Smart buildings for efficiency, sustainability and comfort: opportunities provided by the EPBD

Why is this topic key for Europe?

- Buildings are responsible for 40% of energy consumption and 36% of CO2 emissions
- At present, almost 75% of the building stock is energy inefficient.
- We spend about 90% of our time in buildings: improving indoor climate contributes to better health, comfort and wellbeing. Direct contribution to productiveness.
- Increase competitiveness of European companies – in particular SMEs
- Stimulate the economy – not only in the construction industry, which generates about 9% of Europe's GDP and directly accounts for 18 million direct jobs – but also creating demand for re- and upskilling of workforce
- Contribution to innovation in Europe: a number of new services and new business models can be tested, developed and exported

European Performance of Buildings Directive (EPBD)

The Energy Performance in Buildings Directive(Directive EU 2018/844) (EPBD), entered into force on 9 July 2019. Member States have until 10 March 2020 to transpose the Directive into National legislation.

The directive put emphasis on smart technologies and building renovation as main levers in improving the energy performance of the European building stock.

The Commission also published a recommendation (EU) 2019/1019 of 7 June 2019 on building modernization clarifying aspects related to the implementation.
The National Energy & Climate Plans (NECPs) require to transpose the EPBD in close coordination with the implementation of other provisions of the Clean Energy Package. The draft plans suggest room for improvements when it comes to buildings:

"Information provided on residential and non-residential buildings, both public and private, is limited. Need for specific milestones, measurable progress indicators, estimation of expected energy"

"Ireland has set a very low contribution to energy efficiency. Opportunities for job and growth are not fully exploited. The draft NECP includes general information related to policies and measures for buildings "

"Overall, the draft plan is largely incomplete as regards energy efficiency "

Our recommendations:

EU-ASE considers key to focus on the following aspects:

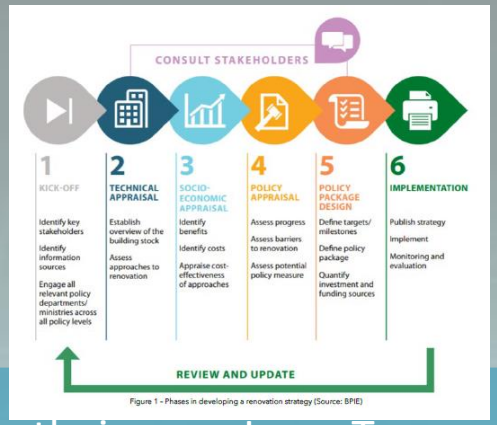

Figure 1 - Phases in developing a renovation strategy (Source: BPIE)

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Long-term renovation strategies LTRS (Art. 2a)

Member States must provide their new Long-Term renovation Strategy (LTRS) to the EC by 10 March 2020. MSs should follow a series of key steps, to support the uptake of smart technologies in the renovation of the national building stock into a highly energy efficient and decarbonized stock by 2050

Member States should systematically carry out a public consultation on the strategy in an inclusive and transparent way, engaging citizens, investors and businesses. Summary of the results of the consultation shall be included as an annex to the strategy.

Member States should develop mechanisms to encourage staged deep renovation via third party financing, such as Energy Performance Contracts (EPCs) and to facilitate higher energy savings for example by combining EPCs with ESIF support to enable comprehensive renovations.

Establish cooperation with financial sector; use public resources to increase uptake of renovation and therewith-private financing to ensure long-term and predictable renovation programmes linking support to energy performance. Provide the information through accessible and transparent advisory tools such as renovation advice and one-stop-shops.

European Performance of Buildings Directive (EPBD)

Technical building system (TBS) improvements and building automation and control systems (BACs) deployment (art 2.3, 8, 14, 15)

- Update “technical building system” definitions to newly ones that also include Building Automation and Control Systems (BACS) and on-site electricity generation systems. Use BACS definition according to the European Standards as defined in the Directive
- Set mandatory requirements for installation and retrofit of Building Automation and Control Systems in non-residential building (existing and new) with effective rated output of over 290 kW, by 2025
- Set system requirements in respect of the overall energy performance, the proper installation, and the appropriate dimensioning, adjustment and control of the technical building systems which are installed in existing buildings.
- Ensure that when a technical building system is installed, replaced or upgraded, the overall energy performance of the complete altered part / system is assessed and documented so that the documentation can be used for the verification of compliance with the set system requirements.
- Exempt non-residential and residential buildings equipped with BACS and electronic monitoring from physical inspections of Heating and Air-Conditioning Systems.
- Require the installation of individual room temperature controls in new buildings alongside the replacement of heat generators in existing buildings
- Apply financing mechanisms to drive and support implementation.
- Set requirements for the installation of a minimum number of recharging points and ducting infrastructure in the buildings

European Performance of Buildings Directive (EPBD)

Smart Readiness Indicator (SRI) art. 8 Annex IA

The EBPD mandates the Commission to establish a common framework to rate the smart readiness of buildings including the definition and the methodology to calculate a smart readiness indicator.

The aim is to be able to assess the capabilities of a building to adapt its operation to the needs of the occupant, of the grid and to improve its energy efficiency and overall performance.

Support the adoption of the Smart Readiness Indicator as a voluntary scheme, to raise awareness, drive innovation and boost the uptake of smart technologies and smart buildings.

Just one example of what the technology enables to do

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Sello Shopping Center, Helsinki

Connect power production and storage to the grid to optimize demand and supply in electricity market

1,68 MWh battery storage
600kW Solar PV

€480,000 p.a. gains in energy market

281 tons CO_2 p.a. emission reduction

€118,000 p.a. savings in energy efficiency and maintenance