WE Data Europe

WE Data Europe's Policy Recommendations on the

Heating & Cooling Strategy and Electrification Action Plan

EXECUTIVE SUMMARY

Heating and cooling is at the heart of Europe's energy challenge. **Buildings account for 40% of the EU's total energy consumption**[1], with **heating and cooling demand** alone responsible for **over a quarter of final energy use**[2]. Yet, most buildings still operate oversized, misconfigured heating systems, often running at unnecessarily high supply temperatures, wasting vast amounts of energy and blocking the integration of low-temperature heating sources.

Drawing on real-life case studies of digital solutions implemented in Germany, Denmark and Spain, this brochure demonstrates how **data-driven heating system optimisation**, enabled by submetering and smart control technologies, can tackle these inefficiencies and unlock sustained **energy savings of 20 - 40% without requiring structural changes or major investments**, while maintaining thermal comfort of residents.

Digital optimisation achieves these results by using consumption and temperature data to adjust heating system settings, improve hydraulic balancing, and lower return temperatures, ensuring that the energy is delivered in the building in the most efficient way possible, only when and where it is needed.

Beyond reducing energy waste, optimisation solutions make buildings **ready for low-temperature heating solutions**, such as heat pumps and district heating, and therefore directly support the decarbonisation objectives of the **Energy Efficiency Directive** and the **Energy Performance of Buildings Directive**.

Based on these findings, WE Data Europe recommends the following points to be taken up in the **Heating & Cooling Strategy** as well as the **Electrification Action Plan**:

1. **Introduce a dedicated digitalisation chapter**
2. **Prioritise data-driven optimisation of heating systems in investments on buildings efficiency**
3. **Favour digital metering over drive-by or walk-by systems to maximise the benefits of remotely readable meters**
4. **Ensure the full and consistent implementation of the Energy Efficiency Directive across Member States.**

[1] Eurostat, May 2025, Energy Balances, available here.
[2] Eurostat, June 2025, Energy consumption in households, available here.

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1 WHAT IS SUBMETERING

Submetering is a key tool for energy-efficient and future-proof buildings. It provides precise data on energy consumption at the unit, zone, or system level, enabling fair cost allocation based on actual usage rather than estimates. Submetering and cost-allocation for heating, cooling and domestic hot water is enshrined in the Energy Efficiency Directive (Article 15 and 16)[3].

It represents a major step forward for consumer protection and energy efficiency of the heating and cooling systems in buildings. Where submetering is in place, consumers pay only for what they consume, instead of fixed estimates based on flat dimension, and receive frequent information on their consumption, providing a direct financial and cognitive incentive to adopt more efficient behaviours.

1.1 How it Works

Individual meters track near real-time energy consumption at radiator, room and unit level to determine the amount of energy used by each consumer in multi-unit buildings. This enables precise cost distribution according to real energy use, but also helps identify system inefficiencies, optimise energy use and support smart building solutions.

1.2 Why it Matters

Submetering enables data-driven efficiency and unlocks on average 15 to 30% energy savings[4]. By integrating it with automation and heating optimisation technologies, additional 20 to 40% energy savings can be unlocked[5], with minimal upfront costs and no modifications to the structure of the building.

[3] Energy Efficiency Directive (EU/2023/1791), available here.
[4] See the studies supporting these findings on our website here.
[5] See Smarter Heating, Lower Emissions: Case Studies on Data-Driven Heating Optimisation in Buildings (Page 6).

2 EMPOWERING CONSUMERS FOR SMARTER, MORE EFFICIENT HEATING AND COOLING SYSTEMS

Space heating and cooling together with water heating make up about 80% of the residential energy end-use, representing more than a quarter of final energy consumption in the EU[6]. This typically represents 30% of what households spend on housing-related expenditures, although the costs vary between Member States.[7]

Almost half of the dwellings in the Union (48%) are located in multi-apartment and multi-purposes buildings[8], many of which are connected to district or central systems for the provision of space heating and cooling, or for domestic hot water preparation.[9] Because occupants often have limited control and insights in these, centralised, accurate, reliable, and timely information about energy consumption is essential for them to monitor usage, manage costs, and improve efficiency.

As identified by the previous Heating & Cooling Strategy[10], empowering consumers with frequent information about their energy use and billing them according to their actual consumption is a fundamental step towards more efficient energy use.

This can be achieved by installing individual meters, measuring the consumption of heating, cooling and domestic hot water for each unit. It ensures that consumers are not billed based on a flat fee determined on the surface of their dwelling or the number of occupants living in the unit, but their actual usage. This creates a simple and direct financial incentive to adopt energy-efficient behaviours and invest in energy efficient appliances.

Following the installation of individual heat metering devices or heat cost allocators, multiple studies carried out in different EU Member States have demonstrated that building occupants pay more attention to their consumption and adjust their behaviour, resulting in 15 to 30% of energy savings on average without additional renovations or loss of comfort.[11]

The 2018 recast of Energy Efficiency Directive (EED)[12] builds on the recommendation formulated by the 2016 Heating & Cooling Strategy to strengthen feedback to consumers and leverage the progress achieved in metering technology. By January 2027, it requires all individual thermal meters and heat cost allocators to be replaced or retrofitted to become remotely readable. Since January 2022, consumers equipped with remotely readable meters must already benefit from at least monthly billing and consumption information, which can be provided as frequently as allowed by the measurement system in place.

However, the directive leaves it to Member States to decide whether “walk-by” or “drive-by” technologies qualify as remotely readable. Although these solutions do not require physical access to individual units, they still depend on a technician being present in the vicinity of the building to collect data. This approach involves ongoing operational costs and limits how frequently consumption data can be shared with

[6] Eurostat, June 2025, Energy consumption in households, available here.
[7] Study on energy prices and costs – Evaluating impacts on households and industry’s cost – Publication Office of the European Union (2024), available here.
[8] Eurostat, 2024, Housing in Europe, available here.
[9] Commission Recommendation (EU) 201/1660 of 25 September 2019 on the implementation of the new metering and billing provisions of the Energy Efficiency Directive 2012/27/EU
[10] Heating & Cooling Strategy 2016, available here.
[11] See the studies supporting these findings on our website here.
[12] Energy Efficiency Directive (EU/2018/2002) available here.

consumers. As a result, the range of additional services and co-benefits that could be offered through these devices remains restricted.

By contrast, digital metering, relying on IoT solutions, eliminates the need for on-site intervention and enable near real-time consumption feedback (i.e. up to every 15 minutes). These advanced systems can also be integrated with digital platforms, such as smartphone applications or web dashboards, allowing consumers to monitor their energy use and spending in a more transparent and intuitive way.

While offering better consumers protection, it contributes to reducing demand on central and district heating and cooling networks. It is of particular importance when heating and cooling are supplied through electric heat pumps, reducing peak demand at the building level directly lowers pressure on the electricity grid. This supports peak shaving, improves grid stability, and ultimately facilitates the electrification of the heating and cooling sector.

The transposition deadline for the remote readability requirement is fast approaching, but the deployment of remotely readable thermal meters still receives little attention. This lack of oversight risks leaving major implementation gaps between Member States to go unnoticed and depriving consumers of key tools to optimise their energy use. While the roll-out of smart electricity meters has been actively monitored and promoted, a similar ambition should be set for heating & cooling applications.

As warmer summers drive a growing demand for cooling in buildings, collective cooling systems are now being developed in several Member States where no such solutions previously existed. While the deployment of these collective systems should be strongly encouraged over individual cooling solutions, several Member States have yet to update their national legislation to reflect this shift. In particular, they have not introduced mandatory individual metering for cooling, despite the requirements set out in the EED[13].

3 PROMOTE DATA-DRIVEN OPTIMISATION OF HEATING SYSTEMS

The Energy Efficiency Directive[14], together with the Energy Performance of Buildings Directive[15] and the Renewable Energy Directive[16], have sent strong policy signals for Member States to enhance the efficiency of their heating and cooling systems while supporting the progressive integration of low-temperature, renewable energy sources.

In multi-unit buildings, however, most heating systems remain significantly oversized, leading to persistent misconfigurations, such as unnecessarily high supply temperatures, inadequate hydraulic balancing, and excessive energy consumption. These inefficiencies not only prevent residents from using heat optimally but also create a major bottleneck to the integration of decarbonised heating sources.

Heating system optimisation technologies, based on submetering data, are already being deployed in Europe to enhance and optimise the overall energy flows in buildings, resulting in efficiency gains and allowing for integration of low-temperature renewable sources of heating[17]:

[13] Energy Efficiency Directive (EU/2023/1791), available here.
[14] Energy Efficiency Directive (EU/2023/1791), available here.
[15] Energy Performance of Buildings Directive (EU/2024/1275), available here.
[16] Renewable Energy Directive (EU/2023/2413), available here.
[17] See Smarter Heating, Lower Emissions: Case Studies on Data-Driven Heating Optimisation in Buildings (Page 6)

- Submetering data can be used to lower the temperature setpoint of heating systems through better hydraulic balancing, paving the way for integrating more renewables and making buildings ready for low-temperature, decarbonised solutions such as large heat pumps or district heating.
- Submetering data can be used to monitor and address inefficient heat use in individual apartment units, making it possible to inform end-users and promote better heat distribution, thereby avoiding unnecessary increases in heat demand.
- The roll-out of these technologies can deliver additional energy savings in the range of 20-40%, complementing the savings already achieved through behavioural changes thanks to submeters.
- These savings can be achieved with little upfront investments, as they do not require structural changes to the buildings.

4 OUR POLICY RECOMMENDATIONS

4.1 A Dedicated Digitalisation Chapter On the Heating & Cooling Strategy

Digitalisation has made significant progress in the last decade, enabling simpler interaction between citizens and their energy consumption, the connection of energy demand with supply, while opening the door to energy optimisation opportunities facilitating clean, low-temperature heating technologies readiness in buildings. Building on the conclusions of the 2016 Heating & Cooling Strategy, the upcoming 2026 Strategy should include a dedicated section on digitalisation, placing a stronger emphasis on promoting innovative digital solutions to accelerate the transition towards a smart, efficient, and sustainable heating and cooling system.

4.2 Prioritise Data-driven Optimisation of Heating Systems

With cost-effective technologies already available and ready for large-scale deployment, data-driven optimisation of heating systems should be considered as a priority measure following the mapping of their energy efficiency potential, as mandated by the Energy Efficiency Directive. If positioned as a complementary measure to investments in the building envelope, they have the potential to accelerate the progress towards a decarbonised energy system and building stock, while safeguarding housing affordability.

4.3 Favour Digital Metering Over Drive-by and Walk-by Solutions

To maximise the benefits of digitalisation and strengthen citizen engagement, the Heating & Cooling Strategy should recommend Member States to future-proof their remotely readable meters deployment and prioritise digital metering over drive-by and walk-by solutions. Only digital metering can fully unlock the potential for citizens' empowerment and support more effective reductions in energy consumption.

4.4 Full Implementation of the Energy Efficiency Directive

With a robust legal framework at EU level, the focus must now shift towards policy predictability and a consistent implementation of the EED across all Member States, ensuring that all citizens benefit from the EU level provisions.

As new remotely readable thermal meters are deployed, close monitoring of the consistent implementation of this mandate for both heating and cooling application will expand the range of services and optimisation opportunities offered by their installation, enhancing consumers' engagement and protection, while unlocking additional energy savings.

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