

POLICY PAPER – CHANGING REGULATORY FRAMEWORKS AND CONDITIONS FOR A RAPID AND JUST PHASE OUT OF NATURAL GAS

WHICH ISSUES AND SOLUTIONS FOR LOCAL AUTHORITIES?



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INTRODUCTION

Buildings accounted for more than <u>two fifths</u> of the EU's final energy consumption in 2020 and <u>35 %</u> of its energy related emissions. Around 22 % of the final energy consumption share comes from space heating and hot water used in households, according to <u>Eurostat</u>. Gas¹ accounts for nearly 50 % of the primary energy demand for space heating in the EU (Figure 1), while gas boilers make up around <u>39 %</u> of all EU households' final energy use. Using gas to heat homes has significant impact on EU's greenhouse gas (GHG) emissions, reinforces unsecure energy dependencies² to third countries, and exposes citizens to volatile and high energy prices³. Gas for heating puts our long-term security and resilience at odds, thus a rapid gas phase out is a critical objective for a responsible and fair transition towards decarbonised heat.

Figure 1. Natural gas dependency in primary energy demand for heating. Figure and data from the study <u>Renewable space heating under</u> <u>the revised Renewable Energy Directive</u> by Kranzl et.al.(2021) for the European Commission.



Natural gas dependency in primary energy demand for heating

Fossil gas is a mixture of gaseous hydrocarbons, consisting of <u>around 97 %</u> methane (CH4). Biogas, which is classified as a renewable energy source, consists mainly of methane and carbon dioxide (C02). Biomethane, an upgraded form of biogas, is <u>chemically indistinguishable</u> from fossil gas and can thus be used with the same transmission and distribution infrastructure and end-user equipment.
EU's gas import dependencies to third countries increased to 97.0 % in 2022, up from 83.1 % in 2021 (<u>Eurostat, 2023</u>). Gas pipeline

imports from Russia have fallen sharply and imports diversified since 2022, largely resulting from efforts by the European Commission and national governments to wean off Russian gas. Imports of Russian liquified natural gas (LNG) declined slightly in 2023 after a sharp increase in 2022 but remains the EU's third largest LNG supplier after the US and Qatar. LNG, which has higher GHG emissions than pipeline gas (mainly due to methane losses and processing needs), doubled in 2022-2023 compared to 2021, and reached around 40 % of the gas supply to the EU in 2023 (<u>Bruegel, 2023</u>).

³ Gas, a commodity sold on international markets, is prone to volatile prices, highly vulnerable to supply constraints, chocks and disruptions, e.g. triggered by ongoing and emerging conflicts (*IEA, 2023*) in and around regions critical for the supply and distribution of LNG and other hydrocarbons. The volatility is likely to stay a permanent feature throughout the transition, according to the think-tank Agora Energiewende.

Gas consumption in buildings, premises and industries has remained relatively stable over the past decade. The 2021-2023 global energy crisis, exacerbated by Russia's full-scale invasion of Ukraine, led to a large decrease of fossil gas in the EU by around 13 % in 2022 compared to 2021 according to Eurostat *figures*, and a 15 % reduction in household use compared to 2019-2021 average according to the think-tank Bruegel's estimations. This sudden drop of gas demand can in part be explained by high energy prices, an unusually mild winter, and the implementation of emergency regulations. It is nonetheless projected to continue over the coming decades as European and national decarbonisation targets and commitments. energy efficiency gains, and a large-scale roll-out of fossil-free heating technologies take effect (ACER, 2022; S&P Global Ratings, 2023). Large part of the gas networks will consequently no longer be needed in the foreseeable future. They should therefore be decommissioned to carry much smaller volumes during the period of gas phase out and replaced with fossil-free alternatives (Agora Energiewende, 2022).

However, and regrettably given the increasingly graver climate emergency, this does not reflect the realities on the ground and how gas infrastructures evolve. New investments in gas assets continue to flow and new connections to households are being made. Investment has in some regions reached record-levels in recent years. New investments, in some cases backed by EU funding, have often been justified by security objectives aimed at changing and diversifying gas supply to EU markets. Investment in distribution infrastructures and connection to households, which this paper will mainly focus on, have meanwhile mainly been justified on deceiving claims that networks can be fed by biomethane at scale or eventually be repurposed to carry renewable hydrogen.

These investment trends are at clear odds with the EU obligations under the Paris climate agreement and the objectives of the European Green Deal and risk delaying the transition while reinforcing carbon lock-ins. The stranding of gas assets also makes the costs of the transition unnecessarily high. As we switch to decarbonised heat systems, gas assets will most likely become stranded as they are laid off before the end of their operational lifetime, and gas prices are expected to spike to compensate for a falling demand in underutilised networks. Failing to impose new regulation and planning which proactively deal with these risks could have adverse consequences for those consumers still connected.

This contradictory investment landscape highlights the need for rapid and decisive revamp of policies, regulations, and planning practices across levels of government, and that local and other public authorities are equipped with the means needed for strategic and decisive action. Local authorities, the level of government closest to citizens often responsible for the planning and permitting of infrastructures and buildings, sit at the very forefront of the heat transition. They can ensure that strategies and investments are optimised and targeted towards gas phase out and the deployment of decarbonised and scalable alternatives. To achieve a just and sensible transition, it is time to fully recognise their role, to address their need for resources, capacities, mandates, and build coherent and enabling multi-level governance frameworks that allow them to steer the development and bring tangible results forward.

In 2023, Energy Cities organised several discussions with local authorities, policymakers, regulators, think-tanks, and utilities to exchange ideas on how to mitigate the risks of stranded gas infrastructure assets and costs' increase, and instead how to decommission gas infrastructure, phase out natural gas for heating, and accelerate the deployment of fossil-free heating. This paper highlights the outcomes of these discussions, other recent findings and some policy recommendations and useful paths forward for local authorities to act on their gas phase out and decarbonisation.



PART 1: GAS INFRASTRUCTURE DECOMMISSIONING IS A BLIND SPOT ON THE EUROPEAN ENERGY SYSTEM TRANSFORMATION MAP

EXCESSIVE GAS INFRASTRUCTURE BUILDOUTS ACROSS EUROPE MAKE RISK OF STRANDED ASSETS AND SPIRALLING COSTS FOR END-USERS IMMEDIATE AND ALREADY TANGIBLE.

Gas stranded assets are "assets withdrawn from operation before the end of their regulatory asset lifetime as a result of permanently declining natural gas demand, changes in technology, policy decisions (decarbonisation) or other factors" (2022, p. 78). The regulatory asset lifetime of an asset reflects in addition to its technical lifetime the regulatory and policy regime of its location, which for gas networks typically last for at least 40 to 50 years. The risk of stranded assets is generally lower for old and already largely depreciated assets approaching their technical lifetime, and on the contrary much larger for newer infrastructures.

At the European level, gas projects awarded as Projects of Common Interest (PCI) received financial support worth EUR 1.6 billion from the Connecting Europe Facility (CEF) and cohesion policy funds in 2021 and 2022 alone. This include Liquified natural gas (LNG) terminals and new and reinforced transmission networks and interconnectors across numerous EU Member States. As the Commission states in its **State of the Energy** Union Report 2023 (p. 17), these projects would not be "economically viable without EU financial or regulatory help, for instance through CEF, the Recovery and Resilience Facility, permitting acceleration, and exemptions". Extensive publicly funded support to new gas infrastructures, often underlined by security of supply objectives, has also been granted by some Member States, including France, Germany, Poland, and Italy. A regasification capacity of 36.5 bcm in LNG terminals has been installed since February 2022, according to the European LNG Tracker of the

Institute for Energy Economics and Financial Analysis (IEEFA). **IEEFA forecasts a 36% utilisation rate of Europe's existing and planned LNG terminals by 2030 alongside a forecasted gas demand decline, meaning a large share of these assets will very soon be unfit for purpose and stranded.** Some Member States have also allocated <u>direct subsidies</u> to fossil heating appliances (mainly gas boilers), reaching a total of €3.1 billion in 2022. For these reasons, Energy Cities and numerous Civil Society organisations *called* for the immediate cease of public investment into gas and other fossil infrastructures, alongside regulatory discouragement and proper assessments of associated risks.

Substantial investments are also carried out on the distribution level with new connections to households across Europe. A study published in 2023 by the think-tank Agora Energiewende estimates that between 71% and 94% of the existing German distribution gas grid could be stranded by 2045 - a result of continuous investment in grid infrastructures and new household connections over the past decades. A possible outcome of operating oversized gas infrastructures with lower supplied gas volumes per segment are hefty tariff increases and cost-spiralling effects for the remaining end-consumers. The same study estimates that tariffs will increase up to 16 times in 2045 compared to 2022 if the existing regulatory framework remains and all refinancing costs are passed on to grid tariffs.



The first effects of tariff increases are already visible in some countries. In 2023, French Transmission System Operators (TSOs) asked for a 38 % tariff increase to the National Regulation Authority, and concerns for imminent tariff increase have been raised in consultation processes in Belgium and Latvia. Cost spiralling effects would likely disproportionally impact households still locked-in to gas heating, who ultimately pay the price for excessively large and increasingly depreciated infrastructures enabled by irresponsible investment and poor planning. **This could potentially aggravate energy poverty rates and reinforce and deepen socio-spatial inequalities across the EU.** The upcoming extension of the Emission Trading Systems to the building sector in 2027 will most probably keep the cost of the gas supply high for end-users. Thus, the Social Climate Fund will be key to support vulnerable households in switching to clean and affordable heating systems.

A LACK OF READINESS, WILLINGNESS AND TRANSPARENCY TO ADAPT GAS INFRASTRUCTURES

There is a lack of readiness, and sometimes willingness by grid operators to plan and support a reduced role of gases in the heating sector, and particularly the building sector. In its opinion on national development plans, the EU Agency for the Cooperation of Energy Regulators (ACER) identified a misalignment between TSOs' and Distribution System Operators' (DSOs) planning practices and requirements from national regulation authorities regarding energy transition aspects. It also underlines that **the assessment** of alternatives to new gas grid investment and of the potential decommissioning of assets is not commonly carried out by TSOs.

A common issue, raised by Energy Cities' members and other local authorities across many European countries, is the difficulty of accessing any information from utilities and DSOs on the actual risks of stranded assets and future prices' increases. A study published by ACER in 2022 identifies similar issues at the level of TSOs which are often reluctant to provide data needed for national regulators to have proper insights on the assessments made by TSOs on future utilisation rates and asset bases. These information asymmetries have resulted from the lack of stringent requirements for information sharing. This lack of transparency and information makes it difficult for public authorities to fully understand and consider the financial

implications to operate increasingly depreciated networks with higher network tariffs.

Local authorities also regret the lack of levers they have in the planning of gas infrastructures, as DSOs are rarely obliged to consider and adhere to local strategies when they invest in, develop, and operate their infrastructures. Some reasons behind this lack of control and ability to act are:

- It is difficult for local authorities to supervise or be involved in the planning and decision-making on gas grid investments in case they are privately owned, and because they are mainly nationally regulated investments;
- The reluctancy by some energy suppliers, and DSOs to cooperate and adhere to municipal plans aimed at replacing infrastructures and heating sources, e.g., with district heating networks, to protect their business models;
- Legal frameworks in some countries, such as <u>Austria</u>, still oblige DSOs to connect consumers to the grid if requested.

These factors reduce the ability by local authorities to align the planning and development of energy infrastructures and heating systems with their local climate-neutrality ambitions, which make them difficult to meet for the building sector.



GREEN GASES AND HYDROGEN FOR HEATING IS A COSTLY DISTRACTION

Repurposing existing gas networks to hydrogen and renewable gases is often used to legitimise new investment in the gas infrastructure (Kemfert et al. 2022), and a commonly advocated method to manage risks associated with stranded assets. Gas networks are already today fed by a small share of biomethane⁴ and could theoretically be repurposed to carry hydrogen. A sustainable production of biomethane is however unthinkable to reach a scale anywhere near current fossil gas consumption in buildings. Given scalability and resource constraints, their usage should be strictly limited to sectors where decarbonised alternatives are most difficult to implement⁵. Furthermore, a 2023 study by Agora Energiewende on a structural transition pathway away from fossil gas by 2050 suggests that the targets of 35 billion cubic meters of biomethane and 20 million tons of renewable hydrogen in 2030 set by the European Commission in its **REPowerEU** plan are most likely greatly exaggerated compared to the future needs.

Recent estimates by the IEA (2023) project nearly inexistent future utilisation rates of green gases to heating buildings. A <u>meta-review of 54 studies</u> <u>on hydrogen heating</u> concludes that hydrogen for heating, which consumes around five times the energy resources of an air-source heat pump, is a highly inefficient end-use application. Hydrogen for heating has significant and excessive costs for energy systems and end-consumers and will not play any major role in the decarbonisation of buildings. Gas infrastructures could theoretically be repurposed to carry hydrogen and may appear as a desirable option for TSOs and DSOs to recover stranded assets, as operational costs are similar. Repurposing gas infrastructures to carry hydrogen has however not yet been tested on a commercial scale as it comes with several challenges and technical and safety concerns. A hydrogen network with repurposed segments would nevertheless supply a substantially smaller number of end-users than today's gas infrastructure, and importantly not the building sector. A cost- and resourceefficient transition will imply substantially smaller future gas networks with a different spatial distribution than today. The hope that renewable gases would supply the same customer base and households as today is no more than a deceiving, costly, and alarming distraction.

Several cities, including the ones from the EU-funded Decarb City Pipes 2050 project, asked throughout 2023 for *legislative and technological clarity* at national and European levels. They objected to a technological neutrality approach, often advocated in EU policymaking circles which at this point appears blind to the scalability constraints, carbon externalities and system redundancies of certain technologies and systems. Cities instead requested a shared consensus at national and EU levels to ensure that hydrogen and green gases are not used for space heating but optimised to bring added value to a decarbonised economy. They also asked for policy and regulatory frameworks to effectively decarbonise their heating systems.

⁴ About 4.6 billion cubic metres (bcm) was produced in the EU in 2022, of which 22% (0.99 bcm) was used for heating in buildings, according to *biomethane industry figures*. This represents a biomethane share of around 0.5% of the total gas consumption of buildings in the EU, which reached 193 bcm in 2022.

⁵ An harmonized definition of appropriate hydrogen use across sectors has hitherto not been provided, but the <u>Clean Hydrogen Ladder</u> concept, developed by Liebreich, M and Hiel, A, provides a useful indication

PART 2: BUILDING LEGISLATIVE AND GOVERNANCE FRAMEWORKS CAPABLE OF DOWNSIZING THE GAS INFRASTRUCTURE AND REDUCING THE RISK OF STRANDED ASSETS

New frameworks must be both capable of mitigating and managing risks related to the stranding of assets and spiralling costs for end-consumers and ensuring a rapid and fair gas phase out. New depreciation policies and pricing methodologies will be needed, alongside changing public investment patterns and a reshuffle of mandates and competences on energy infrastructure planning. This will have implications for existing TSO and DSO business models. Stronger mandates and responsibilities for public and local authorities will in turn necessitate solid support frameworks and sustained investment in their capacities. The transposition of recently or soon to be adopted EU directives to national legislative and governance framework offers a unique opportunity for Member States to build regulatory frameworks that give local governments the regulatory means they need to act on heat swiftly and responsibly. This concerns in particular provisions in the revised *Energy Efficiency Directive (EED)*, and provisionally agreed *Energy Performance of Buildings Directive (EPBD)*, and *Hydrogen and Decarbonised Gas Market Package (Gas Package)*.

KEY ACTIONS TO SPEED UP THE NATURAL GAS PHASE-OUT ARE:

1. INCENTIVISE AND MANDATE OPERATORS TO DOWNSIZE AND ADAPT GRIDS FOR A LOWER DEMAND

- i. Remove legislative barriers to downsize gas grids. This includes a removal of the legal obligation to connect new buildings to gas networks, and the possibility to disconnect consumers from the grid to achieve climate objectives – alongside with proper consumers' protection measures (information, transparency, affordable clean alternatives, technical and financial support, etc.).
- ii. Incentivise DSOs to ensure that new investments in gas assets are justified by safety reasons and climate objectives

or enable decommissioning. To avoid new investments with a risk of stranding, it could be decided that these kinds of investments could not be passed on to end consumers' tariffs. Such regulatory evolutions proposed by BRUGEL, the Brussels Region Energy Regulator, in a recent *study* can mitigate risks of stranding, optimise utilisation of existing assets, and ensure a fair remuneration to gas operators. iii.Improve transparency. The need of improvement of transparency requirements in the planning by DSOs was emphasised by ACER in a recent study. It stresses the need to make information and assessments on the current and expected utilisation rates of networks publicly available, including identified risks of stranded assets. The study also requests technical assessments on decommissioning and repurposing of network segments undertaken by DSOs. Making these assessments and providing these data would greatly facilitate a well-informed decision-making on the decommissioning of gas networks at different levels of government, and the drafting of sufficiently-detailed local heating and cooling plans and other strategic public planning documents.

2. COORDINATE THE DECOMMISSIONING OF FOSSIL-FUEL BOILERS AND GAS GRIDS THROUGH LOCAL HEAT PLANS

i. Reinforce capabilities of local authorities to perform heat planning. The newly adopted Energy Efficiency Directive obliges Member States to ensure that local authorities with over 45 000 inhabitants develop local heating and cooling plans. These plans, which are based on solid assessments of present and future heating and cooling needs and available renewable and waste heat sources, can be critical instruments for developing local, clean, and affordable heating solutions and guiding households and customers.

A recent *mapping* developed by Energy Cities has revealed a significant gap in readiness for local heating and cooling planning among Member States. Some of them, especially in the Nordic countries, have extensive experience with frameworks for local heat planning in place for decades. These frameworks, historically created for energy security objectives in the wake of the 1973 oil crisis, have facilitated the built out of extensive district heating systems and the development of local authorities' capacities to plan and manage energy systems. Other countries with a high gas dependency, such as Netherlands, have recently followed suit to accelerate decarbonisation efforts. Meanwhile about half of EU member states. mainly in Southern, Central and Eastern Europe, have no regulatory framework in place for local heating and cooling planning and very limited support for local authorities. The required support includes technical and organisational expertise, financial means, better access to data and additional human resources.

ii. Set bans of fossil-fuel heating appliances with clear timeframes both in new and existing buildings. Such bans may be implemented nationally, regionally, or at least locally. The new EPBD, soon to be formally adopted and enter into force, will most likely require an end of fossil fuels in heating and cooling in buildings by 2040. Appliance requirements, building codes and planning frameworks must be fit for the purpose of a rapid phase-out. **Giving a legal** mandate to local authorities to ban fossil-fuel boilers based on their local heating and cooling plans would ensure the coordination of the phase out of fossil-based solutions and the development of clean alternatives. District-oriented decarbonisation strategies defined in local heating and cooling plans can leverage benefits of scale while giving local authorities, citizens, investors and stakeholders enough visibility and time to identify, plan and deploy fossil-free alternatives.

iii.Enforce the legal compliance of gas network development plans with local heating and cooling decarbonisation plans. Ensuring alignment and compliancy with local heating and cooling planning in legal provisions should be a key objective by national regulators throughout the transposition process of the EU EED and the Gas Package. The revised directive on the internal markets for renewable and natural gases and for hydrogen will require that gas network plans at distribution level shall be based on the local heating and cooling plans and consistent with National Energy and Climate Plans. It should avoid the continuous expansion of gas grids while local authorities implement decarbonisation strategies. They should have a legal mandate to use their local heating and cooling plans to determine areas and timelines for gas decommissioning. This would optimise and speed up the decommissioning process, and make public authorities better equipped to deal proactively with risks of gas stranded assets. \odot



3. MANAGE AND DISTRIBUTE THE COSTS OF STRANDING FAIRLY WHILE ENSURING SOCIAL SECURITY

Most Member States lack legislation dealing with the stranding of gas assets (ACER, 2022). Under current regulatory conditions, network users (households and other customers) would carry the costs of recovering stranded assets. This would lead to significant price increases and sometimes a double payment by households who already paid a risk premium to gas operators via current tariffs. While price increase could disincentivise new users to connect to these networks, it would have serious consequences for customers still connected and contradict any objectives of a just transition. Regulation should both ensure that the risk of stranding is mitigated in the first place through transparent and detailed planning and targeted decommissioning policies, and that remaining costs of stranded

assets are distributed fairly between DSOs, governments and customers. Regulation could improve the conditions for cost recovery for grid operators by adjusting depreciation periods or rates of legitimate investments, or to cover some of the costs of decommissioning networks. To reduce the costs of the gas phase out, the decommissioning of the networks (i.e. end of their use in safe conditions) could be prioritised compared to the dismantling (i.e. physical removal from the ground). Government subsidies to households still connected during a phase-out period would also be needed to cushion the social impact of price spikes. It will be particularly important to ensure this social security for low-income households.

PART 3: LOCAL AUTHORITIES AT THE FOREFRONT OF THE TRANSITION AWAY FROM GAS

Despite the shortcomings of current legal frameworks, local authorities have several instruments they can already use to take proactive action on their gas phase-out. These instruments could be adapted and scaled-up following regulatory changes, enhanced access to targeted funding, and other enabling conditions for gas decommissioning, energy efficiency improvements and a rapid deployment of renewable heat sources. Examples of such instruments used by *Munich* and other cities include:

- Improved enforcement and oversight of national (or in some countries state or provincial) laws related to the management of assets, energy efficiency, decarbonisation, and buildings.
- Streamlining planning and permitting. Local authorities in Member States often have certain spatial planning competences which can be streamlined and adapted to enforce some dimensions of the heating transition. Combining local heating and cooling planning and other spatial planning and development documents can be highly effective to enhance efficiency, accommodate waste-heat and renewable sources, and strengthen grids, flexibility, and demand response mechanisms.

- Provisions on heating supply and/or building standards in spatial planning documents, development contracts, and procurement processes.
- Development and investment in renewable energy production and waste heat recovery projects.
- Information and citizen engagement campaigns on energy savings, clean heating and cooling solutions, district decarbonisation plans, and energy communities.
- Complementary funding or favourable loans to support households (low-income ones in particular) with gas boilers to switch to renewable alternatives, combined with support to insulate.
- Pooling of resources and coordination with other local authorities to facilitate the preparation of heat plans and formulation of policies that accelerate decarbonisation efforts. Pooling can make it easier accessing national and EU funding, help reaping benefits of economies of scale and improving the coordination and optimisation of energy infrastructure planning and gas network decommissioning in the wider region.

Partner cities of the *Decarb City Pipes 2050* project consider **district heating (especially in dense urban areas) and heat pumps (in less dense areas) as the two main decarbonisation solutions of the building sector** on their territories. To support their deployments, they call national and EU legislators to: Setup economic incentives (prices, taxes) and subsidies for fossil-free alternatives, which are sustained and foreseeable beyond election terms

Remove legal barriers to tap into local renewable heat sources and facilitate district heating built out.



CONCLUSION

The risk of gas stranded assets and increases of gas distribution prices are already tangible, and local authorities have a clear interest to deal with them and encourage other policy makers and grid operators to address them by minimising their likelihoods and impacts. They are consequences of decarbonisation strategies but should not be the reasons to favour the status quo which would be much more harmful. Gas infrastructure, as a legacy of the fossil energy system, should be downsized to achieve decarbonisation and improve resiliency. Waiting and counting on the development of green gases and hydrogen would only delay the development of ready-to-implement clean heating solutions in the built environment and increase the overall inefficiency of the energy system.

To achieve this adaptation of gas infrastructure, it is urgent to halt new investments, redirect them to energy efficiency and fossil-free alternatives, and accelerate decommissioning. Increased oversight, stringent planning and regulation and serious consideration by public authorities are needed to provide guidance and certainties in this process. Local authorities hold a huge potential to bring tangible, transformative and just change on decarbonisation and climate-resiliency, if equipped with the adequate legal frameworks. They can be the coordinator of place-based decarbonisation strategies, but they urgently need the legal mandate to enforce the ban of (fossil-fuel) boilers and the decommissioning of fossil infrastructures. Empowering local authorities to develop alternatives and ban fossil fuels has been successful in Denmark to phase out oil in the built environment in the last decades. The same can be achieved with natural gas in the next years.

Concerted action across all levels of government, funding and technical support will be needed to ensure that local authorities have the capacities⁶ they need to effectively prepare and implement local decarbonisation strategies. Investing in their capacities to do so is a future-proofing investment and can be a game changer. The transposition of the EED, EPBD and Gas Package to national frameworks offers a unique opportunity for Member states to design and build these frameworks.

Ultimately, the decommissioning and replacement of gas networks with decarbonised and efficient alternatives must be perceived as future-proof investments indispensable for countering disastrously high costs of maintaining the status quo. Stefan Fritschi, city councillor from the Swiss City of Winterthur which is already *well on its way* to decommission its gas network, has one piece of advice for other local authorities: *"Start quickly. The more time you have, the easier and cheaper it will be".*

⁶ A study by Energy Cities (2022) identified a huge shortage of dedicated staff resources in local authorities across the EU as a massive bottleneck to efforts to decarbonise buildings.



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