Exemplary role of public buildings: What's new in the new Energy Efficiency Directive (EU)2023/1791

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Key questions

- **Why is improving energy efficiency in public buildings important?**
- **What are the main changes brought by the fit-for-55 package, and notably the new Energy Efficiency Directive (EED), in the provisions for energy efficiency in public buildings?**
- **What types of measures have Member States implemented so far to improve energy efficiency in public buildings?**

The new EED extends the scope of the renovation obligation to all buildings owned by public bodies, and with the aim to achieve zero-emission buildings. Member States will need to increase their actions in this field to meet this new ambition. They can count on various experiences, for example dealing with monitoring energy consumption, implementing energy management, setting voluntary agreements, establishing dedicated body or roadmaps, and combining funding sources.

A significant and cost-effective potential

Overall, the European Commission (2021) assessed that public buildings would represent **about 2% of EU's total final energy consumption**. The share of publicly-owned buildings among non-residential buildings was estimated to vary broadly among EU Member States, from about 10% (in Greece) up to about 90% (in Estonia) (BPIE 2011).

Energy efficiency improvements in public buildings have been shown to be **cost-effective**: based on data from 1543 projects done in public buildings and entered in the DEEP database[1] as of March 2025, the median payback time of energy efficiency investments in public buildings would be about 7 years. The median payback time per type of investment goes from less than 4 years for improvements in lighting, up to about 10 years for improvements in the building envelope. The median avoidance costs (average cost in Eurocent for each kWh energy saved over the lifetime of the measure) of energy efficiency projects is about **1.9 c/kWh**, which is also the same rate as assessed for integrated renovation. The highest median avoidance cost was found about investments in HVAC (Heating, Ventilation and Air Conditioning) systems: 4.2 c/kWh.

[1] De-risking Energy Efficiency Platform: https://deep.ec.europa.eu/

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An exemplary role enforced with a specific renovation obligation strengthened in the new Energy Efficiency Directive

The **first Energy Efficiency Directive (2012/27/EU)** introduced, in its Article 5, an obligation for Member States to renovate 3% per year of the total floor area of **central government buildings** larger than 250 m² and not yet meeting minimum energy performance requirements. Member States could choose to implement an alternative approach delivering an equivalent amount of energy savings in buildings (e.g. with energy management and behavioural measures). Central government buildings would represent about 10% of all public buildings. The 2012 EED then required Member States to encourage the other public bodies, especially at regional and local level as well as social housing bodies, to adopt an energy efficiency plan, implement an energy management system, and where appropriate use energy services for energy efficiency improvements.

The new **Energy Efficiency Directive (EU)2023/1791** has strengthened these provisions, now in Article 6: (1) the scope of the 3%/year renovation obligation is extended to **all buildings larger than 250 m² and owned by a public body**; and (2) the required **depth of renovation** is clarified and should achieve at least **nearly zero-energy buildings or zero-emission buildings**. The related energy savings potential was assessed by the European Commission (2021) to be **about 2.6 Mtoe/year by 2030**.

Member States may still use an alternative approach to deliver an equivalent amount of energy savings. In addition to monitoring the energy savings achieved, the use of an alternative approach now also requires introducing a renovation passport for buildings representing at least 3 % of the total floor area of buildings owned by public bodies, with the aim to renovate them to nearly-zero energy buildings by 2040.

Renovating public buildings contribute to broader energy efficiency objectives

The obligation for renovating public buildings is expected to be one of the key measures to achieve the **umbrella energy efficiency target for the public sector** set in Article 5 of the new Energy Efficiency Directive (EED): reducing total final energy consumption of all public bodies by at least 1,9 % each year (vs. 2021 level).

Renovating public buildings can also contribute to the achievement of **Member States' energy savings obligation** (now Article 8 in the new EED).

It is also related to provisions of the new Energy Performance of Buildings Directive (EPBD, (EU)2024/1275). The **new EPBD** (Article 3) has replaced the former long-term renovation strategies (LTRS) with **national building renovation plans** (NPRB), with the objective to transform existing buildings into zero-emission buildings by 2050. These plans shall address public buildings, as a specific segment of the building stock. Moreover, Article 9 of the new EPBD requires Member States to establish **minimum energy performance standards for non-residential buildings** (which includes public buildings).

The new EPBD includes provisions stressing the **exemplary role** of public buildings:

- New buildings shall be zero-emission buildings from January 2028 (vs. January 2030 for all new buildings) (Article 7)
- Buildings owned or occupied by public bodies must issue an Energy Performance Certificate (displayed in a prominent place clearly visible to the public) (Articles 20 and 21)
- Existing public buildings to install solar energy, with a progressive approach that starts in December 2027 for the largest public buildings (2.000 m²) and progressively reduces the

threshold until December 2030 (250 m²), while for other buildings this is required in case of major renovation or works on the roof (Article 10).

The Renewable Energy Directive (Article 15a(4)) also refers to the exemplary role of public buildings, related to the share of renewable energy they use.

National, regional and local level fulfil an exemplary role as regards the share of renewable energy used. Member States may allow that the renovation obligation set in the EED be fulfilled by, inter alia, providing for the roofs of public or mixed private-public buildings to be used by third parties for installations that produce energy from renewable sources.

Stronger action needed to meet the higher ambition

During the period 2014-2020, Member States had to report annually to their achievements related to the EED, including about the renovation obligation for central government buildings. Most Member States that chose the alternative approach met their obligation, vs. only half of these that chose the main approach (European Commission, 2022).

For the period 2021-2030, the reporting is now included in the National Energy and Climate Progress Reports, due every two years.

The assessment of the 2023 reporting stressed that "*Member States will have to step up their efforts as early as possible in the next years of the obligation period to be able to meet the savings requirement for the whole obligation period ending in 2030*" (European Commission, 2023).

The 2023 reporting included few data on energy use in public buildings. When reported, data showed an increase in public buildings' final energy consumption in 2021 vs. 2020 in three countries (Denmark, Greece and Hungary), and a decrease in two countries (Croatia and Ireland).

The 2023 reporting and assessment were still about the provisions as set in the EED2012. The challenge is now even bigger, when aiming at improving all public buildings to achieve zero-emission buildings.

Overview of energy efficiency measures for public buildings

A review of the measures in the MURE database as of February 2024 found that out of the 383 on-going measures in the services sector, 226 were dealing with public buildings[2], including 94 measures specific to public buildings. Four main categories of measures could be identified and are further discussed below.

1) Monitoring and energy management

This is often a first step to improve energy efficiency in buildings. Examples of measures include the deployment or network of energy managers (implemented in Belgium, Croatia, Greece, Malta and Portugal), or requiring public bodies to implement energy management (see table below).

Table 1: Examples of measures specifically about energy management in public buildings

Country	MURE code	Feature
Bulgaria	SER-BG1398	Mandatory for buildings > 250 m²
Croatia	SER-HR3956	National information system
Hungary	SER-HU1623	Mandatory action plans
Latvia	SER-LV1712	Local authorities
	SER-LV1710	Central government
Slovenia	SER-SI1869	Mandatory for buildings > 250 m²

Good practices include:

[2] After removing the measures focused on commercial buildings only, or on non-building measures (e.g. public lighting, water sector).

- **Croatia's energy management information system**[3]**,** started in 2014, that includes an automation of data collection, an integration with other databases, training of energy managers, the verification of actual energy savings, and the possibility to expand its use beyond the public sector.
- **Ireland's monitoring & reporting**[4], started in 2013, requiring public bodies and schools to report energy performance annually to an information system operated by SEAI, tracking national target achievement, providing public bodies with feedback and benchmarking, and showcasing results to the general public.

Monitoring and energy management is also often a key component in voluntary agreements.

2) Agreements or obligations

Agreements or obligations can take various forms, and cover different scope (from specific segments to the whole non-residential buildings).

Table 2: Examples of agreements or voluntary commitments

Country	MURE code	Name of the measure
Finland	SER-FI1509	Energy Efficiency Agreement for Municipalities
	SER-FI1514	Energy Efficiency Agreement of the Property and Building Sector
France	SER-FR1553	Label for municipalities committing to target and action plan
Latvia	SER-LV5083	Energy Efficiency Agreement for Municipalities

Table 3: Examples of obligations or mandatory targets for all tertiary buildings

Country	MURE code	Name of the measure
Belgium	SER-BE1378	Brussels - PLAGE (mandatory plan and target for major consumers)
France	SER-FR4451	Tertiary decree' (mandatory reporting and target for all tertiary buildings)
Netherlands	SER-NL1765	Minimum energy performance (C-label) for offices

Table 4: Examples of obligations or mandatory targets for public buildings

Country	MURE code	Name of the measure
Bulgaria	SER-BG1407	Mandatory Energy Efficiency Programmes for central government and local authorities
Cyprus	SER-CY3978	Annual energy savings obligation in existing public buildings
Great Britain	SER-GB1937	Greening Government Commitments (GHG emission reduction target)
Hungary	SER-HU1623	Mandatory energy saving action plan every 5 years in public buildings

Good practices include:

- **Finland's** [Energy Efficiency Agreement for Municipalities][5], started in 2008, providing municipalities with technical support when they commit to voluntary energy savings targets, implementing an energy audit, defining an action plan and monitoring their actions and achievements.
- **Netherlands's Minimum Energy Performance Standards for offices**[6]**,** adopted in 2018, and requiring office buildings to be C-class or better

[3] https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/3956
[4] https://www.seai.ie/business-and-public-sector/public-sector/monitoring-and-reporting/
[5] https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/1509
[6] https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/1765

by 2023, and a compliance of 77% of the office areas by January 2024.

3) Dedicated body or national roadmap

A more structural measure can be to establish a body in charge of coordinating the improvement of public buildings, or to set a roadmap for public buildings.

Slovenia established in 2015 the **Project Office for Energy Renovation of Public Buildings**[7]. Developed as part of an Operational Programme, it provides technical support in the selection and implementation of energy renovation projects for State and municipal buildings. It acts as a one-stop-shop for public building renovations, facilitating experience sharing and replication and dissemination through 'demonstration effects'.

The Netherlands initiated in 2019 the process of **Roadmaps to decarbonized public buildings**[8], with intermediate milestones leading to the long-term goal to achieve carbon neutrality by 2050. The roadmaps are developed considering other measures (e.g. MEPS for offices) and include 12 sectoral roadmaps. They are meant as a regular real estate process, with a reporting every two years (from 2022) to the sectoral quality control consultation body. Public bodies can receive support from the Knowledge and Innovation Platform on Sustainable Public Building.

For linking the renovation of public buildings to real-estate management, experience sharing among Member States can be supported by PURE-NET[9] (European network of public real estate bodies).

4) Using multiple sources of funding

A major challenge for public bodies may be to find financing solutions, while public budgets are under strong constraints and that their own financing capacities might be limited compared to the investment needs. This is for example why EU funds (e.g. ERDF, Recovery & Resilience Funds) are commonly used for programmes aimed at energy efficiency in public buildings. A few countries also used carbon revenues (e.g. Latvia, Poland), or international cooperation (Norway-Iceland & Bulgaria; Greece & Cyprus).

Table 5: Examples of measures boosted in Recovery and Resilience Plans

Country	MURE code	Name of the measure
Including public buildings (among other targets)		
Bulgaria	SER-BG4515	Support for sustainable energy renovation of the non-residential building stock
Spain	SER-ES4603	Renovation of existing buildings in municipalities with demographic challenges (PREE 5000)
France	SER-FR4446	France's Recovery Plan (including programmes for public buildings)
Specific to public buildings		
Latvia	SER-LV4522	Energy efficiency measures in general education institutions
	SER-LV1720	municipal development programmes to boost local activity
Greece	SER-GR4541	ELECTRA programme
Spain	SER-ES4564	Program to Promote the Rehabilitation of Public Buildings (PIREP)

Good practices include:

- **Latvia's municipal development programmes**[10], started in 2016, dealing with construction and

[7] https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/1873
[8] https://www.ca-eed.eu/ia_document/roadmaps-to-decarbonized-public-buildings-netherlands/
[9] https://www.pure-net.org/
[10] https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/1720

renovation of public buildings (or other infrastructures)

- **Spain's PIREP programme**[11], started in 2022, with the objective of average energy savings above 30%, covering all types of public buildings, and a budget of 600 million euros (not limited to energy renovation of buildings, but with a priority given to energy renovations with 100% funding).

Other types of measures and issues addressed

20 measures are specifically focused on **municipal buildings**, with a few measures specific to small municipalities (SER-ES4603; SER-FR1543; SER-NL4434). More broadly, at least 58 measures include municipal buildings in their scope.

Some measures may be focused on **new buildings**, as a complement or going beyond the EPBD requirements for nearly zero energy or zero emission buildings. Support may indeed be needed to facilitate compliance with these requirements, for example to demonstrate feasibility (e.g. Brussels' Exemplary Buildings programme[12]).

The EPBD and the EED promotes the use of **energy services** and public-private partnerships, (e.g. Energy Performance Contracting). Despite more than 20 years of attempts and various schemes, this approach still encounters difficulties to scale up. Salix Finance LTD[13] in Great Britain remains a good practice about the development of internal contracting or use of a dedicated financing body.

The recent crisis of high energy prices has boosted the implementation of **sufficiency measures**, such as adapting indoor temperature (SER-GR4550 ; SER-FR1539 ; SER-IT1669), optimization of area per employee (SER-FI1519), or lighting off at night (SER-FR1548).

For further reading or information, please visit https://www.odyssee-mure.eu/

*See also the **proceedings of the webinars** of February and April 2024, dealing with the exemplary role of public buildings, the role of municipal energy counsellors in Sweden, and Incentive schemes for energy efficiency in public buildings in Italy: https://www.odyssee-mure.eu/events/webinar/*

***European Commission's webpage** about energy efficiency in public buildings: https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/public-buildings_en*

***Commission Recommendation** (EU) 2024/1716 of 19 June 2024 setting out guidelines for the interpretation of Articles 5, 6 and 7 of Directive (EU) 2023/1791 of the European Parliament and of the Council as regards energy consumption in the public sector, renovation of public buildings and public procurement. http://data.europa.eu/eli/reco/2024/1716/oj*

BPIE (2011). Europe's Building Under the Microscope – A country-by-country review of the energy performance of buildings. https://www.bpie.eu/publication/europes-buildings-under-the-microscope/

De Lemos, S., Lehofer, W., Molitor, P. (2022). Data collection on energy saving measures in EU Member States. Report of the European Parliament's Economic Governance Support Unit, October 2022. https://www.europarl.europa.eu/thinktank/en/document/IPOL_STU(2022)699535

European Commission (2023). Assessment of progress towards the objectives of the Energy Union and Climate Action. SWD(2023) 646 final. https://eur-

[11] https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/4564

[12] https://enefirst.eu/wp-content/uploads/13_OPTIMISING-BUILDING-ENERGY-DEMAND-BY-PASSIVE-LEVEL-BUILDING-CODE.pdf

[13] https://www.measures.odyssee-mure.eu/energy-efficiency-policies-database.html#/measures/1936

lex.europa.eu/legal-content/EN/TXT/?uri=SWD%3A2023%3A646%3AFIN&qid=1698236844015

European Commission (2022). 2022 report on the achievement of the 2020 energy efficiency targets. COM(2022) 641 final. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=COM:2022:641:FIN

European Commission (2021). Proposal for a Directive of the European Parliament and of the Council on energy efficiency (recast). COM(2021) 558 final. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0558

Fraunhofer ISI, e7, RAP, Schönherr Rechtsanwälte GmbH, Trinomics and VITO (2024). Contractors' Report on good practices related to the EED-Recast. Report prepared for the European Commission (see chapter 4 about Article 6 EED): https://circabc.europa.eu/ui/group/8f5f9424-a7ef-4dbf-b914-1af1d12ff5d2/library/12d21f3f-42bf-4d63-979a-9cd1006a2ff1/details?download=true