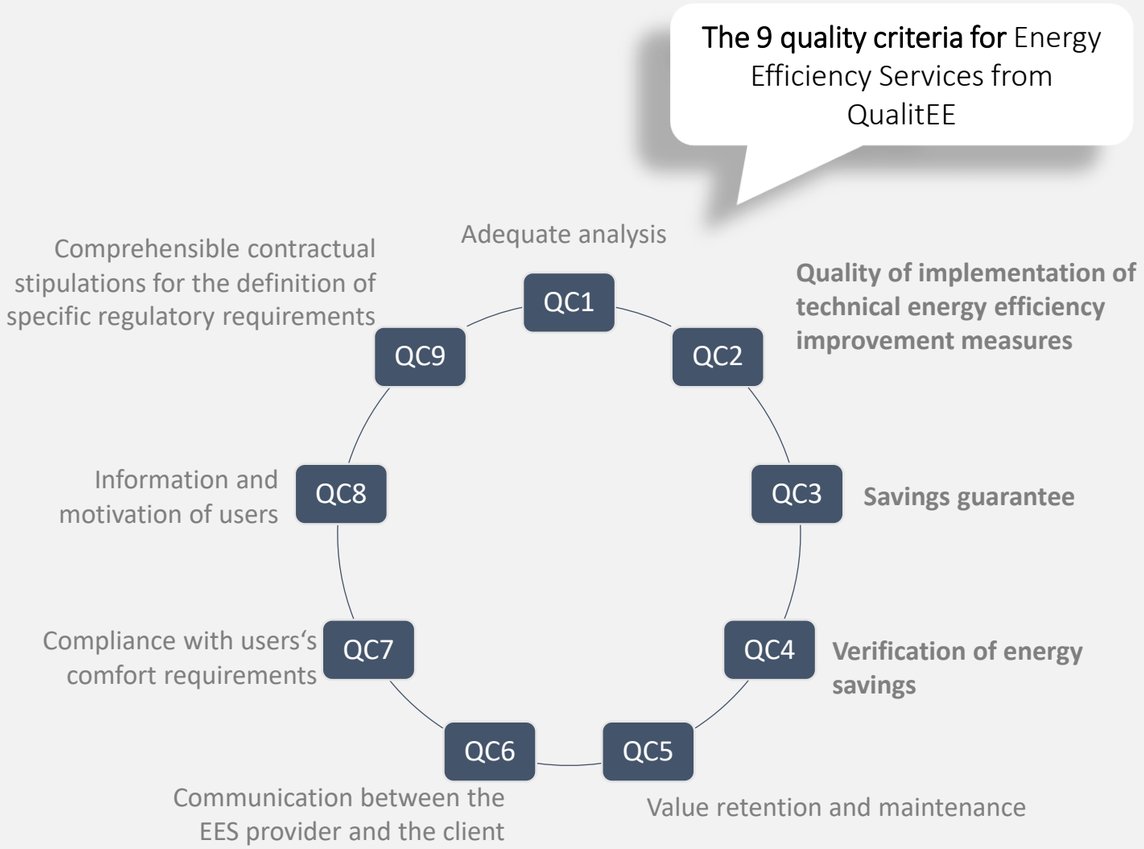
Examples of non-regulatory answers to market barriers: EPC CoC and QualitEE Project

The QualitEE project was funded by Horizon 2020. Its aims were to:

- **Increase responsible investment** in energy efficiency services in the building sector
- **Improve the trust level** of clients and financial institutions in energy service providers
- Standardise the quality related aspects of energy efficiency services and **institutionalise the quality assurance process**
- Improve the understanding of energy efficiency services and increase service quality

Before QualitEE Transparense project had established an **EnPC Code of Conduct** based on seven commitments taken by signatories:

- animated by national administrators in charge of signatories in their respective countries
- coordinated at EU level by EFIEES & eu.esco.
- Status: 240 signatories in Europe: 154 EPC suppliers, 15 EPC suppliers' national associations, 1 European associations and 70 other bodies* which are active within the EPC market.



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Proactive energy management solutions: a key role acknowledged in the Fit for 55 Package

An extended renovation rate (Art. 6 EED)

Mandatory reduction of final energy consumption (Art. 5 EED)

Supporting the decarbonisation of building sector to reach ambitious climate targets (EE, RES…)

Obligations for member states to identify and lift barriers concerning split incentives (EED, Art. 21)

Priorisation of EE actions in the Modernisation Fund

An enhanced recognition of EnPCs as a key tool in the transition.

Exemptions from the requirements on certain enterprises to implement an energy management system or energy audit if an EnPC is in place (EED, Art. 11).

Public bodies to **assess the feasibility of EnPCs** service contracts procurement with significant energy content & renovations of large non-residential buildings (EED, Art. 7 and 27)

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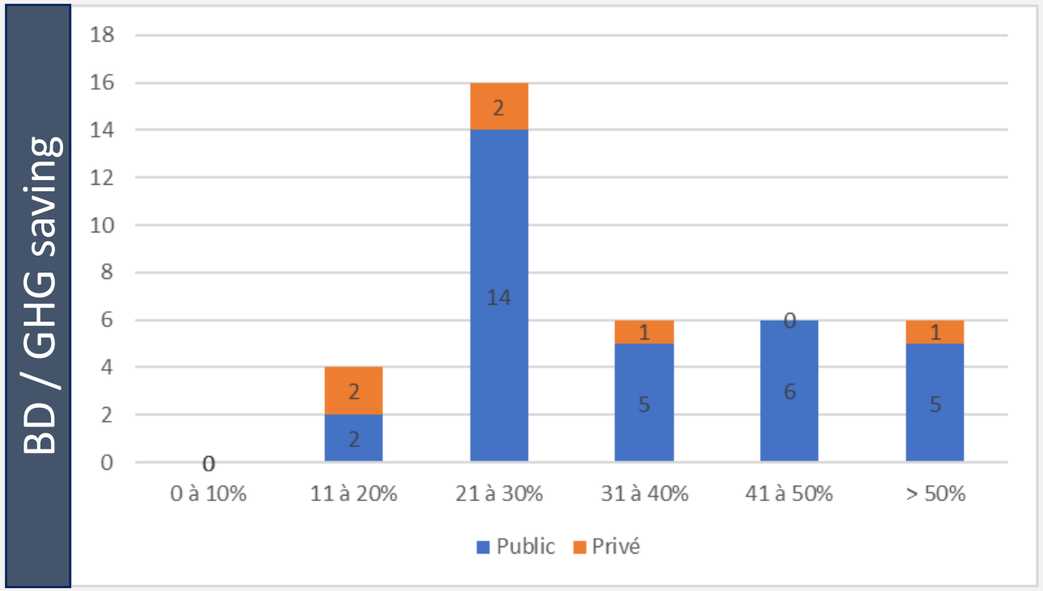
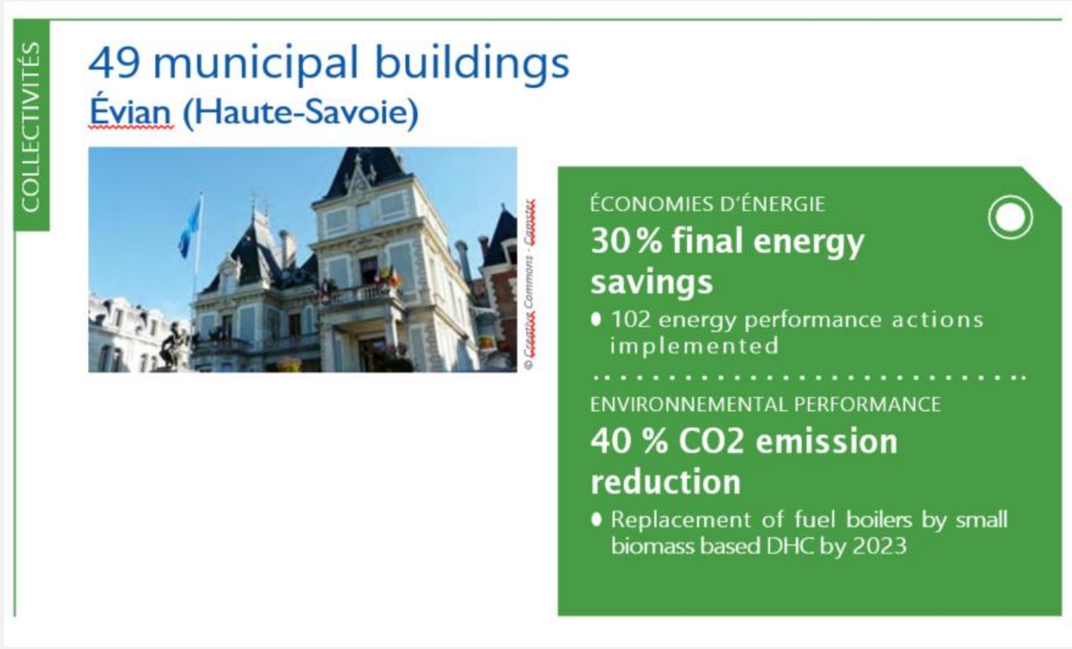
EnPC: Energy and carbon performance

44%

With 44% of EnPC including a GHG commitment EnPC is a perfect answer to the "Fit for 55" challenge.





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How EnPcs are in the heart of the Fit for 55

- Answering to the Climate urgency. IPCC key message:
  - Situation will stabilise only if GHG don't exceed the carbon sink **=> 2050 Climate neutrality**.
  - Global warming when we will stabilise depends on the cumulative emissions, the path to carbon neutrality is paramount **=> -55% in 2030**.

- EnPC, a proven solution, promoted by the directive Energy Efficiency but insufficient development despite merits.
  - Market barriers
  - Proposed revised EED will contribute to better uptake

- What is missing to fully support EnPC potential for buildings' decarbonisation
  - Reinforce existing propositions in revised EED
    - ✓ Justifications should be required for not implementing an EnPC following a feasibility assessment (EED, Articles 7 and 27).
    - ✓ Improved definition of an Energy Management Systems, specifying requirement to clearly describe the involved actors and their responsabilities
  - Promotion of EnPCs across the whole package and specifically RED

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Thank you for your attention!

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Give your answer in the Webex poll!

To what extent do you think that the « EnPC check » (art. 7 & 27) should be extended ?

- It should be extended to smaller public buildings (<1000 m^2) (5 votes)
- It should be extended to some private buildings (non-residential, tertiary…) (12 votes)
- It should be included in other EU directives (RED, EPBD…) (6 votes)
- It should be reinforced by requesting a justification when an EnPC is not concluded (3 votes)
- It should not be extended
- Others (1 vote)

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"A look at active EnPCs will help refresh the conversation around the effectiveness & complexity of performance contracting"

JESSICA GLICKER, BPIE - Buildings Performance Institute Europe

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AmBIENCe Project

EU Sustainable Energy Week 2021

Jesse Glicker

Project Manager

BPIE

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No #847054.
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Outline

- Who we are (BPIE)
- Active building EPC Concept
- The AMBIENCE project
- Regulatory enablers and barriers

BUILDINGS PERFORMANCE INSTITUTE EUROPE

EUROPEAN NON-PROFIT **THINK-TANK**

POLICY ADVICE ON BUILDING REGULATION, FROM DESIGN TO IMPLEMENTATION

BRUSSELS AND **BERLIN**

INDEPENDENT RESEARCH

IMPROVING THE ENERGY **PERFORMANCE OF BUILDINGS** ACROSS EUROPE

IN OPERATION SINCE 2010

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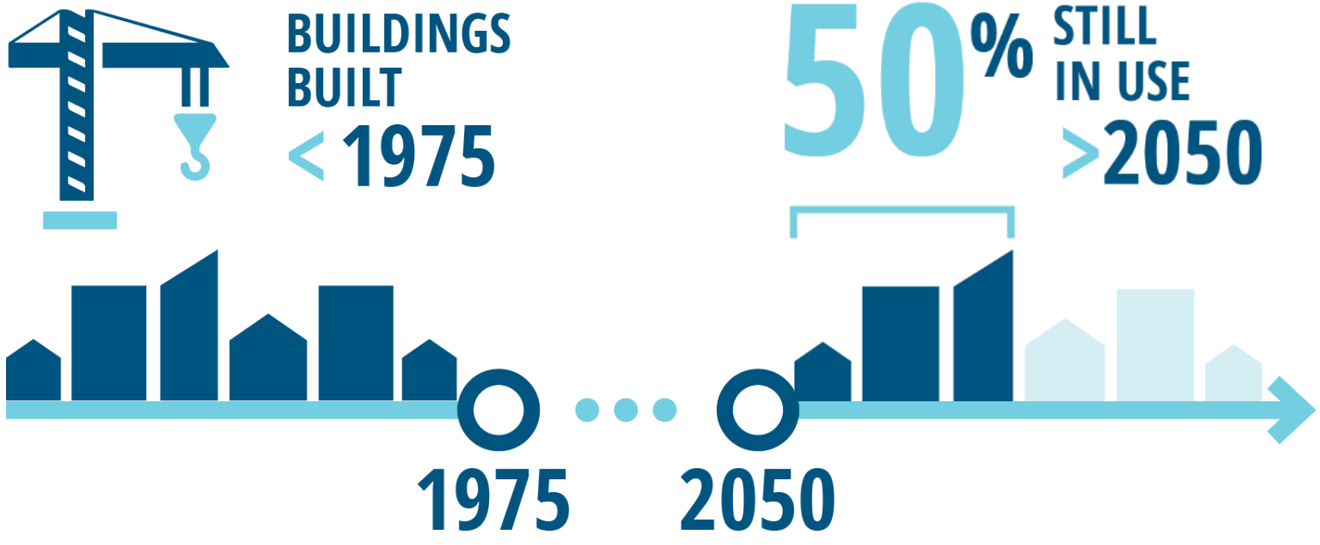
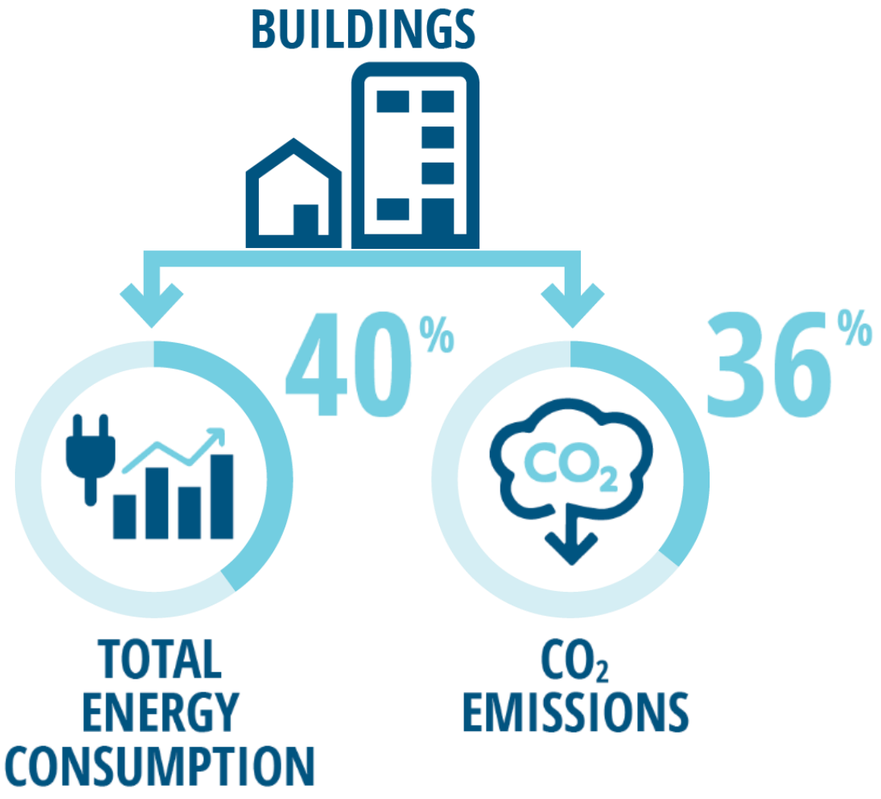
BUILDINGS PERFORMANCE INSTITUTE EUROPE

Europe's buildings





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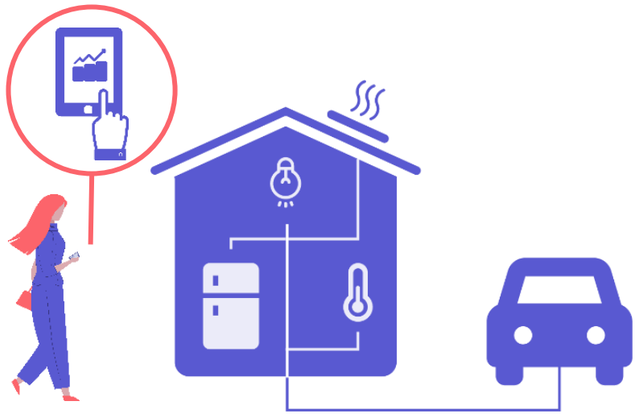
New Opportunity:
Buildings will become more digital and smarter



Smarter: Active control based on data and measurements. Active management enables significant emission savings in a cost-effective way.

Smarter: Active control leveraging machine learning (e.g. smart thermostats)

More digital: adding sensors, meters, ICT, …

- to improve comfort, security, …. (non-energy)
- to support M&V (e.g. but not exclusively in the context of EPC)

Vision and Mission

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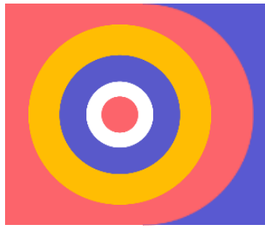
VISION: Reduced building emissions in the EU, as well as lower energy consumption, thanks to the application of **electrification combined with active control.**

- **Electrification** (of heating and hot water production) reduces emissions because compared to gas, electricity produces heat more efficiently and has a lower carbon intensity.
- **The carbon intensity of electricity** will continue to drop by more investments in wind and PV.
- **The carbon intensity** varies over the day, and the intra-day variability increases: emissions can be reduced by being smart and conscious about **WHEN** energy is consumed.



MISSION: Improve the economic attractiveness of building emission reduction measures by combining energy efficiency improvements with electrification and active control.

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Consortium

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AmBIENCe project involves **eight partners** (research and commercial partners) from four countries.

WHEN

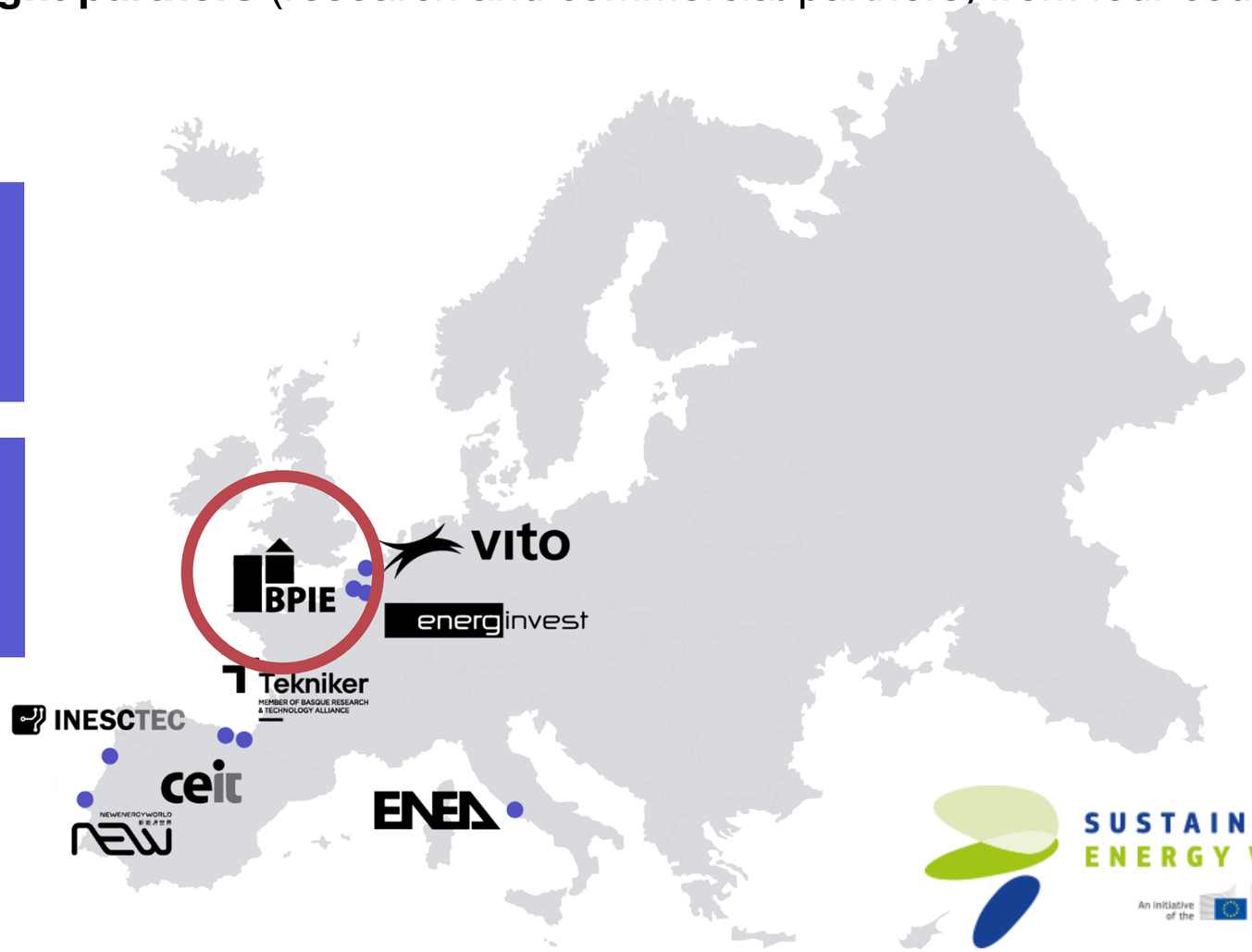
June 2019 -

May 2022

€

2 Million

EU Horizon 2020



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Active Building EPC Concept

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Active managed Buildings
with Energy Performance Contracting

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GOALS and objectives : WHAT will we do?

Extend the Energy Performance Contracting concept to include Demand Response value streams, valorizing the flexibility that is available in Active Buildings*.

Make this Active Building EPC concept applicable to a broader range of buildings (incl. residential) and clusters of buildings.

Develop a tool that supports the forecast of the DR value stream in the EPC contracting phase, along with a matching M&V methodology for the operational phase.

Validate the concept, tool and M&V methodology through two pilots (real buildings, real ESCOs).

Engage with all relevant actors and stakeholder groups (from building managers to ESCOs, policy makers and financial institutions) to remove barriers and ensure applicability.

***Active Buildings:** equipped with sensors, meters, ICT that enables them to optimally control the consumption of flexible assets and storage.

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Active managed Buildings
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BENEFICIARIES – WHO will benefit?

ENVIRONMENT/ SOCIETY

Greenhouse gas emissions will be reduced by electrification and by moving electricity consumption to times when the carbon intensity is lowest.

CONSUMERS

Energy cost savings will be achieved by shifting consumption to times when the cost is low, or by offering flex services.

ENERGY SYSTEM STAKEHOLDERS

Access to more – and distributed – flexibility from buildings can avoid or mitigate problems resulting from increased wind and solar energy and electrification.

ESCOs

Enriched EPC contracts, with higher value and applicable to a wider selection of buildings, will grow the ESCO business opportunity.

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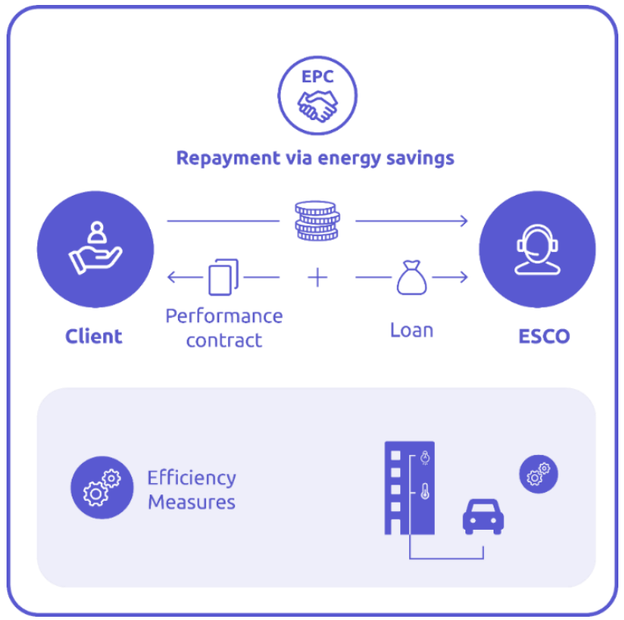
Definition of Active building EPC

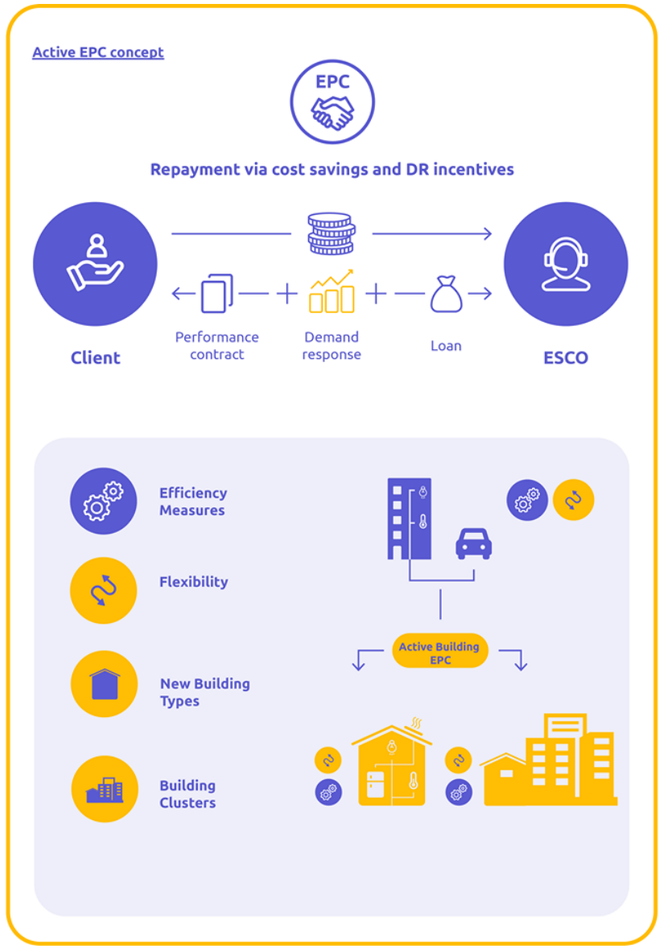
The Active building EPC Concept is an enhanced modular and **performance-based delivery** and financing for the energetic renovation and optimisation of existing and new buildings, tapping into all **passive and active energy and cost saving measures**, while leveraging a comprehensive set of technical, operational, usage, behavioural and dynamic energy or CO2 pricing parameters. The Active building EPC concept is an **enhancement of the basic EPC concept**, through a strong focus on the **electrification** of the local heat supply and the addition of **Active Control measures**.

New Concept

The AmBIENCe concept extends the traditional EPC concept in **3 dimensions:**



Traditional EPC



Active Building EPC

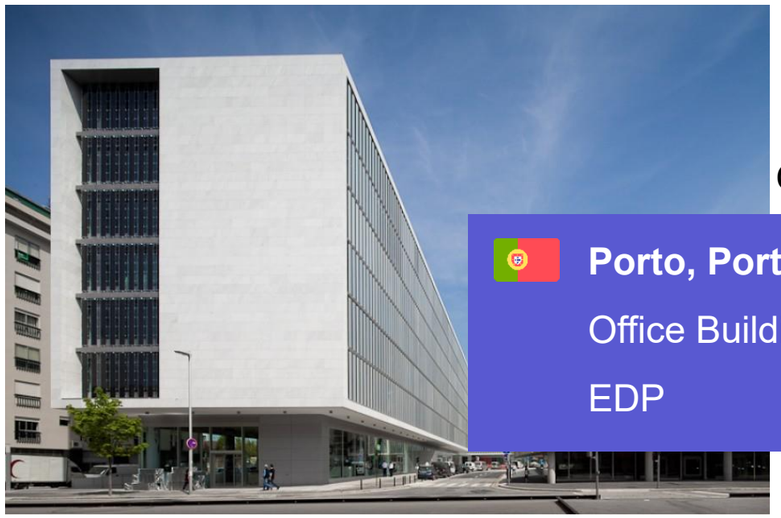
Extending energy performance guarantees related to energy efficiency to include the valorisation of flexibility through Demand Response (DR) services

Tailor EPCs to a broad scope of building types: residential, hospitals, education, offices, commerce, etc

Extending the scope of EPCs to groups/clusters of buildings under the concept of (local) energy communities.

Pilots

The AmBIENCe “proof of concept” is going to be developed and tested in two pilots, based in **Portugal and Belgium**.



Porto, Portugal

Office Buildings

EDP

Click to add text

Seneffe, Belgium

Residential Buildings

Energinvest

Enablers and barriers for the Active Building EPC: Regulatory aspects

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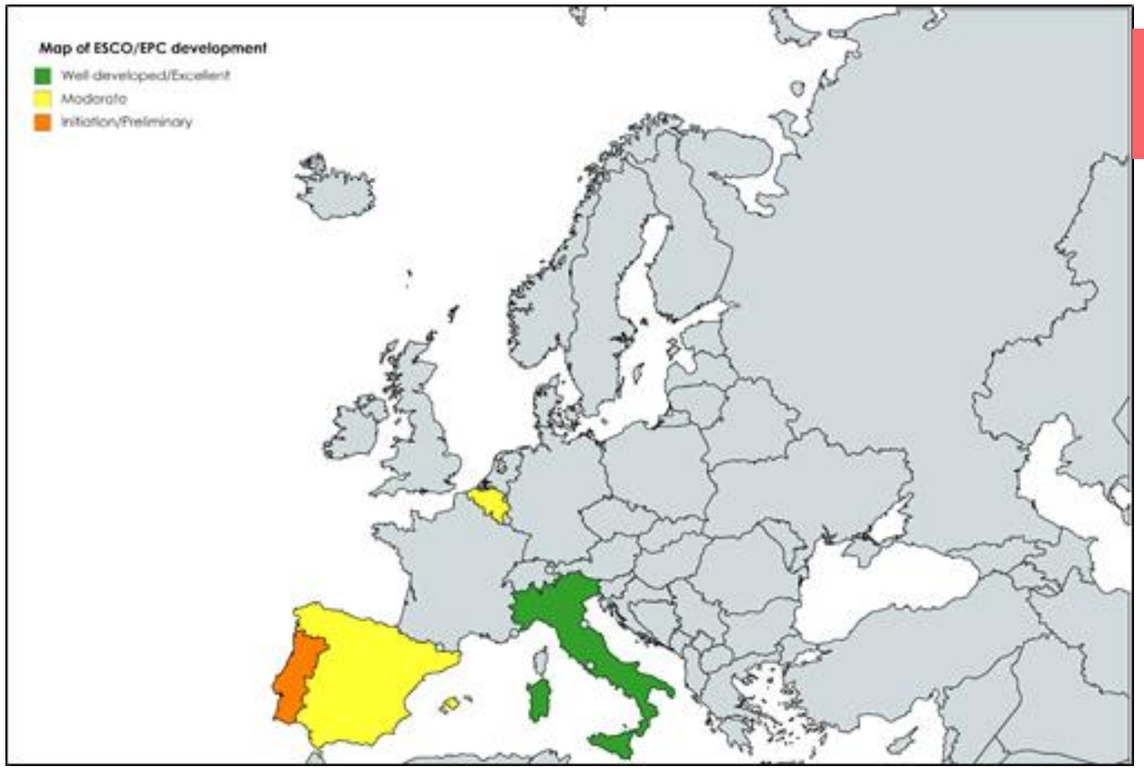
Current status

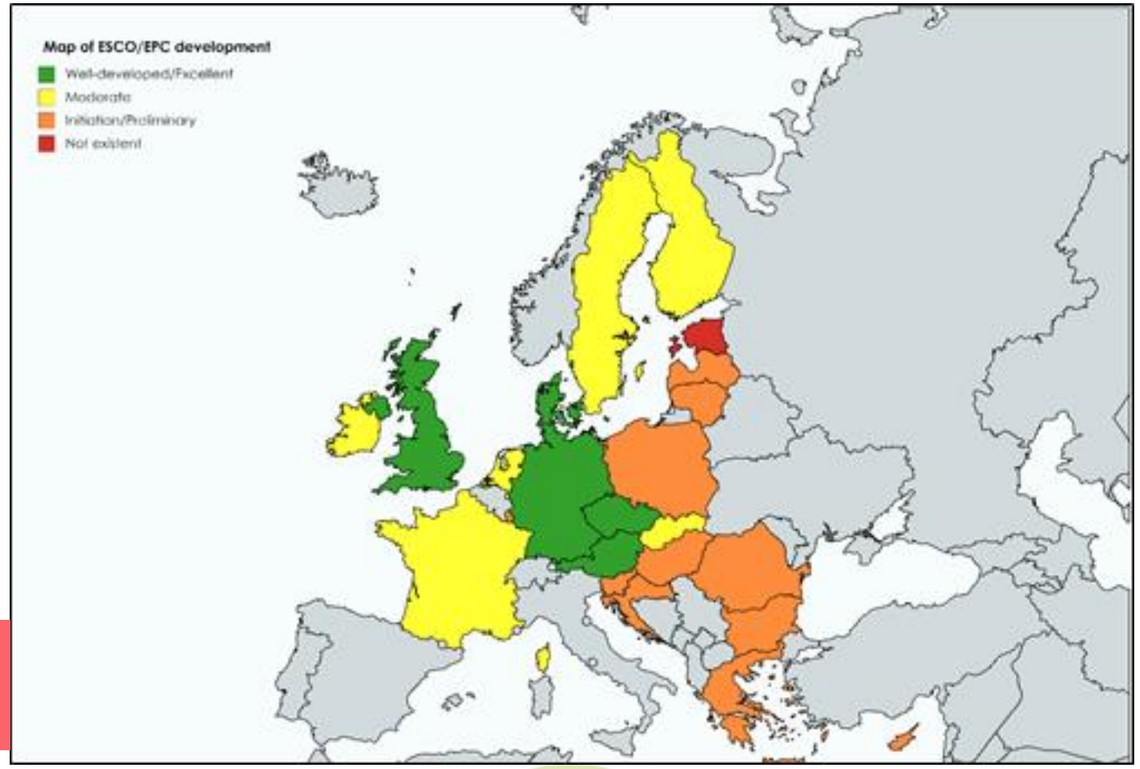
- The analysis of the current directives, policies and measures that are relevant for the Active Building EPC concept at EU level and across the Member States is the key to understand what are the **best practices and gaps** in the current regulatory framework that might have a **significant impact in the successful deployment of the Active Building EPC**

EPC/ESCO Status at MS level



ESCO/EPC development status in the other EU countries

ESCO/EPC development status in the countries represented in the Consortium



Status of DR services offered by buildings at MS level

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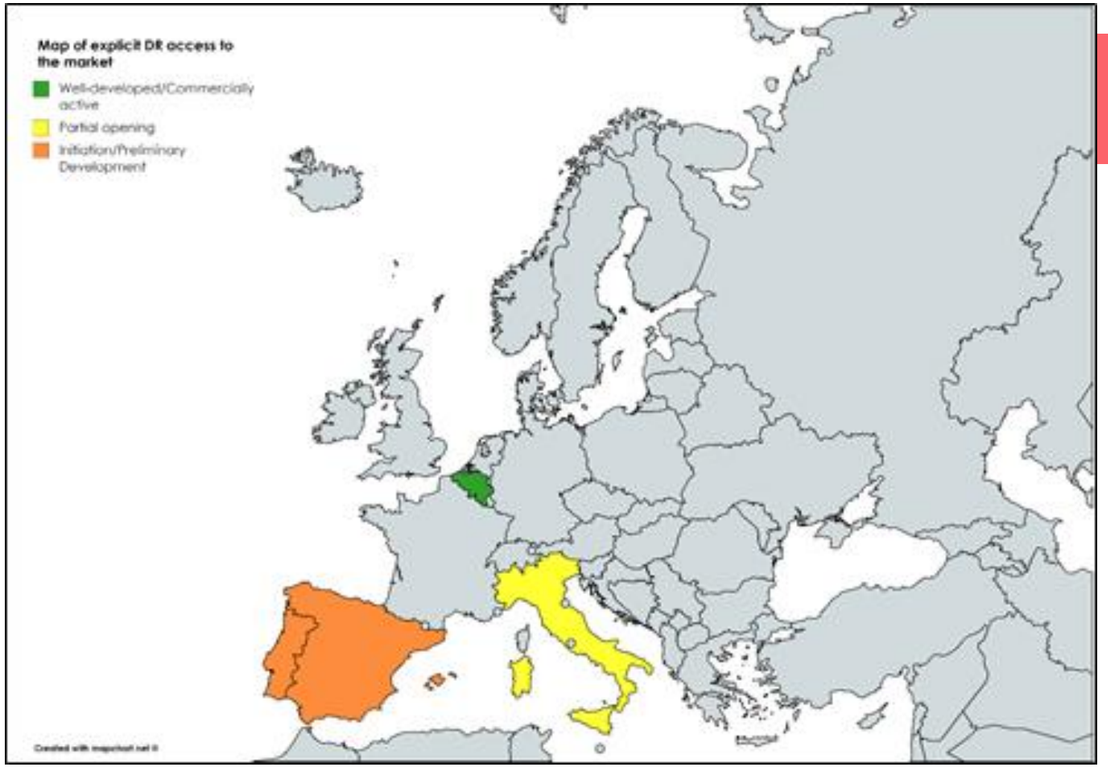
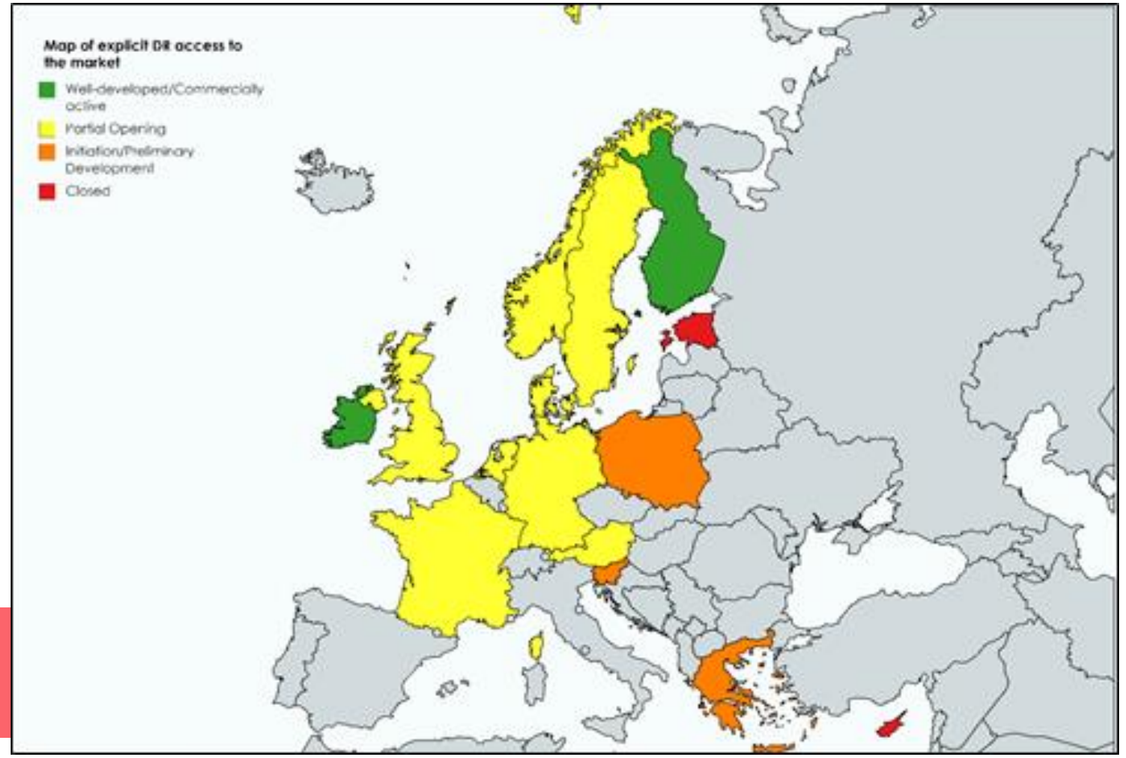


Status of explicit DR in the countries represented in the Consortium



Status of explicit DR in the other EU countries

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Lessons learned so far...

- Very dependent on the status of the MS
- The EU is undergoing change and analysis regarding demand side measures
- Pilot projects will be essential for bringing such efforts to scale
- Establishing a strong, standardized monitoring and verification system is essential
- Engaging building owners is not straightforward, and the right approach is essential

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Thank you

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Give your answer in the Webex poll!

Do you think your region/country would be able to implement active energy performance contracting?

- <u>Yes - if information is available on how to do so (17 votes)</u>
- No - there are still too many regulatory barriers/other issues (2 votes)
- I don't know/need more information (7 votes)
- Other (please write in the chat box)

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WEBINAR

ESCOS AND ENPCS: KEY ENERGY EFFICIENCY TOOLS TO DELIVER FIT FOR 55

Thursday
21 October

12:00 - 13:30
CEST

Panel discussion & Q&A

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WEBINAR

ESCOS AND ENPCS: KEY ENERGY EFFICIENCY TOOLS TO DELIVER FIT FOR 55

Concluding remarks

Arianna Vitali Roscini, Coalition for Energy Savings

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Thank you for participating!

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