



Boosting renewables and energy efficiency in heating & cooling systems - Recommendations to guide and inspire policy makers

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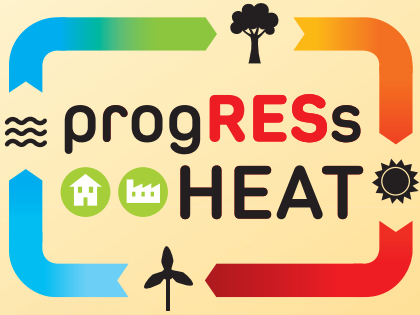
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Boosting renewables and energy efficiency in heating & cooling systems

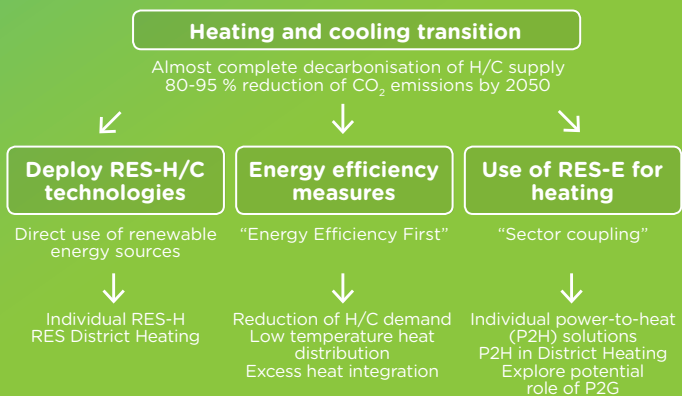
Recommendations to guide
and inspire policy makers

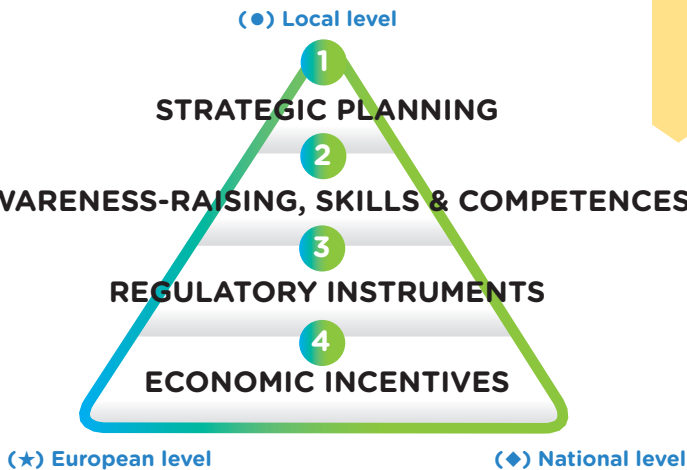


In 2015, about 50% of the final energy consumed in the European Union was used for heating and cooling (H/C), the major part of which was supplied by fossil fuels.

In order to decarbonise H/C, it is necessary to increase energy efficiency on the demand side and to use renewable energy sources (RES) for heating, cooling and electricity. The importance of measures for reducing energy demand such as deep energy retrofits of buildings or internal energy reuse in industrial processes is emphasized with the “energy efficiency first” principle of the EU energy policy. The remaining demand should then mainly be supplied by a direct use of RES-H/C technologies or the use of electricity from RES. The direct use of RES-H/C includes individual systems in buildings and industrial plants as well as units in district heating and cooling (DHC) systems.

An effective policy set is required to successfully manage the heating and cooling transition. Contrary to other sectors, where regulations and support schemes need to be rather set at national or even European level in a consistent manner, decarbonisation of the H/C sector requires a local approach to a large extent. The main investors in energy efficiency and heating systems are building owners who cannot be regulated by a national entity as done in the electricity sector. Installers and other craftsmen providing technologies and implementing efficiency measures such as building retrofits operate in regional structures. In addition, DHC is completely operated and organised at local or regional level by municipal utilities. Therefore, policy recommendations are derived not only for the national and European levels but also for the local and regional levels.





Strategic planning

1 Strategic heating and cooling planning needs to become a core pillar of regional and local decarbonisation activities. Strategic planning hereby not only comprises a detailed analysis of heating and cooling consumption patterns, potentials for energy efficiency and RES deployment, but also the political commitment to binding climate protection targets and the allocation of responsibilities and resources to local administrations. Even if support policies are mainly implemented at national and EU level, it is crucial to establish H/C planning as part of the public service at local and regional level. Therefore, municipal administrations need to be provided with adequate resources and guidance in order to fulfil the required planning tasks.

KEY RECOMMENDATIONS:

1. Binding climate protection targets

(●/◆/★)

With clear policy goals, it is then justified and needed to allocate human resources to H/C planning in the public administration. In Herten, Germany, the ambitious climate protection plan has been a basis for the implementation of energy efficiency policies, innovative pilot projects, information and training campaigns as well as for the transformation of the district heating network.

2. Support and regulate the institutional setting to enable long-term investment strategies

(●/◆)

Decarbonisation measures in the H/C sector require long-term investments, in particular when it comes to decisions related to infrastructure. Long payback times are an important barrier to investment, particularly in a highly-uncertain environment. This can

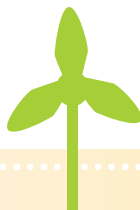
be mitigated by providing a transparent and reliable framework. In Brasov, Romania, a newly-established local public service guarantees long term stable conditions for district heating.

3. Planning for heating and cooling as part of public service tasks and provision of resources for regional and local governments

(◆/★)

National governments need to provide financial resources and guiding principles to build local capacities with regard to H/C planning activities. A good example is a programme led within the German Climate Protection Initiative, which finances local climate protection manager jobs and the creation of local energy agencies from revenues of the EU Emissions Trading Scheme.

● local
◆ national
★ European



An integration of the key pillars regional, national & EU level

Awareness-raising, skills and competences

2 Recommendations on awareness-raising, skills and competences include local communication activities as well as involving and empowering all local stakeholders in the planning and design of the local heating and cooling systems. Hereby it is important to include customers, craftsmen and local businesses.

KEY RECOMMENDATIONS:

1. Intensifying policies and measures addressing crucial change agents (●/◆/★)

Intermediaries such as craftsmen, architects and planners are crucial change agents. Craftsmen not only are the main advisors and first contact persons for private homeowners when it comes to energy efficiency and heating systems, but they also act as retailers for these technologies. They can be supported through training activities, development of energy efficiency networks or more operational activities. The German government provides financial support for setting up municipal energy efficiency networks targeting the exchange of regional authorities on energy-saving measures.

2. Involving local stakeholders (●)

Involving citizens and local players in the planning process is essential. Transparency about environmental benefits, investments and the composition of heat prices as well as long-term strategies and visions for “green district heating” need to be communicated to the public or – even better – jointly developed with citizens. Denmark has introduced an obligation to conduct socioeconomic assessments. Therewith, district heating providers are required to compare their investment project with alternative options regarding the overall costs for consumers as well as the resulting CO₂ savings.

3. Communication of local decarbonisation strategy (●)

Implementation of visible demonstration projects such as small solar DH fields is not only important to gain experience with new technologies but also to prove feasibility, the willingness to transform the current heat supply system and to establish a new image of DH. In Brasov, the municipality decided to implement solar collectors in the district heating system as a visible signal to transform the currently unsustainable structure.

Regulatory instruments

3 Even though regulations of the energy sector are predominately set by national and European legislation, there are also important regulatory instruments which could be implemented at regional and local level such as setting priority areas for some decarbonisation options.

KEY RECOMMENDATIONS:

1. Heat supply zoning - Setting priorities for different decarbonisation options (●)

Zoning has been successfully applied by municipal authorities, especially in Denmark, in order to provide district heating at low costs through high connection rates. Moreover, it can avoid double infrastructures and stranded investments in particular for gas and district heating networks.

2. Ban of fossil fuel heating systems in new installations (◆/★)

Limiting the market for fossil heating systems is a very effective policy for countries in which RES-H technologies have established adequate market maturity implying the widespread availability of skilled heating installers and competitive costs. Therefore, a ban of fossil fuel technologies might be targeting only new buildings at first. Examples are the RES-H use obligation of the Renewable Heat Act in Germany or the ban of fossil fuel fired boilers set by the Danish building code. The latter also prohibits the installations of oil fired boilers in existing buildings in case a connection to district heating or gas grids is available.

3. Mandatory implementation of energy management systems in industrial companies and multi-storey houses (◆/★)

Make the implementation of energy management according to ISO 50001 mandatory or link it to tax discounts as done in Germany. The current EU legislation only provides indirect incentives via the Energy Efficiency Directive. The extension of energy management systems to also cover renewable energies should be assessed.



ars across the local, is required

Economic incentives

4 Over the past 15 years, the main policy approach regarding the heating and cooling sector in the EU Member States has been investment grants or soft loans. Even if these measures have proven to be successful to incentivise new technologies, more actions are needed in order to ensure long-term investments to achieve a decarbonisation of the H/C sector. Furthermore, the EU-wide economic conditions should set a frame in which energy-efficient RES-H/C systems can compete with fossil-based systems. If this is not the case, other policies and instruments will not be effective.

KEY RECOMMENDATIONS:

1. Implementing efficient economic regulation to support decarbonisation (●/◆)

Increasing the prices of fossil fuels by effective price-based schemes have proven to be a significant element to get stable investment conditions in decentralised or large-scale RES-H/C technologies for instance in Denmark and Sweden. Revising energy taxation to reflect CO₂ intensity and external costs of fossil fuels is an effective measure to provide the ground for other policies to work effectively. This is particularly important for all installations not included in the EU Emissions Trading Scheme.

2. Focusing financial support to be in line with strategic targets (◆/★)

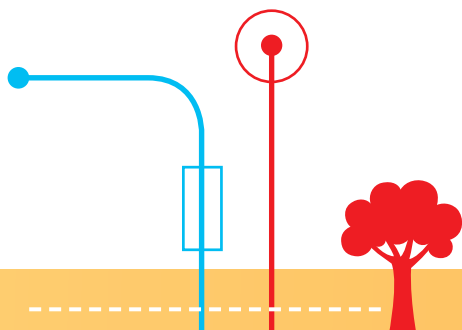
A financial support strategy does not necessarily mean raising the overall public budget but to focus the available funds to meet long-term targets. The 2050 overall reduction target is the starting point to prioritise technologies.

3. Coherent and innovative financial support instruments (◆/★)

Financial support schemes have to be developed in a coherent way. Instruments provided by different public authorities need to be better coordinated based on an overall policy strategy. Besides public grants, internal contracting schemes, crowdfunding, etc., are examples of innovative solutions to support RES-H/C which are independent from public budgets.

progRESsHEAT assessment tools

In order to identify technically and economically feasible local, regional and national strategies for the transformation of the heating and cooling sectors, it is essential to use computer-aided assessment tools. As part of the progRESsHEAT project several programmes and tools have been tested and developed, most of which will be freely available after the end of the project in November 2017 (www.progressheat.eu).



This leaflet is a summary of the Policy Recommendations developed as part of the progRESsHEAT project. Download full-text publication at www.progressheat.eu!



The progRESsHEAT project is assisting local, regional, national and EU political leaders in developing policy and strategies to ensure a quick and efficient deployment of renewables in heating and cooling systems.

The project consortium consists of research institutions, local energy agencies, a local authority and a European network of local authorities:

- TU Wien - Energy Economics Group,
- Fraunhofer Institute for Systems and Innovation Research (ISI),
- Institute for Resource Efficiency and Energy Strategies (IREES),
- Technical University of Denmark (DTU)
- Energy Cities,
- ÖÖ Energiesparverband (ESV),
- Energy Engineers GmbH (ee),
- Gate 21,
- City of Litoměřice,
- Instituto de Engenharia Mecânica e Gestão Industrial (INEGI),
- Agentia Pentru Management ul Energiei si Protectia Mediului Brasov (ABMEE).

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