
Brussels, 28 January 2014

Orgalime Guideline: Article 4 of the Energy Efficiency Directive (2012/27/EU) regarding Building Renovation

Orgalime fully supports the Energy Efficiency Directive, which establishes a common European framework of measures for the promotion of energy efficiency to implement the 2020 EU objectives and pave the way for further energy efficiency improvements. As regards its implementation, it should be ambitious, harmonised and timely to succeed in achieving its goals.

We supported the Commission's initiative to develop interpretative notes on main provisions of the Energy Efficiency Directive. However, no guideline has been developed for the implementation of Article 4 of the EED, which foresees that Member States shall establish long term strategies for mobilising investments in the renovation of residential and commercial buildings, both public and private, by 30 April 2014.

To contribute to the development of national building roadmaps that will indeed push energy efficiency when renovating buildings, Orgalime would like to provide the following key recommendations. Orgalime also invites regulators to take up these principles in the design of these national strategies:

- Set up a clear and simple target for all buildings according to the type of building
- Foster the use, the metering and monitoring of actual energy consumption and other parameters, such as temperature and indoor air quality Take into consideration the building as a whole, including indoor air quality
- Assess the building in its overall environment: it should be considered as a key element of smart cities in interaction with smart energy infrastructures.
- Foster deployment of energy efficient equipment and technologies in buildings
- Ensure consistency with existing legislation impacting the building envelope and technical installations
- Develop a specific roadmap for commercial buildings
- Make reference and use of existing standards
- Initiate or support funding schemes for energy saving measures
- Raise awareness on energy efficiency in buildings
- Consult all relevant stakeholders, including the whole business chain and consumers

Introduction

Nearly 40% of the EU final energy consumption occurs in buildings¹. A significant part of European buildings is older than 50 years, and some are even hundreds of years old², while the annual growth rate of new buildings represents only about 1% of the housing stock³. Therefore, buildings offer a significant potential for realising substantial energy efficiency improvements considering that over 80% of existing buildings will still exist in 2020.

¹ *Energy Efficiency Plan 2011*, European Commission, March 2011

² *Europe's Building under the microscope*, Buildings Performance Institute Europe (BPIE), October 2011

³ *Energy efficient Buildings PPP, multi-annual roadmap and long Term Strategy*, European Commission, 2010

Refurbishment of all existing buildings, including technical installations and internal equipment, should therefore be the top priority of Europe to achieve its policy objectives.

Orgalime industries cover a wide range of products installed in buildings, such as heating, ventilation and air-conditioning systems, but also hot water and lighting systems. Our industries are fully committed to continuously manufacturing and are placing on the market ever more energy efficient and environmentally performing products, services and technologies for the consumer to enjoy and to play an active role in the future energy and electrical system "prosumer"). .

In addition, there is an urgent need for long-term perspective for all actors involved in the construction sector, from building professionals (architects, engineers, auditors, builders) to manufacturers and installers of technical building equipment, to investors and financial institutions, but also to building owners and occupants. Predictability and stability are vital prerequisites to unlock investment and support building renovation scheme. Designing clear, ambitious and long term national strategies for mobilising investments in the renovation of buildings is an opportunity to provide this necessary investment signal and planning security for the investors, constructors and the supply industry.

Detailed recommendations:

1. Setting up a clear and simple target for all types of buildings

The building roadmap should include indicative national targets (kwh/m2) to be achieved according to the type of building (residential buildings, non-residential buildings and public buildings). Such targets might be linked to incentive programmes, for example, giving negative/positive incentives for improved performance at the level of the building.

2. Foster the use, the metering and monitoring of actual energy consumption and other parameters such as temperature and indoor air quality

At the building level, reference should be made to all forms of energy usage as well as to actual energy consumption. The different uses of a building can create major variations in the measured energy consumption. Therefore the comparison of different buildings (e.g. energy certificates) should be based on a calculated method using standardised consumption profiles specific to each type of building.

However, it is of utmost importance to also measure the actual energy consumption in order to find possible malfunctions as soon as possible and to motivate the user in reducing the energy use. At the same time, the indoor air quality (e.g. temperature and CO2) should also be monitored to ensure the energy use reduction is not made at the expense of a healthy and comfortable indoor environment.

In addition, the monitoring of the energy used in a building should become a continuous process, and not only take place once to define the building's consumption. Indeed, many measures tend to lose their effect over time due to altered settings, inappropriate use of building automation or persisting inefficient behaviour. Therefore, efficiency measures need to be continuously monitored and readjusted in order to reap the full potential benefit.

3. Considering the building as a whole

The envelope of the building should not be considered on its own: technical installations, internal equipment, building automation and controls equipment, as well the maintenance and continuous performance monitoring should be taken into account. In addition to their impact on the energy efficiency of buildings, these technologies are essential to ensure good indoor conditions for building occupants and are key prerequisites for active demand side

participation. The future smart energy system will integrate smart appliances and decentralised micro-energy generation.

For example, the energy used by heating and hot water boilers represents around 80% of energy use in residential homes. Replacing old equipment by new more efficient one is already a step towards energy efficient buildings, but it will not be enough to achieve smart buildings and smart homes.

What makes a home or building “Smart” is the possibility of having devices that can receive external input data and instructions, from both inside and outside the home or building, and transform this into useful functions and information for end-users or other devices and systems that may be present in the home. Smart homes can provide benefits in several areas, such as active energy management, technology assisted living, flexible homes with fully functional home / office capacities and the integration of electric vehicles.

Buildings should therefore be addressed from a broad perspective. It is essential to combine intelligent household appliances and consumer electronics with the building infrastructure. Interconnected with the intelligent energy system through a smart grid would enable these technologies to release their full potential. In addition, the regulatory framework should stimulate investment in deployment of innovative technologies and building infrastructures allowing thus buildings to become a key element of an integrated system, communicating with other smart grid components. In an intelligent energy system, buildings could be used for energy storage and as sink systems. Thus, buildings becoming key elements of smart cities, taking into account that smart grids are the backbone of the interconnection with smart energy infrastructures.

4. Foster deployment of energy efficient equipment and technologies in buildings

Technological solutions already exist today to cut existing buildings consumption by three quarters, but the renovation rate is too low. New “intelligent” building management systems help to reduce energy costs and CO₂ emissions by 20-30%.⁴ Building Automation Systems (BAS), intelligent networks of electronic devices, that monitor and control the energy supply, lighting systems, heating, cooling, air handling and water management as well as security systems in an integrated network are significantly reducing maintenance and energy costs. There is therefore an urgent need to foster market uptake of efficient technologies and appliances and overcome barriers to energy efficient buildings. In this respect, return on investment in these technologies should be highlighted and short to medium term return on investment favoured by policies.

5. Ensure coherence, consistency and full implementation of EU energy efficiency legislation

It is of utmost necessity to ensure coherence and consistency with existing legislation impacting the building envelope and technical installations, especially the Energy Performance of Buildings and the Eco-design Directives. In addition, a Member State’s building roadmap should be coordinated with other measures implementing the EED, especially the measures fostering public building renovation (Article 5), but also energy audits (Article 8) or financing (Article 20).

The different authority services in charge of building renovation and various pieces of energy efficiency legislation at national and regional level should liaise with each other to avoid conflicting strategies, in particular between the national building roadmap and national plans to increase the number of nearly zero-energy buildings or existing measures supporting building renovation.

⁴ *The Smart World*, Electra 2 report, April 2012

We strongly recommend fully implementing the provisions of the Energy Performance of Buildings Directive, especially article 7 on existing buildings. Whenever a building undergoes major renovation, then the aim should be to improve its energy efficiency.

6. Focus on non-residential buildings

It is important to develop a distinct roadmap for this type of building taking into account the current state of play:

- Non-residential buildings represent 25% of the building stock⁵.
- Nearly 40% of the building sector's total energy consumption occurs in non-residential buildings⁶.
- Non-residential buildings have a higher increase rate of energy consumption (1.5%/year) compared to residential buildings (households: 0.6%/year) since 1990.
- There is a considerable gap between residential (200 kWh/m²) and non-residential (280 kWh/m²) energy consumption.⁷

Today, the energy consumption of non-residential buildings is increasing ever more rapidly than that of private households. In addition, the frequent change of activity in commercial buildings (every 3 to 5 years) as well as higher energy bills give a strong financial incentive to develop tailor-made renovation policies for this specific sector.

7. Make reference to existing standards

We recommend including reference to the standard EN 15232 ("Energy performance of buildings – Impact of Building Automation, Controls and Building Management") in a Member State's national roadmap, which describes the methods for evaluating the influence of building automation and technical building management on the energy consumption. Additional standards should be considered in the national strategies, such as standards on energy or environmental management systems, i.e. EN ISO 50001 or EN ISO 14001.

8. Initiate or support funding schemes for energy saving measures

We believe that public authorities at European, national and local levels should play a major role in launching ambitious and visible investment plans for building renovation, using, where appropriate, public private partnerships to accelerate investment. Initiating or supporting the funding of energy savings measures, such as the UK's Green Deal or the Dutch National Energy Fund, would help in stimulating the market that is stuck in most Member States due to the economic crisis. Such investments on building plans should be coherent with investment in public infrastructures, transport and smart cities.

Further effort should be dedicated to raise awareness of available financial incentives and grants to foster building renovation. To deliver their full potential, subsidies and financing schemes supporting building renovation need to be predictable and stable over time and not be subject to sudden changes, which discourage investors. Administrative burdens related to financing measures and incentives should be limited to the strictly necessary level.

Furthermore, we strongly support the systematic use of Energy Performance Contracting (EPC) and Energy Service Companies (ESCOs) to accelerate the speed of building renovations, especially in the current context of austerity. The use of performance contracting models has already proven its costs effectiveness in a number of EU Member States.

⁵ *Europe's Building under the microscope*, Buildings Performance Institute Europe (BPIE), October 2011

⁶ Eurostat data, 2008

⁷ *Europe's Building under the microscope*, Buildings Performance Institute Europe (BPIE), October 2011

9. Raise awareness on energy efficiency in buildings

In our view, it is necessary to set up EU wide public campaigns to promote the benefits of installing energy efficiency measures and to help consumers improve their knowledge and understanding of these benefits, including at the level of the environmental impact of their behaviour and consumption patterns. The energy consumption of a building is influenced by its envelope and equipment, but also by its occupants' behaviour.

It is therefore necessary to ensure EU-wide education of all actors, from consumers to the whole business chain and associated services, such as installation and maintenance. In addition, providing independent technical advice on the renovations possibilities, but also benefits, for building owners and occupants would foster building renovations.

10. Consult all relevant stakeholders, including the whole business chain as well as end-consumers

All relevant stakeholders (relevant government departments, building professionals, ESCOs, financial institutions, civil society and end-consumers) should be engaged in the development of the national building renovation roadmaps.



ANNEX

Directive 2012/27/EU on energy efficiency

Article 4: Building renovation

Member States shall establish a long-term strategy for mobilising investment in the renovation of the national stock of residential and commercial buildings, both public and private. This strategy shall encompass:

- (a) an overview of the national building stock based, as appropriate, on statistical sampling;
- (b) identification of cost-effective approaches to renovations relevant to the building type and climatic zone;
- (c) policies and measures to stimulate cost-effective deep renovations of buildings, including staged deep renovations;
- (d) a forward-looking perspective to guide investment decisions of individuals, the construction industry and financial institutions;
- (e) an evidence-based estimate of expected energy savings and wider benefits.

A first version of the strategy shall be published by 30 April 2014 and updated every three years thereafter and submitted to the Commission as part of the National Energy Efficiency Action Plans.

