

# Overcoming underperforming renovations in the CEE region

## Challenges and recommendations

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**Addressing Inefficiencies in Public Building Renovations: Challenges, opportunities and solutions for Central and Eastern Europe**

## Overview

The CEE region is facing **significant challenges** in improving building energy performance, and renovations can **underperform** in terms of expected energy savings.

## EU context

**EPBD** and the **Renovation Wave strategy** aim to double the renovation rate by 2030, with the long-term goal of achieving net-zero emissions in buildings by 2050.

## Problem statement

Despite various initiatives, renovation CEE is **slow** and sometimes struggles with '**performance gaps**,' (disparities between expected and actual energy savings post-renovation).

## OUR-CEE project

Aims to **analyse the root causes** of underperformance of renovations in four CEE countries (BG, HR, PL, RO) and **build capacity** to avoid it.

# OUR-CEE (Overcoming Underperforming Renovations in CEE)

- Addresses the **issue of underperforming renovations on public buildings** and how to overcome it
- Covers **4 CEE countries** traditionally challenged by low renovation ambitions and poor quality of the building stock
- Aims to:
  - Identify **the reasons** behind underperforming renovations of public buildings
  - **Build capacity** in public institutions to upgrade these renovations and to avoid them in the future.
- **Funded** by the European Climate Initiative (EUKI) of the German Federal Ministry for Economic Affairs and Climate Action (BMWK).



**Underperforming renovations:** renovations which do not achieve their forecasted energy savings.

**Performance Gap:** the calculated mismatch between the predicted energy performance of buildings and the actual measured performance (P. de Wilde, 2014).





# Underperforming Renovations in CEE

# The CEE region has an old and inefficient building stock

## Building stock characteristics

- Most buildings in the CEE region were constructed between the 1940s and 1990s
- Many were built using outdated technologies

## Energy inefficiency

- In some CEE countries (e.g., Croatia, Poland), building energy consumption is than the EU average
- While other countries have lower energy consumption, rates of energy poverty are high and it is not clear whether this low energy consumption is due to intentional under-consumption or poor reporting

## Challenges in the transition

- CEE countries have been slower to adopt renewable energy sources and phase out fossil fuels, particularly for heating

Unit final consumption per dwelling to EU average climate

Country	2021 kWh/dwelling
Austria	20,120
Bulgaria	10,700
Croatia	22,679
Czechia	18,841
Germany	16,747
Hungary	20,120
Poland	17,678
Romania	13,258
EU	15,584

Source: (Odyssee-Mure, 2021), Free Energy Indicators | ODYSSEE (odyssee-mure.eu)

# Possible causes for underperforming renovations in CEE

## Planning & design stage

**Bulgaria:** Low energy performance requirements, including in EU-funded renovation programmes, and energy efficiency ambitions.

**Croatia:** Excessive use of exceptions, financial constraints, lack of data and incorrect assumptions about energy consumption.

**Poland:** Inaccurate pre-renovation energy modelling, lack of rigorous verification before project approval.

**Romania:** Lack of regulatory incentives, budget constraints, single-measure renovations, misalignment between policy and execution.

## Execution stage

**Bulgaria:** Poor quality of construction, use of lowest-price criteria in contractor selection, insufficient quality control and oversight.

**Croatia:** Poor documentation, use of lowest-price criteria in contractor selection, lack of skilled labour, and lack of accountability for underperformance.

**Poland:** Poor construction quality and choice of cheap materials and systems to cut costs.

**Romania:** Non-compliance with technical standards, use of substandard materials, lack of oversight, shortage of skilled labour.

## Post-renovation stage

**Bulgaria:** Lack of post-renovation monitoring and verification.

**Croatia:** Lack of user education and inadequate energy performance monitoring.

**Poland:** Lack of user awareness and inadequate monitoring systems.

**Romania:** Lack of user education and inadequate energy performance monitoring.

# EPG Common renovation challenges

## Lack of data

Insufficient and outdated information on building stock and energy performance hampers effective planning.

## Poor monitoring systems

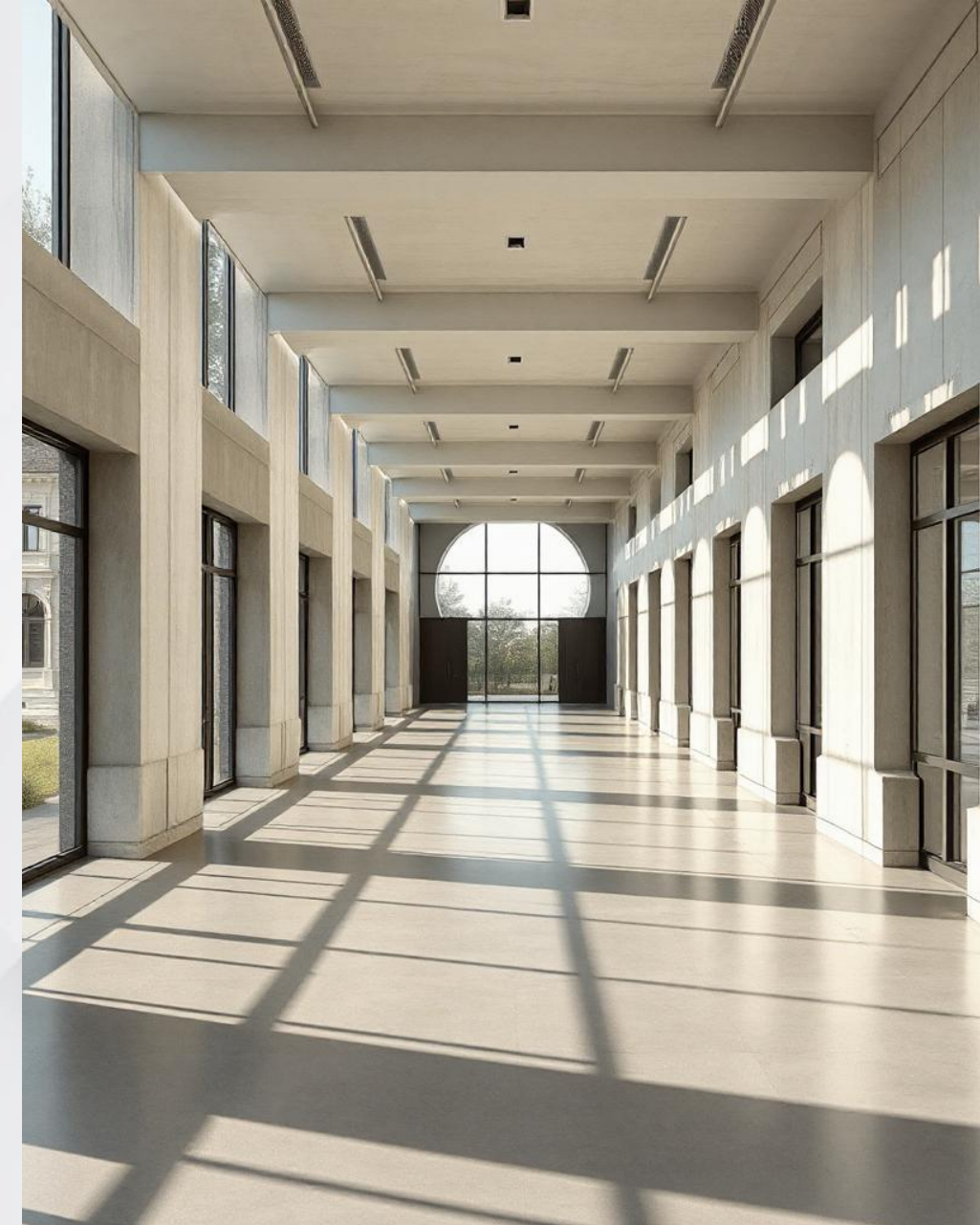
Inadequate methods to track and assess renovation progress, leading to underperforming projects.

## Limited institutional capacity

Resource constraints and local authorities' lack of expertise pose challenges for creating and implementing ambitious policies for high-performing renovations.

## Inconsistent policies

While all countries have adopted the EU directives, there are gaps in enforcement and renewable energy integration.





# EPG Common renovation challenges

## Financial barriers

Deep renovations are expensive, and long payback times may make deep renovations unappealing.

## Lack of skills and expertise

High-performance renovations require specialised expertise, which is often lacking.

## Lack of awareness

Public building owners often overlook how behaviour affects energy performance and the need for post-renovation monitoring, increasing the risk of a performance gap.

## Fragmented efforts

Poor coordination among stakeholders leads to inefficiencies and missed opportunities.



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# Conclusions and recommendations



# Underperforming renovations require holistic interventions

## Underperformance persists

Many renovation projects in the CEE region have not achieved their anticipated energy savings and cost efficiency.

## Role of public buildings

Public buildings can be models of best-practice renovation, including a minimal performance gap.

## Need for a holistic approach

Addressing underperforming renovations will require interventions across the planning, execution, and post-renovation stages, including institutional and professional capacity-building, public awareness, and removal of regulatory and financial incentives.

## Need for robust monitoring

Monitoring of post-renovation performance is essential to overcome behavioural inefficiencies, plan and improve future upgrades, and ensure the effectiveness of public spending.



# Underperforming renovations require holistic interventions



## Regulation and financing

Increase **policy ambition** for rate and depth of renovation

Tighten requirements on building owners for **reporting building data and energy performance**

**Condition public funding** on achieved energy performance



## Monitoring & data collection

Require **post-renovation monitoring** of energy performance and planning of behavioural interventions

Develop **national databases** that reflect real-world outcomes.



## Capacity building & training

Provide **training to local governments and public building owners** to increase awareness and knowledge

Provide **training for energy renovation professionals** to improve quality of renovation works



## Knowledge exchange

Exchange within the CEE region on **common barriers and solutions** for underperforming renovations

Learn from **best-practice cities and countries** on achieving high-performing renovations

# EPG

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