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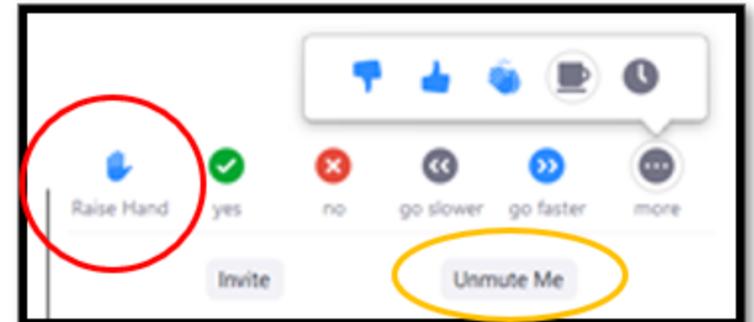
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Please **raise your hand** to be unmuted for verbal questions. We will take these during designated discussion period

Note: *Today's presentation is being recorded and will be provided within 48 hours.*

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Enablers and barriers for the Active Building EPC: Regulatory aspects

AmBIENCE Webinar 11 June 2020



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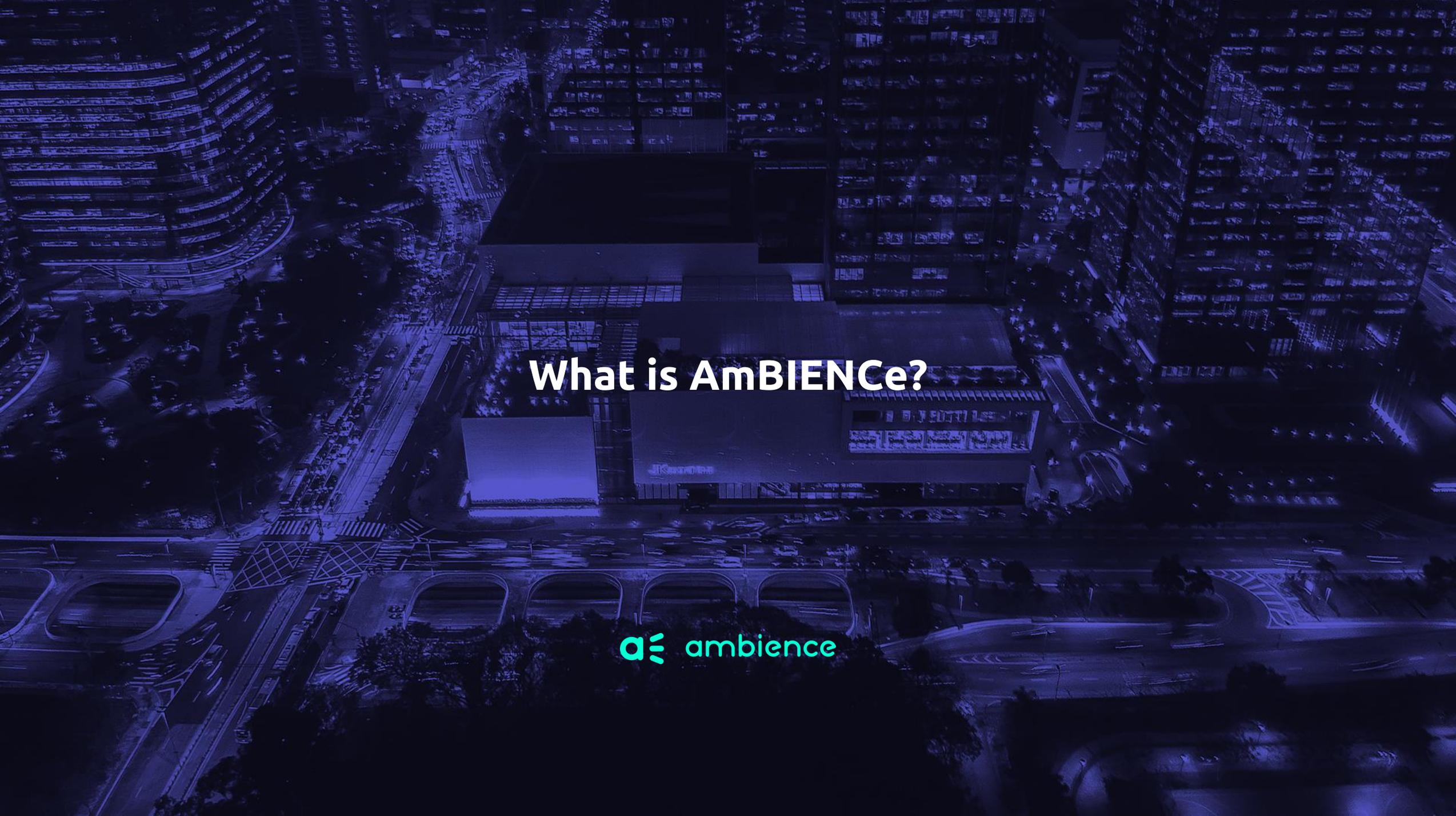
VITO



Jesse Glicker

Moderator

BPIE

An aerial night view of a city street, likely in Singapore, showing a central building with a large glass facade and surrounding skyscrapers. The scene is illuminated with a blue tint. The central building has a prominent glass facade and a sign that reads "KORNER HOTEL". The street below has a complex intersection with multiple lanes and a pedestrian crossing. The surrounding buildings are tall and modern, with many windows lit up.

What is AmBIENCE?

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Vision and Mission



VISION: EU building emissions can be reduced by applying **electrification combined with active control**, next to reducing energy consumption.

- **Electrification** (of heating and hot water production) reduces emissions (higher efficiency e.g. > 1), and carbon intensity of electricity is/can be lower than that of gas.
- **The carbon intensity of electricity** will continue to drop by more investments in vRES.
- **The carbon intensity** varies in the course of the day, and the intra-day variability will increase: hence emissions can be reduced by being smart/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.

Active managed Buildings with Energy Performance Contracting

GOALS: 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 for a broader range of buildings (incl. residential) and clusters of buildings.
- ✓ Develop a tool that supports the prediction 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.

Active managed Buildings with Energy Performance Contracting

IMPACT: WHY are we doing it?

- ✓ To reduce emissions by actively steering electricity consumption to times when the carbon intensity is low.
- ✓ To reduce energy costs by actively steering electricity consumption to times when the prices are low*.
- ✓ To accelerate electrification – thereby further reducing emissions – by leveraging the value of active control of flexibility: lower prices and flexibility services.
- ✓ To support investments in more vRES by increasing demand for emission-free energy, and by offering flexibility services to deal with the generation variability and congestions.
- ✓ To boost Energy Efficiency and electrification measures – thereby reducing emissions – by making EPC contracts more attractive and applicable to a wider range of buildings

* There should be a coupling between carbon intensity and price: regulatory advice.

Active managed Buildings with Energy Performance Contracting

BENEFICIARIES – WHO will benefit?

ENVIRONMENT /SOCIETY

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

CONSUMER

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 vRES and electrification.

ESCOs

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

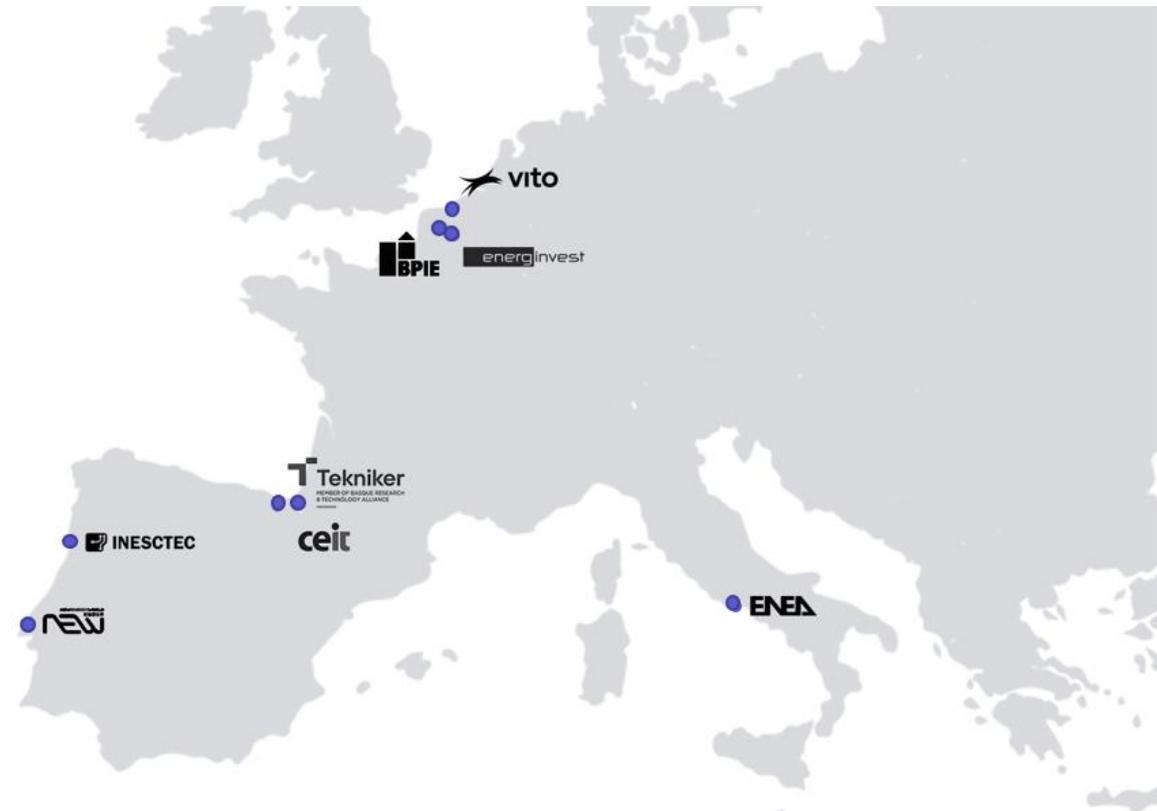
Consortium



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

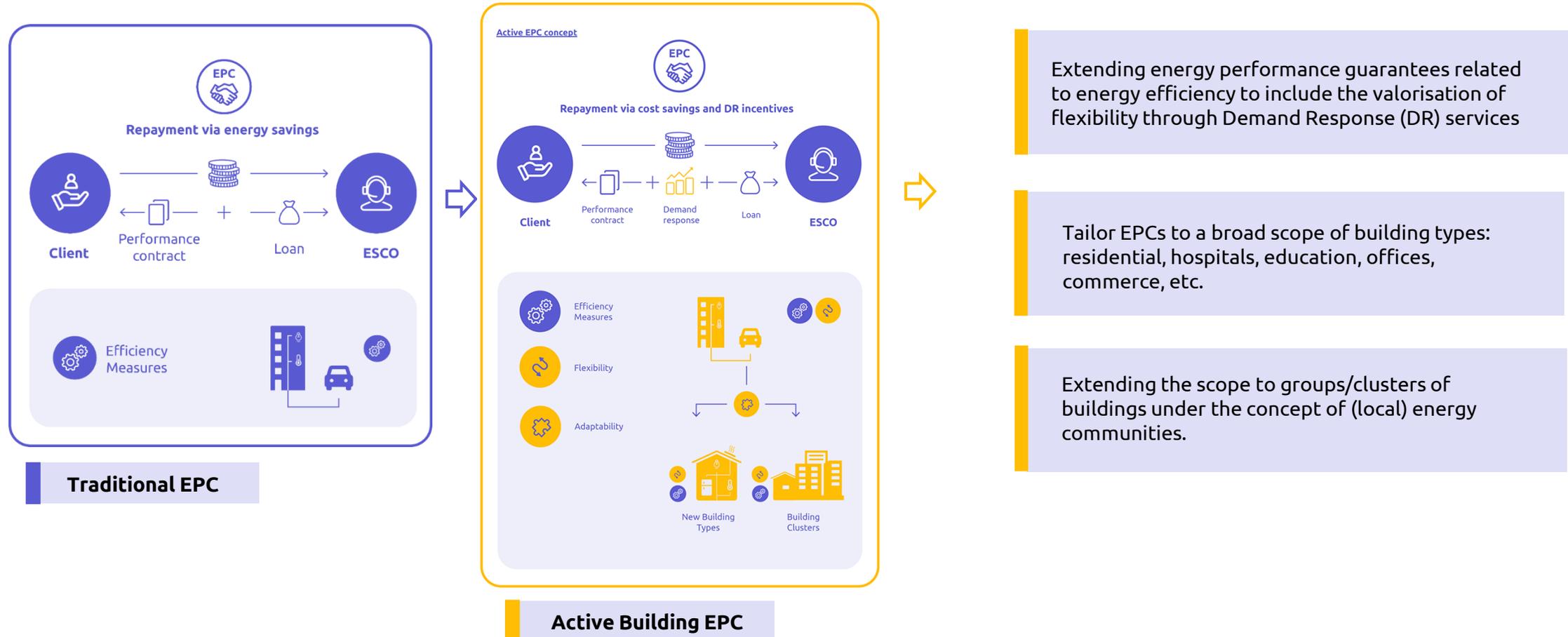
WHEN
June 2019 -
November 2021

€
2 Million
EU Horizon 2020



New Concept

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



An aerial, high-angle photograph of a city at night, heavily tinted with a dark blue color. The central focus is a large, multi-story building with a prominent glass facade that reflects the ambient light. Surrounding this central building are other high-rise structures, some with lit windows, and a network of roads and highways. The overall scene is a dense urban environment.

Enablers and barriers for the Active Building EPC: Regulatory aspects

The goal

- 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**



- **The regulatory enablers and barriers for the Active Building EPC**
 - ❖ What are the most recent developments and policies of the EU regulatory framework?
 - ❖ What are the best practices and gaps in the current regulatory framework that impact the deployment of the Active Building EPC concept?
 - ❖ What are the main enablers and barriers to the deployment of the Active Building concept in the regulatory framework at Member States level?
 - ❖ How to best combine savings from energy efficiency measures with the active control of assets enabling the use of flexibility in buildings?



An aerial night view of a city, with a central building highlighted in white. The surrounding city is in shades of blue and purple, with lights from buildings and streets visible. The central building is a large, multi-story structure with a flat roof and a prominent entrance area. The text "Analysis at European level" is overlaid in white on the central building.

Analysis at European level

The European vision: Citizens as the main actors in energy transition

- The Energy Roadmap 2050 of the European Commission and the Energy Union strategy support the aim of fully decarbonising the European economy by 2050
- According to the **ETIP SNET VISION 2050**, European citizens are the main actors in the transition from existing fossil fuel-based energy systems to an integrated and low-carbon energy system
 - ❖ Citizens are put at the center of the energy system by becoming active consumers, through using local and user-friendly energy exchanges
 - ❖ Demand flexibility also plays a key role as a product and service in energy markets and the active role of consumers is fully implemented in the mechanisms of Demand Response

Check the chat box for the link!

1.1 Do you agree that this vision is possible to be implemented? Y/N

1.2 If not, why?



Customer's empowerment and energy efficiency as integral parts of the EU energy policy

- Consumer empowerment, DR and energy efficiency are integral parts of the Energy Union and the **Clean Energy Package for all Europeans**, that is the set of initiatives and directives aimed at making the European Union more competitive in the energy transition and redesigning the profile of the European electricity market
- Innovation in relation to consumers (**EMD II**):
 - ❖ An important paradigm shift: the consumers identified as **active customers**, who can operate directly or in aggregate manner, sell self-produced electricity, including through agreements for the purchase of electricity and participate in flexibility and energy efficiency mechanism
 - ❖ the introduction of the notion of “**Citizen Energy Community (CEC)**”, that is able to operate in the market on equal and non-discriminatory conditions with respect to the other subjects, being able to freely assume the roles of final customer, producer, supplier or manager of distribution systems

Customer's empowerment and energy efficiency as integral parts of the EU energy policy

- Innovation in relation to consumers (**RED II**):
 - ❖ Particular attention given to the self-consumption of renewable energy. Indeed, the **Art. 21** provides that **consumers can become consumers of renewable energy**, and also be able to produce, store and sell the electricity from RES produced in surplus, both individually and through aggregators
 - ❖ Introduction of the "**Renewable Energy Community (REC)**", which the right to produce, consume, store and sell renewable energy. Users are also able to exchange, within the community, the renewable energy produced and access all the appropriate electricity markets, directly or through aggregation

Customer's empowerment and energy efficiency as integral parts of the EU energy policy

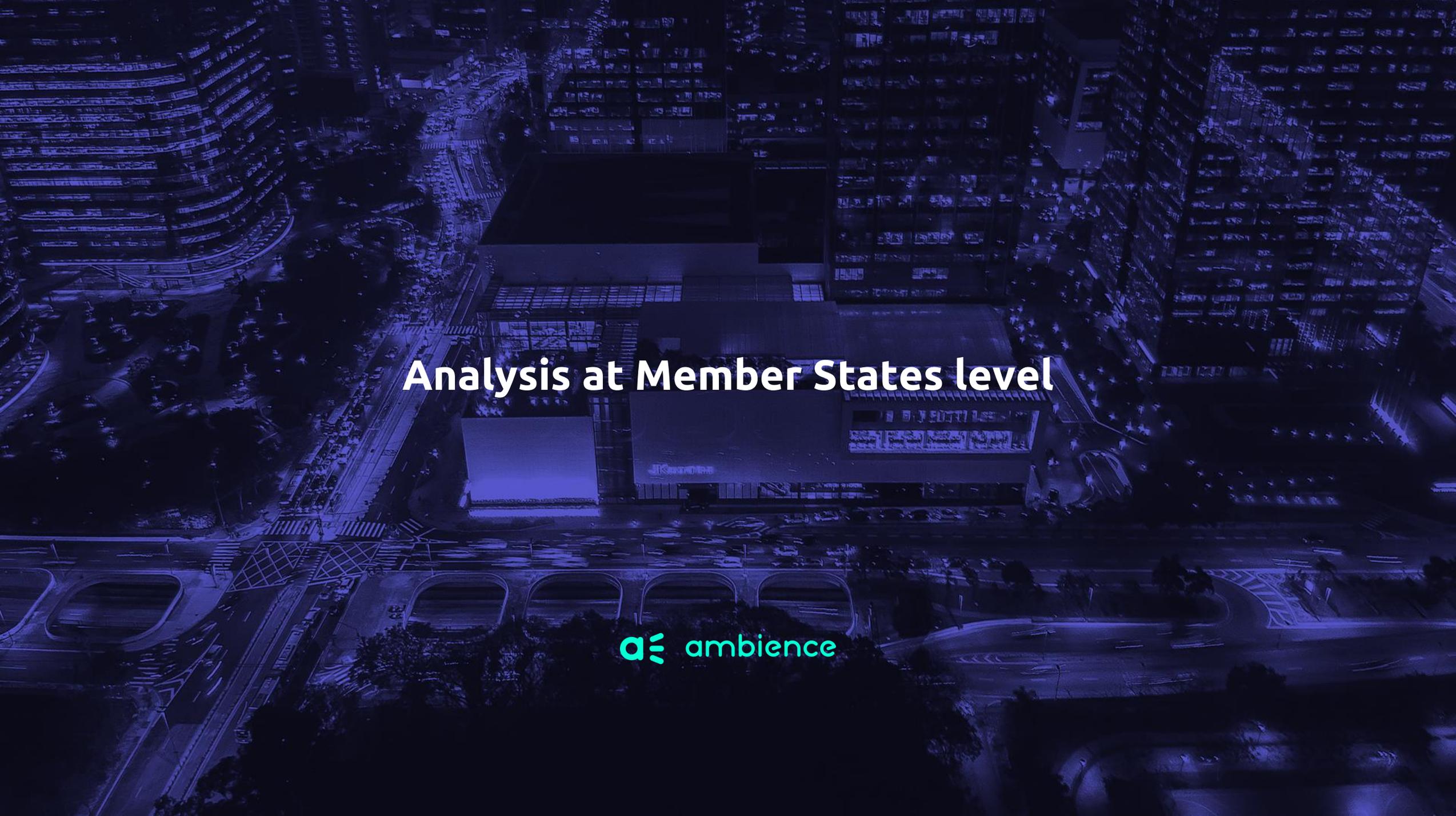
- Innovation in relation to the active role of consumers in energy efficiency measures (**new EED**):
 - ❖ New rules aimed at **extending the consumer rights** and improve access to smart metering tools, smart billing and consumption information
- Innovation in relation to the active role of consumers in energy efficiency measures (**new EPBD**):
 - ❖ Revised energy efficiency targets for new buildings such as the minimum energy performance requirements, energy certification, **verification methods, monitoring and control of energy use** and establishment of obligations relating to the installation of electricity recharging points.
 - ❖ Definition of the **smart readiness indicator (SRI)** and a methodology for calculation, in order to assess the capabilities of a building to **adapt its operation to the needs of the occupant and of the grid** and to improve its energy efficiency and overall performance

Check the chat box for the link!

2.1 Do you think the relevant European regulations are clear enough to foster and promote the active role of consumers in energy efficiency measures and demand flexibility? Y/N

2.2 If not, what is still missing in your opinion?



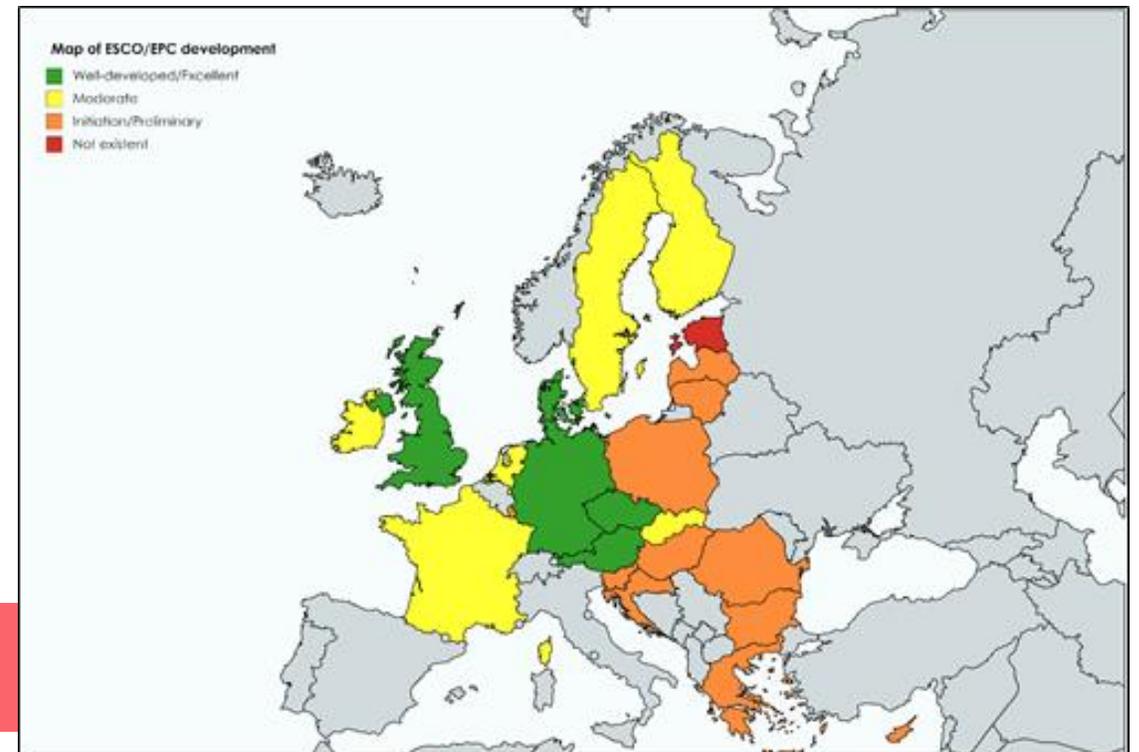
An aerial night view of a city, with a central building highlighted in white. The surrounding city is in shades of blue and black, with lights from buildings and streets visible. The central building has a prominent white rectangular area on its facade.

Analysis at Member States level

EPC/ESCO Status at MS level



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



ESCO/EPC development status in the other EU countries



Main findings

- **Italy** is the most advanced country in the consortium. The ESCO market is among the biggest ones in Europe, and this is mainly due to the strong legislative background and standards established for energy efficiency in buildings
- Italy is followed by **Belgium**, where the energy service market is considered stable and moderately-sized, and by **Spain**, where the energy service market has been long awaited to boom, based on the complex set of governmental support measures
- **Portugal** is left behind the other countries. The ESCO sector in Portugal can be currently considered still underdeveloped and small
- **Among the other EU countries**, the most advanced ones are **Austria, Czech Republic, Denmark, Germany and UK**, which are characterized by a more mature market fostered by a well-developed legal framework addressing EPC contracting and a wider variety of EPC offerings and project facilitators
- **The list of the countries with an ESCO/EPC market still in an initiation phase is much longer and these countries belong to the Eastern Europe**, characterized by the lack of legal framework regarding EPCs mainly due to policy instability

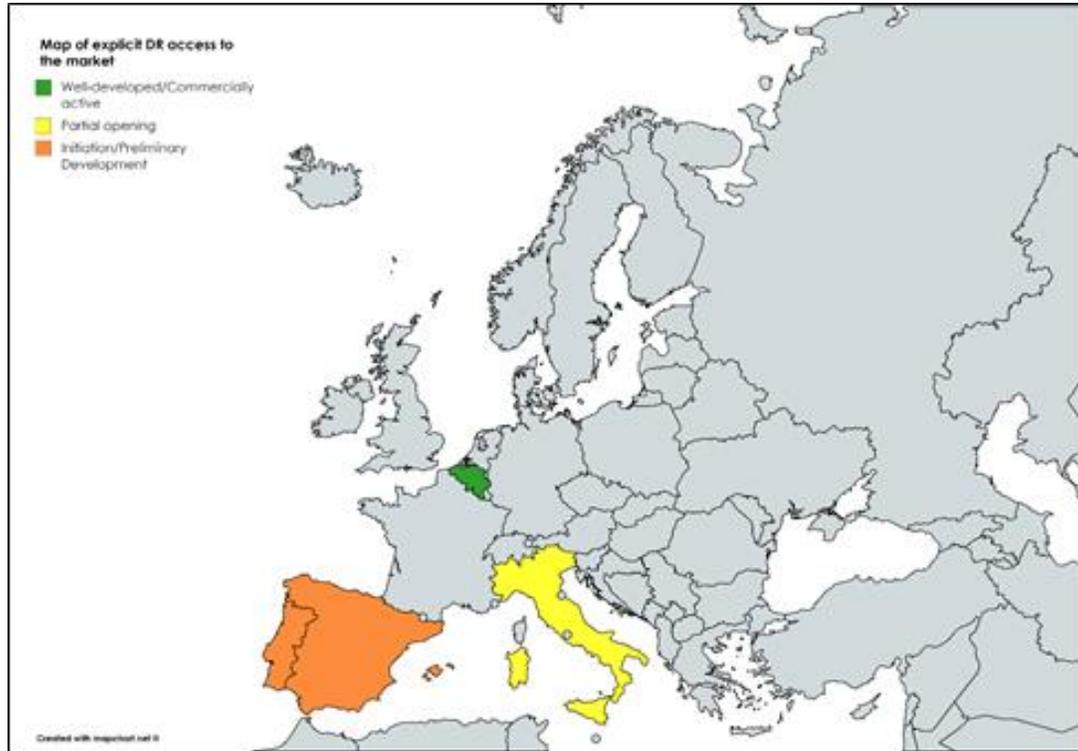
Check the chat box for the link!

3. Do you think that the country snapshot shown for EPC/ESCO market status is realistic for your country based on your practical experience?

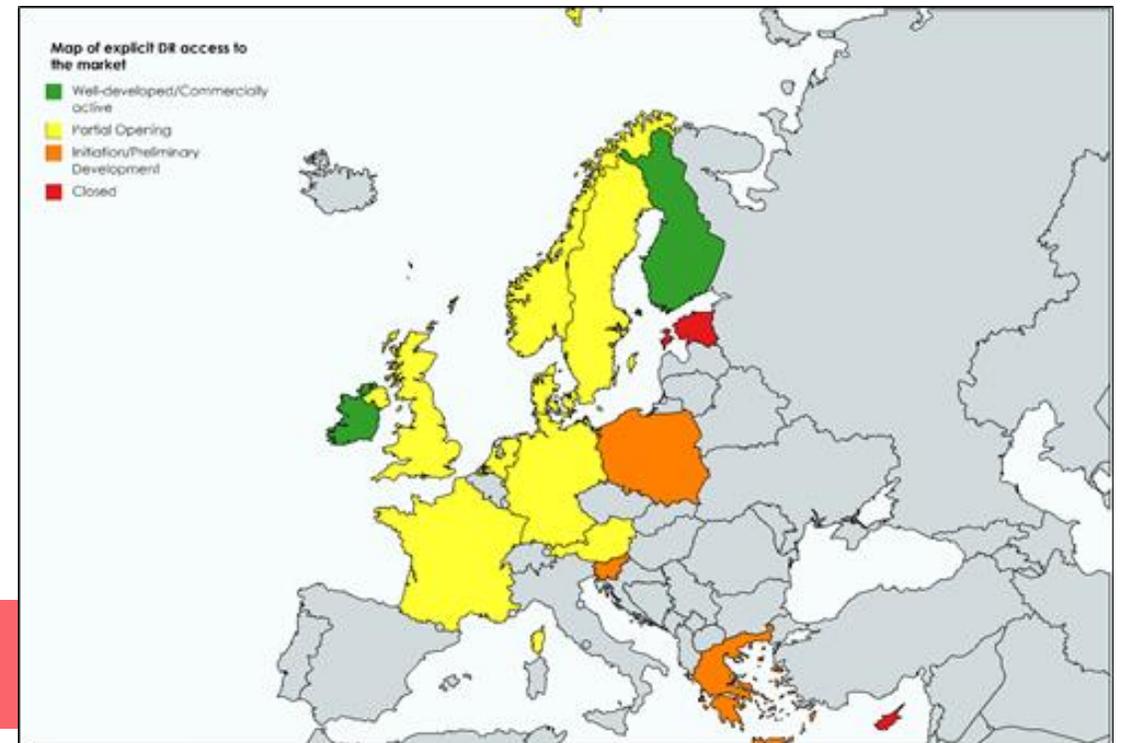
Y/N



Status of DR services offered by buildings at MS level



Status of explicit DR in the countries represented in the Consortium



Status of explicit DR in the other EU countries



Main findings

- **Belgium** is the most advanced country in the consortium thanks to the new framework to enable participation of new energy sources (such as demand flexibility) with new types of market players (such as aggregators)
- Belgium is followed by **Italy**, for which the relevant regulatory framework has been subject to substantial changes starting from 2017. A complete review process of the ancillary service market is ongoing towards an opening to the participation of new subjects by introducing the figure of aggregator
- A totally different situation is found for **Spain** and **Portugal** which are left behind the other countries. These countries are indeed characterized by the poorest regulatory regimes regarding DR and asset aggregation, and thus significant barriers still exist
- **Among the other EU countries**, the most advanced ones are **Finland and Ireland** where DR participation is allowed in multiple electricity markets thanks to the well-established regulatory framework and the positive cooperation between stakeholders (
- The **list of the countries with a development status still in an initiation phase is longer and these countries belong to the Eastern Europe**, and are characterized by significant barriers such as the absence of regulation allowing the adoption of DR services, insufficient market players, the lack of economic and contractual incentives, etc.

Check the chat box for the link!

4. Do you think that the country snapshot shown for the status of DR services offered by buildings is realistic for your country based on your practical experience? Y/N



Main enablers for EPC/ESCO development

- The main enablers found in the analysis at country level are:
 - ❖ strong legislative background and standards established for energy efficiency in buildings
 - ❖ existence of national ESCO associations
 - ❖ presence of the so-called public One-stop-shops or facilitators
 - ❖ high know-how about and availability of Eurostat-compatible ESCO financing solutions
 - ❖ results' guarantee

Check the chat box for the link!

5.1 Select 1 to 3 enabling factors for EPC/ESCO development

5.2 Can you suggest additional enablers?



Main barriers for EPC/ESCO development

- The main barriers found in the analysis at country level are:
 - ❖ contractual complexity of EPC-contracts
 - ❖ uncertainty in the legal framework and incentives
 - ❖ absence of historical monitoring data
 - ❖ low energy prices which reduce the attractiveness of EPC
 - ❖ lack of knowledge and trust on EPC business models and providers
 - ❖ lack of standard and enforced M&V protocols
 - ❖ financial barriers

Check the chat box for the link!

6.1 Select 1 to 3 barriers for EPC/ESCO development

6.2 Can you suggest additional barriers?



Main enablers for DR services offered by buildings

- The main enablers found in the analysis at country level are:
 - ❖ presence of a regulatory framework for product requirements according to the concept of “technology-neutrality”
 - ❖ well-established regulatory framework for accepting independent aggregators
 - ❖ revisions of the minimum performance requirements
 - ❖ standardized and clear M&V procedures for all market players with a digital meter
 - ❖ possibility of consumers’ data availability in real time
 - ❖ good cooperation between stakeholders (new market actors, regulators and retailers).

Check the chat box for the link!

7.1 Select 1 to 3 enabling factors for DR services offered by buildings

7.2 Can you suggest additional enablers?



Main barriers for DR services offered by buildings

- The main barriers found in the analysis at country level are:
 - ❖ legal: lack of regulations flexibility to enable innovation and demand participation to the market
 - ❖ market-type: high entrance costs for customers
 - ❖ market-type: absence of a clear support schemes for fostering DER penetration in the markets
 - ❖ market-type: no market entity, known as independent aggregator, responsible for aggregation
 - ❖ market-type: high minimum bid sizes
 - ❖ technical: interoperability of hardware (to allow future aggregation of DER)
 - ❖ technical: cyber security issues
 - ❖ technical: reliability issues (lack of operational procedures)
 - ❖ technical: privacy issues to access to data
 - ❖ social: lack of knowledge for changing the end-user behaviour in order to provide flexibility services;
 - ❖ social: lack of confidence;
 - ❖ social: demand anaesthesia – reactive consumer

Check the chat box for the link!

8.1 Select 1 to 3 barriers for DR services offered by buildings

8.2 Can you suggest additional barriers?



Debate session and lessons learned



Become our stakeholder

WHY to join?

<http://ambience-project.eu/become-a-stakeholder/>

- ✓ Be updated on new EPC models
- ✓ Prioritized access to improved procedures of DR services guaranteeing their performance
- ✓ Proof-of-concept models for valorizing building flexibility.
- ✓ Access to a wide network of ESCOs, policy makers, aggregators, system operators to improve your business



Participate to our survey for flexibility providers on Building EPC and demand response

WHY do we need your opinion?

- ✓ Understand how buildings currently make use of active control in buildings
- ✓ Investigate whether active control is already linked to demand response, possibly in the context of EPC-contract

Access the survey [here](#)



Participate to our survey for flexibility requesters on using flexibility from buildings for demand response services

WHY do we need your opinion?

- ✓ Investigate to which extent and how buildings can provide flexibility (for demand response) in the context of EPC-contracts
- ✓ Understand to which extent European organizations are using or are interested in /are considering to use flexibility from buildings

Access the survey [here](#)



Thank you

www.ambience-project.eu

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No #947054.
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