

The Consumer Voice in Europe

FROM BOILERS TO HEAT PUMPS

What consumers need in the switch to renewable heating



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Why it matters to consumers

To decarbonise heating in line with the EU's climate targets, millions of homes across Europe will need to switch from gas boilers to heat pumps. Currently, the consumer's journey to a heat pump is not straightforward. To simplify this path, consumers need wider protections, better financing options and easier access to information and installation.

Summary

As the European Commission prepares its Heat Pump Action Plan and the Member States prepare to transpose the Fit for 55 package, BEUC has highlighted key actions that should urgently be taken by EU and national authorities to improve consumers' experiences of researching, buying, installing and running heat pumps.

- 1. Train more installers, for better installations:** To increase the number of heat pump installers, Member States must roll out skills and training programmes for the heating industry, which should be fostered with an EU-led communications campaign to highlight the attractiveness of careers in the industry. The development and application of quality certification schemes for installations should be encouraged to increase consumer confidence in reliable installation of heat pumps.
- 2. Create attractive financing models and make heat pumps more affordable:** The European Commission should create a guidance and best practices document for Member States and financial institutions on innovative financing solutions for the green transition.
- 3. Define "Heat as a Service" and provide better consumer protections:** The European Commission should clearly outline what offers constitute Heat as a Service. The Commission should also improve consumer rights and protections in these offers, including by setting requirements on advertising and precontractual information under the next revision of the Electricity Directive. Consumers should also have access to Alternative Dispute Resolution in such offers.
- 4. Lower the running costs:** The European Commission should issue guidance on how to address the high charges and levies borne by electricity, while the European Council should abolish mandatory minimum levels on excise duties for electricity on household consumers, while ensuring an equitable burden between households and business customers, via the Energy Taxation Directive review.
- 5. Make Homes Heat Pump Ready:** In order to have a useful tool for consumers to understand when buildings are "heat pump ready", the European Commission, Council and Parliament should approve the proposal for a heat pump readiness indicator during the EPBD trilogues. Member States should then ensure that roll-out of this indicator occurs during the transposition of the Directive.

- 6. Expand consumer protections for heat pump installations:** The European Commission should ensure consumers have access to Alternative Dispute Resolution for heat pump installations and home renovations under the review of the ADR Directive.
- 7. Ensure access to dynamic electricity price contracts:** Consumers across Europe are already entitled to dynamic price contracts under the Electricity Directive (2019), but these offers are not always available. Member States should ensure roll-out of competitive dynamic price offers for consumers who wish to avail of them.

Introduction

When it comes to heat pumps, consumer expectations are straightforward: A home with a comfortable temperature thanks to a properly installed heat pump, reasonable energy bills and the peace of mind that if something goes wrong, they will be protected with proper after-sales services and liabilities. However, the reality of consumer experiences with heat pumps across Europe is more complex.

In advance of the European Commission's Heat Pump Action Plan and the wide-scale switch from fossil fuel boilers to heat pumps over the coming decades, BEUC outlines below the ways in which safeguards need to be improved to give consumers the confidence to buy their first heat pump, as well as the roles both the European Commission and national governments can play in making this a reality.

1. Train more installers for better installations

To reach the goals for heat pump deployment set out in the REPOWER EU package, all Member States will need to significantly boost their number of trained heat pump installers. As outlined in the recently adopted Renewable Energy Directive (2023), Member States must now create training programmes to ensure there are enough well-certified heat pump installers available to reach their national renewable energy targets.¹ Member States, when coordinating the schemes, should put an emphasis on re-training for professionals already in the field such as plumbers or heating engineers, while the European Commission should consider standardised EU-level requirements for such training programmes. Such training programmes should focus not just on device installation but also aim to train "heating system designers" with a holistic knowledge of energy efficiency for the home.

Member States should provide a list of certified installers for heat pumps, so that consumers can be assured of trustworthy, high-quality installations, and not fall prey to scams. Once established, these lists should be regularly reviewed and updated, and promoted at the national and local level to ensure consumer awareness. Such a list already exists in Slovenia, though national consumer organisation ZPS has called for this list to be better communicated and made easier for the average consumer to find.² Meanwhile, the development and application of quality certification schemes for installations should be encouraged to increase consumer confidence in reliable installations of heat pumps.

National governments should consider requiring installations to be carried out by a certified installer in order for subsidies to be reclaimed.

¹ See [Directive of the European Parliament and of the Council 2021/0218 \(COD\)](#)

² See [Seznam pooblaščenih podjetij](#), Ministrstvo za Okolje in Prostor. 2023.

In many cases, consumers will call a professional with whom they have a long-standing relationship, and anecdotal evidence has shown that these professionals will frequently recommend a new fossil fuel boiler, likely due to their years of expertise in boiler installation and lack of knowledge of heat pumps. Furthermore, consumer research has shown mixed results when it comes to consumer satisfaction with the information provided by heat pump installers during pre-sale visits to consumers' homes.³ Along with reskilling for the installation process, installer trainings should focus on proper handover to the consumer and adequate follow-on service post-installation. There is an urgent need for re-training of professionals. While this can be run internally in large companies, many plumbers, electricians and heat specialists are self-employed, meaning national governments will need to step in to ensure retraining for SMEs, micro-enterprises and the self-employed can take place. Skills and trainings should also be fostered with an EU-led campaign to communicate the attractiveness of careers in the industry.⁴

Lastly, governments and regional authorities should ensure that there is a balanced geographical spread of heat pump installers across countries, avoiding city clusters and ensuring that rural-based consumers also have access to trained heat pump installers and professionals.

2. Create attractive financing models and make heat pumps more affordable

Alongside purchasing a car, the decision to buy an air-to-water heat pump is one of the most costly decisions an average family is likely to take in a decade. Given their high price tag, it's not surprising that upfront costs are unaffordable for many consumers. For those who can't afford the upfront costs, there should be targeted grants, loans and financial instruments made available at the national level. These instruments should be made available under the financing facilities highlighted in Article 28 of the recently adopted Energy Efficiency Directive (2023). As outlined in BEUC's guidance for financing the energy transition⁵, green loans should be made available at a lower cost than traditional consumer loans to incentivise their uptake. When transposing the Consumer Credit Directive (2023), Member States should set a lower cost cap on the annual percentage rate of charge for green loans.

Middle-income consumers should be able to benefit from financial instruments that allow them to pay back the costs over time, at low- or no-interest rates. A good example is the Dutch "Warmtefonds" which provides interest-free loans for energy renovations up to a household income of €60,000.⁶ In terms of legislation, such instruments can be created through systems such as on-bill schemes, as flagged in the Energy Efficiency Directive (2023), whereby a third party such as the energy supplier or another investor pays the upfront costs of the home renovation or heat pump installation, with the consumer gradually paying back the fee as part of their monthly energy bill.⁷

Another option that exists is the tripartite contract as outlined in the CLEAR-X project findings, where a consumer enters into a contract with the state (such as the Slovenian Eco

³ See BEUC, [Mystery Shopping of Heat Pumps](#). 2023.

⁴ EuropeOn, the electrical contractors association, has outlined the skills gap in Europe and how to address it: [Skills4Climate](#)

⁵ See BEUC, [Filling the investment gap – consumer checklist](#). 2022.

⁶ See ING, [Warmtefonds](#). 2023.

⁷ See BEUC's recommendation in Creara's study [How to accelerate home renovations through innovative financing](#). 2023.

Fund) and the installer, with the state then directly transferring the funds for the renovation or heating device to the professional, who then completes the works.⁸

To allow financial and public bodies across the EU to learn from innovative ideas and schemes, the European Commission should create a list of best practices or a guidance document for the Member States on this topic.

For lower income consumers who are less likely to be able to afford to pay back the cost over time, it is key that the Member States make available ambitious funding schemes to cover a large share of the cost of the renovation or installation. Such schemes are to ensure that low-income consumers are not left behind in the energy transition, locked into fossil fuel infrastructure with spiralling costs and in some cases, negative health impacts. It is crucial that such financial schemes and subsidies are properly designed and rolled out in a way that avoids the retail price of heat pumps increasing in line with the available subsidies.

Finally, consumer organisations have a role to play in the transition to heat pumps through collective purchase campaigns. Prime examples of this can be found in the EU-funded [Clear 2.0](#) and [CLEAR-X](#) projects, where national consumer organisations across Europe facilitated collective purchase campaigns for renewable devices such as PV panels and heat pumps, offering a discounted price, installation and product maintenance advice to consumers.

3. Definition and increased protections for “Heat as a Service”

We have already outlined the possibilities for private ownership of heat pumps. However, there are also options on the market broadly described as “heat as a service” (HaaS), which range from leasing of heating appliances,⁹ to integrated offers that for a combined monthly fee, might include appliance leasing, maintenance services and a guarantee of a certain amount of hot water plus a certain internal temperature (e.g. 200 litres of hot water per day and a 20 degree home).¹⁰ The first step in regulating “heat as a service” is for the European Commission to propose a definition of the concept, clarifying whether it covers only bundled offers of energy supply and product leasing (e.g. HP/boiler rental), or whether product leasing alone can also count as HaaS.

An all-inclusive offer could potentially have the added benefit of incentivising the supplier of the service to ensure the building is as energy efficient as possible, in order to minimise the amount of energy required to heat the home. A further benefit of any offer that includes heating appliance leasing would obviously be that it could make the appliance more affordable to households that can’t otherwise afford it by avoiding the barrier of high upfront costs.

However, current HaaS offers on the market are often far more expensive than paying directly or using a traditional consumer credit (loan) as a financing option. BEUC has observed that HaaS providers directly factor in state subsidies to make the offer look more attractive, meaning the subsidy goes to the supplier rather than the consumer. In addition, the (financial) conditions to purchase the heat pump at the end of the contract are often unclear, with additional undisclosed sums to be paid. When consumers cannot pay this additional sum, they will remain dependent on additional leasing agreements for their heating. A final concern is that consumers risk being tied to an expensive energy tariff which they might not be able to leave without losing access to their heat pump.

⁸ See CLEAR-X: [Policy Recommendations in Target Countries](#). 2022.

⁹ Example of heat pump leasing offer on the German market. [Wärmepumpe mieten ab 209 €: inkl. Service & Förderung](#). 2023.

¹⁰ See Delta-EE, [What is Heat as a Service?](#)

To prevent consumers from falling into the trap of detrimental HaaS offers, clear rules on advertising and pre-contractual information are needed, including a prominent warning where state subsidies are directly going to the HaaS provider or a prohibition of such practices and clear information on what the conditions are to purchase the heat pump at the end of the contract. The European Commission should integrate such rules into Article 10 of the Electricity Directive.

In addition, consumers' rights in the electricity market should be improved to make sure that consumers accessing HaaS offers are adequately protected. The European Commission should revise provisions on consumer rights in the Electricity Directive to ensure that:

- Consumers have the right to terminate individual services of a bundled offer as per the Council's general approach on the Gas Directive.¹¹ This would ensure consumers maintain their right to switch energy supplier when leasing a heat pump. Where this right cannot be guaranteed, due to for example, energy efficiency renovations by the heat pump provider which have not yet been paid off by the consumer, the compromising of this right should be clearly outlined in all precontractual information.
- It is clarified that consumers with a HaaS offer can engage in Alternative Dispute Resolution for disputes linked to this product and service.
- Consumers are offered forbearance measures and protection against disconnections not only when they face difficulties to pay their energy bills but also when they have trouble paying for the leasing agreement of the heat pump. In cases where all preventative measures other than disconnections have been exhausted, the Directive should nonetheless protect consumers in cases where disconnections would be life threatening, such as relying on medical equipment that runs on electricity, or heating with electricity in cold climates in winter.

Furthermore, consumers with HaaS offers constituting long-term rental agreements are not protected by the Consumer Credit Directive. The newly adopted Consumer Credit Directive foresees that leasing agreements are included in the scope only if there is an option or obligation to purchase the product (in our case the heat pump). If the HaaS offer is a long-term rental agreement, the provider does not have to do a creditworthiness assessment, can bypass cost caps applying to consumer credits and has no obligation to offer forbearance measures in case of financial difficulties of the consumer and so on. What's more, providers could circumvent the CCD by offering only rental agreements without the option to purchase the heat pump.

To prevent consumers becoming worse off when using HaaS offers instead of other consumer credits to finance their renewable energy equipment, Member States should include long-term rental agreements in the scope when transposing the newly adopted Consumer Credit Directive.

4. Lower the running costs

Beyond the cost of buying the appliance, there is also the cost of heating your home. As heat pumps run on electricity and run differently to gas or oil boilers, consumers' electricity bills will inevitably change when they switch from fossil fuels to renewable heating.

¹¹ See [Directive of the European Parliament and of the Council](#) 2021/0425 (COD)

A report by the European Commission recently stated that “in Belgium, Denmark¹² and Germany, the cost for Air/Air HPs is significantly higher compared to the other technologies, which can be related to the highest electricity costs in Europe. Croatia, Hungary and Spain are the cheapest countries [to install and run a heat pump], due to low heating demand, low labour costs and low electricity prices.”¹³ Meanwhile, a UK government case study found that many residents of low carbon homes equipped with heat pumps were paying energy bills that ranged between “higher” and “significantly higher” than they expected from a low carbon home, which was put down to the “significantly different energy unit costs” between gas and electricity.¹⁴

Research has shown that the key driver for most consumers in switching to heat pumps is potential energy savings.¹⁵ Without the incentive of lower energy bills, many consumers will not be interested in making the switch to renewable energy. As such, the European Commission and the Member States should work to ensure the existence of the financial incentive and that they are making the economic case to consumers, and the clearest way to do this is by bringing down the cost of electricity.

The Danish Consumer Council has flagged the reduction of taxes on electricity, where those who consume more than 4,000 kWh/year can apply to have their electricity tax reduced. As of July 2023, the reduced electricity tax for homes primarily heated by electricity is € 0,0013 per. kWh (for every kWh beyond 4,000). Research by the Regulatory Assistance (RAP) project has found these measures significantly reduced the running costs for heat pumps and brought the annual total cost of ownership to almost 50% lower than that for a gas boiler.¹⁶

In the same study, RAP also flagged the possibility of shifting levies from electricity to fossil fuels, as done in the Netherlands. With gas taxes increasing 84% and electricity taxes decreasing 25% since 2013, consumers were protected by lump sum reductions for households. It was estimated that this levy caused the annual total cost of ownership of a heat pump in the Netherlands to go from 26% more expensive than a gas boiler to 4% less than a gas boiler.

Meanwhile, Greek consumer organisation EKPIZO has highlighted that seven out of ten charges in Greek electricity bills are unrelated to the electricity itself, including third party charges such as public TV cost and real estate tax.¹⁷ Such non-energy related network charges should be removed from energy bills – this would bring down the cost of electricity and incentivise renewables, while also lowering cases of energy poverty.

As requested in the Energy System Integration Strategy, the European Commission should issue guidance on how to address the high charges and levies borne by electricity.¹⁸

Simultaneously, the European Council, through review of the Energy Taxation Directive, should abolish the mandatory minimum level of excise duty on electricity, allowing Member States to fully incentivise renewable heating through cheaper running costs for consumers with heat pumps.

¹² BEUC believes that the inclusion of Denmark in this list overlooks the existence of excise duty exemption for heat pump owners in Denmark, which brings down the cost of running a heat pump.

¹³ European Commission, Directorate-General for Energy, Breitschopf, B., Wohlfarth, K., Schlomann, B., et al., *Overview of heating and cooling : perceptions, markets and regulatory frameworks for decarbonisation : final report*, Publications Office of the European Union, 2023, <https://data.europa.eu/doi/10.2833/962558>

¹⁴ UK Government, Department for Energy Security and Department for Business, Energy & Industrial Strategy, [Building for 2050: Low Cost, Low Carbon Homes](#). 2022. Pg 66.

¹⁵ See BEUC, *Mystery Shopping of Heat Pumps*. 2023.

¹⁶ Regulatory Assistance Project, Rosenow J., Thomas S., et al., [Levelling the playing field: Aligning heating energy taxes and levies in Europe with climate goals](#). 2022. Pgs 24-33.

¹⁷ EKPIZO, Inzeb, Heinrich Boll Stiftung, BEUC. [Clean Energy Bills for all citizens in the EU](#). 2022.

¹⁸ European Commission, [Powering a climate-neutral economy: An EU Strategy for Energy System Integration](#). 2020.

5. Make Homes Heat Pump Ready

Many homes across Europe do not yet have adequate insulation to run efficiently on an electric-only heat pump alone. Gas boilers provide heat at a higher temperature level than heat pumps, while heat pumps run more efficiently, but at lower flow temperatures. This means that if homes have a low level of insulation and/or relatively small radiators, the installed capacity of the heat pump needs to be scaled up to be able to supply sufficient space heat. This however can lead to inefficient operation of the entire heating system, meaning more electricity consumption and higher bills.

Given the complexity, most consumers don't know where to begin with making their home heat pump ready. For this reason, one stop shops are needed to guide consumers through the process of energy renovations, and to put them in touch with a reliable heat pump installer.

In line with the Energy Efficiency Directive (2023), national governments should enable the setting up of one stop shops and build capacities among regional authorities via Technical Assistance (i.e, via ELENA, the European Local Energy Assistance programme). One stop shops will then guide consumers through the entire process. This can be coordinated in line with municipal decarbonisation plans for heating and cooling as outlined in the EED.

As an example of best practices, Portuguese consumer organisation DECO has already worked with the Municipality of Évora, as well as several other municipalities across Portugal, to develop "energy and housing desks" which guide consumers through the home energy renovation process.¹⁹

A recent BEUC study showed that a "heat pump readiness indicator" (HPRI), indicating the share of heating that can be covered by an electric heat pump, would be helpful for renovation advice. Most of the parameters needed to compose such an indicator already exist in Energy Performance Certificates.²⁰ Although deep retrofits will more often be needed for colder (alpine) climates, milder renovations or "shallow" retrofits will usually be enough in the Mediterranean climate, while other climate zones are in between.²¹ Depending on the climate zone, then, consumers will need tailored advice on how much they should invest in insulation.

This heat pump readiness indicator should be endorsed by the European Commission, Council and Parliament in the current revision of the Energy Performance of Buildings Directive, so that Energy Performance Certificates become more accurate and help pave the way to heat decarbonisation.

Aside from home energy renovations, which are ultimately key to making many homes heat-pump ready in the long term, a medium-term solution can be the installation of hybrid heating systems; that is, a combined system that runs both a heat pump and a gas boiler, with the gas boiler covering only the peak heat demand hours.

This approach is being taken in the Heat Pump Action Plan of the Netherlands²², which aims to reduce fossil fuel consumption, allowing consumers time to grow accustomed to the new technology and crucially, allowing time to scale up the heat pump roll-out, including the upskilling and training of installers and the renovation of homes. Once homes running a hybrid heat pump have been appropriately renovated and the heat pump can cover the

¹⁹ See [STEP – Project Policy Recommendations and Stories from the Ground](#). 2022.

²⁰ See BEUC, [Introducing the Heat Pump Readiness Indicator](#). 2023.

²¹ The key question is whether the heating power of the combined radiators in the home is enough to steadily keep the home at a comfortable temperature with the lower supply temperature of the HP, which may be largely the case in specific situations such as the Netherlands. See [Pothof et al](#), 2022.

²² Government of the Netherlands. [Actieplan hybride warmtepompen 2022 t/m 2024](#). 2022.

entire heat demand, the gas boiler can be removed. This will often also require the installation of a storage boiler to ensure enough domestic hot water.²³

6. Expand consumer protections for heat pump installations

As we've seen, heat pump installations are a significant financial investment in the home. Support is needed not only from a financial point of view but also in terms of consumer protections.

Leading heat experts have found that 25% of boiler replacements in the UK could be avoided through better installation of the original device,²⁴ while describing the standard of heat pump installation as "patchy"²⁵. Meanwhile, industry and consumer organisations alike have highlighted concerns about poor sizing of heat pumps for homes.²⁶ Along with poor sizing there are often cases of insufficient building insulation: proper insulation can result in a smaller, cheaper heat pump with significantly lower running costs.

However, consumers have limited access to protection and redress under EU law in the case of poorly installed renewable energy devices in their homes.²⁷ UK consumer organisation Citizens Advice has contrasted this with much broader protections in place for mobile phone and broadband contracts, bank loans and home and car insurance.²⁸ When consumers experience problems with their heat pumps, there is often a "passing the buck" effect between installers, heating designers and manufacturers, with each claiming the others are liable for the problems - there are clear gaps in the liability chain of responsibility and it should not be up to the consumer to chase the responsible entity.

The review of the ADR Directive should ensure traders' participation in ADR in all sectors, including for home renovations and heat pump installations.²⁹ Access to redress will give consumers peace of mind that they won't be left out in the cold in the case of faulty heat pump installations or insufficient renovations, which should go a long way towards increasing uptake of heat pumps among the public.

7. Ensure access to dynamic electricity price contracts

Finally, demand side flexibility has a role to play in Europe's heat pump story. Research has previously highlighted that consumers with a dynamic electricity price contract, who were able to charge their car flexibly in France and in Austria in 2020 and 2021, would have saved €7-11/month compared to consumers on a fixed price tariff.³⁰ These savings amount to 23-36% of the cost of charging during that time period.

While that study did not consider use of heat pumps, the more electricity a household consumes, the more beneficial the savings from a dynamic price contract can be for consumers – meaning, there is certainly potential for savings for heat pump users with a dynamic tariff (depending on their country). However, across the EU, currently only ten*

²³ While gas boilers usually cover both space and water heating, the lower power of a heat pump compared to a gas boiler will in some cases make it less suitable for instantaneous hot water delivery.

²⁴ The Heating Hub. [Making good buying decisions the default](#).

²⁵ The Heating Hub. [Best air source heat pumps and set ups](#).

²⁶ Citizens Advice. [Home Truths – The challenge and experience of making home energy improvements](#). 2021.

²⁷ BEUC. [Consumers should always have access to ADR in energy. But do they?](#) 2023.

²⁸ Citizens Advice. [The net zero protections puzzle](#). 2023.

²⁹ See BEUC, ADR for consumers: [Time to move up a gear](#). 2022.

³⁰ See Cambridge Econometrics, [Risks and benefits of dynamic electricity price contracts](#). 2022.

Member States offer dynamic price contracts to consumers.³¹ In order to further promote the financial benefits of switching to renewable heating, Member States should oversee the roll-out of competitive dynamic pricing offers to consumers, in line with pre-existing consumer rights under the Electricity Directive (2019/944).

To allow consumers to benefit from these offers:

- Member States should speed up the roll out of smart meters, allowing suppliers to bill consumers on the basis of their hourly electricity consumption and hence enabling consumers to access dynamic price offers.
- In order to avoid bill shocks from extreme price peaks in dynamic price contracts, suppliers could also offer hourly tariffs floating within a certain “price corridor”, meaning there is a cap on extreme highs and lows in pricing.

END

³¹ ACER-CEER, [Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2021, Energy and Consumer Protection Volume](#). Oct 2022. Pg 45.

*While this report lists 11 EU countries, France has since removed this offer. An alternative to a dynamic tariff can be a Time of Use tariff.

