



MISSION CITIES' POLICY BRIEF SHAPING THE FUTURE OF HEATING & COOLING AND ELECTRIFICATION POLICIES

This policy brief presents the results from the NetZeroCities Policy Lab entitled [“Shaping the Future of Heating & Cooling and Electrification Policies”](#).

NetZeroCities is a consortium consisting of 34 partners from 13 European countries, managing the EU Cities Mission platform. The project supports the [112 European cities](#) known as the [Mission Cities](#) in drastically reducing their greenhouse gas emissions to achieve climate neutrality. The EU Cities Mission supports the [European Green Deal](#) in building a low-carbon, climate-resilient future through research and innovation.



Funded by
the European Union

EXECUTIVE SUMMARY

The EU Policy Lab on Heating & Cooling and Electrification Policies, organised under NetZeroCities between October and November 2025, aimed to equip European cities with the tools and evidence to effectively inform the European Commission's open public consultations on the [Heating & Cooling Strategy](#) and the [Electrification Action Plan](#).

At a moment when cities are called upon to implement new policies to decarbonise heating and cooling sector, as part of the Fit-for-55 package, the upcoming EU Heating and Cooling Strategy (H&C Strategy) and Electrification Action Plan (EAP), represent a key opportunity to identify and remove remaining barriers to effective local action, and empower cities to accelerate the decarbonisation of the heating and cooling sector.

Through a collaborative Policy Lab sprint comprising of two working sessions held over four weeks, **city representatives from 26 cities, policy experts, and representatives from the European Commission** jointly explored the challenges and opportunities of decarbonising the heating and cooling sector, while ensuring electrification strategies are aligned with local challenges and climate ambitions.

This policy brief summarises the outcomes of the Policy Lab process, outlines key challenges identified by participating cities, and provides recommendations to inform the European Commission's policy development in these two areas.

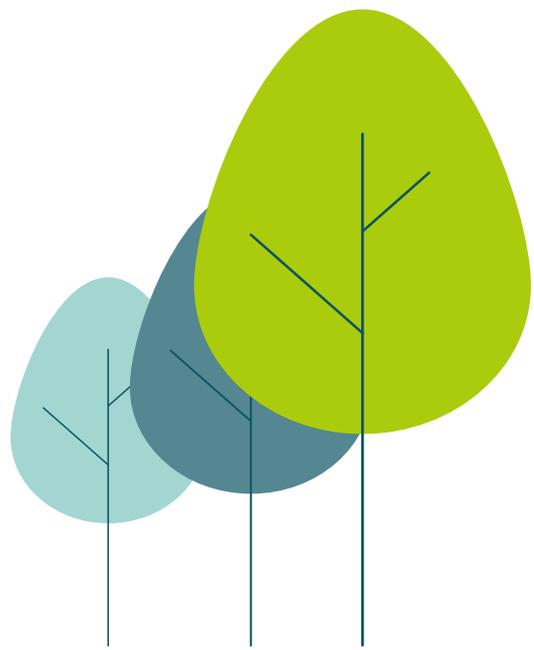
Summary of recommendations:

- Empower cities through clear legal frameworks, consistent funding, data access, and capacity building to enable them to lead heating and cooling decarbonisation efforts effectively.
- Promote integrated, multi-level governance, ensuring coordinated roles for local, regional, and national authorities, and provide flexibility for cities to implement innovative, place-based solutions.
- Ensure technical, financial, and policy support for cities, including simplified access to EU and national funding, structural and long-term financing, and national guidelines to support local planning and transition projects.
- Guarantee open data sharing and harmonised data standards between municipalities, utilities, and grid operators to improve local planning and implementation.

EXECUTIVE SUMMARY

- Prioritise socially inclusive approaches to address energy poverty and ensure vulnerable households benefit from the transition, such as through targeted subsidies, compensation mechanisms, and transparent pricing.
- Facilitate collaboration between municipalities, the private sector, and citizens, including supporting energy communities and participation in renewable projects.
- Align taxation, subsidies, and financial incentives with renewable heating and cooling deployment, while discouraging continued investment in fossil fuel systems.
- Support the development and uptake of advanced, flexible, and grid-resilient heating and cooling technologies and ensure that electrification and thermal planning are integrated to avoid bottlenecks.
- Promote citizen engagement, education, and trust-building efforts, countering disinformation and highlighting the long-term benefits of sustainable heating and cooling solutions.

The Policy Lab was joined by city practitioners from The Hague, Helsinki, Espoo, Limassol, Copenhagen, Budapest, Eindhoven, Utrecht, Groningen, Trondheim, Lappeenranta, Ghent, Antwerp, Bratislava, Gabrovo, Glasgow, Dijon Métropole, Madrid, Vitoria-Gasteiz, Riga, Warsaw, Sarajevo, Kalamata, Aachen, Braga as well as representatives from the Navarra region.



INTRODUCTION

The EU Mission on Climate-Neutral and Smart Cities mobilises cities across Europe to deliver on the European Green Deal objectives and achieve climate neutrality by 2030. Cities play a central role in driving the energy transition, and their experiences provide valuable insights for shaping effective EU policies.

Heating and cooling accounts for nearly half of the EU's total energy consumption, with most systems still reliant on fossil fuels (26% of final energy used for heating and cooling comes from renewable energy sources (2023)). It is a strategic sector for the EU decarbonisation, energy sovereignty and competitiveness. Cities are central to the decarbonisation of this sector and well placed to design systems tailored to local needs and resources.

Several EU legislative frameworks and upcoming initiatives are shaping the policy context for the decarbonisation of heating and cooling and the electrification of the energy system (see Annex). The forthcoming European Commission Heating and Cooling Strategy (H&C Strategy) is expected to take a comprehensive and forward-looking approach to accelerating the decarbonisation of Europe's thermal energy systems. It will place a strong emphasis on affordability, ensuring that the transition to sustainable heating and cooling remains socially inclusive and economically viable for all citizens. The strategy will also expand its focus to encompass a broader range of technological and system innovations, from thermal storage and waste heat recovery to renewable sources such as solar thermal and geothermal, to the continued electrification of heat. A greater focus on cooling, including passive and nature-based measures, will reflect the growing need for climate resilience in Europe's buildings and cities. Finally, the strategy will explore new policy ideas and design options to foster innovation, support integrated energy planning, and enable cities, regions, and industry to deploy flexible, efficient, and future-proof heating and cooling solutions.

In this context, [NetZeroCities](#) has initiated a Policy Lab sprint entitled "[Shaping the Future of Heating & Cooling and Electrification Policies](#)". The initiative aims to strengthen Mission Cities' contributions to EU policymaking by connecting local realities and evidence to upcoming policy frameworks.

Through two collaborative online sessions in October and November 2025, representatives from Mission Cities, Mission-Minded Cities, European institutions, and expert networks discussed the opportunities, barriers, and enabling conditions for decarbonising heating and cooling and advancing electrification in urban contexts.

The discussions were organised into four breakout groups covering barriers to district heating, electricity grid congestion, local-specificities in renewable energy, and support for moving away from fossil fuel boilers. This Policy Brief synthesises and combines the insights and outcomes from all discussions into a set of key messages and recommendations for EU decision-makers and national-level officials in EU Member States.



CITIES' CHALLENGES AND RECOMMENDATIONS FOR AN ENABLING EU HEATING AND COOLING STRATEGY

The following section outlines a series of recommendations at EU and national levels, grouped under four key areas: Governance and Planning; Financing, Investment & Market Design; Social Aspects and Skills; and Technical Integration. Together, they aim to address the challenges cities face and provide the tools, incentives, and guidance needed to accelerate decarbonisation in the heating and cooling sector.

1. GOVERNANCE AND PLANNING

STRENGTHENING MULTILEVEL GOVERNANCE FOR DISTRICT HEATING & COOLING

The organisation of heating and cooling systems across Europe varies widely, shaping how cities can plan and deliver the transition to sustainable energy. Cities face fragmented governance and limited collaboration with private sector stakeholders. In many contexts, municipalities own the infrastructure while long-term concession contracts (e.g. up to 25 years) leave operational and investment decisions in private hands, reducing flexibility for transition. This is the case in Bratislava, where the city owns most of the district heating infrastructure, while a private company operates it, with little to no coordination between the two.

- Cities request greater flexibility in public procurement rules, enabling long-term public-private partnerships without mandatory EU tender procedures in specific innovative or climate-aligned cases. This would support tailor-made collaborations essential for large infrastructure projects.
- The Strategy should strengthen national and regional-level infrastructure support, as the current burden on cities to decarbonise their heating and cooling sector (especially smaller ones) is disproportionate.

STRENGTHENING CAPACITY AND SKILLS FOR HEATING AND COOLING DECARBONISATION

Under the EED, regional and local authorities (with over 45,000 inhabitants) are responsible for developing local heating and cooling plans. However, cities often lack the technical expertise, local enterprises and planning tools needed to deliver on that important mandate. For example, the city of Bratislava must rely on international companies as they do not have local expertise to deliver on the city's decarbonisation strategies for heating. The EED also requires Member States to *"support regional and local authorities to the utmost extent possible by any means, including financial support and technical support schemes"*. An [analysis](#) shows that in most EU countries, there is either no support or only limited support for local authorities to undertake integrated heating and cooling planning.

Cities also lack the resources to deliver energy guidance on their own, and the national implementation of one-stop shops for citizens remains unclear from a municipal perspective. Communication with citizens has been identified as a bottleneck in coordination between municipalities and other authorities, such as the Helsinki Regional Environmental Authority HSY.



CITY HIGHLIGHT

In The Hague, determining the optimal scale of public ownership (local, regional or national) also remains a problem. Political, financial and social considerations suggest that mixed ownership models may best balance accountability, investment security and local responsiveness.

POLICY RECOMMENDATIONS

European level:

- The Strategy should encourage multi-level governance frameworks that define clear roles for local, regional and national authorities, considering the local context for a place-based solution.
- The EU level should also promote collaboration between cities and private operators, by creating dialogue platforms, where cities and utilities co-design transition pathways for district heating and cooling installation.

POLICY RECOMMENDATIONS

European level:

- Technical guidance and capacity building efforts must be directed specifically to the local level to ensure effective implementation.
- Given the cross-border aspect of European electricity systems and grids, the EU should support peer learning knowledge exchange among DSO/TSOs, and city-to-city to spread proven solutions faster.
- Provide support for implementing guidance and communicating with citizens.

PROVIDING CLEAR NATIONAL PATHWAYS FOR FOSSIL FUEL PHASE-OUT

Mission Cities such as Antwerp, The Hague and Bratislava have already installed or connected district heating systems in their energy supply in their dense urban areas. Most district heating systems are, however, still primarily fuelled by fossil fuels.

Natural gas remains the most common fuel, either in gas boilers for building heating or in collective boilers in large buildings or district systems. To move forward with the decarbonisation objectives at the European level, cities face unclear legal framework and insufficient policy drive toward renewable heat, which delays investment and planning for a “gas phase-out”. This would give homeowners, property managers, energy suppliers, grid operators and investors the necessary long-term planning and investment security to decarbonise district heating and cooling in cities.

POLICY RECOMMENDATIONS

European level:

- The H&C Strategy should provide consistent transparent signals on the pathway to phase out fossil-fuel-based systems and support the rollout of proven scalable, low-carbon heating and cooling solutions.
- As cities are already advanced in their heating and cooling decarbonisation efforts, the EU should avoid overly prescriptive requirements, ensuring flexibilities for cities to build on existing decarbonisation plans that were underway before the Strategy. The City of Antwerp, for example, has elaborated a policy framework on district heating. This includes a roadmap to develop DH-systems to service 30.000 households by 2030 and possibly 50% market share by 2050.
- The Strategy should recognize the system-level benefits of district heating and guidance under the EPBD should allow for the development of district heating, especially in countries where the energy system is already low-carbon.

National level:

- Establish a clear national framework and timeline for phasing out fossil gas in heating. National governments should provide a stable and predictable regulatory framework that sets a long-term direction for the gradual phase-out of natural gas in buildings and district heating systems. This should be accompanied by stronger policy support for renewable heating and cooling solutions to build certainty needed for all actors involved.



SUPPORTING DATA ACCESS FOR LOCAL HEATING & COOLING PLANNING

Cities lack the data needed to develop their local heating and cooling plans. Most cities require private stakeholders (e.g. grid operators and utilities) to provide data on heating and cooling consumption and heating systems. Cities also face limited access to trusted, low-cost technologies for home connections. Antwerp, for example, is challenged by the low quality of existing data on the energy performance of existing buildings.

POLICY RECOMMENDATIONS

European level:

- The Strategy should promote structured data sharing between municipalities, DSOs and utilities.
- It should support the development of common EU data standards for heating and cooling systems.

National level:

- Fully disclose Energy Performance of Buildings Directive (EPBD) and the Energy Performance Certificates (EPCs) data on buildings-installations.

INTEGRATING ELECTRICITY AND THERMAL PLANNING TO AVOID GRID BOTTLENECKS

The decarbonisation of the heating and cooling sector increases electricity demand for storage and electrification, placing new pressures on electricity grids, especially during peak demand, and requiring significant upgrades to both transmission and distribution infrastructure. Grid congestion discourages the development of heat distribution networks, primarily due to rising electricity peaks from new electrified heat production such as large heat pumps utilising waste-heat, ground, air or geothermal sources,

and industrial-scale electric boilers. Challenges such as urban space constraints, permitting, cost allocation, and a shortage of skilled technicians further complicate grid expansion. Cumulative delays threaten not only energy transition targets but also new housing development and broader economic growth. “Layered” congestion at both local and national grid levels, combined with system inertia, limits sector coupling and integrated planning.

CITY HIGHLIGHT

Traditional grid expansion is often too slow, for example, The Hague faces a 10-year wait for grid expansion, with similar bottlenecks reported in Helsinki, Espoo, and Eindhoven.



In Dutch cities like The Hague and Utrecht, grid constraints restrict heat-pump deployment, forcing reliance on less sustainable backup sources and limiting the sustainability of district heating. Distribution and transmission limitations from both TSOs and DSOs create long connection queues for housing, businesses, and renewables.

CITY HIGHLIGHT

In Espoo, the local DSO forecasts that peak electricity demand will more than double during this decade. This situation is likely to become increasingly common across Europe as electrification accelerates alongside the expansion of local renewable energy systems.



Electrification of transport and energy storage, such as smart charging, V2G, and batteries, can provide flexibility but are often optimised for cost rather than peak reduction, shifting household demand rather than alleviating it, thereby increasing bottlenecks.

Cities view the EU Electrification Action Plan and the H&C Strategy as a key opportunity to strengthen local grids and ensure that electrification supports sustainable, efficient, and resilient heating and cooling systems.

POLICY RECOMMENDATIONS

European level:

- The H&C Strategy should guide the implementation of the Energy Efficiency Directive, to explicitly require that all municipal Heating and Cooling Plans include a comprehensive assessment of grid impacts and flexibility options. This should cover current grid capacity, projected peak demand, planned electrification, and potential measures for load shifting. For example, The Hague's Heating & Cooling Strategy 2.0 already incorporates an analysis of grid congestion risks from electrification and cooling and integrates passive cooling measures with green space planning.
- It should provide targeted support on how to develop smarter and more flexible energy systems that align energy consumption with the time and place of renewable energy production. This flexibility must also extend to the demand side, where municipalities - often among the largest local energy consumers - can play a key role through measures such as demand response and energy efficiency improvements.

2. FINANCING, INVESTMENT & MARKET DESIGN

MOBILISING INVESTMENT FOR CLEAN HEATING & COOLING INFRASTRUCTURE

District heating systems are capital-intensive; they require upfront investments with returns spread over much longer periods and national markets for these systems are still underdeveloped. As key actors in decarbonising the H&C sector, cities face high initial investment costs, while competition between district heating and natural gas, or individual heat pumps, limits the profitability of DHC. In Lappeenranta, district heating competes with single-house heat pump systems. However, heat pumps are not useful for system integration nor for dense urban environments. As a result, investments in cities often remain project-based rather than strategic long-term planning.

CITY HIGHLIGHT

Bratislava: "Despite having the Modernisation Funds available in Slovakia, most of the funds are used for the fossil fuel projects or the existing infrastructure reconstruction. Combined with no national push towards renewables in heating, most of the resources are used for projects other than transition projects". Despite the availability of Modernisation Fund resources in Slovakia, a large share of the support has gone to fossil-fuel-based systems or the refurbishment of existing infrastructure rather than to renewable heating solutions. For example, of the €650 million earmarked for district heating systems, only €124.5 million (19%) had been allocated, with 68% of this funding directed towards pipe upgrades, 25% to cogeneration units, and just 6% to heat pumps. Moreover, more than 83% of the supported heating systems still rely, at least partly, on fossil fuels such as gas. Combined with the absence of a strong national policy push for renewable heating, this results in most resources being channelled into projects that do not fully support the clean heat transition.



POLICY RECOMMENDATIONS

European level:

- Ensure cities simplified and scaled access to finance through instruments such as the EU Competitiveness Fund, CEF-Energy, the Modernisation Fund and FP10.
- Establish a European Guarantee Fund at European and national levels, to support cities pioneering large-scale municipal investments for district heating and cooling networks, reducing investment risk.
- Create long-term, structural financing mechanisms for district heating, with funds sourced from industries, climate funds, or social mechanisms.
- Ensure funding access for smaller, locally owned and community-led projects, strengthening local economies and sustainability.
- Allow more flexibility under the EU State Aid framework (e.g., expanding the General Block Exemption Regulation) to support local investment vehicles and risk-reducing instruments for technologies that promote decarbonised energy sources such as geothermal energy.

ALIGNING FUNDING AND TAXATION WITH HEATING & COOLING DECARBONISATION

Renewable heating technologies are currently mature and available in the market; however, households find it difficult to access such funding streams, and, in many cases, it requires applicants to pay upfront, causing financial burden and long processing times. Additionally, national taxes and levies are not aligned with energy and climate goals, thus slowing down the heating transition towards renewable technologies¹.

¹ <https://www.raponline.org/knowledge-center/aligning-heating-energy-taxes-levies-europe-climate-goals/>

POLICY RECOMMENDATIONS

National level:

- To make funding applications faster and easily accessible for households, with simple wording and digital.
- To level out the playing field of taxes and levies between gas and electricity vectors to incentive the deployment of renewable technologies.
- To provide subsidies and grants for renewable heating technologies that cover the CAPEX upfront.
- To move the existing grants and subsidies away from fossil fuel boilers towards renewable heating technologies.

ENABLING ENERGY COMMUNITIES

Scaling up renewable thermal and electricity generation requires investment and engagement from municipalities and citizens. Energy communities represent a key opportunity, but their deployment remains limited due to restrictive national transpositions (e.g., in Poland and Hungary).

In many cases, municipalities must step in to invest, take on risk, and build partnerships with the private sector, requiring both financial tools and new skills. There is a need for flexible, secure business models to support collaboration between municipalities, citizens, and private partners.

POLICY RECOMMENDATIONS

European level:

- Review the transposition of Renewable Energy and Electricity directives and push Member States to align with EU best practices on energy communities.

- Set minimal requirements for citizens' ownerships in renewable projects, e.g., reserving a share of investments for citizens by law.
- Support citizen education on renewable and low-carbon energy production and consumption.
- Develop EU guidelines for the use of shared spaces for PV installations.
- Introduce tax policy adjustments to favour electricity-based solutions.
- Modify EU rules on public investment and participation in private activities to allow municipal companies to sell and share energy in all Member States.



3. SOCIAL & SKILLS

ENSURING A SOCIALLY INCLUSIVE HEATING & COOLING TRANSITION

Citizen engagement is essential to the success of socially inclusive decarbonisation of heating and cooling systems. However, cities still struggle to persuade citizens to trust the usefulness of heat pumps or to connect to decarbonised DHCs. A key challenge is ensuring that end-users are both able and willing to invest in necessary changes to their heating systems, a decision that is particularly complex in Europe's predominantly privately owned housing stock. Older homeowners, who represent the largest share of property owners in the EU, often prioritise short-term costs over long-term benefits, further slowing the shift away from fossil boilers despite the favourable lifetime operating costs of renewable heating solutions.

As raised by Antwerp, in Flanders, most housing is privately owned, which means that upgrading or changing heating systems often requires investment decisions by multiple individual owners, including those in apartment buildings. This makes coordination slow and can lock buildings into continued use of fossil systems.

Tenants face their own structural barriers: while they typically have lower incomes, they hold little influence over decisions to install renewable heating technologies, yet might bear higher energy costs, especially once ETS II pricing applies to heating fuels.

Uncertainty about the upcoming ETS II also complicates municipalities' efforts to communicate clearly on how future carbon price signals will affect household energy bills, particularly for vulnerable groups. Without transparent forecasts and mitigation measures, both homeowners and tenants may delay decisions, thereby constraining the pace of decarbonisation and risking an escalation of energy poverty.

CITY HIGHLIGHT



The city of Ghent prioritises fair access to clean heat through its City Heating Vision 2024. The vision prioritises fair access to clean heat through a combination of heat pumps and small-scale district systems, supported by insulation upgrades to ensure homes become "heat-pump-ready." A one-stop shop helps households plan upgrades when boilers reach end-of-life, and low-income neighbourhoods and social housing are targeted first. Ghent's approach highlights the need for local autonomy, affordable electricity, and clear national phase-out signals to unlock investment and protect vulnerable residents.

POLICY RECOMMENDATIONS

European level:

- Ensure that upcoming EU energy and building renovation related policies (e.g. revision of EED, RED, Affordable Housing Plan) promote socially inclusive frameworks, with fair sharing of costs and benefits, and include measures such as fuel poverty mitigation and tiered pricing to guarantee affordability.

- Prioritise vulnerable households when designing EU-level public subsidies and ETS II compensation measures.
- Provide transparent and concrete forecasts on ETS II cost impacts on households, including mitigation measures.
- Consider ad-hoc measures for rental apartments/houses.
- Consider a framework that would disincentivise and limit new institutional investors from treating housing as an investment asset.
- Raise awareness among older people on the importance of moving away from fossil fuel boilers and highlight their benefits.

National level:

- For those countries pending submission of Social Climate Plans, collaborate closely with cities and regions to tailor measures to local realities.
- Support municipalities in expanding social housing and cooperative housing schemes to deter speculation and improve affordability.
- Prioritising vulnerable households when designing public subsidies at national levels.
- Develop clear rules for allocating costs and benefits between owners and tenants when boilers are replaced with renewable heating systems.
- In countries with a high share of rental housing, discourage speculative purchase of new apartments and houses by landlords.

- Encourage structured exchanges between cities and homeowner associations to establish pathways and incentives, including tax rebates, for phasing out individual fossil fuel boilers.
- Raise awareness among older people on the importance of moving away from fossil fuel boilers and highlight their benefits.

COUNTERING DISINFORMATION AND STRENGTHENING PUBLIC TRUST

In the past few years, national and European campaigns in the mass media targeted renewable technologies, especially heat pumps, as not mature technologies to be deployed at scale, difficult to install, etc². At the same time, the future role of fossil-fuel boilers powered by renewable gases such as biomethane and hydrogen has often been overstated, despite the fact that these fuels are expected to have very limited availability for the heating sector³. This contributes to disinformation in cities that are already struggling to raise public awareness and build trust in effective heating and cooling solutions.

POLICY RECOMMENDATIONS

European and national level:

- To raise awareness of the limits and unavailability of renewable fuels for the heating sector.
- To raise awareness of the efficiency and profitability of renewable technologies compared to fossil fuel counterparts, considering all the limits and opportunities.

2 Source: <https://www.politico.eu/article/robert-lambrou-alternative-for-germany-heat-pump-election-climate-change/>

3 Source: <https://www.sciencedirect.com/science/article/pii/S2542435122004160?dgcid=author>

The workforce is pivotal to making the heating and cooling transition happen on the ground. Often, operators lack the tools and knowledge on how to replace fossil-fuel boilers with renewable technologies, such as correctly dimensioning heat pumps vs existing boilers vs the new heating needs of the apartments (which differ due to the different appliances installed).

POLICY RECOMMENDATIONS

European and national level:

- Provide additional funding for the heating and cooling operators to be reskilled/upskilled.
- To create new training opportunities (e.g. focusing on the key aspects of the replacements, such as correct installation and sizing) for existing heating and cooling operators on how to move away from fossil fuel boilers.



4. TECHNICAL INTEGRATION

THE RISING ROLE OF RENEWABLE COOLING: INTEGRATION BARRIERS AND POLICY GAPS

Climate change is intensifying across several EU countries. Cooling systems are becoming increasingly important for thermal comfort, especially in Southern European countries. Some cities indicate that cooling needs are more important than heating, as the number of heating days decreases over time (and consequently, water heating's energy use share increases compared to space heating). However, individual fossil-fuel boilers are commonly paired with hydronic systems and radiators as final outlets, and integrating a cooling system will be technically

challenging, as it will require installation of additional cooling devices.

While EU directives such as the EED, EPBD Recast, and RED III promote efficient heating and cooling, they remain heavily focused on heat. There are no binding targets or dedicated funding mechanisms for renewable or recovered cold, including technologies like absorption chillers or cold recovery from wastewater and waste-to-energy plants. Cities also lack clarity on what constitutes an "EED-compliant" District Heating and Cooling Plan, with uncertainty over whether cooling plans should address only active cooling networks or also adaptive, nature-based measures such as green and blue infrastructure.

Cities, therefore, need cooling to be recognised as a distinct policy axis within the broader decarbonisation framework, supported by clear guidance, financing instruments and technical solutions for integrating cooling into existing heating systems.

POLICY RECOMMENDATIONS

European level:

- Introduce renewable cooling as a distinct policy axis, with quantified targets and dedicated funding eligibility.
- Support the development of integrated heating-cooling networks and the valorisation of waste heat and waste cold.
- Provide clear, harmonised guidance on the scope and content of cooling plans under the EED, including whether they cover adaptive measures. The integrated cooling plans should prioritise adaptive and passive cooling solutions - particularly green and blue infrastructure and ventilation corridors integrated into spatial and urban planning, giving preference to nature-based and passive design strategies as the first line of response to urban heat stress.

- Develop model business frameworks enabling public–private partnerships (PPPs) for cooling networks.
- Provide technical guidelines for efficiently integrating cooling into existing hydronic systems and for transitioning away from individual fossil boilers toward renewable heating and cooling solutions.
- Ensure that upcoming EU energy policy files consistently address Europe’s increasing structural cooling needs.

- Allow transitional phases in network rollout, where physical infrastructure can be installed even if the full sustainable energy source is not yet available.

DE-RISKING GEOTHERMAL ENERGY

Geothermal energy offers major untapped potential and is central to the heating and cooling strategies of many cities. However, it requires large investments and de-risking mechanisms. Some projects face additional challenges - for example, some projects in The Hague and other cities have been halted due to EU nitrogen rules. Future challenges may emerge from grid congestion as Hydrodenitrogenation (HDN) fuel upgrading drives higher electricity demand, including from geothermal source.

POLICY RECOMMENDATIONS

European level:

- Include a dedicated chapter on geothermal energy in the revised Heating and Cooling Strategy and define EU 2040 targets for geothermal development.
- Ensure that EU legislation consider the interconnectedness of electricity and heat systems, embedding this perspective in future Heating & Cooling Strategy and Electrification Action Plan updates.

SCALING WASTE HEAT USE AND THERMAL STORAGE

As highlighted by Dijon Métropole and Warsaw, better utilisation of waste heat, particularly during the summer, is essential to increase renewable energy production. In Dijon Métropole, the district heating network currently does not provide cooling and has limited storage capacity, resulting in around 50% of waste heat being unused between June and September.

This could be addressed through thermal storage systems and the development of district cooling networks. However, it remains unclear whether the revised RED III explicitly recognises large-scale thermal storage as an eligible renewable-energy support measure.

POLICY RECOMMENDATIONS

European level:

- Explicitly recognise large-scale thermal storage (e.g. hot-water tanks, underground reservoirs) as an eligible renewable-energy support measure under the EED and the RED.
- Provide EU funding for district cooling and related technologies
- Include support mechanisms (guidelines, funding, ...) for tariff models rewarding flexibility within district-heating systems.



INTRODUCING AIR QUALITY MEASURES AND AVOIDING DOUBLE TRANSITION

In some countries, such as Poland, old, inefficient and polluting solid-fuel boilers (coal and biomass) are the predominant heating solutions in buildings. Due to the 2021-2022 energy crisis, sales of biomass heaters increased as a result of high gas prices. Nevertheless, even in its more efficient form, biomass heating remains a key driver of indoor air pollution. Under certain EU directives, such as RED, biomass is considered a renewable energy option, and could still be subsidised at national levels, unlike individual gas boilers.

In Warsaw, a combination of national and local government programs to subsidise air quality in Poland was established to support the replacement of inefficient and unclassified solid fuel boilers (coal or biomass) with new low-emission sources, such as heat pumps and gas boilers. The latter, however, will face rising prices due to the implementation of ETSII.

Additionally, buildings relying on coal and biomass should be moving toward renewable heating options, bypassing the step of moving on to gas.

POLICY RECOMMENDATIONS

European level:

- Align the AAQD, EPBD, and RED III to establish a coherent and consistent approach to heating decarbonisation and air quality improvement.
- Introduce the full impact on climate of heating systems, including relevant pollutants from solid fuel heaters, such as Particulate Matters (PMs) and NO_x.
- Confirm heat pumps as a strategic technology for replacing fossil-fuel and solid-fuel boilers, while allowing sufficient flexibilities for cities to choose the most suitable technology

based on their local context, building stock and starting point. This should be supported through long-term EU funding, industrial policy, and consumer information campaigns.

- Recognise biomass boilers (including pellets) as a limited, transitional option, eligible for support only where heat pumps or district heating are technically or economically unfeasible, and subject to strict emission standards.
- Support EU manufacturing capacity for heat pumps to strengthen competitiveness, reduce import dependence, and improve affordability.
- Develop EU guidance on communication and public awareness to counter misinformation about heating technologies and build public trust.

National level:

- Foster municipalities to create an ad-hoc programme to improve indoor and outdoor air quality by banning the new installation of solid fuel heating.
- Encourage municipalities to design subsidies, excluding like-for-like replacements (e.g. displace biomass boilers for another biomass boilers).
- To consider special electricity tariffs for households replacing solid fuel boilers with heat pumps.



CONCLUDING REMARKS

The findings of this Policy Lab highlight that for meaningful progress, cities must be supported by coherent multi-level governance, robust technical capacity-building, improved access to comprehensive data, and structural financing mechanisms.

The EU Heating and Cooling Strategy and Electrification Action Plan must recognise and elevate cities as both implementers and co-designers of sustainable energy solutions. Integrated planning, flexible financing, and socially inclusive approaches will be critical to overcoming current barriers and accelerating decarbonisation. In particular, policies should facilitate strategic collaboration between municipalities, private actors, and citizens, while addressing equity and affordability to ensure no community is left behind.

ANNEX

EU policy background related to the decarbonisation of the heating and cooling sector:

- **Energy Performance of Buildings Directive (EPBD):** Approved on 30 June 2025, the recast EPBD provides guidance to Member States on transposing its provisions by May 2026. It introduces a gradual phase out boilers powered by fossil fuels, with financial incentives for their installation no longer permitted from 1 January 2025, except for previously approved EU-funded projects. The EC published a [guidance document](#) on this specific topic.
- **Energy Efficiency Directive (EED):** The recast EED must be transposed into national legislation by October 2025. Article 25.6 requires Member States to ensure that municipalities with over 45,000 inhabitants

prepare local heating and cooling plans and receive adequate financial and technical support. These plans are expected to drive local decarbonisation through energy efficiency, renewable energy, and waste heat recovery. More information can be found in this [EED policy brief](#) from the REDI4heat EU-funded project.

- **Renewable Energy Directive (RED):** Revised in 2023 with a transposition deadline of May 2025, the Directive strengthens provisions for renewables in heating and cooling and district systems (Articles 23 and 24). Each Member State must increase the share of renewables in heating and cooling by 1.1 percentage points per year between 2026 and 2030. Member States must also encourage large district heating and cooling operators to connect third-party suppliers and establish coordination frameworks for waste heat recovery. The revision introduces faster permitting procedures and the identification of renewables acceleration areas, to be defined in coordination with local and regional authorities by 21 February 2026. A summary of the provisions on heating and cooling in the RED can be found in this [policy brief](#) from the REDI4heat EU-funded project.
- **Hydrogen and Decarbonised Gas Market Package (“Gas Package”):** Published in July 2025, this framework introduces new rules for hydrogen infrastructure and requires gas distribution operators to plan the decommissioning of unused gas networks when a reduction in gas demand is expected (Article 57). These plans must cover a ten-year period, be updated every four years, and undergo public consultation with relevant stakeholders. You can find a detailed analysis of the Gas Package [here](#) from CAN Europe.



NET ZERO CITIES

THANK YOU!



www.netzerocities.eu



[NetZeroCitiesEU](https://www.linkedin.com/company/netzerocities/)



[@NetZeroCitiesEU](https://twitter.com/NetZeroCitiesEU)



[netzerocitieseu](https://www.instagram.com/netzerocitieseu)



Funded by
the European Union