How to accelerate the heat transition:
a guide for local government and actors

Module 3

Non-financial policy tools
for sustainable heating:
city strategies, regulation and support

Interreg
2 Seas Mers Zeeën
SHIFFT

SUSTAINABLE HEATING: IMPLEMENTATION OF FOSSIL-FREE TECHNOLOGIES

CONTENTS

page

2 - 3	**An Overview**
4 - 9	**Developing a City Heat Strategy**
10 - 19	**Key Non-Financial Instruments for Supporting Zero carbon Heat**
20 - 25	**Common Challenges and Solutions**

1

INTRODUCTION

This is the third part of a series exploring how municipal efforts can accelerate the decarbonisation of heating at the community level.

This is an output of the EU Interreg 2 Seas funded project SHIFFT – Sustainable Heating: Implementation of Fossil Free Technologies. This module outlines financial policy instruments, describes good practice for their application and addresses a range of common challenges. Examples from cities taking part in the SHIFFT project and others are provided.

SHIFFT targets the barriers and levers to growth of zero carbon heat in households and communities and this document aims to provide guidance as to which non-financial approaches can be applied by cities. In particular, the development of city heat strategies, key regulatory policy instruments, and the non-financial consumer support activities to enable the growth of zero carbon heating in buildings are explored and explained.

This document is the third in a four-part guide on how to accelerate the heat transition in cities. Module one in this guide is concerned with the role of communities and the need for a co-creation process which can ensure that community views are a central part of any municipal planning for the shift to zero carbon heating. The range of financial policy instruments and their application is covered in the second SHIFFT module. Module four addresses the technologies and technical choices for the heat transition in cities.
All of the other modules are also available from the SHIFFT website: https://shifftproject.eu

AN OVERVIEW: 2

Zero carbon heat regulatory and strategic policy instruments have most commonly been adopted at the national level, but there are examples of coordinated strategic planning at the local level (e.g. the Netherlands); in some countries and regions municipal and regional policymakers may need to be empowered by national government in order to take up an effective strategic role.

Devolving powers down to the local levels is necessary, since decarbonising heat tends to require a locally-driven approach. Heat decarbonisation involves both improving efficiency of consumption and producing zero carbon heat at the same time: building fabric and system energy efficiency improvements are necessarily local to the point of consumption and, with limited exceptions, heat is also generated locally, even where fuel comes from a great distance. Since options for zero carbon heat generation produce heat and not fuel there is a need to enable local actors. This document presents a range of regulatory, communicative, and other non-financial/economic policy instruments that have been developed which can be applied, and in some cases have already been applied, at different levels of government, including the local level.

Innovative policy instruments which aim to involve and encourage stakeholders in decarbonising heat will increasingly be needed across the sector, from national to local level. Few, if any, national or municipal governments have developed the complete regulatory architecture likely to be needed for advancing key areas of zero carbon heat, and a case can be made that efforts in the four INTERREG 2 Seas Member States are inching forward only slowly. An overview of current regulatory frameworks will give only limited guidance as to what a desirable endpoint might look like, but capturing positive experiences in cities and countries may at least give a useful jumping off point for cities as they work to develop their own strategies and consider the essential tools for their journey.

3 DEVELOPING A CITY HEAT STRATEGY

Developing a heat strategy at the city level is an important early step in the heat transition: a strategy sets out the direction and speed of change in that specific locality, as well as the governance architecture and policy instruments required to achieve it and an inclusive development process helps to engage and galvanise key actors.

3.1 THE CONTENT OF A LOCAL HEAT STRATEGY

Every city is different, with a different starting point, different energy and other resources and bounded by the sum of its politics, physical economy, historical architecture, local and wider governance structure and will require a unique and tailored local heat strategy, however, there are some common components which are frequently incorporated into heat strategies, which we organise under three headings:

1. Vision and objectives

- A high-level vision for sustainable heat in the city.
- The benefits heat decarbonisation will bring to the city.
- A summary of the objectives and targets for the strategy.

2. Heat system analysis

- Detailed heat mapping of the current heat system
- Future scenarios to identify zero carbon heat opportunities and evaluate their viability.
- Map citizen engagement and views.
- Stakeholder analysis.
- Skills, competences and labour force needs.
- Mapping available policy instruments and mechanisms, and identifying possible new policy instruments.
- Analysis of the how policy instruments contribute to achieving policy objectives and targets.

3. Delivery Plan

- Roadmap for delivery (may include a neighbourhood prioritisation plan).
- Processes for engaging and empowering stakeholders with information and involvement in decision-making.
- Cost estimates for neighbourhood heat transformations and preparing a feasible business case.
- Identification of key barriers, challenges and uncertainties, as well as potential solutions or mitigation.
- Monitoring and evaluation methods.
- Governance, politics and decision-making processes.

BOX 1: HEAT MAPPING

Heat mapping is a process of identifying which heating technology options are possible and preferable through a spatial analysis of heat supply and demand. This is most commonly on a zonal basis in order to distinguish areas where collective heating (e.g. a heat network) is technically viable from areas which will need property-level technologies.

The heat map can then be used in strategic planning and in engagement with stakeholders to inform and further develop plans.

Heat mapping is conventionally a primarily technical process, in that it is centrally concerned with the analysis of heat demand, heating technologies and the built environment across a defined space. However, wider sources of data can enhance the analysis; in particular, including assessment of local heat supply resources can add value to heat demand mapping by identifying available heat sources (e.g., ground or water sources for heat pumps, solar thermal, residual heat). Other physical data may be included about the building fabric or the capacity of the public domain to carry additional infrastructure (such as a heat distribution network), socio-economic information about household income, tenancy, and demographics can also be incorporated. It is beneficial to carry out the analysis with the most fine-grained data available to avoid oversimplification.

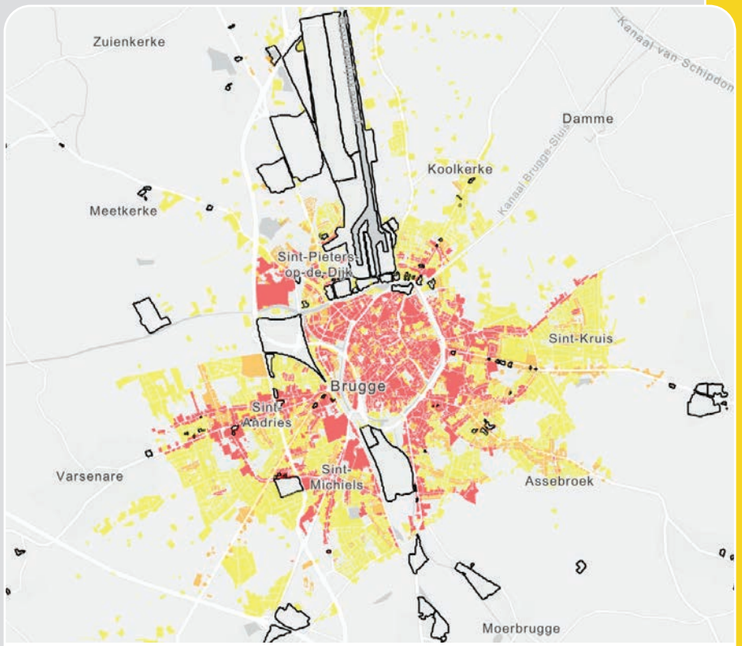


Figure 1 A heat map of Bruges, BE, where red denotes the suitability for a heat network and the yellow indicates areas where individual solutions will be deployed (e.g. heat pumps), the orange areas are uncertain. Source: City of Bruges

The key output of this process is a heat map showing the potential for different technological solutions across the municipality, it can also spatially disaggregate the need for insulation or other energy efficiency measures.

For more information on heat mapping see Module 4 in this series on heat technologies and analysis.

3.2 A 'STRUCTURED APPROACH' TO DEVELOPING A CITY HEAT STRATEGY

The ideal heat strategy should be both holistic – fully addressing all aspects of the challenge – and credible, in order to mobilise the whole community. Central to achieving this is taking a multidisciplinary approach and involving the people who live and work in the city throughout the process.

The SHIFFT Structured Approach is based on analysis of the heat system as a 'socio-technical' system consisting of heating and building technologies and the ways in which people (singly or collectively) decide to adopt and then use them; policy and regulation can influence this system, either hindering or stimulating change. So, the approach has at its core three dimensions of the heat system: stakeholders, technologies, and policy. This is designed to help local governments and other actors to scope and develop a heat strategy and demonstration projects that are multidisciplinary, that include and consider stakeholders' wishes throughout, that are technologically practical, and that are facilitated by policy.

These three dimensions of stakeholders, technology and policy are relevant throughout the process of developing a heat strategy, as well as within specific, localised pilot projects (e.g. extending a heat network or retrofitting a neighbourhood). Importantly, all three are also closely linked and affect each other. For example, stakeholders' preferences for technology solutions are important, these new technologies will at the same time change people's relationship with heating and their role in the system. Policy is important for both developing these technologies as well as informing and enabling stakeholders to adopt them. Effective policy should respond to stakeholder needs, including accounting for technology preferences.

Drawing on the 'transition cycle' (see Box 2), a practical process for systematically testing innovations in order to change how a system works, a set of five steps is established for transitioning the heat system through innovation and experimentation:

1) **Processes planning and system analysis.** This initial stage establishes the group of actors involved, sets out the process, and establishes the status and (physical, geographical, socio-technical) boundaries of the local heat system.

2) **Problem structuring and envisioning the future system** is the process of defining the 'problem' of heat decarbonisation in the local area and producing a shared vision for the future – this could be a vision of the municipality at the strategic level, or a future vision for a particular building or neighbourhood after a specific project. (See Module 1 in this series for more information on co-creation with stakeholders)

3) **Major pathway development** charts out credible pathways from the current situation to the future vision and agenda setting breaks this down into an immediate agenda for action to begin the journey.

4) **Experimenting** is important in testing innovations and change. Experiments identified in the agenda setting process, such as a living lab or piloting technology or processes, are carried out collaboratively by the actors involved.

5) **Monitoring and evaluation** are crucial to reflect on experiments and the wider process in order to learn and improve before iterating.

To: "For more information on this approach, see Harvey-Scholes et al. (2022) https://doi.org/10.1088/1755-1315/1085/1/012037

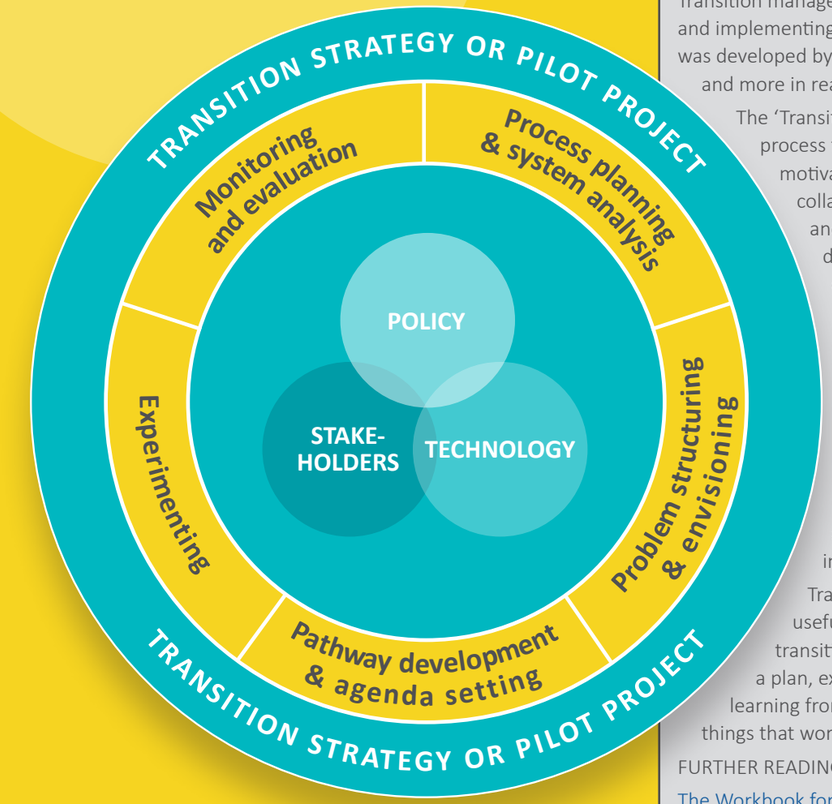


Figure 2 The structured approach to developing a heat strategy. In the centre are the three core themes. In yellow are the process stages (common to transition management), and the wider blue circle is the whole process objective: a strategy or pilot project. Source: Harvey-Scholes et al. (2022).

BOX 2: TRANSITION MANAGEMENT AND THE TRANSITION CYCLE

Transition management is an approach to developing and implementing innovation in complex systems. It was developed by academics but is being used more and more in real energy transitions.

The 'Transition Cycle' describes a process for innovating where a group of motivated and well-connected actors collaboratively creates a future vision and pathways to achieve it, and then devises a shared agenda (with objectives) before developing and delivering experimental projects to advance this agenda. The cycle is iterative, so experiments are evaluated and then the coalition (perhaps with some new or changed members) revisits its vision and continues the process. Learning informs other stakeholders as to what is successful or can be improved.

Transition management can prove a useful framework to organise the heat transition – assembling people, making a plan, experimenting with innovations, learning from experience and doing more of the things that work.

FURTHER READING:

The Workbook for Urban Transition Makers – Cities of Tomorrow (2020)

Transition Management In The Urban Context: Guidance Manual – Roorda et al. (2016)

3.3 ASSEMBLING A HEAT COALITION

Following the development of a strategy, the priority is kickstarting the local heat transition: assembling a heat coalition of enthusiastic 'first movers' in the municipality can be an effective approach to initiating collaborative action. Meeting together to agree shared priorities and collaborative opportunities is important, however, work is also needed to talk individually to stakeholders and establish areas for cooperation (and identify potential conflict) in order to facilitate group meetings and coordinate activity. This direct personal contact aims to bring all the key stakeholders inside the tent, it ensures everyone feels included and can express their views as well as allowing organisers to diagnose early any potential differences of opinion among participants. This role of coordination and engaging all coalition members can be carried out by local government representatives – but it is labour-intensive and requires an aptitude for stakeholder engagement and diplomacy. These stakeholders' interactions are important to develop a coalition of stakeholders that will eventually perform the transition experiment and the heat projects related to it. Ongoing development of the coalition requires continuous communication. Ensuring all stakeholders are recognised, including different departments within municipal government allows problems to be identified earlier, and sources of experience and technical based knowledge to be identified and brought to bear as early as possible in the process.

Over time, the heat coalition will evolve and change as the transition advances and priorities change. The roles of different actors within the coalition may also develop through the process, with a more assertive controlling or directing role for local government at some points (perhaps initially) and becoming more facilitative and supportive at others.

BOX 3: A HEAT COALITION – BRUGES AND MECHELEN

The Belgian cities of Bruges and Mechelen are each setting up a heat coalition of local organisations, influential actors, and government departments to establish a shared agenda for the heat transition and collaborate on experimental projects to roll out new technology and engage the community. It is worth noting that this engagement and coordination requires substantial resource and time but should allow for an effective way to initiate and advance zero carbon projects.

In Bruges, council officers from the Climate Department engaged one-on-one with each stakeholder and coordinated a series of group meetings to build an agenda and identify opportunities to collaborate on the heat transition. One example of such an opportunity is the extension of the existing heat network to other nearby large heat consumers – the existing dialogue allowed for the quick identification of suitable partners for connection to the extended network, and the coordination between the municipal Departments for Climate, for Public Works, and for Estates.

The City of Mechelen has a broader aim: to set up a coalition of key players who are active locally and are prepared to play an important role in the heat transition by dedicating their expertise, time and resources to this end. In the first place, the City of Mechelen is thinking of key figures on the demand and supply side of heat such as utility companies, project developers, energy cooperatives, potential suppliers of (residual) heat, etc. This must develop into a broad partnership in Mechelen between public authority, businesses, civil society and knowledge institutes.

4 KEY NON-FINANCIAL INSTRUMENTS FOR SUPPORTING ZERO CARBON HEAT

4.1 SPATIAL PLANNING

Spatial planning is the process, usually managed by local government, which controls the development of buildings and activities in a given area, in general through a local spatial plan and permitting. Spatial planning offers the potential to be an effective way of decarbonising the heat system using controls on the (re)development of different areas in a city or municipality. Planning regulation can also be used to stipulate improvements to buildings as conditions for additional permissions, such as when adding extensions. This could go further and dictate change, but many constituencies may resist that change, and it may not be possible without changes in policy or legislation at higher levels of governance. When integrated with heat zones, spatial planning is strategically valuable for coordinating new buildings with the development of heat networks to connect additional supply and demand and strengthening the electricity network for connecting heat pumps.

Benefits: targets a moment of change and disruption, power is often already held locally but may be limited in scope, can address new and (some) existing buildings.

4.2 BUILDING REGULATIONS

Control over building regulations is often (partly) devolved to municipal government, to different extents depending on the state, and they can be used to regulate factors which impact on both heat demand and supply. In many cases, local government has the power to stipulate more stringent or ambitious requirements than regional or national policy. Understanding the degree to which this is possible in your locality is key to identifying options for local policymaking.

- **Demand:** Set energy performance standards for new buildings and, sometimes, minimum energy performance standards for particular existing building uses (e.g. private rental properties), or energy performance requirements can be imposed as conditions for planning permission to modify existing buildings. These regulations can be effective in raising the level of the worst performing properties. Mandatory standards for upgrading existing building quality across the board may be possible if enabled by national or regional government; this is not currently common but has been suggested in some territories.
- **Supply:** Restrictions on the types of heating systems that can be installed in buildings can accelerate the transition away from gas or oil boilers to heat pumps and heat networks using renewable sources; these may stipulate acceptable and unacceptable technologies or specify a required percentage of renewable heat for new buildings, up to 100% on a net basis. Regulations can require new buildings to be ready to connect to a heat network where it may be planned but not yet built. 'Hydrogen ready' boilers are already being marketed (it should be noted that SHIFFT's assessment of hydrogen for home heating recommends hydrogen is unsuitable as a method for decarbonising home heating – Hoggett, 2020). Permissions for extensions or modifications to existing buildings can also set renewable energy requirements.

BOX 4: LOCAL BUILDING CODES AS A CLIMATE TOOL

In Belgium in 2021, a collection of organisations and municipalities published a 'toolbox' to help local governments in drawing up building codes which address climate objectives. Fossil-free heating is one of the key themes, alongside others such as sustainable mobility, climate-adaptive and nature-inclusive building. The toolbox also addresses how to stimulate behavioural change of citizens and what role communication has in this respect.

More info: https://www.vrp.be/activiteit/toolbox-stedenbouwkundige-verordening-als-klimaattool

4.3 SKILLS, EDUCATION AND TRAINING

Having sufficient skilled personnel is essential to enable the growth and maintenance of any technology. The rapid increases in deployment of zero carbon energy if net zero targets are to be reached will require a significant growth in skills and competences across appropriate technologies. The current low levels of zero carbon heat systems that have been deployed and the need for rapid expansion means local building workforces in most locations do not have the capacity, and in some cases the skills, to deliver energy efficiency and heating system upgrades at the scale and speed required to meet climate targets over the coming decades (DECC, 2015; Committee on Climate Change, 2022). There are different pressures on up-skilling for different technologies. For example, growth in district heating will require sufficient trained personnel but responsibility lies with the relatively large companies responsible for installation. Contrastingly, rapid large-scale deployment of heat pumps puts the onus on many hundreds of smaller installers, as well as skills providers. Under capacity is a real risk. Municipalities may want to consider working with all groups to facilitate sufficient capacity in appropriate timeframes. Comprehensive training and certification of installers is currently lacking and fragmented and there may be a political need to push training availability as a policy goal at the regional and national levels. Addressing this is essential to ensuring effective heating solutions and in establishing legitimacy among consumers with little experience of the technology. Word of mouth is effective in creating either positive or negative influence on further adoption. Skill sharing and professional education and training can be delivered at the local level, even where some of the qualifications and standards are decided nationally. Educational establishments in the local area can adapt to provide training courses which local government can support or even help to fund.

Local government can help to establish and publicise networks of trained professionals to facilitate skill sharing and collective learning, perhaps providing an informal type of quality accreditation (See Box 7 on Mechelen). The EUCERT programme aims to provide certified training and best practice for installation of heat pumps across Europe, including in the UK, France and Belgium and it may prove useful for cities and other local governments to raise awareness of this with local companies. Similar certification varies across countries and roles for retrofit; for example, the UK has a Trustmark certification for training 'retrofit coordinators' (PAS 2035), but not for all trades relevant to retrofit.

BOX 5: DECARBONISING THE PUBLIC BUILDING STOCK: SUPPLY CHAIN-PRIMING AND LEADING BY EXAMPLE

Addressing publicly-owned buildings as a first priority is a common approach among local governments (Tingey & Webb, 2020), and has at least three benefits: 1) ownership of these buildings makes this a tractable and achievable objective, 2) these projects can 'prime' the local supply chain, and 3) decarbonised public buildings can serve as demonstration projects as well as lead by example, helping to prove the technology to local people.

Within the SHIFFT project, all four partner cities are progressing with decarbonising their public buildings. One notable benefit has been to unlock heat network opportunities in some areas by guaranteeing a certain level of demand from government buildings.

BOX 6: SCALING UP HEAT PUMP INSTALLATIONS

The UK has an official ambition to accelerate from installing ~20,000 heat pumps per year now to potentially 600,000 annually by 2028. The Netherlands installed around 57,000 heat pumps in 2020 (REHVA, 2021) and has an ambition to install more than 100,000 a year from 2024: both present a serious challenge. These ambitions will mean finding personnel, developing training programmes and training sufficient numbers of installers and maintenance engineers to meet demand. On the one hand, under capacity will delay the deployment of heat pumps. On the other hand, any overcapacity of training might bring its own problems such as reducing return on investment for installers. Additionally, there are practical constraints including the high average age of existing installers (and a loss of expertise through retirement), their high workloads which reduce time (and inclination) to train others, and limited trust in government and governmental targets.

4.4 DOMESTIC NON-FINANCIAL RETROFIT SUPPORT

Retrofit involves a wide range of technical, administrative, and financial tasks and activities:

- General information and awareness raising about sustainable heat technologies, the local strategy (and timeline), and related practical and financial processes is important, as the general public have a generally low level of knowledge about the retrofit process, which technologies are available, and the benefits they might offer. It is important to make consumers feel they can trust a technology that may be new to them to properly warm their home, when they need it.
- Retrofit assessment is the first stage in any retrofit process, it involves an audit of the property to understand current energy performance and evaluate the feasibility of different retrofit measures to improve energy performance of the building or heating system. This helps homeowners to understand their options and informs their decision-making.
- Retrofit design is the detailed development of the retrofit measures and their installation for the specific building and residents, accounting for homeowners' practical needs and desires, resulting in working drawings and material specifications.
- Retrofit coordination is the project management of the retrofit procurement and installation. Retrofit often involves installing a range of measures by more than one contractor and the coordination service saves householders managing multiple relationships with and between contractors.
- Connecting householders with qualified installers. One-stop-shops establish relationships with a range of local suppliers of materials and installation services who can quote for works through the one-stop-shop. This helps householders reach skilled tradespeople and reassures them of the trustworthiness of the quote and the quality of the works. From the perspective of suppliers, one-stop-shops bring together many householders in need of works supporting both lead generation and to cluster projects (which can otherwise be relatively small individually). This can help reduce costs and therefore prices.
- Access to subsidies and finance can be offered by one-stop-shops. Understanding the availability of, and eligibility for, financial subsidies can be complicated, and application processes are not always straightforward – one-stop-shops can help householders to identify and apply for subsidies or in some cases apply on their behalf. Support in exploring and obtaining other sources of finance such as cheap loans can also be provided by linking householders with banks or building societies.
- Quality assurance procedures during and following installation can also be provided through one-stop-shops. More informally, one-stop-shops have relationships and experience of different contractors enabling them to select trusted providers. This increases the credibility of the services and measures, reduces risks for householders, and enhances consumer confidence.
- User education is important to ensure that building occupiers are able and empowered to control their heating system and operate it efficiently and to their comfort.

This range of possible services, and the variance in them being available so far, means that the supply chain in the Netherlands, UK, Belgium, and France (and other countries) is fragmented, complicating the customer journey (BEIS, 2021). Several businesses may be involved in a single retrofit project adding complication in coordinating the works and increasing the workload for householders. Integrated retrofit service providers are emerging as a single contact point offering a broad range of services to householders (and sometimes businesses). We discuss these 'retrofit one-stop-shops' on page 17.

4.4.1 Communication methods

This information and support can be delivered in several different ways and at different scales (from door-to-door engagement to national information campaigns). Local government's close connections to the local community means that it is in a strong position to engage property owners and occupiers with information and guidance about how to improve the performance of their heating system and building in order to reduce their energy consumption. Public awareness can be raised in a range of ways depending on the local context and the objective, and it is apparent that some states are already further ahead with adopting some communication tools.

Cities have adopted a variety of approaches to dispensing advice and information according to the resources at their disposal, with broadly increasing service provision and resource requirements:

- **An info desk** in a public building providing a fixed location for advice and support.
- **Neighbourhood champions** who serve as an initial local point of information and can refer neighbours on to more in-depth support.
- **A one-stop-shop** offering citizens a range of information, assessment, and project management services. (More on these below)
- **Door-to-door engagement** with communities to inform them of their options and encourage action.

In addition, some cities have tried to engage local residents by promoting innovative building examples locally (e.g. 'Open Eco-homes' events) or using challenges (e.g. Mechelen – see Box 7).

BOX 7: DO THE 50°C TEST!

The City of Mechelen has developed a mix of policy instruments to engage and encourage householders to reduce their heat consumption and consider installing a heat pump. Householders are invited to 'do the 50°C test!' – that is to reduce the flow temperature of their boiler down to 50°C – to see if their home remains comfortable, on the basis that this will both save energy by running their boiler more efficiently and demonstrates that the property could easily be heated by a heat pump. Additionally, domestic heat system audits are provided, in which an engineer will come and evaluate the performance of the boiler and distribution (e.g. radiators, underfloor heating) and recommend improvements or replacements. Together these two non-financial policy instruments empower householders to engage with and take control of their heating system (alongside financial subsidies for insulation materials and installation).

The city of Mechelen has also created a network of qualified and experienced heat pump installers (whose credentials are examined before admission) in order to facilitate the exchange of knowledge and good practice between those in the sector, as well as serving as a resource for property owners to identify capable and trustworthy installers.

More information: https://klimaatneutraal.mechelen.be/duurzaam-verwarmen-hoe-doe-je-dat

4.4.2 Retrofit one-stop-shops

Retrofit one-stop-shops are support hubs to provide a single contact point for advice and assistance in scoping, planning, and carrying out energy upgrades to householders. Primarily, one-stop-shops are intended to simplify the customer journey for householders, reducing complexity by integrating the retrofit assessment, design and project delivery processes and providing access to trusted expertise. Secondarily, they can support retrofit suppliers in lead generation, and there is potential for using this to support initiatives such as group purchasing. One-stop-shops have emerged as a valuable tool in supporting the delivery of energy efficiency improvement measures (where consumers and suppliers are especially fragmented) but they can also include heat supply technologies (e.g. heat pumps) and electricity generation (e.g. solar PV).

Policy Support for one-stop-shops

Regarding retrofit one-stop-shops, the most important policy available to local government is to set up and operate a municipal one-stop-shop either directly or through a subsidiary (Boza-Kiss et al. 2021). One-stop-shops run by local governments directly (e.g. Bruges, BE – see Box 9) can vary in capacity and the range of services offered according to the local government resources. They can also be run by community energy enterprises (e.g. People Powered Retrofit, Manchester UK – see Box 8) or private companies.

More broadly, some policies which can support the establishment or uptake of one-stop-shop services include: Annual targets to support renovation in a minimum number of dwellings can help to stimulate interest in one-stop-shops; access to grants and financial support for householders to implement retrofit measures; and information sharing, promotion and connecting partners (Boza-Kiss et al., 2021).

BOX 8: PEOPLE POWERED RETROFIT

People Powered Retrofit is a not-for-profit, cooperative enterprise based in Manchester, UK, which works as a one-stop-shop to support homeowners who want to retrofit their homes to be more energy efficient, cheaper to run, and more comfortable.

People Powered Retrofit provide expert advice and project management services: helping homeowners to make decisions, to coordinate procurement and contractors, and to monitor the quality of the works.

Fundamentally, they are a community organisation perceived as trustworthy and offering householders expertise and hand-holding throughout the retrofit process. They are currently mainly supporting homeowners who have the money to pay to retrofit their property, but as support becomes available for others, they plan to support the whole community.

More info: https://retrofit.coop/

BOX 9: BRUGES RETROFIT ONE-STOP-SHOP

Bruges has established a retrofit one-stop-shop, in association with an external organisation, to advise and support residents in transitioning their heating systems. The one-stop-shop offers a range of services including: community outreach, information evenings, home renovation scans (assessment and advice), obtaining and comparing quotes, guiding the renovation works, help with accessing subsidies. Initially, the project was funded by a grant from the regional government allowing the services to be offered to two neighbourhoods. Additional funding to start in autumn 2022 with five more neighbourhoods, including a broader range of income, wealth, and social status. More widely, the city government's two in-house renovations scan experts support householders in other neighbourhoods with domestic low energy retrofit, drawing on the experience from the funded one-stop-shop.

More info: https://energieplatform.brugge.be/

4.5 ENERGY BROKERAGE

Energy brokerage is the activity (often commercial) of connecting actors who supply energy with those who need it – here we use the term in its broadest sense to refer to connecting supply with demand, whether carried out commercially or by another actor such as local government. Brokerage has an increasingly prominent role in the field of fossil-free heating, connecting heat sources to heat consumers. An energy broker wants to actively initiate energy-sharing projects by matching local partners and guiding the design and realisation of new collective projects with residual heat and other renewable energy sources, matching supply with demand. The early examples of this tend to be connecting heat supply and demand through a heat network. Specialist private brokers have conventionally provided similar services, but local governments can also carry out this role bringing together large heat producers and consumers (See Box 10).

BOX 10: ENERGY BROKERS IN ACTION

Bruges and Mechelen are involved in the initiative "Platform Energiemakelaar", a community in which energy brokers can share knowledge and experiences, and new energy brokers receive training and coaching.

In Bruges, the municipality takes up the role of energy broker, collaborating with the publicly-owned heat network owner and operator IVBO to find new opportunities to extend the existing heat network.

In Mechelen, the municipality collaborated with the energy broker from the Province of Antwerp to identify potential residual sources around Mechelen. Furthermore, the city has assigned a third party as energy broker to find support with project developers and key stakeholders for a district heating network for a brownfield development, Ragheno.

www.energie-makelaar.net/

www.platformenergiemakelaar.be/

5 COMMON CHALLENGES AND SOLUTIONS

5.1 COORDINATION

A major challenge in the heat transition is coordinating the diverse set of organisations and actors active in the heat system with different roles and varying levels of capacity and engagement. This is true both within local government organisations and more broadly. The heat system is also closely connected to the rest of the energy system and the wider economy and society, meaning that coordination is necessary across sectors. It is also true that coordination is needed across local, regional, national, and even international levels: whilst some actors are local to the municipality (e.g. building trades, community energy organisations), others are regional or national (e.g. regulators for some technologies, energy networks though this may change as one technology is replaced with another), and some businesses with local facilities may be international. Identifying and aligning the activity of many independent actors is essential for the heat transition.

At the organisational level, local government must set strategic political goals and translate these into specific objectives and priorities for work internally across the entire institution. All departments and subsidiaries within the municipal government need explicit responsibilities, priorities, funding and capacity to deliver all the work relevant to the heat transition. Setting responsibilities and building capacity is fundamental, but equally vital is ensuring a governance process which maintains effective communication and coordination between departments. There are many potential reasons as to why policy does not deliver desired outcomes. The absence of action because a key stakeholder was missed from the process offers a huge set of sources of failure because it may lead to inaction on a key aspect which was not addressed or fails to identify or act on a barrier with wider consequences.

Coordinating activities across a municipality is necessary to ensure, for instance, that the electricity network in each area is reinforced in time and in the right place for the deployment of heat pumps (and solar PV and EV charging), or that new developments and building refurbishment projects are either heated fossil-free or are made ready to easily connect to a future heat network. Local government can (among other roles) act as a coordinator (or 'heat director') by setting municipal goals, connecting stakeholders and facilitating communication between them. In part, this may be via a 'heat coalition' or another collaborative forum for aligning activity and the transition agenda.

. . . coordination is needed across local, regional, national, and even international levels . . .

Coordination across municipalities within a province or region is also important to exploit economies of scale or to share major heat resources, such as from industrial processes or bodies of water for example (see, for example, regional heat visions in the Netherlands – more information). Achieving some policy objectives will require engagement with extra-municipal institutions or organisations, such as improving retrofit training provision with technical colleges and universities. Municipalities must also interact with national government, for example working to push for policy and regulation which is beyond local control to align with activity locally (or perhaps to be devolved to the municipality) as well as for budget, and stimulating the adoption of inter-governmental support schemes so that national government can empower local government to build capacity. Again, agreed priorities amongst municipalities, and potentially also with stakeholders such as trade or consumer associations, may offer benefits in influencing change.

5.2 LOCAL GOVERNMENT CAPACITY AND EXPERTISE

Many local governments have limited capacity to work on accelerating the heat transition in terms of personnel, funding, required competences, or in-house expertise. In some cases – often in large-sized municipalities -, expertise remains in the organisation (in staff who used to work on climate but now work in other departments) and could be reassembled. Yet, in other cases – often in medium-sized municipalities - a heat team needs to be created and recruited or trained. The nature of the heat transition, where change needs to happen on a street-by-street and house-by-house basis, even where national policy is applied, means that action at the level of local government will be a necessity.

Key government skills, knowledge, and capabilities:

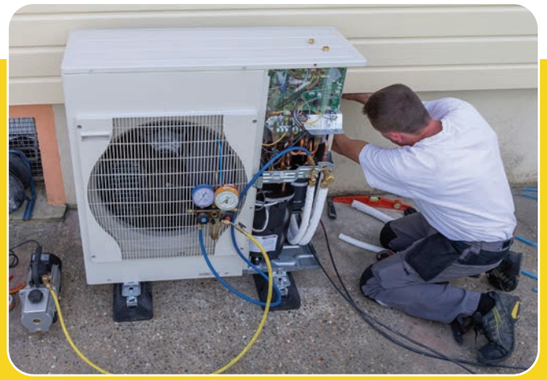
- Knowledge of heat systems: an understanding of heat technologies and engineering, buildings and the tools for mapping and understanding the local heat system.
- Knowledge on the economics of heat systems and infrastructure; e.g., to develop a heat business case at neighbourhood level.
- Public leadership: to put heat transition on political and public agendas and raise urgency, attention and finance to it, as well to maintain heat transition as a priority on the agenda amidst other topics that call for attention and budget.
- Strategic cross-sector planning: collaborative planning of parallel systems and sectors to coordinate the heat (and wider energy) transition, requiring collaboration and alignment between different municipal departments.

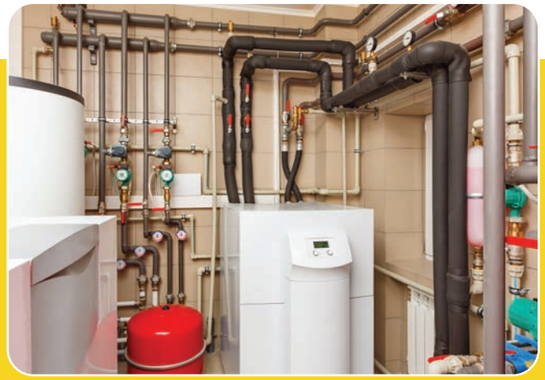
- Project management: to develop and deliver the heat transition within the government's buildings and assets, and also at the neighbourhood level where heat projects are planned and executed in partnership with other stakeholders.
- Engagement and networking skills: the ability and capacity to identify and engage stakeholders (both within and without of local government) with the heat transition, as well as connect them to one another. See module 1 in this series for more information on co-creation with stakeholders.
- Community communication and education: the ability to organise deliberative, participatory processes, as well as provide practical advice and support for households.
- Knowledge on current and future policy & regulations as well as development of these: Policy instruments must be identified, specified, assessed, implemented and evaluated to steer, inform, persuade, regulate, incentivise, and/or facilitate local stakeholders towards heat decarbonisation.
- Regulatory enforcement capacity: Regulations must be both established and enforced. Capacity to enforce, for instance, building regulations will help to ensure buildings' energy performance is sufficient for the targets.
- Legal and contractual expertise: the heat transition will raise questions about property sovereignty, access to and use of public land, and novel contracts for services procured, among others; local government legal departments must be prepared and equipped for these.
- Market development abilities: strengthening the local supply chain for heat, energy efficiency and associated technologies of trained building trades. For example, by building 'vital coalitions' in the heat supply chain and supporting their actions.

5.3 PROFESSIONAL SKILLS AND SUPPLY CHAIN

The supply chain to assess buildings, specify measures and install zero carbon heat technologies is currently highly constrained in many countries (including BE, FR, NL, UK); in particular, there is a limited amount of people with the necessary skills to install insulation and energy efficiency measures as well as heat pumps (Brocklehurst et al., 2021). At present, these technologies are mainly installed by small, local contractors such as heat engineers or general builders, and this is not expected to change dramatically; but many heat pump installers are currently at capacity even with generally low national deployment rates, whilst many independent builders have sufficient existing work and therefore lack the incentive to develop new skills to deliver new energy efficiency measures. Additional installation and retrofit capacity will be needed; tens of thousands of additional engineers and skilled personnel are forecast to be needed in each country. There is a need for recruitment and training, as well as quality assurance for the services and products.

In addition to skills, the supply chain also needs an engaged construction industry, new business models, and to reduce real and perceived risk; these are three separate but related needs. By and large, the construction trades currently continue to offer their familiar home repair, maintenance and improvement (RMI) work and ignore retrofit. Despite substantial potential overlap in skills and tasks, retrofit remains unfamiliar to most builders and is perceived to be higher risk than well-established RMI work. A shift in focus towards retrofit is important both because workforce capacity is needed to deliver mass retrofit, and because builders are an important source of information for householders. Commercially, retrofit represents a significant opportunity for builders but, in general, the sector has not historically been quick to innovate and policy must provide impetus and support, as well as a stable environment for investment (Brocklehurst et al., 2021). A culture change must be triggered in order to stimulate and attract those in the construction sector to incorporate energy performance upgrade works into their repertoire and recommendations to clients (Brocklehurst et al., 2021). Different levels of government could usefully work with providers to reduce the risk of investing in increased capacity for installation.





New business models are required to simplify the customer journey, provide finance mechanisms, and quality assurance for householders.

- Customers need advice, support and encouragement - as discussed in the section on information and engagement above – throughout the process of evaluating, deciding, implementing (including coordinating contractors), and living with retrofit measures. Engagement, decision and project support, education and follow-up training must be incorporated into the value proposition; different parts of this journey may be provided by the installer(s) or by 3rd party specialists (e.g. a retrofit coordinator).
- Retrofit is expensive and innovative sources and mechanisms for financing the investment will be needed to enable many householders to retrofit their properties. These mechanisms may be offered by lenders, government schemes, or directly through installers. For more information see our companion module 2 on financial policy instruments.
- Many retrofit measures bring a range of risks if inappropriately or poorly installed, so there is a need for good practice and quality assurance. Quality assurance can be provided in a range of formal and informal ways including contractual conditions to business model design, and through government bodies, certifications and inspections.

Retrofit presents a range of risks to householders (e.g. quality of works, suppliers collapsing), suppliers (e.g. conversion rate of leads to projects, customer relationship management) and programme designers (e.g. providing insurance or remedial work). Suppliers, for example, must establish a high conversion rate of leads into projects and taking part in a large-scale, reputable programme may facilitate this. Policy development should consider how to reduce risk and enable progress, for instance programme organisers can help alleviate the (perceived) risk to householders through accreditation and guarantees of remedial action if required.

Municipal governments can support upskilling and strengthening of the installation and maintenance supply chains in a number of ways. Local governments can encourage and support local training colleges and other educational institutions to develop and promote training courses, working with employers to establish apprenticeships and career paths where appropriate. Building on this, local government can act as an intermediary, creating a network of retrofit or sustainable heat practitioners in order to upskill, exchange good practice, and connect them with property owners in need of their services.

. . . tens of thousands of additional engineers and skilled personnel are forecast to be needed in each country

Partners

Funders

Authors:

Calum Harvey-Scholes,
Peter Connor (University of Exeter),
Ighor van de Vyver (City of Mechelen)

Contributors:

Lies Debbaut (City of Bruges),
Winnie Versol
(Municipality of Middelburg),
Thomas Hoppe,
Marie Henneron (City of Fourmies),
Michiel Fremouw (TU Delft).

Reviewer:

Mark Letcher.

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Project Management: Ronan Doyle

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