

European Technology and Innovation Platform on Renewable Heating and Cooling

Position Paper by RHC-ETIP on the European Commission's Call for evidence and open public consultation on the EU Heating and Cooling Strategy

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RHC-ETIP's Key Recommendations

1. Establish a Stable and Ambitious Policy Framework. The EU must provide long-term policy certainty to meet its 2030 and 2050 targets for renewable heating and cooling. This includes:

- Fully implementing the Fit for 55 package and related directives (EPBD, REDIII, EED).
- Phasing out fossil fuel subsidies and incentives for fossil boilers by 2030.
- Introducing mandatory renewable-ready building codes and retrofit standards.

2. Accelerate Innovation and Technology Deployment. To scale up renewable heating and cooling, the strategy must prioritise innovation and support the deployment of high-impact technologies. This means:

- Expanding funding through Horizon Europe, LIFE, and the Innovation Fund.
- Supporting living labs, demonstration projects, and industrial-urban symbiosis.
- Promoting hybrid solutions and cross-sectoral collaboration.
- Ensuring a level playing field for all RHC technologies and encouraging their integration.

3. Mobilise Investment and Financing. A robust financial ecosystem is essential to unlock the full potential of RHC. The EU should:

- Develop dedicated financial instruments such as green bonds and blended finance.
- Support ESCOs and aggregators to scale small projects.
- Launch EU-wide awareness campaigns and strategic dialogues.
- Promote National Heat Funds and provide technical assistance and project development support.

4. Strengthen Local and Regional Planning. Municipalities play a key role in delivering the energy transition. The strategy should:



- Set binding deadlines for municipal heating and cooling plans.
- Provide clear guidance and funding mechanisms for plan implementation.
- Encourage integration with national and regional Partnership Plans under the MFF.

5. Secure EU Technological Leadership and Supply Chains. To ensure energy security and industrial competitiveness, the EU must:

- Prioritise EU-made technologies in public procurement under the Net-Zero Industry Act.
- Target 40% EU manufacturing of key components like heat pumps and thermal storage.
- Introduce EU-made targets in the heating and cooling mix and procurement criteria.

6. Empower People and Monitor Progress. A successful strategy must be people-centred and data-driven. This involves:

- Investing in EU-wide training and modular certification for multi-technology installers.
- Promoting education and citizen engagement through participatory planning.
- Establishing robust monitoring frameworks, transparent reporting, and national/regional RHC action plans.



The European Technology and Innovation Platform on Renewable Heating and Cooling (RHC-ETIP) welcomes the European Commission's initiative to update its Heating and Cooling strategy. Representing a broad coalition of stakeholders across biomass, geothermal, solar thermal, heat pumps, district heating and cooling, and thermal storage, RHC-ETIP calls for a concrete, targeted, and forward-looking strategy that accelerates the transition to 100% renewable heating and cooling across Europe by 2050.

Renewable heating and cooling (RHC) technologies are essential; with 70% of Europe's heating and cooling still reliant on fossil fuels, the urgent implementation of the EU's renewable energy framework must be ensured. Both citizens and Member States are calling for reliable, resilient, and affordable renewable heating and cooling solutions. To support this, we endorse updating the European heating and cooling strategy to provide clear guidance to Member States. This should include aspects such as local H&C strategies, reporting, planning, and infrastructure. Particular attention should be given to cooling solutions, which are becoming increasingly vital.

As an ETIP, innovation support is essential to accelerate the deployment of renewable heating and cooling technologies across Europe. This includes fostering research and development, facilitating market uptake, and ensuring that innovative solutions are integrated into national and regional planning. The updated strategy should prioritise funding mechanisms and policy instruments that enable the scaling of proven technologies, while also supporting emerging solutions that address specific regional needs and climate challenges.

Moreover, collaboration between industry, academia, and public authorities must be strengthened to ensure that innovation is not only technically feasible but also economically viable and socially accepted. The strategy should promote knowledge exchange, capacity building, and the creation of innovation ecosystems that empower local actors and communities. By doing so, Europe can lead the global transition towards a sustainable and climate-neutral heating and cooling sector.



1. Vision and Strategic Objectives

- **Establish a stable framework** to meet 2030 and 2050 targets for 100% renewable heating and cooling.
- **Promote energy efficiency and system integration**, including links with electricity and mobility sectors.
- **Support hybrid solutions** tailored to local and sector-specific needs.
- **Ensure social inclusiveness and affordability**, especially for vulnerable groups.

The **Renewable Heating and Cooling European Technology and Innovation Platform (RHC-ETIP)** envisions a future where heating and cooling systems across Europe are fully decarbonised, renewable, and resilient. To realise this vision, the strategy must be anchored in a **stable and long-term framework** that provides policy certainty and consistent investment signals. This includes coordinated support for innovation, infrastructure development, and workforce training across all Member States, ensuring alignment with the EU's 2030 and 2050 climate targets.

A central pillar of the strategy is the **prioritization of energy efficiency and system integration**, particularly through coupling with the electricity and mobility sectors. This integrated approach enhances overall system performance and accelerates the transition to renewables.

Recognizing the diversity of regional and industrial contexts, the strategy also promotes **hybrid solutions**. These allow cities, regions, industries, and communities to adopt the most suitable mix of renewable heating and cooling technologies based on their unique resources, regulatory environments, and specific needs.

Finally, the strategy emphasises **social inclusiveness and affordability**, ensuring that the transition to renewable heating and cooling does not leave behind vulnerable households or communities experiencing energy poverty. By addressing these dimensions, RHC-ETIP aims to foster a just and equitable energy transition for all Europeans.

2. Policy Recommendations

Concrete policy recommendations would broadly fall into a few categories: regulatory aspects, market support mechanisms, financing, and municipal planning.

2.1. Strengthen Regulatory Frameworks

- **Phase out fossil fuel subsidies:** Enforce EPBD rules to end financial incentives for fossil fuel boilers by 2025 and eliminate all fossil fuel subsidies by 2030.
- **Implement carbon pricing:** Introduce mechanisms that reflect environmental and health costs to support a fair transition.
- **Mandate renewable-ready building codes:** Apply retrofit standards aligned with the EPBD for both new and existing buildings.
- **Simplify permitting and grid access:** Ensure full implementation of REDIII Articles 15–16f and accelerate approvals for renewable heat and distribution networks.
- **Monitor Fit for 55 implementation:** Track progress on RHC targets in the EED, EPBD, and RED to ensure full compliance by 2030.
- **Maintain 2040 climate ambition:** Uphold the 90% GHG reduction target and set high renewable energy goals.
- **Support EU manufacturing via NZIA:** Prioritise permits and procurement for EU-made RHC technologies, aiming for 40% domestic production by 2030.
- **Empower communities:** Strengthen the role of Renewable Energy Communities (RECs) through dedicated legislation.

To accelerate the transition to renewable heating and cooling (RHC), the RHC-ETIP outlines a comprehensive set of policy recommendations aimed at strengthening regulatory frameworks across the EU. A central priority is the **full enforcement of the Energy Performance of Buildings Directive (EPBD)**, particularly the requirement to phase out financial incentives for fossil fuel boilers by 2025. This should be extended to eliminate all remaining fossil fuel subsidies across sectors by 2030. In tandem, **robust carbon pricing mechanisms** must be introduced to internalise the environmental and health costs of fossil energy, ensuring a fair and effective shift to renewables.

The strategy also calls for **mandatory renewable-ready building codes and retrofit standards**, applicable to both new and existing buildings, and aligned with EPBD provisions. To facilitate deployment, **streamlined permitting and grid access** for renewable installations are essential. The European Commission should ensure that Member States fully implement Articles 15–16f of the revised Renewable Energy Directive (REDIII), accelerating approvals for renewable heat production and distribution networks.

A strong emphasis is placed on the **Fit for 55 package**, with a recommendation for strict monitoring of RHC-related targets in the EED, EPBD, and RED to ensure full implementation by 2030. The strategy also supports maintaining the **90% greenhouse gas reduction ambition by 2040**, coupled with high renewable energy targets.



To bolster EU supply chains, the **Net-Zero Industry Act (NZIA)** should prioritise permits and public procurement for EU-made technologies such as heat pumps, thermal storage, solar thermal systems, and electrolyser components—aiming for 40% EU manufacturing by 2030 and integrating resilience criteria into tenders.

Finally, the strategy highlights the importance of a **community-based approach**, advocating for stronger legislative support for **Renewable Energy Communities (RECs)** through REC-specific acts. These recommendations have garnered strong support at sectoral events, including the 100% RHC Event 2025, where a European Commission representative emphasised the need for targeted policies to drive the transition.

2.2. Support Innovation and Market Uptake

- **Increase funding** for RHC technologies under Horizon Europe, LIFE, and the Innovation Fund, focusing on scalable, high-TRL solutions.
- **Establish living labs and demonstration projects** in varied climatic and urban settings to validate integrated solutions and engage citizens.
- **Promote industrial-urban symbiosis** to enable circular, carbon-neutral energy systems through resource exchange between industry and cities.
- **Encourage cross-sectoral collaboration** among energy, construction, digital, and manufacturing sectors to accelerate innovation.
- **Ensure a level playing field** for all RHC technologies and promote hybrid solutions for a stable energy mix.

To accelerate the deployment of renewable heating and cooling (RHC) technologies, RHC-ETIP emphasises the need to **strengthen innovation ecosystems and market uptake mechanisms**. A key recommendation is to **expand funding opportunities** under major EU programmes such as Horizon Europe, LIFE, and the Innovation Fund. Priority should be given to technologies with high Technology Readiness Levels (TRLs) and strong scalability potential, ensuring that promising innovations can move swiftly from lab to market.

The establishment of **living labs and demonstration projects** in diverse climatic and urban contexts is essential. These initiatives not only validate integrated technological solutions but also foster **citizen engagement**, helping build public trust and awareness around renewable heating and cooling systems.

A particularly innovative approach is the promotion of **industrial-urban symbiosis**, where energy, waste heat, and resources are exchanged between industrial sites and surrounding



urban areas. This model supports the creation of **circular and carbon-neutral local energy systems**, aligning with broader EU sustainability goals.

To accelerate innovation, **cross-sectoral collaboration** is vital. Synergies between the energy, construction, digital, and manufacturing sectors can unlock new pathways for deployment and integration of RHC technologies. Moreover, ensuring a **level playing field** for all RHC technologies is crucial. Their **hybridisation**—combining multiple renewable sources and systems—is key to achieving a resilient and balanced energy mix.

RHC-ETIP actively supports these goals through targeted activities such as **National Roundtables**, which convene stakeholders from industry, research, and public authorities to address country-specific challenges. These forums help identify barriers to market deployment and foster collaboration on innovative solutions.

Through **stakeholder consultations and surveys**, RHC-ETIP gathers insights into innovation needs, technology readiness, and policy gaps. These findings inform the **Strategic Research and Innovation Agenda (SRIA)**, which serves as a roadmap for policymakers and funding bodies.

Annual events and thematic workshops, such as the **100% RHC Event**, provide platforms to showcase cutting-edge technologies, share best practices, and connect solution providers with adopters. The **RHC Accelerator** further strengthens this effort by offering tailored guidance, visibility, and matchmaking with investors and policymakers.

Finally, RHC-ETIP collaborates with EU-funded initiatives like the **Clean Energy Transition (CET) Partnership**, promoting synergies, disseminating results, and accelerating the **commercialisation of innovative solutions**.

2.3. Mobilise Investment and Financing

- **Create dedicated financial instruments** such as green bonds, blended finance schemes, and risk-sharing mechanisms for RHC.
- **Support aggregators and ESCOs** to bundle small-scale projects and attract institutional investors.
- **Launch EU-wide awareness campaigns** (e.g. *Concerted Dialogue on Heat Decarbonisation*) to educate consumers and investors.
- **Provide strategic input to Horizon Europe Work Programmes** to align funding with RHC innovation and market needs.
- **Help Member States develop de-risking instruments** for clean heat projects through guidelines and best practices.
- **Offer Project Development Assistance (PDA)** and technical support to public authorities and operators, modeled on successful programmes like EIB's ELENA.



- **Support creation of National Heat Funds** to streamline access to financing, inspired by successful models in France, Germany, and the Czech Republic.
- **Design funding facilities for community-led RHC initiatives**, including Energy Cooperatives and Renewable Energy Communities (RECs).

To unlock the full potential of renewable heating and cooling (RHC) technologies across Europe, RHC-ETIP recommends a robust and diversified financial strategy. This begins with the **creation of dedicated financial instruments**, including green bonds, blended finance schemes, and risk-sharing mechanisms tailored to the specific needs of RHC projects. These tools can help reduce investment risk and attract private capital.

Aggregators and Energy Service Companies (ESCOs) play a vital role in bundling small-scale projects, making them more attractive to institutional investors. Supporting these entities can significantly enhance the scalability and bankability of RHC solutions.

Public awareness is another cornerstone of market uptake. The proposed **EU-wide campaign, “Concerted Dialogue on Heat Decarbonisation,”** aims to educate consumers and investors about the benefits and opportunities of RHC technologies, fostering greater demand and informed decision-making.

Strategic alignment with EU research funding is essential. RHC-ETIP calls for **active input into Horizon Europe Work Programmes**, ensuring that funding priorities reflect the innovation needs of the sector and support the market uptake of high-impact technologies.

To reduce financial risk, Member States should be supported in **developing de-risking instruments** for clean heat projects. This could include guidelines, design principles, and best practices that help standardise and simplify project development.

Public authorities and operators also need **Project Development Assistance (PDA)** and technical support. Inspired by successful models like the **European Investment Bank’s ELENA initiative**, these programmes enable comprehensive assessments, identify necessary upgrades, and develop detailed modernisation and expansion plans.

The establishment of **National Heat Funds** in Member States is another key recommendation. These funds can simplify access to financing and coordinate tools across the EU. Successful examples include France’s *Fond Chaleur*, Germany’s *Bundesförderung effiziente Wärmenetze (BEW)*, and the Czech Republic’s *HEAT* programme, which have demonstrated the transformative impact of targeted funding on heat network development.

Finally, to ensure inclusivity and community engagement, the strategy proposes **dedicated funding facilities for community-led RHC initiatives**, such as Energy Cooperatives and



Renewable Energy Communities (RECs). These models empower citizens and local actors to participate directly in the energy transition.

2.4. Strengthen municipal Heating and Cooling plans: Deadlines, delivery, and funding

- **Set enforceable deadlines** for municipalities to submit H&C plans to avoid delays and ensure accountability.
- **Provide clear guidance on funding mechanisms** for plan delivery, including technical assistance and capacity-building.
- **Leverage EU-funded projects** (e.g. *Plan4Cold*, *Redi4Heat*, *Coollife*, *Escalate*, *Connect Heat*) to support methodology development and implementation tools.
- **Integrate municipal H&C planning** into National and Regional Partnership Plans under the Multiannual Financial Framework (MFF).
- **Enable flexible EU budgetary support** for Member States investing in municipal H&C strategies.

To drive meaningful progress in the decarbonisation of heating and cooling across Europe, the RHC-ETIP strategy calls for a more robust and coordinated approach to **municipal planning obligations**. A key recommendation is the introduction of **enforceable deadlines** for municipalities to submit their heating and cooling (H&C) plans. Without binding timelines, there is a risk that planning efforts may be delayed or deprioritised, undermining the overall ambition of the EU's climate and energy goals.

Another critical area is **clarity on funding the delivery of these plans**. Currently, many municipalities lack guidance on how to finance the implementation of their H&C strategies. The European Commission should assess the capacity and needs of local authorities and work with national governments to provide comprehensive guidance on available funding mechanisms. This includes access to **technical assistance and capacity-building programmes**, which are essential for effective plan execution.

Several **EU-funded projects**, such as [Plan4Cold](#), [Redi4Heat](#), [Coollife](#), [Escalate](#), and [Connect Heat](#), are already developing methodologies and tools to support municipal planning. These initiatives should be leveraged to provide practical resources and best practices for local authorities.

To ensure coherence and resource availability, municipal H&C planning should be **integrated into National and Regional Partnership Plans** under the **Multiannual Financial Framework**



(MFF). Member States should be encouraged to allocate funding from these plans to support local heating and cooling strategies. If a Member State chooses to invest in the delivery of its H&C strategy, this should be **facilitated and recognised within the EU budgetary framework**, allowing for flexible and targeted support.

3. Supporting innovation in renewable heating and cooling technologies

- **Prioritise emerging and high-impact technologies** in EU and national funding programmes to meet diverse sectoral needs.
- **Support high-temperature heat pumps** for industrial applications above 100°C.
- **Advance solar thermal systems** with seasonal storage, particularly for district heating networks and industrial applications including innovative solar technologies such as PVT and Solar2Fuel.
- **Promote enhanced geothermal solutions**, hybrid systems, and improved drilling techniques.
- **Invest in underground thermal energy storage** for high-density, long-duration heat storage.
- **Accelerate digitalisation and smart control systems** to optimise performance and enable sector coupling.
- **Enable waste heat recovery** from industrial processes and data centres for reuse and integration into local heating networks.
- **Ensure alignment of Horizon Europe Work Programmes** and other relevant funding instruments with RHC innovation priorities.
- **Encourage Member States to include RHC innovation** in their national energy and climate plans (NECPs).

RHC-ETIP welcomes the European Commission’s recognition of the essential role that **research and innovation (R&I)** must play in the decarbonisation of Europe’s heating and cooling sector. To meet the EU’s climate and energy goals, the strategy must prioritise **support for emerging and high-impact technologies** that address the diverse energy needs of residential, commercial, and industrial sectors, while enabling **sector integration** and system flexibility.

The RHC-ETIP **Strategic Research and Innovation Agenda (SRIA)** identifies several key technology areas requiring targeted support:

High-temperature heat pumps are critical for industrial decarbonisation, providing clean heat above 100°C and replacing fossil-based thermal processes.

Advanced solar thermal systems, particularly those with **seasonal storage**, are essential for district heating and industrial applications. Innovations such as **photovoltaic-thermal (PVT)** and **Solar2Fuel** technologies offer new pathways for solar integration.

Enhanced geothermal solutions, including **hybrid systems** and **improved drilling techniques**, can expand geothermal deployment in varied geological contexts.

Underground thermal energy storage technologies offer **high-density and long-duration storage**, supporting grid flexibility and seasonal balancing.

Digitalisation and smart controls are enablers of system optimisation, predictive maintenance, and **cross-sector integration** with electricity and mobility.

Waste heat recovery, especially from industrial processes and data centres, can be reused on-site or integrated into **local heating networks**, contributing to circular energy systems.

To ensure these technologies reach market maturity, the European Commission should **prioritise them in funding programmes** such as **Horizon Europe**, **LIFE**, and the **Innovation Fund**. Moreover, **Member States should be encouraged to reflect RHC innovation needs** in their **NECPs**, ensuring coordinated support across governance levels.

4. Technology and Sector Integration

RHC-ETIP advocates for a **diverse and complementary technology mix**, tailored to local conditions and integrated into broader energy systems. The EU's heating and cooling strategy must prioritise the **integration of renewable technologies across sectors** to maximise efficiency and decarbonisation potential. A systems-based approach is essential, linking heating and cooling with electricity, mobility. This requires coordinated planning, digitalisation, and the deployment of smart, flexible technologies that can interact across sectors. The strategy should also support **innovation and the scaling-up of integrated solutions**, particularly in urban and district-level systems. Moreover, securing the supply of **EU-made clean technologies** is crucial to ensure energy security and independence of Europe. This could be by introducing an **EU-made target** in the H&C mix and for public procurement for H&C.

5. Skills, Education, and Public Engagement



- **EU-wide Training Investment:** Launch training programs for installers, engineers, planners, and municipal staff, including certification and mobility schemes.
- **Education Promotion:** Integrate renewable heating and cooling (RHC) topics into vocational, university, and lifelong learning curricula.
- **Citizen Engagement:** Foster participatory planning and co-design of local energy solutions using behavioural insights.
- **Flexible Qualification Pathways:** Develop modular training approaches to certify multi-technology installers efficiently, avoiding redundancy.

The strategy will only be successful if it adequately addresses the human component. To scale up technology deployment, a robust and skilled workforce is required. One of the key pillars is the **investment in EU-wide training programs**. These should target professionals across the renewable heating and cooling (RHC) value chain—installers, engineers, planners, and municipal staff. By establishing certification schemes and enabling mobility across Member States, the strategy aims to harmonise standards and facilitate the exchange of expertise, ultimately strengthening the sector’s capacity.

Equally important is the **integration of RHC topics into educational curricula**. This means embedding relevant content into vocational training, university programs, and lifelong learning platforms. By doing so, the strategy ensures that future professionals are equipped with the knowledge and skills needed to support the energy transition, while also raising awareness and interest in sustainable heating and cooling technologies.

Public participation is another cornerstone. The strategy emphasises the need **to engage citizens through participatory planning and co-design of local energy solutions**. Using behavioural insights, communities can be involved in shaping projects that reflect their needs and preferences. This approach not only improves acceptance and uptake of renewable technologies but also empowers citizens to become active contributors to the energy transition.

Finally, the strategy recognises the need for **flexibility in training and qualification pathways**. To increase the number of qualified installers capable of working across multiple technologies, a modular approach is proposed. This would identify common skills and competencies across different systems, allowing for streamlined training that avoids unnecessary repetition. Such flexibility is essential for building a versatile workforce that can respond to evolving technological demands and market needs.

6. Monitoring and Governance

- **Monitoring Frameworks:** Establish robust systems to track the share of renewables in heating and cooling



- ensuring alignment with EU-wide renewable energy targets.
- **Action Plans:** Develop national and regional RHC action plans that are consistent with NECPs.
- supported by technical assistance.
- **Transparent Reporting:** Implement open and transparent reporting mechanisms including open data platforms and stakeholder involvement in evaluation.

The RHC-ETIP underscores the importance of strong governance and accountability mechanisms to drive the renewable heating and cooling transition forward.

First, it recommends the **establishment of robust monitoring frameworks**¹. These systems should be capable of accurately tracking the share of renewable energy used in heating and cooling across Member States. By aligning these metrics with EU-wide renewable energy targets, policymakers can ensure progress is measurable, comparable, and on track to meet climate goals.

Second, the strategy calls for the **development of national and regional RHC action plans**. These plans should be closely aligned with each country's NECPs, ensuring coherence across policy levels. To support their implementation, technical assistance should be made available, helping regions and municipalities design effective, locally tailored strategies.²

Finally, the RHC-ETIP stresses the need for **transparent reporting mechanisms**. This includes the creation of open data platforms that allow public access to key performance indicators and progress reports. Moreover, involving stakeholders in the evaluation process—such as industry representatives, civil society, and local authorities—can enhance trust, accountability, and the overall quality of decision-making.³

¹ European Parliament & Council. (2023, October 31). *Directive (EU) 2023/2413 on the promotion of energy from renewable sources (REDIII)*. Official Journal of the European Union. <https://eur-lex.europa.eu/eli/dir/2023/2413/oj/eng>

² European Commission. (2024). *National energy and climate plans*. https://commission.europa.eu/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en

³ European Commission. (2024). *Commission guidance on renewable energy and efficiency*. <https://www.green-forum.eu/regulation/20240905/ec-issues-eu-guidance-on-renewable-energy-and-efficiency-1394>



Conclusion

To achieve a climate-neutral, resilient, and inclusive energy future, Europe must urgently transform its heating and cooling sector. The RHC-ETIP calls for a bold and coordinated EU strategy that prioritises renewable technologies, empowers local actors, and ensures long-term policy and financial support. By investing in innovation, skills, and governance, and by phasing out fossil fuels, the EU can lead the global transition to 100% renewable heating and cooling by 2050. RHC-ETIP stands ready to support this journey through its expertise, stakeholder network, and commitment to a just energy transition.

