

## Buildings are key to an Energy Efficient Europe

Buildings account for approximately 40% of the EU's overall energy consumption and for 36% of the EU's overall emissions of greenhouse gas. 70% of the buildings that we will occupy in 2050 are already built. Around 20% of the energy consumed by Europe's buildings is thrown away, mainly due to inefficient operation/maintenance, a lack of basic energy efficiency measures and poor energy efficiency behaviour by end-users. This loss represents a cost of approximately €270 billion every year, a figure that is set to increase by 53% by 2030 if no action is taken to curb it.

## About building automation and control systems

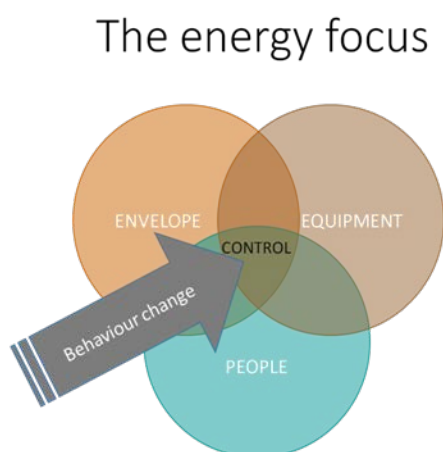
Buildings are built for people, therefore people are using energy, not the buildings themselves. The best way to address this is to give the people the means to control their energy ensuring their needs are met. Good level of control of building services ensures that energy savings are realised independently of whether the building is in use or not and that high indoor environment quality is delivered where and when required and at exact levels (i.e. thermal comfort, indoor air quality, lighting and acoustic environment).

This becomes especially important now that the energy market is undergoing a paradigm change. With the supply of energy now originating from different sources (fossil, nuclear, renewable), dependence on distributed generation increases. Building automation and controls have a key role to play in helping the economy adapt to this change of paradigm as they assure the integration and optimization of several energy sources



for users in their environment. The increased volatility in energy supply caused by greater dependence on weather based energy (on-site renewable), needs to be mitigated by using control to balance between local production, grid and storage. As a result nearly zero/positive energy buildings are delivered.

The potential reductions with the introduction of building automation and controls are substantial in all sectors, for instance:



- In residential buildings reductions of up to 19% in thermal energy and 8% in electrical energy<sup>1</sup>;
- In non-residential buildings reductions of up to 40% in thermal energy and 14% in electrical energy<sup>1</sup>;

<sup>1</sup> EN 15232 "Energy performance of buildings – Impact of Building Automation, Controls and Building Management"



Building automation and control systems are relatively low cost and have a high return on investment. Usually, the payback period is between 2 and 6 years, depending on the complexity of the system. After the payback period passes, the resulted reduced energy bills create greater disposable income, thus stimulating the economy.

### The missed opportunity

Today, regulations do not achieve the most cost effective energy reductions, as they tend to promote equipment replacement and investments in building envelope. Similarly, article 8 of the EPBD recast, voluntary promoting the deployment of controls, has been poorly implemented in most of the EU Member States. This leads not only to missing significant energy efficiency gains, but also to some degree of market distortion and lack of integration between different technologies.

A suitable regulatory framework needs to be in place to fully realise the opportunities for building automation and control systems, and to ensure that energy savings are made. We therefore recommend these activation points for mandate:

- **Set out mechanisms to boost renovation:** There should be a compulsory requirement for Member States to renovate existing buildings to improve their energy performance and continue to do so looking at improving their ACTUAL energy use.
- **Minimum requirements for control technologies:** Controls are part of energy calculation methodologies in the new EPBD standards (M480) i.e. EN 15232 Energy performance of buildings – Impact of Building Automation, Controls and Building Management for all buildings. However, this must be implemented at EU Member State level to promote better control performance.
- **Building automation systems and control products to be part of renovation requirement:** Whenever the envelope and/or the technical building systems are improved, controls and/or integrated automation systems should be installed or improved as well. (e.g. in several Member States hydronic balancing is mandatory while applying for subsidies for technical energy efficiency measures)
- **Improve long-term performance of buildings:** Support and enable obligation of using EN ISO 50001 energy management which includes previously installed automation and controls technology to help keep the desired performance e.g. using BIM data as support tool for technical building systems.
- **Intelligent controls and automation:** Distributed energy generation must be integrated and demand response enabled by intelligent controls and automation.
- **Ensure synergies among EE legislations at EU level:** Currently, Ecodesign is assessing individual products, extended products or now, individual systems. Building performance should rest within EPBD or the Ecodesign approach widened to a holistic system approach, so that all of these systems are operated as one efficient entity. EED should set ambitious levels for renovation. EPBD should establish what trigger points require implementation to stimulate adoption. BUT in all legislation, the performance should be mandated, not the technology.