AFFORDABLE AND CLEAN HEATING FOR ALL

A guide to practical solutions and policy actions

FEANTSA European Federation of National Organisations Working with the Homeless

Photo: Bence Járdány

The clean, affordable heating gap in Europe

Across Europe, the energy crisis triggered by Russia's invasion of Ukraine in early 2022 is driving millions of people into desperate situations. The fact that the vast majority of dwellings are old and fall far short of current energy efficiency standards means that many homes require large amounts of energy for heating (Figure 1). In turn, this often means needing to dedicate a high share of disposable income to energy costs. Or, to undesirable compromises, such as homes being underheated in winter or heavy reliance on low-quality fuels (including the burning of waste materials).

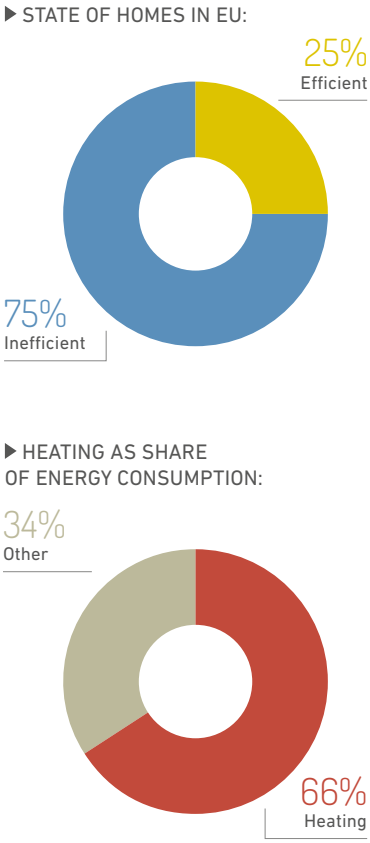
The crisis has drawn political attention to the growing number of households suffering the economic and social impacts of energy vulnerability and accelerated efforts to achieve a 'just, clean energy transition'. In reality, the situation is chronic – and in some contexts, severe. New and revised EU policies and directives reflect the need to massively transform and decarbonise heating in the residential sector. To date, however, they fail to recognise the need for diverse solutions across different contexts. The principle of 'leaving no one behind' in the EU's clean energy transition creates an 'historic opportunity' to address injustices that result from past policy approaches. While the vision is clear, the mission is complex. Efforts to reduce unfair burdens linked to heating must take account of many factors across five main areas:

- **Available energy sources for home heating**
- **Technical aspects of dwellings, heating systems and energy infrastructure**
- **Social and cultural norms linked to home heating practices**
- **Capacity of households to invest in renovation and acquire subsidies**
- **Broader injustices and challenges impacting the most vulnerable households**

As reflected in the following pages, prioritising the most vulnerable households requires recognition *of all of their needs*, including that use of biomass and coal for heating is overrepresented among this segment of the population.

Figure 1.

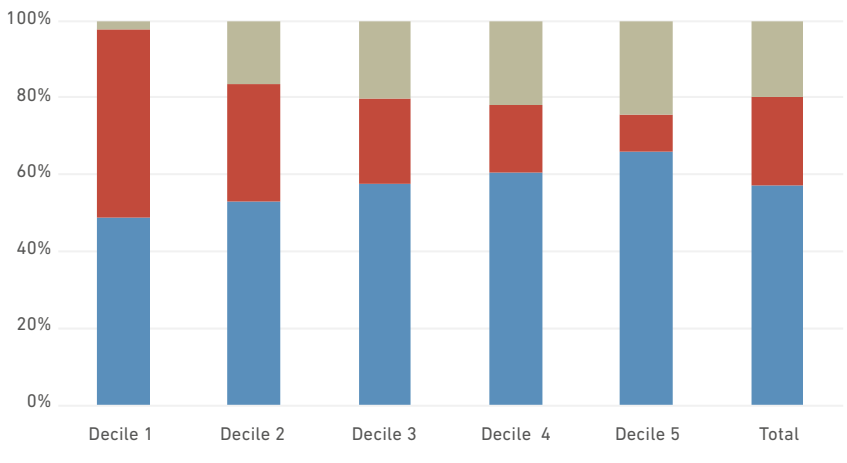
Quality of EU homes and heating as share of energy consumption, 2022



Source: EU Building Stock Observatory. https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/eu-building-stock-observatory_en

Figure 2.

Main heating sources by income decile, Hungary, 2022



Source: Hungarian Central Statistical Office. https://www.ksh.hu/stadat_files/jov/en/jov0057.html

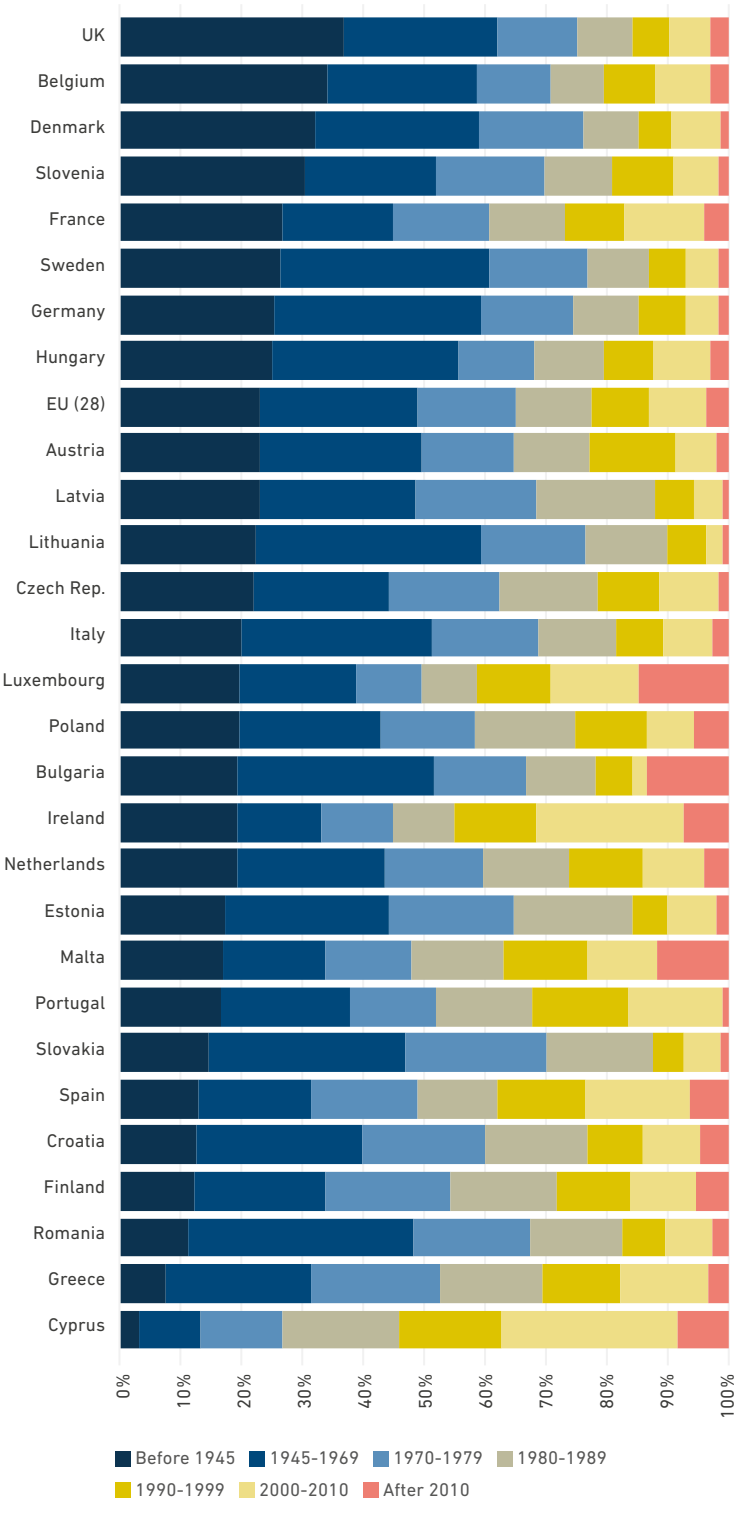
Old houses mean high heating energy demand, particularly in cold regions

Most residential buildings in the EU were built before energy efficiency standards were introduced in the 1970s, in response to the oil crises triggered by war and political turmoil in the Middle East. Across the EU, 23% of homes were constructed before 1945 and 26% between 1945 and 1969; only 23% have been built since 1990 (according to 2014 figures).[1]

Not surprisingly, the lowest-income families often live in the least efficient dwellings. A study of 80 000 homes in 11 EU countries carried out between December 2019 and January 2020 found that when outdoor temperatures hovered at 0°C, the average home in the UK heated to 20°C experienced a heat loss of 3°C in just five hours.[2] While the study did not include homes in Central and Eastern European (CEE) countries, lack of both insulation and central heating coupled with colder outdoor temperatures are likely to result in even higher heat loss. The study also showed that it is common for people in older homes to have heating bills twice as high as those in newer homes of similar size. In England, for example, annual heating costs of older homes averaged €1 028 compared to just €463 for newer ones.

Many homes, particularly in CEE countries, completely lack central heating and rely exclusively on masonry or metal room heaters, or a single point of gas heat. In winter, residents may reduce their living space to heated rooms or use electric heaters to warm rooms that remain cold. Where central heating has been installed, boilers and systems are often old and inefficient, driving up heating costs.

Figure 3.
Residential buildings by construction year (to 2014)



Source: EU Buildings Database.

1. https://www.euronews.com/green/2022/12/09/europes-energy-crisis-in-data-which-countries-have-the-best-and-worst-insulated-homes

Figure 4.

How energy expenditures and income influence domestic energy poverty

▶ ACTUAL ENERGY EXPENDITURES AND % OF HOUSEHOLD BUDGET SPENT ON ENERGY BILLS (2014)

Annual home energy expenses in the EU range from €216 in Bulgaria to €2 315 in Denmark. But the figure that matters most in relation to affordability is what share of total household expenses energy represents. Consider just six cases which demonstrate that home energy costs account for vastly different shares of household budgets, while also reflecting the link to a wide spread in income levels across the EU.

Note: Shading represents the lowest to highest actual costs while the size of the circle reflects % of houshold budget.

Source: ENER. SWD Energy Prices and Cost, 2018.

Photo: Paul Madsen

Wide-scale renovation: easier proposed than implemented

Over the past two decades, EU policy has placed increasingly ambitious obligations on Member States to improve the housing stock. Experience to date shows low uptake, particularly among low-income households, of even generous subsidy schemes for deep energy renovation. A sampling of barriers shows how 'pain points' intersect for households and the renovation sector, often as a result of ineffective policy.

'Pain points' across the renovation chain

Households	Renovation sector	Policy
• Distrust of governments and schemes • Lack of funds to meet up-front contributions • Difficulty completing complex processes to acquire subsidies • Low understanding of technical language • Interior insulation may reduce floor area and home value • Disruption to daily life	• Unique nature of each house requires customised approaches • Need to devote substantial time to engaging with occupants • Challenge of staying on top of changing policies • Shortage of skilled craftsmen • Time lag in pay-out from government schemes creates cashflow challenges	• Tendency to support least-cost actions across the greatest number of households • Resistance to the high costs of holistic approaches • Bureaucratic processes discourage the most vulnerable from applying

When governments seek to spread available resources across the greatest number of households, they often provide subsidies for one aspect of what should be an integrated solution. Upgrading boilers or installing heat pumps, for example, is relatively low cost and causes minimal disruption. Despite this, in an inefficient house, it may not deliver substantial cost savings or could even increase costs. Additionally, if other measures are taken later, such as installing insulation or new windows, the upgraded heating system may become 'over-sized' for reduced energy need.

The concept of 'renovation passports' can be extremely helpful. These documents establish a strategy for effective renovation of a given home, assign a budget and mark progress. Examples in France, Germany and Belgium show how these user-friendly roadmaps can gather all pertinent information – including a strategic plan, snapshots of progress, and potential access to financing – in one place. If ownership of the property changes, the passport stays with it, clearly identifying what has been done and what work remains (at what cost).

THE PARTICULAR CHALLENGE OF 'PROTECTED' BUILDINGS

Another challenge specific to parts of the EU is a high share of buildings – including some individual homes – that are 'protected' in relation to cultural heritage, ranging from architectural aspects to traditional building materials or techniques. While successive versions of the EU Buildings Performance Directive (EPBD) have exempted 'listed' buildings from renovation obligations, they fall short of addressing an underlying dilemma.

In France, for example, only 0.12% of buildings are officially listed – a figure far short of how many are of important heritage.[2] Listing ALL such buildings, however, could create additional headaches for owners. Even now, legislation designed to protect the historical elements may severely constrain what structural interventions can be undertaken. If the only option is to install interior insulation, this may create the unsatisfactory outcome of greater thermal comfort but reduced home value due to lost area space. For very old dwellings, it may be necessary to complete a full structural audit to determine whether the building can support extensive works.

2. https://www.euractiv.com/section/energy/news/heritage-advocates-vigilant-over-revised-eu-buildings-directive/

Case study:

Pushed to the margins, caught in the nexus

Baks, Hungary

The village of Baks, Hungary, is a microcosm of current energy and social policies across Central and Eastern Europe (CEE) that exclude and disadvantage Roma communities.

Some 80% of homes were built before the 1980s and nearly half are traditional adobe (mud brick) construction. Many do not have bathrooms or sewage connections, and almost all have no access to the internet. Often, ownership is unclear, making it difficult to secure energy services or to access available assistance.

AT A GLANCE:

Baks, Hungary

50%	Houses made of adobe (mud brick)
22%	Use of oil in heating
22%	Use of wood in heating
24.4%	Rate of energy poverty

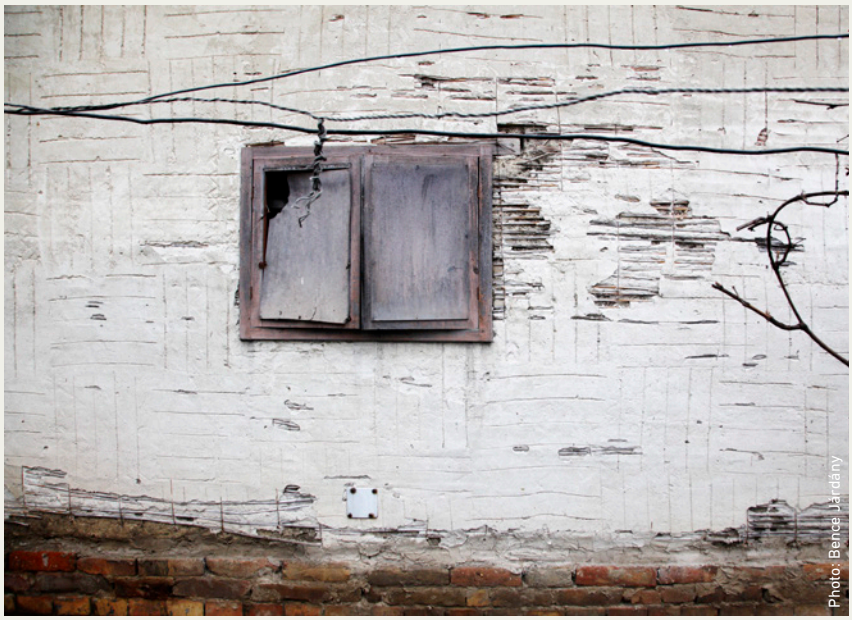


Photo: Bence Jardány

Many homes in the Roma community were built with adobe that is degrading after many years.

Overcrowded living in some of the worst quality housing on the continent is endemic in Roma communities. In some places, past socialist regimes built sub-standard dwellings for these groups. When new governments came into power and made state aid available for upgrades, many disreputable contractors seized the opportunity to realise handsome profits while doing minimal work. Often, they disappeared before works were completed. In other places, haphazard construction using scavenged materials is still common.

Both situations mean that homes offer little protection against bad weather. Exposed wires from illegal connections and old, inefficient heaters make energy use highly dangerous. In turn, the combination drives up energy demand and energy bills.

Unlike many Roma communities who experience disturbing levels of racism and discrimination, residents of Baks are generally well-accepted and have support of local authorities and civil society organisations (CSOs). Policy makers and energy companies boast, in fact, that recent installation of pre-payment meters will help end long-term disconnections. They overlook, however, the 'self-disconnection' likely to occur as money runs out towards the end of every month – which is the case for almost one-third of residents. Also, there are challenges related to debt management for reconnection.

While some effort is underway to install alternative heating options, critics point out that they fall short of tapping into available resources such as local geothermal and hydropower generation for clean, affordable electricity. Since 2014, the Lightbringers Foundation has been collaborating with Roma Versitas (a CSO), local authorities, various NGOs and university/research centres to install small-scale solar for lighting and household devices. The project also aims to build knowledge and skills of local citizens.

Heating in the EU: overview of fuels and systems

To decarbonise heating sources, the EU has three major lines of attack: 1) phase out use of coal and gas in the longer term; 2) increase the use of renewables, which includes biomass sources such as firewood and wood pellets; and 3) replace dirty fuels (such as heating oil) with natural gas (see The challenge of getting off natural gas). The scale of this ambition must be understood. And the inherent paradox of the future of gas must be addressed.

At present, 6 of 27 EU Member States source more than 50% of the energy needed for home heating from renewable energies – which may include large shares of firewood and other biomass.[3] In CEE countries, primary solid fuels (e.g. firewood) represent almost 100% of renewable energy used in home heating and 20-45% of final energy use in households. In Hungary, biomass fuels make up 85% renewable energy production and account for one-third of overall final energy use for heating. In fact, use of wood has almost doubled in the past 20 years, increasing from 16% in 2000 to 29% in 2020.[4]

However, national statistics mask critical details. In Hungary, among the 20% of the population with the lowest incomes, some 40% of households rely exclusively on biomass for heating. By comparison, among households with the highest incomes, only 2.6% use wood or solid fuels – likely by choice, not out of necessity.[5]

3. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_consumption_in_households#Energy_consumption_in_households_by_type_of_end-use
4. www.odyssee-mure.eu/publications/efficiency-by-sector/households/heating-energy-consumption-by-energy-sources.html
5. https://www.ksh.hu/stadat_files/jov/en/jov0057.html

THE CHALLENGE OF GETTING OFF NATURAL GAS

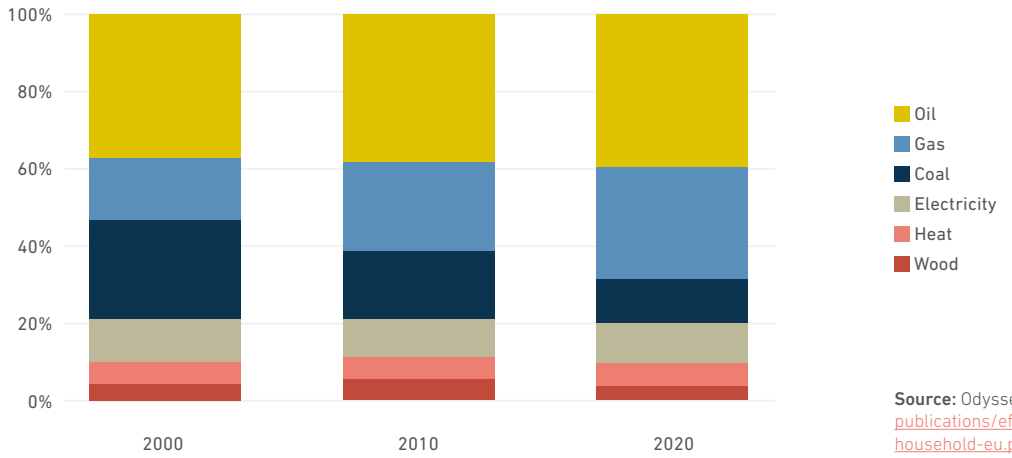
Since the very first efforts to increase the share of renewables in EU energy systems, the future of natural gas has been a subject of heated debate. Initially hailed as a 'cleaner, transition fuel', its ability to halve emissions linked to the use of coal and heating oil were seen as a short-term win.

As climate change began accelerating, environmental groups pushed for a complete phase-out by 2050 and a ban on installation of gas boilers in new buildings by 2025. But push-back from Member States prompted the EU to agree to a 'gradual' approach. As noted in Figure 6, despite calls to reduce use of gas, its share of 40% of heating energy has been unchanged over the past two decades.

Looking ahead, new elements enter the picture. To reach global carbon neutrality by mid-century, the International Energy Agency (IEA) recently made the bold call for a complete ban on gas boilers. Yet the Agency also recognises the potential for producing emissions-free hydrogen gas through 'electricity-to-X' processes. While these technologies are not yet technically proven or economically feasible, if successful they could make use of existing gas networks and boilers. In which case, shutting off the pipelines and removing or banning in-building equipment may be a short-sighted decision.

In short, when it comes to natural gas and home heating, there are no easy solutions.

Figure 5.
EU household heating energy consumption by source, 2022



Source: Odyssee Mure. www.odyssee-mure.eu/publications/efficiency-by-sector/households/household-eu.pdf

Why people use firewood for home heating

As noted elsewhere in this briefing, in certain communities – particularly those with low incomes – a large share of the population continues to rely exclusively on firewood for heating. In some cases, few alternatives are available; in others, firewood offers benefits that have economic, social or cultural value.

- **Ease of availability and use:** For communities in rural areas, firewood is literally 'right outside'. Despite involving heavy manual labour, it can (within local regulations) be collected independently and as needed.
- **Low cost, unlinked to volatile energy markets:** Until the recent energy crisis, energy market volatility had little effect on firewood prices (see text box below).
- **Protection from large energy suppliers:** Firewood avoids the risk of excessive penalties or even disconnection in the case of late or unpaid bills.

Elements of firewood use as a cultural practice to cope with energy poverty	Socio-cultural norm	Subsistence	System detachment
Firewood has both positive (+) and negative (-) features in relation to coping with energy poverty.	Flexibility (+)	Semi-comfort (+-)	Financial priorities (-)
	Security of supply (+)	Labor and time intensiveness (-)	Self-reliance (+)
	Affordability (+)	Physical health impacts (-)	Dependence (-)
	Stability (+)	Air pollution (-)	
	Control (+)		
	Access (+)		

Source: Stojilovska *et al* 2023, https://www.researchgate.net/publication/368890955_As_essential_as_bread_Fuelwood_use_as_a_cultural_practice_to_cope_with_energy_poverty_in_Europe

Several vulnerabilities should be noted, however. On a personal level, users of firewood are exposed to much higher levels of indoor and outdoor pollution, with negative health impacts such as chronic respiratory problems. As people age or fall into poor health, they may find it impossible to manage wood and thus become dependent on external support for buying and processing it, and even for keeping their stoves burning 24/7. Working with wood might also lead to serious injuries, for example while sawing or adding logs to the fire.

High use of firewood also creates political vulnerabilities. Governments and energy regulators typically do not closely monitor or control prices of firewood and coal or take action when these markets become volatile. As such, users have no recourse through vulnerable consumer protection measures that are built into gas and electricity markets. Additionally, the health problems linked to air pollution can severely reduce people's ability to remain socially and economically active and can lead to high costs for healthcare systems.

SOARING DEMAND DRIVES UP PRICES OF FIREWOOD AND BIOMASS

In the past, a large share of firewood used in the EU came from Russia and Belarus or from Eastern Europe.[6] Importing from the first two is now illegal, and supply is extremely difficult to transport out of Ukraine. A current price spike is linked both directly and indirectly. First, with prices for gas and electric heat high, more people are turning to firewood. Second, high demand meets tighter supply.

In short, supply has become constrained precisely as demand has increased due to high costs for other heating energy. In Bulgaria, where around half of households use firewood, the price of one cubic metre (m^3) has almost tripled, from €40-50 in 2021 to around €100-150, depending on the region. Similarly, pellet prices have multiplied by around 2.5 times in countries such as Germany and Belgium.[7]

6. www.woodfuelmarket.com/post/2022-wood-fuel-price-increase
7. www.euractiv.com/section/energy-environment/news/firewood-prices-shortages-spell-cold-winter-for-europes-poorest/

Case study:

Aging solid fuel systems are ill-matched to modern energy aims

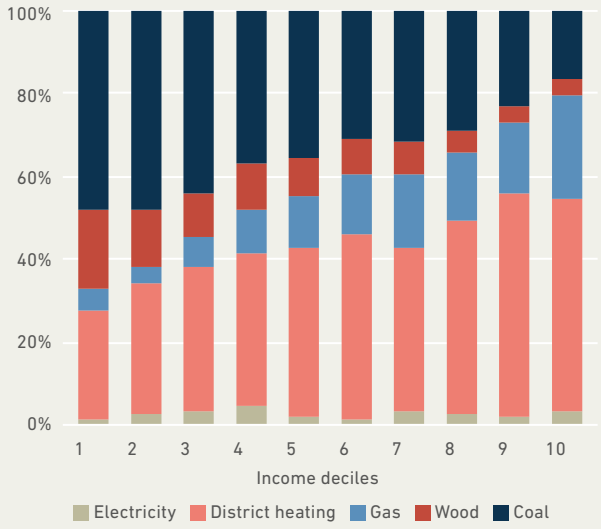
Poland

Every third house in Poland uses coal or firewood for heating. Until 2022, both were the cheapest options.

But 75% of coal was imported from Russia and is no longer available while skyrocketing demand has pushed up firewood prices. Even though the government has supported the phase-out of coal since 2018 (through the Clean Air Priority Programme), to ease financial pressures in 2022, it offered a one-time subsidy of €700 for homes using coal.

Figure 6.

Consumption of fuels for home heating by income decile in Poland, 2018



Source: Distributional Effects of Carbon Pricing in Poland (https://ibs.org.pl/wp-content/uploads/2023/05/IBS_RR_02_2023_EN.pdf)

Photo: iStock/Irina Stevenson

Solid fuel heating is often over-represented in the worst-performing buildings and associated with the use of obsolete and inefficient boilers and stoves.

As in all EU countries, particular pockets of citizens face additional heating challenges. A small rural settlement in the north is home to about 260 people, most of whom work in sawmills, agriculture or, increasingly, in providing care for a growing number of pensioners. The community is matriarchal, with women holding the position of 'village nanny' (head). Having lived for decades in difficult circumstances under socialist regimes, community members are largely passive. Most earn a living through a local 'grey' economy, accepting cash for informal work.

The entire community lives in 16 buildings of two types – either post-German family buildings with tiled stoves (wood or pellets) or post-state collective farming blocks with coal stoves. Many built their own 'boiler rooms' by simply placing a metal water tank over a separate firepit. More recently, some also started using bottled gas.

The fall of socialism (in 1989) delivered an unexpected blow to such communities, many of which are surrounded by forests and lakes. The past practice of being able to collect, cut and transport firewood for free disappeared. Now, as people age and their incomes decline, levels of energy vulnerability have increased sharply.

In effect, there is no clean heating in this particular settlement and dirty sources have become unaffordable. A nearby power plant produces biogas for electricity generation, but the district heating element of its original plan has never been executed. Similarly, there has been talk of schemes to renovate buildings or to install small renewable (solar) systems. But local electricity infrastructure would need to be upgraded to absorb additional supply – a long and costly undertaking for such a small community.

Case study:

High heating costs can make rural living lose its charm

Central France

In Central France, the supra-municipalities of Grand Chambord and Beauce Val de Loire are home to some 40 000 people. Recognising the need to optimise limited resources, local authorities agreed to cooperate on areas such as urban planning, ecology and housing public services.

Many homes in the region – including the Chambord Chateau – are old and cold: most are heated with a combination of firewood (15-22%) and heating oil (22-23%). With an elderly population, high levels of energy poverty (estimated at 21.4% in Grand Chambord and 24.4% in Beauce Val de Loire) are a legitimate concern for negative health impacts and even excess winter deaths.

AT A GLANCE:

Grand Chambord/ Beauce Val de Loire

15-22% Use of oil in heating

23-22% Use of wood in heating

21.4-24.4% Rate of energy poverty

Photo: La Maison de l'Habitat

Traditional construction of farmhouses in rural areas of Central France.

To enhance the attractiveness of the region and stem potential population decline, authorities saw the need to improve the building stock. In setting up *La Maison de l'Habitat* (the House of the Home), they sought to create a one-stop shop with a dual mission. The centre would support housing research while providing a full range of services to citizens – from explaining legal aspects of home ownership to offering advice on renovations or schemes available to improve the thermal comfort or needs of the elderly. The service operates out of six locations across the region, assisting people who come individually or hosting public events and communications campaigns. It also collaborates closely with local, regional and national services.

Through its *Opération Programmée de l'Amelioration de l'Habitat* and *Plateforme Territorial de la Renovation Energétique*, the service has a strong focus on lifting people out of unsanitary conditions or situations of energy poverty. In the latter case, *La Maison* provides free support for homeowners who wish to install insulation, add renewable sources (e.g. rooftop solar panels) or upgrade heating systems (e.g. to heat pumps). It also helps them apply for funding and connect with qualified professionals.

An important consideration is that many of these homes have exterior features – thatched roofs or walls made of traditional materials – of historical significance that can limit interventions. While the possibility to add insulation indoors exists, it may lead to reduced floor space and lower the value of the home.

Technology options for home and heating

Heating needs and house condition are deeply interlinked. Almost half of EU homes were built before energy efficiency standards were put in place and successively strengthened. For decades, because of insufficient insulation, they have let cold air in and warm air leak out through roofs, floors, windows and walls. Residential heating in the EU accounts for 18% of total energy demand.

Calls to act quickly to improve thermal comfort and reduce energy costs often overlook the dilemma of executing quick fixes versus solving root problems. Upgrading or changing a heating system is relatively low cost: typically, €2 000 to €5 000 per home. Such quick wins may, however, carry important costs in relation to longer term, more universal aims of promoting energy efficiency and reducing greenhouse gas emissions. A 'leaky house' will always require more heating energy than is technically necessary. This tips the balance in favour of doing the more difficult – and expensive – work of upgrading the whole home first in order to then 'right-size' the heating system.

As noted above, each dwelling must be looked at holistically, including its access to energy sources. Before installing a heat pump, for example, it is critical to first ensure that buildings are insulated and that local electricity supply is sufficient and affordable for heat pump operation. In rural areas, this may come down to a question of whether enough rooftop solar panels can be installed to support adequate self-generation. The following pages highlight some of the pros and cons associated with various options.

Photo: iStock/Klubovy

Replacing old, inefficient boilers

At present, an estimated 86 million residential boilers using fossil fuel play a very large role in keeping EU citizens warm in winter. Across all boiler types in the EU, more than 50% having an energy label ranking of C or lower, meaning they consume a lot of energy to deliver thermal comfort.

To date, 11 Member States have announced or executed some form of boiler ban, using financial incentives as a 'carrot' for households and emission reduction targets as political 'sticks'.[8] The easy win is to prohibit their installation in new homes or their replacement in existing homes. But as boilers have a lifespan of 15-20 years, millions will remain in use into the mid-2040s.

Some countries are allowing the use of 'biomass' boilers, which combust sustainably produced wood or pellets produced from waste wood or other biomass. These boilers are particularly well suited to remote regions where gas mains have not been installed and fuel oil is costly. While they offer substantially reduced emissions and lower costs, they require a lot of space – typically being 4 times the size of a gas boiler. Also, people need space to store large volumes of the biomass material and need to manage the resulting ash and soot. The typical installation cost is €5 000 to €13 000, depending on the size of the house and the boiler used.

Heat pumps

Heat pumps work on the basic principle of using a refrigerant (contained within a closed system) to capture heat available in the outdoor environment and channel it indoors. They can be either 'air-source' or 'ground-source', depending on where they draw energy from. As they burn no fuels, they have no direct emissions. In fact, replacing 30 million of the existing fossil-fuel boilers in the EU with heat pumps would cut household energy consumption by 36% and CO_2 emissions by 28%.[9]

While heat pumps do require substantial electricity to operate, the heat produced exceeds the electricity consumed. As such, the thermal comfort gain typically outweighs related electricity costs. Compared to gas boilers, heat pumps are likely slightly more expensive to operate. At present, the up-front cost of heat pumps – averaging €5 000 in Europe – is prohibitive for vulnerable households.[10]

8. www.nesta.org.uk/blog/when-it-comes-to-banning-boilers-the-uk-needs-to-catch-up/
9. https://joint-research-centre.ec.europa.eu/jrc-news-and-updates/residential-heating-heat-pumps-would-knock-down-energy-consumption-and-emissions-2023-06-21_en
10. https://joint-research-centre.ec.europa.eu/jrc-news-and-updates/residential-heating-heat-pumps-would-knock-down-energy-consumption-and-emissions-2023-06-21_en


Photo: Bence Járdány

Hybrid heating systems

Some countries, including the Netherlands, are allowing 'hybrid heat pumps', which combine a smaller heat pump with a gas boiler. The systems are designed to draw on the power source that makes the most sense at any given time – for example, relying on electricity until peak demand drives prices above the cost of gas. While less eco-friendly than switching to a heat pump, such systems do reduce emissions and can extend the lifespan of existing boilers that are likely to be used less often. The cost is typically €5 000 to €10 000.

Solar panels and solar thermal panels

Rooftop solar systems can capture and convert the Sun's energy in more than one way. Most people are familiar with the possibility to reduce electricity bills – including for heating – through 'self-generation' that reduces how much they rely on grid-sourced power to operate electric heaters or heat pumps. In some cases, this can also be a source of revenue by selling excess generation into the grid. Considering the large number of houses that remain unconnected to any electricity grid – 400 000 in Romania alone – installing even a small solar system can support lighting, use of electric appliances and electronic devices, and mobile phone charging. Importantly, it can be done quickly with little bureaucracy.

Less well-known is the use of thermal panels, which use special fluids to capture and distribute heat within a given building. While they have lower running and maintenance costs than some other options, they are weather-dependent and unsuitable as a sole source of energy supply. It is also important to verify whether they can be integrated with existing heating systems. With an installation cost of €5 000 to €7 000, it is critical to compare the pros and cons of other systems of similar price.

Not all climates and homes are well suited to solar installations, however, and their overall efficiency in converting energy remains low. Where the case for investing exists, adding battery storage is important.

Heat batteries store and release energy

Where electric heating is used, installing heat batteries can help balance both household budgets and energy systems.[11] By storing either heat itself or electricity that can be converted into heat, batteries offer 'on-demand' release of energy. A primary advantage is that they can be recharged during off-peak hours (e.g. overnight) when electricity prices are low and available supply often exceeds demand. They have the advantage of being easy to install and can work with existing heating systems and energy supply infrastructure, including self-generation from rooftop solar. At costs ranging from €3 000 to €12 000, they may be more affordable than other options. At present, they are not widely available to consumers.

11. www.ovoenergy.com/guides/top-7-eco-alternatives-to-gas-boilers

Infrared heating panels

Functioning much like traditional radiators, these systems also run on electricity but use infrared energy to distribute heat. While they are very low cost (€150 to €500 per panel), portable and take up very little space, they have a 'reach' of only about 3 m. As they do not heat the air beyond that distance, the room temperature drops rapidly once they are switched off.

Small-scale district heating

The multiple advantages of district heating – e.g. greater efficiency, lower prices and central management – are prompting many municipalities and energy suppliers to assess their viability as clean energy solutions. To date, they are predominantly used in areas with high and dense populations or in cities where they were installed under previous Soviet regimes.

As the name suggests, the heat is generated at a central location and distributed using a system of pipes to send either heat or hot water through networks that connect to household radiator systems. Many systems combust waste (including biomass waste) or use clean electricity to generate the heat, thereby eliminating emissions linked to gas boilers.[12] They can also work by capturing the heat generated at factories, data centres, etc., that would otherwise be released into the atmosphere. Another advantage is all operations and maintenance are removed from the household level.

In communities that rely on coal or firewood for heating, small-scale district heating can substantially reduce air pollution while introducing the concept of community-based energy production. Overall, however, the efficiency and cost-effectiveness advantages of district heating are more difficult to attain for home heating in smaller communities. Studies show that the production costs increase while the potential for co-generation (e.g. from waste heat) decreases. Additional work is needed to create viable technologies for small-scale systems[13] and to create favourable policy and financing frameworks.

12. https://heat.vattenfall.co.uk/fossil-free-heat/how-district-heating-works-to-decarbonise-cities

IS BIOMASS HEATING TRULY GREEN, CLEAN AND SUSTAINABLE?

Woody biomass is one of the main raw materials in the bioenergy sector, which often raises the question of whether promoting wood-based energy leads to deforestation. A recent report by the UN Food and Agriculture Organization (FAO) found that even though about 45% of forest area in the United Nations Economic Commission for Europe (UNECE) region is used primarily to produce wood and non-wood products, the forest area continues to grow steadily – as does the forest carbon stock.[14]

In fact, most of the wood used for energy production does not derive directly from trees and forests. Rather, it is made from bark, chips and particles that are by-products of other wood processing industries. Much of it is used on site to process heat, steam and/or electricity in sawmills, pulp mills or panel mills. These industries typically use lower quality trees, leaving high-value trees intact in forests.

Appropriate forest management – that prioritises preserving and enhancing their economic, social and environmental value for present and future generations – must be a pre-condition for seeking to replace fossil fuels with wood products for heating.[15] The question of whether biomass heating supports a just clean energy transition must not overlook that combustion of wood and wood-products leads to elevated levels of air pollution, including small particulate matter, both inside homes and in the surrounding environment.

Appropriate data collection and accounting mechanisms are needed across several aspects.

13. www.sciencedirect.com/science/article/abs/pii/S0306261914005261
14. https://unece.org/climate-change/press/wood-energy-rise-europe
15. https://bankwatch.org/publication/analysis-of-biomass-in-necps; https://bankwatch.org/blog/a-false-solution-to-a-real-problem; https://bankwatch.org/wp-content/uploads/2019/06/biomass3.pdf; https://rekk.hu/research-paper/64/revised-renewable-statistic

Photo: iStock/ComR78

Case study:

Coal-mining legacy deeply embedded in local culture

Katowice, Silesia, Poland

Parades, masses and parties celebrate ' Barbórka' every 4th of December across Poland, marking the feast day of St. Barbara of Nicomedia, patron saint of 'hard work and good death' – and by extension, patron saint of miners. Here, the clean energy transition threatens to result in massive job losses and kill local economies.

AT A GLANCE:

Katowice, Silesia, Poland

22% Use of oil in heating

22% Use of wood in heating

24.4% Rate of energy poverty

Photo: iStock/Sutin Yuvkrung

Residential apartment blocks in Silesia, Poland, are blackened from years of using coal for heating

With limited district heating infrastructure, individual stove heating – using coal – remains dominant. Years of high levels of air pollution have left their mark in the form of blackened bricks throughout the city. And in high rates of respiratory and lung diseases.

Current policy is confusing and often contradictory. A recent law makes it illegal to use particularly 'dirty' stove heaters and fuel sources (e.g. domestic waste). On the upside, data from the Central Register of Emissions of Buildings *(Centralna Ewidencja Emisyjności Budynków)* show that the number of dirty coal stoves in use has dropped from 800 000 in 2017 to 500 0000 in 2022. Yet carbon allowances mean coal workers pay very low prices and incentivise continued use of coal.

Also, the current framework of the Clean Air Programme prioritises replacing heating systems over energy efficiency measures, in part because many residential buildings are 'protected'. This approach does not help reduce actual energy demand or the burden of high energy bills. More problematic is that the programme typically excludes low-income households who use solid fuels, despite their high vulnerability to energy poverty.

Another positive step is that national policy now supports energy communities, but only in rural areas. This misses the opportunity to begin transitioning energy systems in towns and cities.

Going forward, actors involved in the clean energy transition would do well to build four elements for cultural transformation into their strategies:

- boost awareness of the public and personal health benefits of cleaner indoor and outdoor air;
- emphasise the employment opportunities that will open up to the skilled labour force;
- recognise the important role of the church and CSOs in shaping the social fabric of the region; and
- target children and youth, who are less attached to the past.

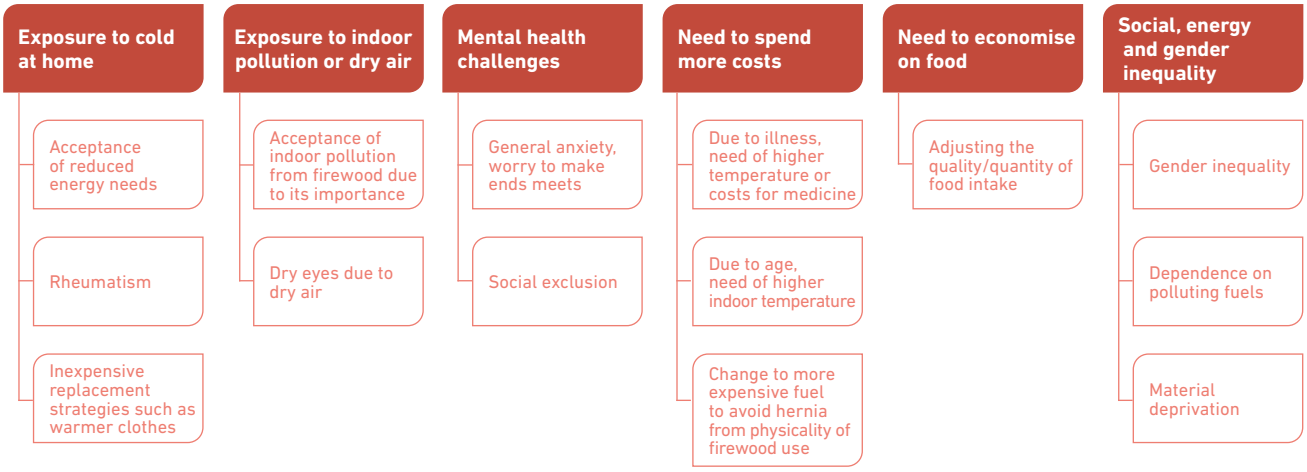
Beyond heating: a complex web of interconnected vulnerabilities

Improving thermal comfort and lowering energy costs can provide important benefits to physical and mental health for individuals and communities. But focusing on solutions for affordable, sustainable heating as a distinct challenge is a disservice to those for whom life is precarious on multiple levels.

A factor that drives up the cost of action is that approaches need to be both holistic and highly customised, implying high time and human resource intensity. While this extra cost is sometimes used as an argument for inaction, in reality it accounts for a very low percentage of the cost of physical interventions. More importantly, it is often a key factor in success. As actions prove effective in one area, critical learnings can help other actors advance more efficiently and cost-effectively. And positive experiences shared by 'word-of-mouth' can pave the way for greater uptake.

Figure 7.

The lived experience of energy vulnerable households: impacts on health and well-being



Source: Stojilovska 2021; Stojilovska *et al.* 2021, Stojilovska *et al.* 2023.

Limited finances and low access to loans or assistance

Across many EU countries, experience to date shows low uptake of available subsidies for both heating upgrades and efficiency renovations more broadly, particularly among low-income households. Known factors include the high up-front costs, ranging from €2 000 to €5 000 for heating systems to €20 000 or even more for a holistic, deep energy retrofit.

Many households in the lowest income deciles have limited or no savings. In Hungary, for example, one-third of households has no savings and another one-third has the equivalent of just three months of income.[16] Often, such households also have little or no access to public subsidies and loans. When financing is available to low-income households, it is typically under conditions that make it far more costly than what higher-income households are subject to. Also, for some solutions, despite clear potential for significant savings on energy bills, the payback period is longer than such families can cope with.

16. https://bankmonitor.hu/mediatar/cikk/mennyi-megtakaritasa-van-egy-atlagos-magyar-csaladnak/

Diversity of technical challenges, unexpected problems

Across the EU, people live in vastly different types of dwellings – from small, self-constructed cabins in rural areas to massive Soviet-style multi-family apartment blocks in major cities to beautiful rural and urban buildings of historic importance. The uniqueness of individual houses means each must be considered separately. While economies of scale can be captured in large-scale renovations, the works can take many months, disrupting hundreds of families in the process.

In many cases, initial work to assess the right balance of technical upgrades and heating solutions uncovers bigger structural challenges – e.g. cracks in foundations, walls, chimneys or roofs; sub-standard and dangerous electrical wiring; damp and mould problems in walls and ceilings – that must be added to the overall project and budget.

Skilled workers in short supply

In recent decades, education and employment programmes have encouraged young people to prepare for the digital economy, creating labour shortages in other sectors. This has also triggered 'east-to-west migration' among young Europeans looking to secure skilled positions. Meanwhile, disadvantaged youth remain excluded from quality education that would prepare them for trades and related jobs.

Already, severe shortages of qualified renovators or heat system installers are evident across Europe, leading to long wait times for works to be carried out. In this context, skilled craftspeople are more likely to take on jobs for middle or upper-income families than to involve themselves in projects that come with a great deal of bureaucracy and delayed payments. New effort is needed to attract young people to the relevant trades and to simplify processes.

Aging electricity grids unprepared for an electric future

A surprising number of houses in rural areas of Central and Eastern Europe have never been connected to the electricity grid. The same is true for connections to gas mains. Even for houses connected to grids, the potential for transitioning to electric heating raises several concerns.

Where grids do exist, a rapid, wide-scale transition to electric heating may boost demand to levels that supply is unable to meet. This can further erode fragile power lines and potentially trigger brownouts. For off-grid houses, it is necessary to calculate whether the installation of rooftop solar power can provide sufficient generation to support operation of electric radiators or heat pumps. Often, it will not. If such solar systems can generate excess power, many local grids are unlikely to be able to support its feed-in. This latter point undermines the potential for low-income homes to realise additional revenues through self-generation.

Photo: Bence Járdány

Being aware of social and cultural barriers


Photo: iStock/Goran Jakus Photography

All actors will need to consider a wide range of social barriers in efforts to achieve an inclusive shift to decarbonised heating.

Low incomes in rural areas mean energy bills typically account for a higher share of disposable incomes. While spending 10% on energy is a common indicator for energy poverty, in some situations the rate may be as high as 20% to 50%. Low opportunity for employment also triggers migration, particularly of young people, to more urban areas, causing further economic and social decline.

In turn, **aging populations** have special needs. Often, elderly people remain living in family homes that far exceed their physical needs and further drive up energy bills. Having been raised to practice self-sufficiency, the elderly may be hesitant to ask for or accept government assistance. Also, they may struggle to understand the technical information involved in changing heating systems or carrying out upgrades.

Among some cultural groups, **gender roles** also come into play. In many households that rely on firewood, women are the 'energy managers'. In fact, they are somewhat tied to the kitchen because of needing to feed the stove regularly. They may, however, have very little say in household decisions linked to spending or breaking with traditions. Even when convinced of the benefits of new information (e.g. burning dry wood instead of green wood), women who challenge the wisdom of their male elders may be frowned upon.

Being attuned to **perceptions and language** is fundamental. Energy advisors and installers can quickly identify solutions to technical problems of a given house. They may, however, speak a language that occupants simply don't understand. Also, they may lack the empathy to sense how such works to 'a house' will deeply disrupt the lives of people who live in 'that home'.

Government agencies or CSOs that make contact to describe subsidy schemes face the interlinked challenges of **bureaucracy fatigue** and a **trust deficit**. Most schemes are highly complicated to apply for and require a great deal of personal information. And many people targeted have already experienced false promises. A single mother living in a cold, damp dwelling may worry, for example, that social workers are looking for reasons to remove her children. An elderly pensioner may feel ashamed to ask for or accept help or may fear being transferred to a retirement facility.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Smoothing the way to increase uptake of schemes

More and more actors in the heat transition are committed to the principle of 'co-designing' campaigns – i.e. involving the target populations in shaping messages to ensure the content is relevant to their needs. Studies show that the additional time and resources required up front ultimately boost uptake, thereby helping achieve policy objectives.

Engaging the services (whether volunteer or, ideally, in paid roles) of trusted community leads is an effective way to connect with individuals or communities that distrust government agencies and energy suppliers. Training 'green ambassadors' can be particularly important for minority communities in which language may be a significant barrier. Making healthcare providers aware of support schemes available to patients who are chronically ill because of chronic cold can also be an important avenue.

Finally, ensuring information is easily accessible is vital and usually requires a multi-pronged approach. Low-income and rural households may have low access to digital channels (e.g. social media) and low media literacy. They may also need a more detailed level of information, presented clearly and simply. Combinations of one-stop shops and community events have proven effective, particularly if they are organised in and around activities people are already engaged with.

THE POWER OF COMMUNITY ENERGY FOR HEATING

In its Clean Energy for All Europeans package (2019), the EU recognises the value of energy communities (ECs) and offers a formal definition based on three features, including the intent to:

- develop and operate local and cooperative production and storage infrastructure for renewable energy;
- sell renewable energy to households and businesses; and
- provide energy, energy efficiency and energy poverty services.

While most ECs are based on solar PV installations, the above principles can be applied to virtually any energy source or system. A major benefit of ECs is the delivery of clean, low-cost energy over the long term. Often, they can also offer stable pricing and protection against energy market volatility. In addition to facilitating equitable access and pricing options for energy, ECs can build up a sense of social cohesion among members and the broader community.

High up-front investment with long payback times are a major barrier, however. This is particularly true if the local context offers little to attract investors or has trouble accessing public finance. More effective policy and financing schemes are needed to encourage build-out of ECs in general and development of new models that can deliver heating solutions.

OPTIONS FOR HEATING THROUGH ENERGY COMMUNITY STRUCTURES

- Solar installations for electric heat
- Heat pumps
- Small-scale hydropower (e.g. run-of-river)
- Small-scale district heating with biomass, including local bio/agricultural waste
- Small-scale geothermal

Case study:

National minority, local majority bear the brunt of systemic injustice

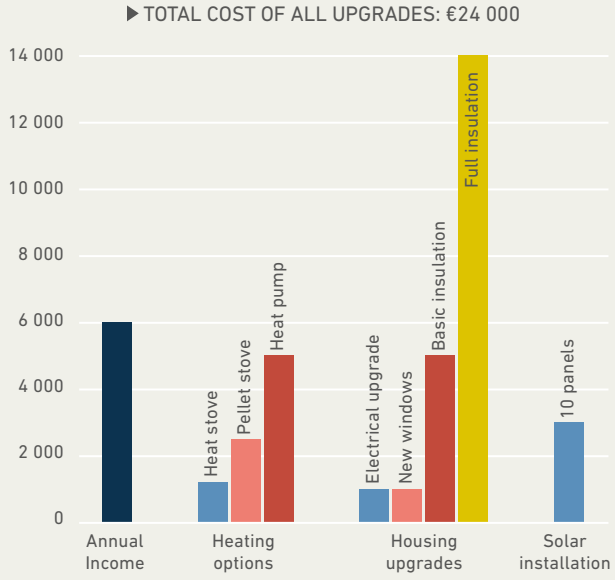
Skopje, North Macedonia

Officially, Saraj is a rural municipality within the capital city of Skopje. Some 97% of its residents belong to ethnic minorities, with 90% being Albanian.

Multi-generational households are the norm, but as young people leave in search of better employment and income opportunities, the population is aging, and family homes become 'too large' for the remaining occupants.

Figure 8.

Comparison of cost upgrades in relation to annual income in Saraj, North Macedonia



Source: Focus group discussion.

Homes are sub-standard, with less than half (45.5%) insulated. The largest share of homes depend exclusively on firewood for heating. As such, the elderly population suffers the health impacts of indoor and outdoor pollution.

To date, improvement schemes have focused solely on upgrading windows (which account for ~10% of heat loss). Recent efforts to provide subsidies to upgrade dwellings or heating systems reveal four factors that create significant barriers to uptake:

- general distrust of government, including a high perception of corruption
- huge gaps between subsidies offered and actual need
- low understanding of technical information limits the potential to install solar systems, and
- administrative barriers constrain uptake of available subsidies.

Increasingly, two additional factors further erode trust. As governments seek to work with private sector entities to deliver services, they may be perceived as 'passing off' their responsibilities to for-profit actors. Recognising the potential for solar, some private entities are buying land for larger installations, reducing the area available for agricultural incomes on which the community depends.

Financing clean heating and efficient housing

In recent years, the EU has made millions of euros in funding available to support the Renovation Wave and to upgrade heating systems, while also making targets more ambitious. For the most part, such funding is funnelled through Member States who, in turn, disburse it through subsidy schemes designed to reflect national and local contexts. Multiple studies show, however, that uptake by the most vulnerable households is very low. Meanwhile, as noted elsewhere, schemes targeting solid fuel users remain rare.

At the Member State level, EU funding is not always accessible. Due to national policy in Poland, for example, local entities cannot tap into the Just Transition Fund. More broadly, EU funding ear-marked for residential energy efficiency and renewable energy access is not always disbursed, at the national level, to properly reflect the proportions needed to meet the needs of lower-income groups. While examples of socially targeted support schemes exist, a high share of EU funding and revenues from carbon emissions trading schemes are more appealing – and more accessible – to middle and higher income groups.

At the household level, several aspects of current schemes place unfair burdens on low-income households. Across the board, taxation structures, particularly on value-added taxes, represent a higher share of disposable income for poor families. Again, Poland is a case in point: the Clean Air Programme requires substantial up-front investment for renovation and does not cover related maintenance costs over time. Critically, it also does not cover associated value-added tax (VAT). Bearing such costs is simply impossible for many low-income households.

To bridge such gaps, various governments or non-government groups have been piloting new approaches. As of January 2024, Germany is offering a 'scaled' subsidy that covers, for all citizens, 30% of the cost of replacing heating systems. For people who are 80+ or on benefits, the plan covers an additional 20%. In Austria, the national government is offering a grant of €7 500, which states can 'top up' to cover 100% of costs for low-income households.[17] Aligning renovation or system replacement subsidies to income is a more equitable approach.

Recognising the critical need to improve uptake of available funding, the importance of personal, face-to-face interaction to raise awareness and boost engagement is coming to the fore. More and more actors are making the case for two separate streams of funding for the social and technical aspects of intervention. For the former, directing support to trusted CSOs shows promise. For the latter, some argue that substantial cost-efficiency could be realised by transferring the subsidies to contractors with expertise in managing renovations rather than to individual households who feel overwhelmed by the prospect of doing so.

Reform is also underway in terms of **energy system ownership**. For large systems, public-private partnerships – including with energy suppliers – are becoming more common and showing positive outcomes. A growing movement of energy communities (ECs) seeks to generate and distribute clean, low-cost energy at smaller and more local scales. These structures also give members more opportunities to participate in democratic decision-making. In some cases, eligibility for technical and financial support for ECs is linked to empowering rural areas. While this is vital, it must not discriminate against needy communities in urban or peri-urban areas. In either case, for low-income municipalities and communities, it is vital to make EC grants accessible with minimal up-front costs.

Photo: iStock/Galeanu Mihai

17. www.nesta.org.uk/blog/when-it-comes-to-banning-boilers-the-uk-needs-to-catch-up/

Case study:

End of coal mining leads to slow, steady decline

Mátraterenye, Hungary

Mátraterenye is a small rural settlement in Nógrád County (Hungary). Historically, its economic and social life centred around coal mining. For labourers, it was difficult and dirty work but steady demand meant stable incomes.

AT A GLANCE:

Mátraterenye, Hungary

63% Homes have no central heating

Until 1992, brown coal was used extensively; then replaced by natural gas

50% Use of wood in heating

15-25% Rate of energy poverty

Photo: iStock/Waisschi

Changing times have prompted many homes to transition from brown coal to gas to firewood.

Closure of the mines in the 1980s disrupted everything. Population has since declined to just 1 659 inhabitants. As young people leave, the proportion of elderly (40% are over 60 years of age) and socially disadvantaged is increasing. Forty years on, many who remain still face employment and social challenges. Across the region, the average net income per capita is €5 000/yr but those in Mátraterenye fare much worse. Even its 80 public employees earn as little as €200/mo. The area now lags in terms of education and other basic services.

Almost all (87%) of homes were built before the mines closed. As 63% have no centralized heating system, people rely heavily on individual room heaters. Many households used brown coal for heating until 1992, when natural gas was introduced. Firewood is a primary heating fuel with 50% of homes relying solely on wood for heat energy, which exacerbates both energy and environmental concerns.

Now, with the quality of housing degrading and energy prices rising, between 15% and 25% of the population is estimated to be facing energy poverty.

Life is particularly difficult in Jánosakna, a segregated area with mostly Roma population. Here, houses lack any form of central heating; as result, they are cold, damp and mouldy. Many of these households rely exclusively on burning wood and rubbish for heat, driving up indoor and outdoor air pollution. To support the lowest-income families, social programmes provide free firewood (1.3 m^3 per household).

Rethinking policy for clean, affordable heat

With no end in sight for the current energy crisis and target dates to deliver a just, clean energy transition inching closer, FEANSTA calls on the EU and its Member States to consider the successes and shortcomings outlined in this report carefully. The need to balance rapid action with long-term aims is particularly critical, considering the time it takes to renovate millions of dwellings, install millions of heat pumps, solar panels and efficient boilers, or to develop district heating systems. Policy makers must also address the reality that biomass for heating serves up a fundamental dilemma: its use can be counted towards renewable energy target AND it increases indoor and outdoor air pollution.

Policy action needs to be strategic, with appropriate monitoring and evaluation mechanisms built it to support adaptation as new learnings emerge. Some of the following recommendations can be applied to several or all the case study situations; others are highly specific to a given context.

Short-term measures	Long-term strategies
• **Boost awareness and understanding among people vulnerable to insufficient or unaffordable heating:** This can be achieved through appropriately designed campaigns and efforts such as establishing 'one-stop shops' for information and services. As noted, a high degree of personal interaction is often necessary.	• **Map out, plan and implement context-specific heat transition pathways:** To achieve desired outcomes effectively and cost-efficiently, it is necessary to consider the full portfolio of options appropriate to a given context. In turn, actors must ensure that short-term measures align with long-term aims. Carfeully planned transitions are easier to implement.
• **Facilitate synergistic action:** Governments at all levels are well-placed to bring stakeholders together to co-design – with the people affected – action plans that deliver. This may involve multiple municipalities creating 'supra' structures to engage the optimal mix of renovators and heat experts, as well as social agencies, health experts and CSOs.	• **Develop policy frameworks that support community energy, including for heat:** At present, many energy policies do not adequately account for the particularities of ECs, including their aim to be inclusive while delivering reliable energy for affordable prices. The crisis has demonstrated that a commitment to operate with low profit margins creates substantial risk.
• **Promote relevant skills development:** The shortage of tradespeople is a major barrier that could become worse over time. Pitching this sector to youth as a concrete way to participate in climate and social justice may attract new entrants. Re-skilling individuals who may be at risk of losing employment in the transition is also vital. It may also be necessary to establish public employment schemes.	• **Better protection of solid fuel users:** Solid fuels can represent the highest share of energy consumption of households relying on them entirely. Solid fuel users should be able to benefit from consumer protection measures similar to those for gas and electricity consumers. In turn, solid fuel prices should also be monitored and, if necessary, regulated.
• **Distinguish between social engagement and technical action:** Experience to date demonstrates the heavy time commitment needed to engage with households, particularly the most vulnerable. It also highlights that this phase requires 'soft skills' more aligned with social work and CSOs. Policies and subsidy schemes should encourage cross-collaboration while ensuring the most qualified people lead at each stage.	• **Develop solid and appropriately targeted financial support schemes:** Aiming to be inclusive, many existing financial schemes are available to a wide range of citizens. In turn, it is often middle-income families who make up the majority of people benefitting from them. A more equitable approach would be to direct public funding towards the poorest households and develop market-based/revolving solutions for upper-income groups. A blend of approaches could be developed for the large middle class.

New regulations related to energy poverty and their impacts on solid fuel users

Skyrocketing energy prices since 2022, linked to Russia's invasion of Ukraine, prompted the European Commission to accelerate key aspects of the 'just, clean energy transition' launched in 2020. Several related directives have been adjusted and strengthened to ensure the most vulnerable households receive support for clean, affordable heating and for deep energy renovations.

- **Energy Efficiency Directive (EED):** The updated EED is to be applauded for clearly ring-fencing a specific share of energy efficiency measures for vulnerable households. At present, however, it requires heating and cooling plans only for cities and settlements with populations of at least 45 000. This leaves governments with no obligation to take action in small rural villages where many of the worst houses and poorest people are concentrated.

- **Energy Performance in Buildings Directive (EPBD):** The 2023 recast marks the first time the EBPD calls on Member States to prioritise vulnerable households in the renovation of existing buildings and when implementing financial measures. The renovation requirement outlined, however, is too shallow and vague, such that it risks leaving the worst-performing stock untouched. Also, while socially targeted financing requirements are to be applauded, most policy lacks any guarantee of firm enforcement.

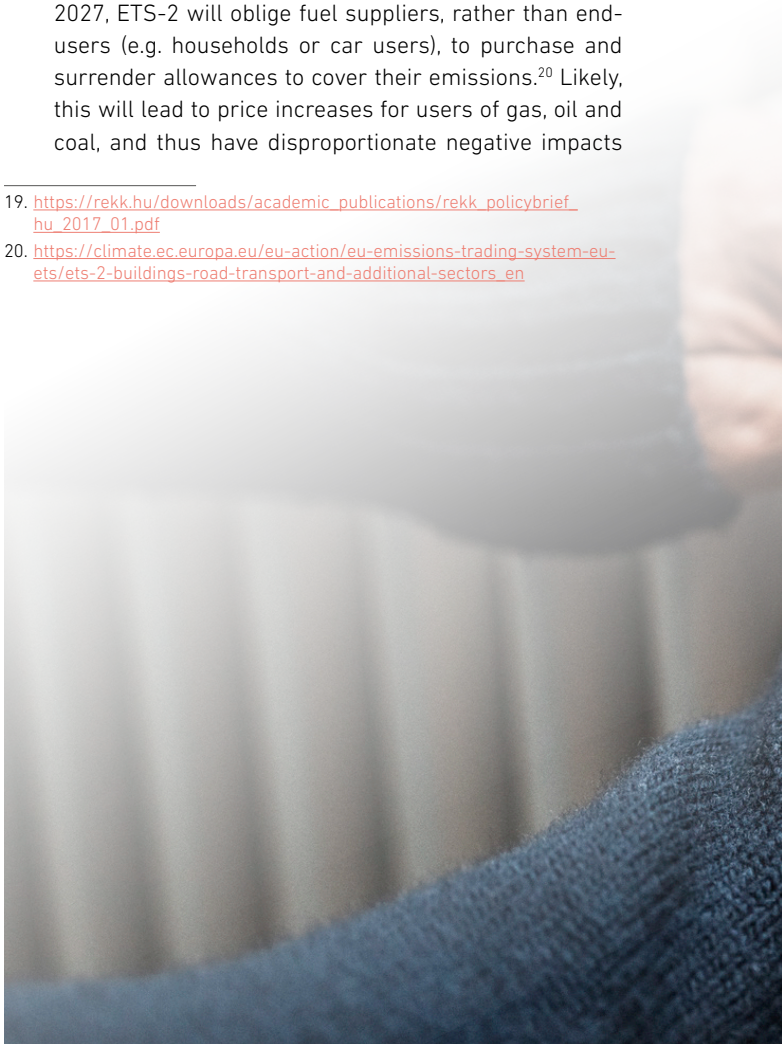
- **Renewable Energy Directive (RED):** The RED has established ambitious renewable energy deployment targets, which many Member States (particularly in CEE countries) have achieved primarily by relying on counting wood burned by households and in the power and heat sector. This practice is legal, as the RED does indeed consider 'woody biomass' as a renewable source of energy. Unfortunately, two problems arise. First, the associated market incentives do not control well for the sustainability of the wood. Second, they do not account at all for the effects on air pollution. As a result, categorising domestic woody biomass use as renewable energy often leads to substantial outdoor and indoor air pollution. Also, while this pollution is disproportionately caused by the use of inefficient and outdated heating devices in homes (e.g. open air chimneys or old and leaky wood stoves), more recent stoves also contribute to fine particle pollution. In Hungary, for example, about 32% percent of homes are heated with solid fuels[18] (mostly biomass) and 'solid biomass' (wood burning) accounted for about 58% of the country's renewable energy in 2020. Hungary is in violation of EU laws on ambient air quality, particularly concerning PM10 levels and residential sources – especially residential heating – emerge as the most significant contributor to this pollution. Also, a significant gap exists in biomass statistics on primary energy production and final energy use, the latter being larger.[19]

- **EU Emissions Trading Scheme (EU ETS) Directive:** The 2023 revisions of the EU ETS Directive established a new trading system – known as ETS-2 – which is separate from the existing scheme. This new system will cover and address CO_2 emissions from fuel combustion in buildings, road transport and other sectors (mainly small industry) not covered by the EU ETS. When it comes into effect in 2027, ETS-2 will oblige fuel suppliers, rather than end-users (e.g. households or car users), to purchase and surrender allowances to cover their emissions.[20] Likely, this will lead to price increases for users of gas, oil and coal, and thus have disproportionate negative impacts

18. https://www.ksh.hu/stadat_files/jov/en/jov0057.html

19. https://rekk.hu/downloads/academic_publications/rekk_policybrief_hu_2017_01.pdf

20. https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/ets-2-buildings-road-transport-and-additional-sectors_en



on lower-income households.[21] Firewood users are likely to be impacted as well, although more indirectly: when gas prices rise, demand for firewood increases, leading to volatile prices.[22]

- **Social Climate Fund (SCF):** The SCF has been approved as a means to address diverse social and economic impacts associated with the transition to a low-carbon economy. The fund aims to support vulnerable communities, workers, and regions most affected by the ETS extension. The fund (which aims to mobilise EUR 86.7 bln) is inadequate to protect, over the long term, all low-income households from the negative impacts of higher fuel prices. Also, as it will be launched in 2026 – only one year before ETS-2 – it offers little time to implement preventive measures, such as large-scale insulation and decarbonisation programs in the worst-performing buildings stock.

- **REPowerEU Plan:** With a strong emphasis on improving the energy efficiency of the housing stock, this Plan also encourages energy savings, production of more clean energy and action to diversify energy supply at all levels. The Plan specifically recognises insulation (of both homes and high temperature equipment) as delivering immediate savings with extremely short payback time. It thus urges Member States to make full use of supportive measures such as reduced VAT rates.

Unfortunately, most of these policy frameworks overlook the particularities of solid fuels users and/or offer social safeguards that are not sufficiently tailored to the needs of these households. FEANSTA calls on policy makers at EU, national and local levels to address oversights that undermine the achievement of a truly 'just, clean energy transition.'

21. www.euki.de/wp-content/uploads/2023/02/ETS2_Policy_Brief_EPG-1-1.pdf
22. www.euractiv.com/section/emissions-trading-scheme/opinion/eu-ets-extension-could-have-devastating-impact-on-low-income-households/

Photo: iStock/Da-kuk

Acknowledgements

This document reflects in-depth discussions held during two workshops organised by FEANTSA as well as additional research and inputs by various experts.

- Affordable and clean heating for all: winter workshop on an inclusive heat transition (06.12.2023, Brussels)
- Clean and affordable heat for all: heat transition for vulnerable solid fuel users (10.10.2023, Brussels)

FEANTSA would like to thank the workshop presenters:

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Under the guidance of Anna Bajomi, Policy Officer, FEANTSA, the document was written by Marilyn Smith (ORENDA Communications) and designed by Maro Haas (MH Design).

Finally, FEANTSA recognises the vital financial support of the European Climate Foundation (ECF).

Cover photo: iStock-AegeanBlue

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