WE Data Europe

AccelerateEU

WE DATA EUROPE'S REPLICABLE MEASURES FOR ENERGY SAVINGS AND SYSTEM EFFICIENCY GAINS

EXECUTIVE SUMMARY

Recent energy crises have demonstrated that supply-side measures alone are insufficient to ensure energy security in the European Union. We therefore welcome the AccelerateEU Communication's call for Member States to strengthen action on energy efficiency in buildings while accelerating the decarbonisation of heating and cooling systems.

In the context of the upcoming catalogue of replicable measures to deliver energy savings and system efficiency gains, as well as the development of a digital repository of best practices, we have identified readily available digital solutions based on submetering data. We encourage the European Commission to include these replicable measures and best practices in the upcoming publications.

These tools enhance transparency, support behavioural change, and unlock additional efficiency gains of up to 30% through data-driven optimisation. They represent a rapid, scalable, and cost-effective means to mitigate the impact of energy price volatility while contributing to longer-term decarbonisation objectives. They also equip Member States with practical tools to identify underperforming buildings, trigger energy audits, and better target renovation efforts.

These recommendations build on lessons learned from recent crises and aim to strengthen resilience, enhance affordability, and accelerate the transition towards a more secure and sustainable European energy system.

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1 SCALABLE DIGITAL SOLUTIONS DELIVERING IMMEDIATE ENERGY SAVINGS

1.1 Deploying Submetering to Achieve 15–30% Energy Savings in Buildings

AccelerateEU Objective: Empower consumers and shield them from energy price spikes

Suggested Technical solution: Full deployment of thermal submeters and heat cost allocators in multi-unit buildings

What should the catalogue recommend to Member States

We recommend that the upcoming Catalogue of replicable measures to produce energy savings and system efficiency gains explicitly encourage Member States to **fully untap the efficiency of submetering by increasing the coverage of thermal submeters and heat cost allocators in multi-unit buildings**.

In several Member States, the deployment of submetering remains constrained by outdated or unclear cost-benefit analyses, often based on assumptions of low energy prices and an underestimation of the full range of achievable energy savings. In the context of persistently high energy costs and repeated energy crises, these methodologies no longer reflect current realities.

The catalogue should therefore recommend Member States to **revisit and update their cost-benefit analyses**. These assessments should better reflect current energy price levels as well as the broader savings potential of submetering technologies, including the benefits of data-driven optimisation (See 1.2).

Justification and evidence of achievable energy savings

Following the installation of thermal submetering devices or heat cost allocators, studies have demonstrated that building occupants pay greater attention to their consumption and adjust their behaviour, resulting in **15 to 30% of energy savings** on average without additional renovations or comprising comfort.[1]

This behavioural impact is also reflected in empirical emissions data. In **Germany**, CO_2e emissions from space heating and domestic hot water in multi-family buildings decreased by approximately **11% between 2020 and 2022** (not weather-adjusted), measured per dwelling unit. Emissions fell from **2.17 tonnes CO_2e per unit (30.6 kg/m²)** in 2020 to **1.8 tonnes (27.4 kg/m²)** in 2022. This reduction is largely attributable to changes in user behaviour during the energy crisis, supported by increased consumption awareness enabled by submetering.[2]

[1] See the studies supporting these findings on our website here.
[2] Techem Verbrauchskennwerte 2022, page 22, available here.

1.2 Digital Optimisation of Heating and Cooling Systems

AccelerateEU Objectives:

- Decarbonise heating and cooling systems, speed-up electrification and the uptake of renewables and low-temperature solution
- Improve heating and cooling systems efficiency and keep boilers at low-temperature to reduce energy use

Suggested Technical solution: Digital optimisation of heating and cooling systems

What should the catalogue recommend to Member States

The Catalogue should encourage Member States to fully leverage available submetering data, complemented by low-cost sensors at the system level, to:

- **Optimise hydraulic balancing and reduce return temperatures**
- **Ensure proper sizing of heating and cooling systems based on actual building needs**
- **Adjust system temperature settings in line with real demand**
- **Enable faster detection and correction of system faults**

What can be done to streamline the deployment of the technology

In some Member States, individual consent is required to use personal energy consumption data to optimise heating systems performance. It creates administrative complexity and delays the deployment of initiatives delivering clear environmental benefits.

Under the legal bases provided in the Article 6(1)(c), (e), or (f) of the GDPR, we recommend developing guidance to simplify the use of submetering data to improve buildings and system performance.

Justification and evidence of achievable energy savings

Multiple cases from different Member States, using submetering data, complemented by low-cost sensors at the system level, enables digital optimisation of heating and cooling systems, are available **here**.

Across Europe, a large share of multi-family buildings operate with inefficient heating and cooling systems due to outdated settings, oversizing, lack of control, and insufficient hydraulic balancing, reaching up to 80% of buildings in Germany. This leads to excessive energy consumption, uneven heat distribution, and unnecessary costs for consumers.

Digital optimisation, enabled by submetering data and complemented by low-cost sensors at the system level provides a concrete and already deployed response to this widespread issue. By allowing continuous monitoring and adjustment of system parameters to actual demand, it **unlocks additional 30% of energy savings on average upon deployment**, without compromising thermal comfort of occupants. This figure has been verified in different types of buildings, across different Member States. The solution is already used throughout Europe, demonstrating its scalability and its real-world effectiveness.

It also helps building occupants adopt the most efficient heating decisions. Studies performed in multi-unit buildings[3] show that common assumptions about energy-saving behaviours can be misleading. For instance, **heating fewer rooms actually increases the overall building consumption**, as it leads to higher temperatures supplied to the functioning radiators and results in uneven heat distribution, ultimately reducing system efficiency.

Furthermore, digital optimisation of heating systems simplifies the **phasing-out fossil fuels in existing buildings**, by making equipped buildings compatible with low-temperature and decarbonised heating solutions, such as heat pumps, geothermal and solar thermal systems, as well as new generation district heating networks using renewable energy sources or waste heat. Considering that in Europe, between 40 and 70% of existing heating systems are compatible with heat pumps and low-temperature systems, optimisation solutions have a large energy savings potential.[4]

Overall, digital optimisation of heating and cooling systems is a **low investment solution** that does not require modifications to the structure of the building, and relies on existing submetering infrastructure. It can be deployed rapidly and offer quick relief to consumers.

1.3 Targeted Building Renovations through Data

AccelerateEU Objective: Accelerate the decarbonisation of the building stock

Suggested Technical Solution: Use submetering data for targeted and cost-effective renovation strategies

What the catalogue should recommend to Member States

Make building renovations more targeted an cost-effective by using real, metered energy data to identify the worst-performing units and rooms within buildings.

Justification and evidence of achievable energy savings

Studies performed in Germany[5] have identified a mismatch between energy renovations based on calculated space heating requirements: the effort for older buildings is often overestimated, while for newer buildings it is frequently underestimated. Metered data can be used to improve the planning of renovations and optimising the refurbishment process.

[3] For instance, see the study perfomed in Vibord, Denmark, on heating behaviour and return temperature here, page 17.
[4] Techem Atlas 2025 for Energy, Heat and Water, page 28, available here.
[5] Techem Atlas 2025 for Energy, Heat and Water, page 17, available here.

2 POLICY MEASURES ADOPTED BY MEMBER STATES DELIVERING IMMEDIATE ENERGY SAVINGS

Several EU Member States mandate the use of submetering data to optimise heating and cooling systems, improve energy distribution in buildings and detect inefficiencies. These examples are quickly replicable in other countries and we recommend their addition in the upcoming **Digital Repository** that will facilitate the sharing and promotion of good practices adopted to offset the effects of the energy crisis.

2.1 Boosting Submetering Coverage in Buildings

In **Croatia**, legislation[6] does not impose fines in the absence of submeters or heat cost allocators, but instead applies a "heating efficiency incentive fee". The amount paid is then kept in a separate account for the co-owners and must be reinvested within five years to improve the energy efficiency of the building.

2.2 Using Submetering Data to Detect Inefficiencies

Submetering enables continuous monitoring of energy consumption at both building and unit level, allowing for the rapid identification of inefficiencies and system malfunctions. Several Member States have already leveraged this potential to unlock additional energy savings:

In **Bulgaria**[7] and **Spain**[8], submetering data is used to **detect system malfunctions** and unusual deviations in heating, cooling, and domestic hot water demand, triggering inspections and corrective measures when abnormal consumption patterns are identified.

In **Poland**[9], submetering data is used to establish thresholds that **trigger energy audits that enable the swift detection of poorly performing units,** when buildings exhibit excessive energy use. Data-based inspections and energy audits simplify the detection of anomalies and facilitate the early identification of inefficiencies. This ensures that corrective actions, including renovations, are taken in a timely and cost-effective manner, helping avoid unnecessary costs for consumers.

2.3 Optimising Heating Systems and Hydraulic balancing

Germany has introduced targeted regulatory measures to improve heating system efficiency, notably through the Energiesicherungsmaßnahmenverordnung (EnSimiMaV)[10] and updates to the Building Energy Act. These measures have emphasised hydraulic balancing and system optimisation in existing buildings, recognising their potential to deliver immediate energy savings.

[6] Croatian Heat Energy Market Act, in force form 17 April 2025, available here.
[7] Bulgarian Ordinance E-RD-04-1 of 12 March 2020 for heat supply, available here.
[8] Spanish Royal Decree 736/2020, of 4 August, regulating the accounting of individual consumption in thermal installations in buildings, available here, and Royal Decree 1027/2007, available here.
[9] Polish Act of 10 April 1997, Article 45a, last amended on 15 January 2026, Energy Law, available here, and Ordinance of 7 December 2021, available here.
[10] German Ordinance on the Security of Energy Supply on Short-Term Effective Measures, 13 September 2022, available here.

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