
KfW Research

# KfW Energy Transition Barometer 2026

## Households‘ willingness to act bounces back.

## Imprint

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# Executive summary

**The energy transition is regaining momentum.** It is seen as important or very important by 84% of households – slightly more than a year ago (83%). Above all, however, the willingness to act is returning: the share of households willing to contribute themselves has jumped from 59 to 66%, largely offsetting the declines of recent years.

**This broad support is not unique to Germany.** Worldwide, 89% of people are calling for more political action against climate change. However, many people underestimate how willing their fellow citizens are to act – and engage less themselves, which can slow progress.

**The exceptionally hot summer of 2026 has underlined the need for climate action and climate adaptation.** As in previous years, the survey itself was conducted in winter and spring. Nevertheless, the growing heat stress casts the findings in a new light: energy efficiency measures and emission-free technologies do more than protect the climate. They can also help meet the growing need for cooling.

**The share of households using at least one green technology has risen to 34%, or around 14 million households.** Around 1.1 million households adopted one for the first time in the past year – a faster increase than the year before.

**Electric vehicles and rooftop PV systems are growing particularly fast.** The share of households with a battery-electric vehicle or plug-in hybrid rose from 7 to 10% within one year. Furthermore, 18% of households use a rooftop PV system, compared with 16% a year ago. More than half of these PV systems (55%) are combined with a home battery. Three years ago, it was fewer than one in three (31%).

**Adoption plans point to continued momentum.** Within the next 12 months, a further 5% of households plan to adopt a green technology for the first time. Plans are most common for electric vehicles (5% of all households), home batteries (4%), rooftop PV systems (3%) and heat pumps (3%).

**More than half of households (53%) have direct access to green electricity.** A year earlier, it was 47%. Today, 18% of households generate their own electricity with a rooftop PV system and 5% use at least a plug-in solar device. A further 30% rely on a green electricity rate alone.

**Electric vehicles are gaining market share.** Just over 10% of households now drive a battery-electric vehicle or a plug-in hybrid. On the new car market, battery-electric vehicles accounted for around a quarter of new registrations in the first half of 2026 and the stock exceeded 2 million vehicles for the first time. Accounting for around 27% of car exports, they are also a growing pillar of German industry.

**Almost two thirds of households (63%) still heat with gas or oil.** Openness to heat pumps is solid; doubts about cost-effectiveness remain the biggest barrier. The EU emissions trading system for buildings and transport (EU-ETS2), which will apply from 2028, will make fossil fuels increasingly expensive – and further strengthen the relative advantage of electricity-based technologies.

**The social divide in the use of green technologies remains an important issue for the energy transition.** Households in the top income quartile are more than twice as likely to use green technology as those in the bottom quartile (51 vs. 20%). Encouragingly, the lowest income quartile has recently seen gains too, narrowing the differences slightly. The gap between tenants and homeowners, by contrast, remains as wide as ever. Of households living in their own detached or semi-detached house, 59% use at least one green technology. That is almost four times the share of households in rented flats (15%). As fossil fuels become more expensive, this divide means that these vulnerable groups face a rising financial burden.

**The KfW Energy Transition Barometer shows that the technology ramp-up is progressing and sentiment continues to brighten.** If the transformation is to reach lower income groups and avoid social tensions, targeted investment support and good information services will be central.

# 1. Introduction: Regaining momentum in a summer of heat

At the end of June 2026, Germany experienced an exceptional heatwave. Temperatures peaked at 40°C and more – new records in many places.[1] Such extremes are no coincidence: human-caused climate change is making heatwaves measurably more likely and more intense. A systematic attribution study shows that anthropogenic $CO_2$ emissions substantially increased the frequency and intensity of heatwaves in the years 2000–2023.[2]

The current heatwave fits into a clear trend. In 2024, the global average temperature was 1.6°C above the pre-industrial level for the first time. In Germany, it has become around 2.5°C warmer since 1881. The number of hot days with temperatures of at least 30°C has quadrupled since the 1950s, from around three to about twelve per year.[3] The economic consequences are measurable: worldwide, losses from extreme weather events between 2000 and 2024 added up to more than USD 3.8 trillion. In Germany alone, losses of around EUR 187 billion occurred between 1980 and 2024.[4] Firms are feeling the consequences as well: 21% of companies in Germany report negative impacts of climate change.[5]

Heat is a health risk. The Robert Koch Institute estimates 9,600 heat-related deaths in Germany in the first half of 2026 alone – older people with pre-existing conditions are particularly affected.[6] Economic research puts the global welfare losses from climate-related mortality risk – after accounting for the costs and benefits of adaptation – at several per cent of global GDP by 2100.[7]

Added to this are the long-documented health damages caused by burning fossil fuels. A substantial share of global deaths from fine particulate matter can be traced back to fossil sources.[8] Switching to climate-friendly technologies not only protects the climate but, indirectly, also health – and it reduces costly fossil fuel imports, which cost Germany around EUR 81 billion per year on average and create geopolitical dependencies.[9]

Despite the tense economic situation and competing challenges, this year's KfW Energy Transition Barometer shows a slight increase in support for the energy transition. After years of decline, households' willingness to act themselves has increased. The technology ramp-up is picking up speed again.

This development is taking place against the backdrop of rising prices for fuels such as gas and oil. The national emissions trading system sets price signals for $CO_2$ in the building and transport sectors that lie in a corridor of EUR 55 to 65 per tonne of $CO_2$ in 2026.[10] From 2028, the new European emissions trading system EU-ETS2 is due to take effect, for which prices of EUR 71 to 261 per tonne of $CO_2$ are expected in 2030 and as much as EUR 475 in 2050.[11] In addition, the recently adopted Building Modernisation Act (*Gebäudemodernisierungsgesetz*) provides for a green gas and green oil quota for building heat, which will push up prices through the blending of biogenic or synthetic fuels. It is estimated that the operating costs of a gas heating system would more than double with a green gas quota of 100%.[12]

Private households hold a key position for successful decarbonisation, particularly in the building and transport sectors. Asymmetric burdens can give rise to distributional effects, which are likely to become a central policy design question. Against this backdrop, the KfW Energy Transition Barometer (see the box on methodology at the end) provides insights into how Germany's private households view the energy transition and what activities they are specifically undertaking.

[1] Cf. German Meteorological Service (2026): Trockener und sehr sonniger Juni 2026 endet mit historischer Hitzewelle (Dry and very sunny June 2026 ends with historic heatwave – our title translation, in German), press release of 29 June 2026.

[2] Cf. Quilcaille et al. (2025): Systematic attribution of heatwaves to the emissions of carbon majors, Nature, 645, 392–398.

[3] Cf. German Meteorological Service (2025): Was wir über das Extremwetter in Deutschland wissen (What we know about extreme weather in Germany – our title translation, in German), last visited on 29 June 2026.

[4] Cf. European Environment Agency (2025): Economic losses from weather- and climate-related extremes in Europe, last visited on 7 August 2026.

[5] Cf. Brüggemann and Rode (2026): Global damage from extreme weather is rising – 21% of German enterprises already affected by the negative consequences of climate change, Focus on Economics No. 542, KfW Research.

[6] Cf. an der Heiden et al. (2026): Wochenbericht zur hitzebedingten Mortalität (Weekly report on heat-related mortality – our title translation, in German), calendar week 31/2026 of 13 August 2026; Robert Koch Institute.

[7] Cf. Carleton et al. (2022): Valuing the Global Mortality Consequences of Climate Change Accounting for Adaptation Costs and Benefits, Quarterly Journal of Economics, 137(4), 2037–2105.

[8] Cf. Vohra et al. (2021): Global mortality from outdoor fine particle pollution generated by fossil fuel combustion: Results from GEOS-Chem, Environmental Research, 195, 110754, and Wolf et al. (2025): Scientists' warning on fossil fuels, Oxford Open Climate Change, 5(1), kgaf011.

[9] Cf. Rode (2025): Jedes Jahr importiert Deutschland fossile Brennstoffe im Wert von Ø 81 Mrd. EUR (Germany imports fossil fuels worth an average of EUR 81 billion each year – our title translation, in German), Economics in Brief No. 251, KfW Research.

[10] Cf. DEHSt (2026): EU-ETS 2: Ausblick auf 2028 (EU ETS 2: outlook for 2028 – our title translation, in German), German Emissions Trading Authority, and Section 10 of the Fuel Emissions Trading Act (Brennstoffemissionshandelsgesetz).

[11] Cf. Günther et al. (2025): Carbon prices on the rise? Shedding light on the emerging second EU Emissions Trading System (EU ETS 2), Climate Policy, 26(1), 92–103.

[12] Cf. Henger et al. (2026): Wie hoch sind die Mehrkostenrisiken durch das Gebäudemodernisierungsgesetz (GModG)? (How high are the additional cost risks arising from the Building Modernisation Act (GModG)? – our title translation, in German), IW-Report 36/2026.

# 2. Attitudes towards the energy transition

**Support for the energy transition has grown slightly again: 84% of private households regard it as important or very important.** Above all, however, households' willingness to act has risen strongly – from 59 to 66%. The multi-year decline has largely come to a halt.

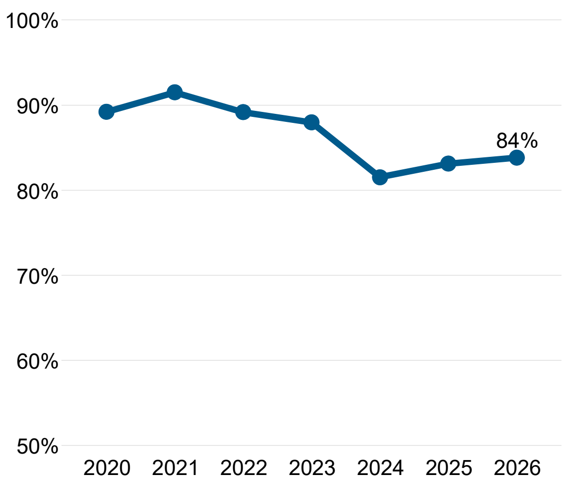
**Households under a very high financial burden continue to show strikingly low levels of support and willingness to act.** However, the gap in the financial burden between income groups has narrowed compared with previous years.

### 2.1 Support is rising, willingness to act is returning

Households show stable, even slightly growing, support for the energy transition. Last year, 83% of households regarded the energy transition as important or very important; this year it is 84% (Figure 2.1). Public support for the goals of the energy transition remains high.

**Figure 2.1: Support for the energy transition has grown slightly again**

Proportion of households that regard the energy transition as important or very important.

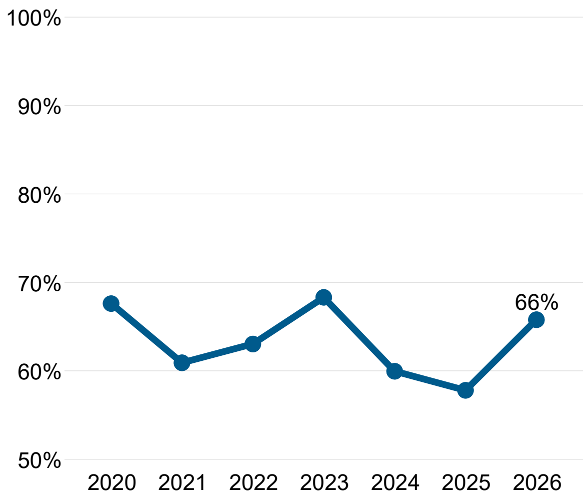



Source: KfW Energy Transition Barometer.

The trend in willingness to act is even more pronounced. The willingness to contribute through one's own actions is measured on a scale of 0 to 10; scores above 5 are regarded as a high willingness to act. This share has jumped from 59% in the previous year – the lowest value measured up to then – to 66% now (Figure 2.2). The previous multi-year downward trend has not only been halted but clearly reversed.

**Figure 2.2: Marked increase in households' own willingness to act**

Proportion of households with a high willingness to act to advance the energy transition.




Source: KfW Energy Transition Barometer.

Overall, the trend demonstrates that support among the population is not only high but that the willingness to act has increased again.

The figures of the KfW Energy Transition Barometer for households in Germany fit into a remarkably consistent international picture. A globally representative survey in 125 countries shows that 89% of people worldwide are calling for more political action against climate change, 86% endorse climate-friendly behaviour as a social norm and 69% would be willing to contribute 1% of their income to this end.[13]

Respondents underestimate the willingness of their fellow citizens to act, which can hold back their own actions: those who underestimate the support of others are less likely to become active themselves.[14] The high and rising willingness to act documented here is not only a finding in itself – awareness of it can add to the momentum of the energy transition. The following section examines whether support and willingness to act are developing similarly across population subgroups.

[13] Cf. Andre et al. (2024): Globally representative evidence on the actual and perceived support for climate action, Nature Climate Change, 14, 253–259.

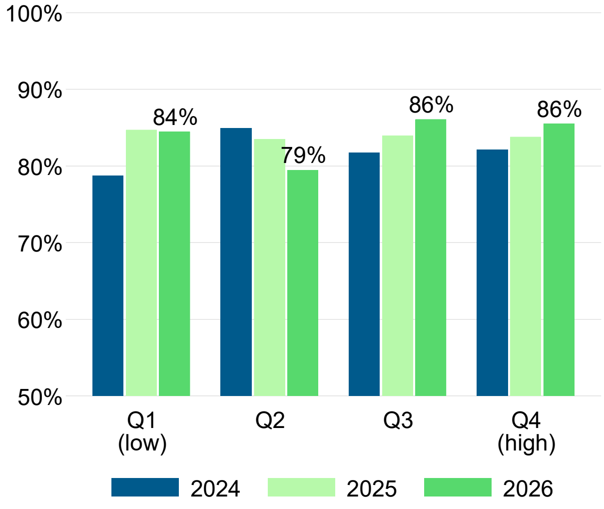
[14] Cf. Andre et al. (2024): Globally representative evidence on the actual and perceived support for climate action, Nature Climate Change, 14, 253–259.

## 2.2 Largely homogeneous picture across household types

Support differs little by **household income**, ranging from 79 to 86% across the quartiles (Figure 2.3). In the two upper income quartiles (86%), support is slightly higher on average than in the two lower ones (82%). The pattern for the willingness to act is similar but more pronounced. In the upper half of the income distribution, 71% of households express a high willingness to act, compared with only 63% in the lower half.

### Figure 2.3: Support by income

Proportion of households that regard the energy transition as important or very important, by income quartile.



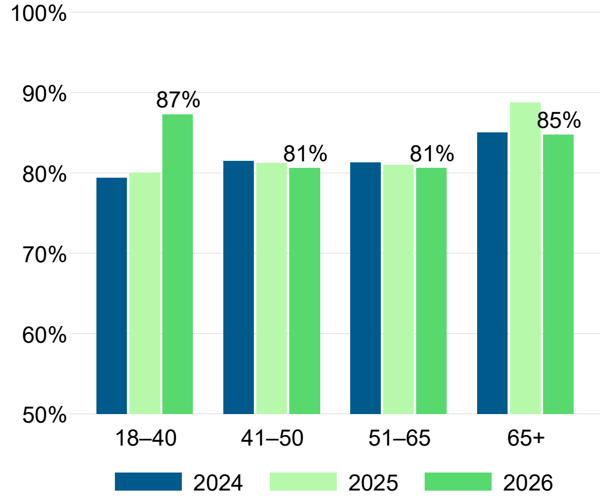

Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

By **age**, younger households (18–40 years) show the highest support this year (87%), followed by older households aged 65 and over (85%), which had the highest value in previous years (Figure 2.4). Support is lowest in the middle age groups, at 81% – roughly on a par with the previous year. The age gradient in the willingness to act is clearer: it ranges from 76% among the youngest households to 62% among those aged 65 and over. This gradient, also observed in past years, is unsurprising given that many measures are long-term investments.

There is a slight gradient by settlement structure. Support ranges from 81% in rural communities and small towns to 87% in large cities (Figure 2.5). One reason for this could be the typically higher level of education in large cities. University graduates express slightly higher support, at 87%, than households whose highest **educational qualification** is vocational training (82%). **Housing tenure**, which also varies with settlement density, makes hardly any difference. Households in owner-occupied flats express high levels of support, at 86%, while owners of detached or semi-detached houses are slightly lower, at 84%. Tenants lie between these values.

### Figure 2.4: Support by age

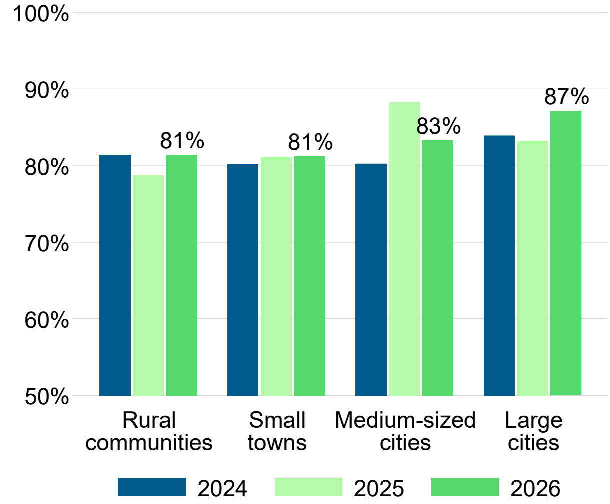
Proportion of households that regard the energy transition as important or very important, by age of respondent.




Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

### Figure 2.5: Support by settlement structure

Proportion of households that regard the energy transition as important or very important, by settlement structure.




Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

## 2.3 Perceived financial burden as a brake

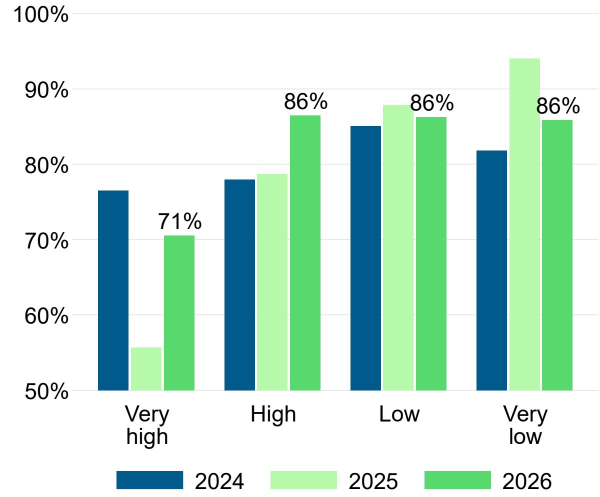
One subgroup with low support is households that perceive a very high financial burden. Where the financial burden of electricity supply is very high, only 71% regard the energy transition as important – far fewer than where the financial burden is very low (86%, Figure 2.6). The pattern for the financial burden of heating supply is very similar, with support ranging between 75 and 84%.

The observed pattern is consistent with the international evidence on the factors that determine public support for climate policy. A large-scale survey in 20 countries shows that support for climate policy depends crucially on three beliefs: whether the measure effectively reduces emissions, whether its burdens are distributed fairly and how it affects one's own household. Information on *how* a measure works increases support.[15] The link between financial burden and support shows that a burden-sharing arrangement perceived as fair is not only a question of distribution but also one of acceptance.

A high financial burden lowers not only support but also the willingness to act (Figure 2.7). Only 44% of households with a high financial burden of electricity supply are willing to advance the energy transition through a contribution of their own. Among households with a low financial burden, the figure is 75%. The picture is similar for the financial burden of heating supply. Here, the willingness to act ranges from 58% (very high financial burden) to 79%.

### Figure 2.6: Support by financial burden of electricity supply

Proportion of households that regard the energy transition as important or very important.

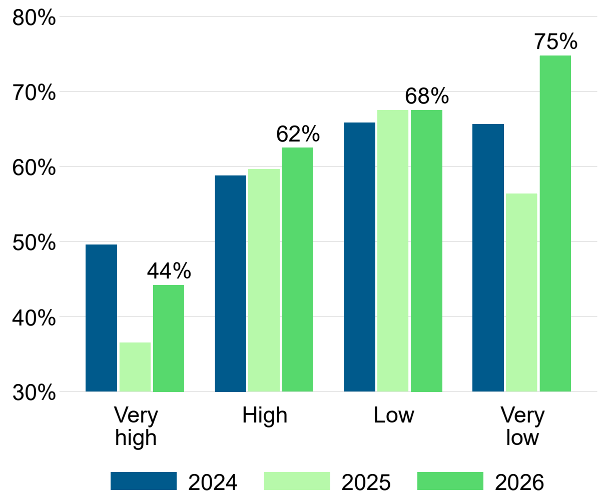



Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

How should the observed patterns be assessed? In theory, high energy costs work in two opposite directions on support for and activities in favour of the energy transition. On the one hand, they increase the incentive to switch to energy-saving technologies such as a heat pump (substitution effect). On the other hand, they reduce the funds available to households and make the necessary initial investments more difficult (income effect). The data of the KfW Energy Transition Barometer illustrate that the relative weight of the two effects depends on households' liquidity – and that under a high financial burden the income effect dominates. Among households with greater financial leeway, by contrast, the substitution effect appears to prevail.

### Figure 2.7: Own willingness to act by financial burden of electricity supply

Proportion of households with a high willingness to act to advance the energy transition.




Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

This relationship is a potential bottleneck for the transformation – especially as the costs of fossil fuels will continue to rise and, with them, the financial burden on households. As a result, heavily burdened households might no longer be able to make the very investments that would reduce their own burden. Financial constraints are already among the most frequently cited barriers to adoption (cf. Figures 4.6 and 5.8). To make matters worse, households heavily discount future savings – that is, they give much less weight to later savings than to expenditure today – and respond above all to the size of the initial investment.[16]

Who is affected? A 'high financial burden' runs through all income groups: this year, the share of affected households ranges from 39% in the top income quartile to 60% in the second quartile – that is, among the lower middle incomes. The gap between the income groups has narrowed considerably: in the previous year, 39 percentage points still separated the bottom quartile (66%) from the top quartile (27%). This income gradient is consistent with findings in the literature that rising carbon prices place a disproportionate burden on low-income households.[17]

[15] Cf. Dechezleprêtre et al. (2025): Fighting Climate Change: International Attitudes toward Climate Policies, American Economic Review, 115(4), 1258–1300.

[16] Cf. De Groote and Verboven (2019): Subsidies and Time Discounting in New Technology Adoption: Evidence from Solar Photovoltaic Systems, American Economic Review, 109(6), 2137–2172.

[17] Cf. Känzig (2026): The Unequal Economic Consequences of Carbon Pricing, American Economic Review, forthcoming (NBER Working Paper 31221).

On a positive note, the dispersion in financial burden and support has narrowed slightly compared with the previous year. This is likely to be due mainly to energy prices, which have fallen again since the crisis peak of 2022/2023 and had previously placed a particular burden on low-income households. With the start of the EU-ETS2 in 2028, however, this price-related relief could be partially reversed, as fossil fuels used for heating will then be priced across Europe. Experience with the existing emissions trading system calls for foresight here: after restrictive carbon price shocks, support for climate policy declines, particularly among low-income households.[18] Targeted measures can counteract this development, for example a flat-rate per-capita refund of the revenue from carbon pricing ('climate dividend', or 'Klimageld'): it leaves the price incentive to switch (substitution effect) untouched while dampening the income effect – and it has a progressive effect, since low-income households have a smaller carbon footprint on average and are thus relieved in net terms. At the European level, the Social Climate Fund provides a framework for implementing relief measures. Since the beginning of 2026, EU member states have been able to obtain funds for the social support of electric vehicles and heat pumps by submitting Social Climate Plans (SCPs).[19] So far, no country has applied for such funds.[20] Germany could lead the way here and, by submitting a Social Climate Plan, also enhance the credibility of the ETS2.

[18] Cf. Känzig (2026): The Unequal Economic Consequences of Carbon Pricing, American Economic Review, forthcoming (NBER Working Paper 31221).

[19] Cf. European Parliament (2023): Verordnung des Europäischen Parlaments und des Rates vom 10. Mai 2023 zur Einrichtung eines Klima-Sozialfonds (Regulation of the European Parliament and of the Council of 10 May 2023 establishing a Social Climate Fund – German version), Official Journal of the European Union, L 130 of 16 May 2023.

[20] Cf. Tagesspiegel Background (2026): Frontloading-Fazilität: Kein EU-Staat hat Klimasozial-Gelder angerührt (Frontloading facility: no EU member state has touched Social Climate Fund money – our title translation, in German), published on 2 July 2026.

# 3. Energy transition activities of households

**The number of households using green technologies has risen by 3 percentage points to around 14 million, or 34% of all households.** The increase has accelerated on the previous year: around 1.1 million households are using such a technology for the first time.

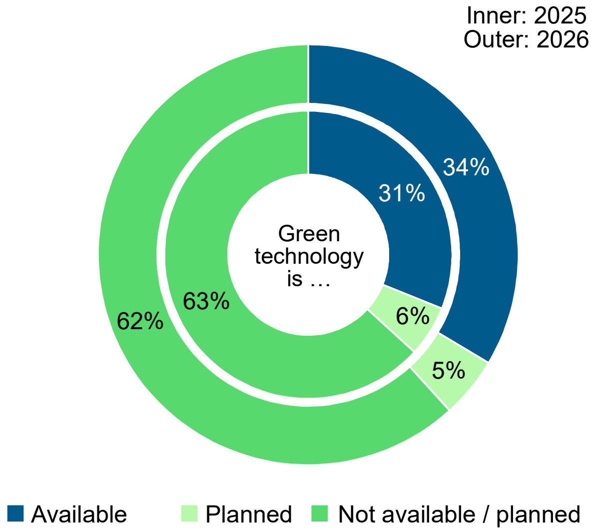
**Electric vehicles and photovoltaics are growing particularly fast**. Differences in uptake by income, home ownership and region remain large.

### 3.1 Uptake has expanded further

Around 34% of households use at least one of the following technologies: heat pump, rooftop photovoltaic (PV) system, solar thermal system, home battery, wood pellet heating or electric vehicle (Figure 3.1).[21] A further 5% plan to adopt at least one of these technologies for the first time in the coming 12 months.

#### Figure 3.1: Use of green technologies

Proportion of households with at least one green technology.




Note: The green technologies considered are solar thermal energy, rooftop photovoltaics, heat pumps, home batteries, electric vehicles and wood pellet heating.

Source: KfW Energy Transition Barometer 2025 and 2026.

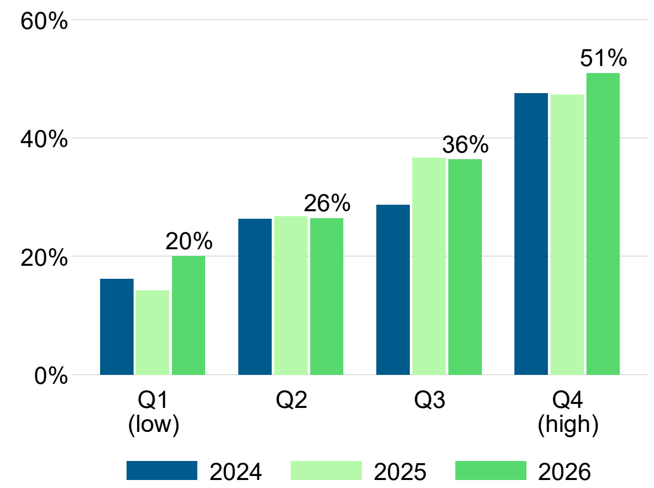
The share of households with green technology has increased by around 3 percentage points on the previous year. This means that around 1.1 million households adopted a green technology for the first time in the past year.[22] A year ago, the increase was smaller, at around 800,000 households – so the ramp-up has gathered pace.

### 3.2 Large differences between population groups

There is a clear gradient by **net household income**. Households in the top income quartile are more than twice as likely to use green technology as those in the bottom quartile (51 vs. 20%, Figure 3.2). Low-income households also have less scope to adopt green technologies: those who rent depend on their landlord when it comes to PV or solar thermal energy and those who do not own a car do not need to switch to an electric one. Nonetheless, the weak momentum among low-income households remains challenging – not least because these households are disproportionately likely to live in buildings with poor energy efficiency.

#### Figure 3.2: Households with green technology by income

Proportion of households with at least one green technology.




Note: Figure 3.1 contains details on the green technologies considered.

Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

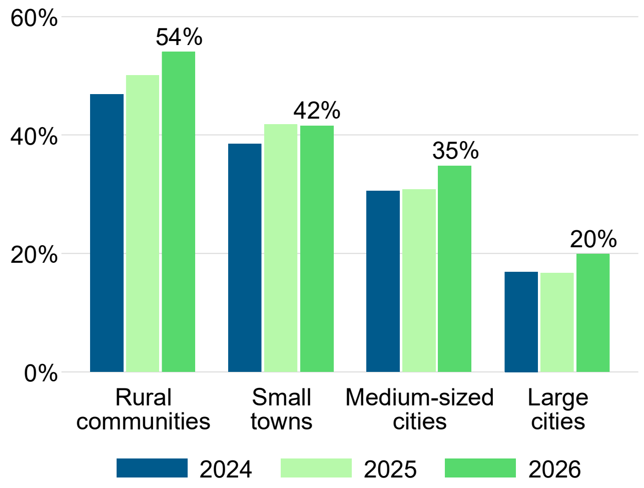
The **settlement structure** (Figure 3.3) and the **housing tenure type** (Figure 3.4) also shape the picture. In rural communities, 54% of households use green technology, compared with only 20% in large cities. One driver of this urban-rural divide is the ownership and building structure: in owner-occupied detached and semi-detached houses, which are almost four times as common in the countryside as in large cities, 59% of households use green technology – almost four times as many as among tenants in multi-family dwellings (15%). The latter often depend on the activity of their landlords or the approval of co-owners.

[21] As part of a stronger focus on emission-reducing technologies, two technologies previously counted as green technologies are no longer considered from this edition onwards: CHP plants and full hybrid vehicles. The previous-year values reported here have been adjusted accordingly. Under the old methodology, the share of households with green technology would be 36% this year.

[22] The estimate for the increase in households with green technology compared with the previous year is 2.6%. Based on around 41 million private households in Germany, this corresponds to around 1.1 million households; cf. Federal Statistical Office (2025): Haushalte und Familien (Households and families – our title translation, in German), last visited on 26 June 2026.

**Figure 3.3: Households with green technology by settlement structure**

Proportion of households with at least one green technology.

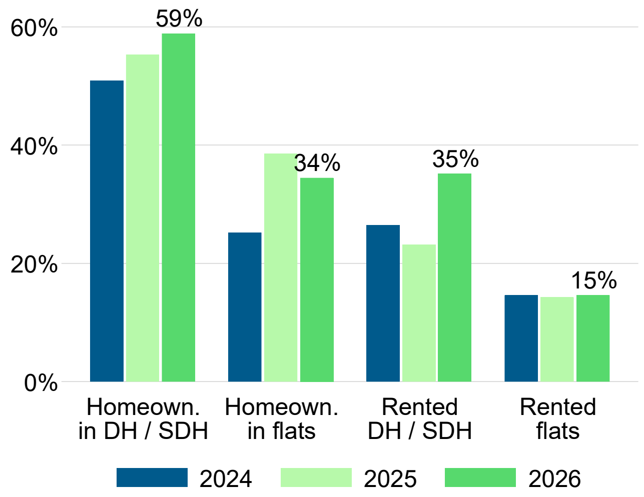



Note: Figure 3.1 contains details on the green technologies considered.

Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

**Figure 3.4: Households with green technology by housing tenure type**

Proportion of households with at least one green technology. DH are detached houses, SDH are semi-detached houses.




Note: Figure 3.1 contains details on the green technologies considered.

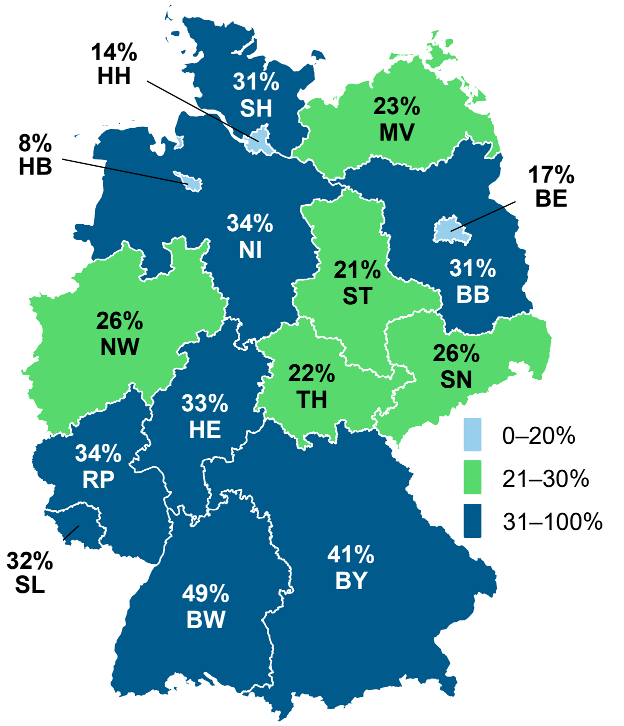
Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

So it is not only ownership but also the building type that shapes the scope for action. Those who live in a detached or semi-detached house can more easily (co-)decide on the roof and heating system, whereas owners of flats depend on the resolutions of the community of property owners. As a result, the share of households with green technology in rented detached and semi-detached houses (35%) is about as high as in owner-occupied flats (34%).

**Regionally**, households with green technology are most common in the south. Baden-Württemberg tops the list with a share of 49%, followed by Bavaria (41%), Rhineland-Palatinate and Lower Saxony (both 34%, Figure 3.5). The share is lowest in the city states of Bremen (8%), Hamburg (14%) and Berlin (17%) – a reflection of the urban housing and ownership structure.

**Figure 3.5: Households with green technology by federal state**

Proportion of households with at least one green technology, average of the years 2025 and 2026.




Note: Figure 3.1 contains details on the green technologies considered.

Source: KfW Energy Transition Barometer 2025 and 2026.

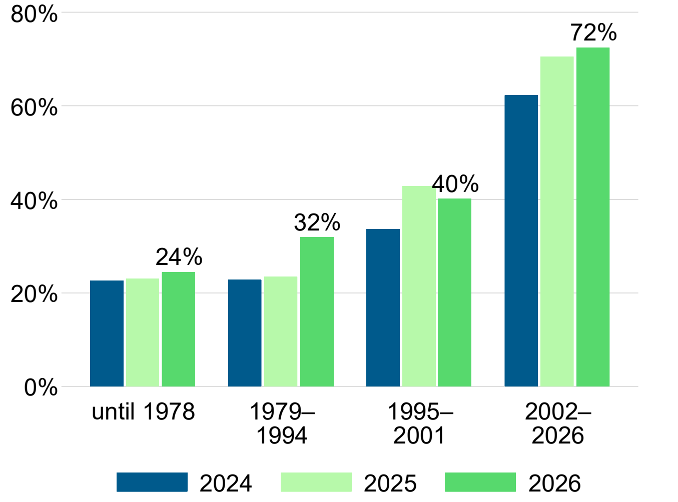
Large differences emerge by **year of construction of the dwelling** (Figure 3.6). In buildings constructed up to 1978, the share of households with green technology is 24%, while in houses built since 2002 it is already 72%. Particular attention should be paid to the older building stock in order to achieve the goal of a climate-neutral building stock.

### 3.3 Strong momentum in PV and electric vehicles

The rooftop PV system is by far the most widely used technology: 18% of all households and 34% of homeowners use such a PV system (Figure 3.7). Plug-in solar devices are recorded separately (see info box) and do not count towards the ‘rooftop PV system’ category. Electric vehicles (battery-electric vehicles and plug-in hybrids) are used by 10% of all households and 17% of homeowners; the figures for solar thermal energy are 10 and 18%. Home batteries are now used by one in ten households. Among homeowners, they already rank second, at 23%. Heat pumps follow with 9% of households and 16% of homeowners.

**Figure 3.6: Households with green technology by year of construction of dwelling**

Proportion of households with at least one green technology.




Note: Figure 3.1 contains details on the green technologies considered.

Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

Electric vehicles (up 3 percentage points, from 7 to 10%) and rooftop PV (up 2 points, from 16 to 18%) are growing faster than the other technologies surveyed. They are followed by home batteries and heat pumps (each up 1 percentage point). Adoption plans point to continued momentum: 5% of households plan to adopt an electric vehicle within the next 12 months, 4% a home battery, and 3% each a PV system or a heat pump (Figure 3.7).

The analysis of homeowners in Figure 3.7 (right) illustrates the potential: more than one in three homeowner households already uses a rooftop PV system (34%), almost one in four a home battery (23%) and one in six an electric vehicle (17%). The heat pump follows at 16% – it is likely to benefit most from the carbon pricing of heating (cf. Chapter 5). For tenant households, by contrast, the barriers to access remain structurally high: Here, landlords and communities of property owners predominantly decide on investments (cf. Figure 3.4).

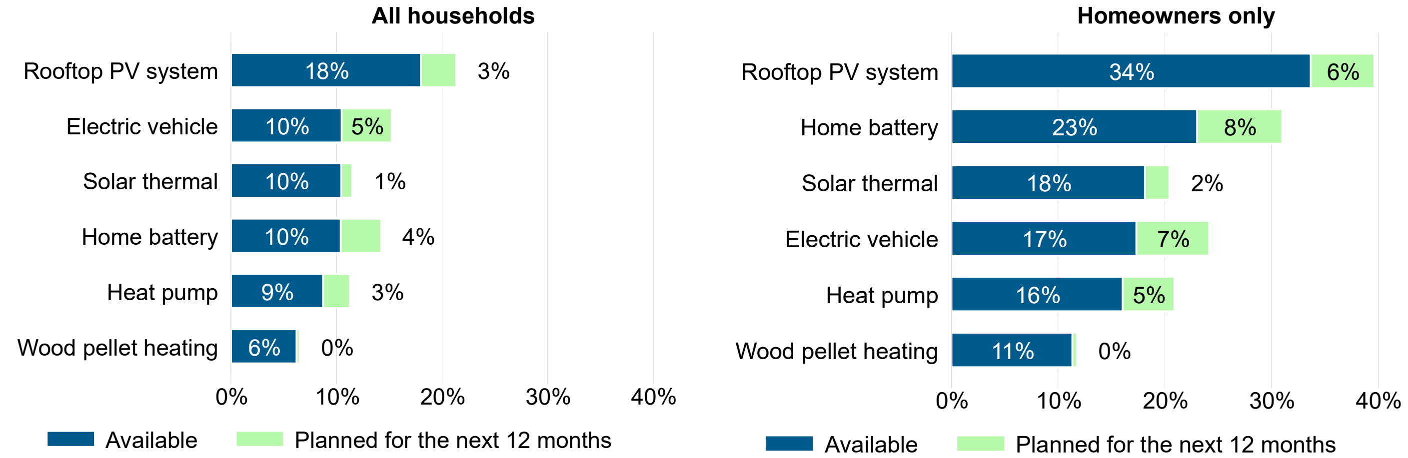
Taking adoption plans as a yardstick, the ramp-up is likely to continue. The planning share of 3% of all households for heat pumps alone equates to more than 1 million households. Not every plan will be implemented within a year but as a leading indicator, the planning shares point the direction of the ramp-up – with electric vehicles, rooftop PV systems and home batteries at the top.

**Info box: Plug-in solar**

Plug-in solar devices – known in Germany as 'balcony power plants' (Balkonkraftwerke) – are small photovoltaic systems that are usually connected to the home electricity supply via a plug. They may feed in a maximum of 800 watts. The KfW Energy Transition Barometer has recorded them separately since last year in order to delineate the use of rooftop PV more precisely. Only rooftop PV systems continue to count as a green technology; plug-in solar devices are included in the analysis of electricity supply in Chapter 4.

**Figure 3.7: Uptake and planned adoption of green technologies**

Proportion of all households (left) and of homeowners (right) that use the respective technology or plan to adopt it in the next 12 months.




Source: KfW Energy Transition Barometer 2026.

# 4. Household electricity supply

**Around 53% of households make their own contribution to green electricity** – more than half for the first time. 18% have a rooftop PV system, a further 5% have at least a plug-in solar device. 30% pay a green electricity rate without generating electricity themselves.

**Rooftop PV is growing and mostly comes with a home battery**. Among homeowners, around two thirds of households now use their PV system together with a home battery.

### 4.1 One in two households uses green electricity

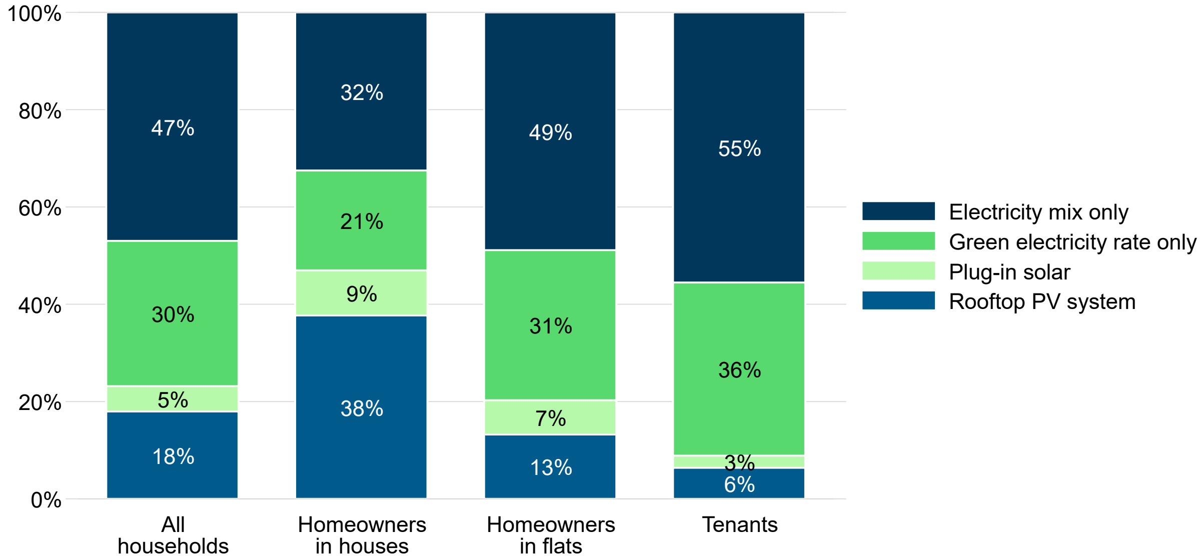
Overall, around 53% of all households have direct access to green electricity: 18% have their own rooftop PV system, 5% at least a plug-in solar device and 30% only a green electricity rate (Figure 4.1). A further 6% have planned one of these measures for the next 12 months. Among homeowners in houses, more than two thirds (68%) have access to green electricity, primarily via their own rooftop PV system (38%).

One shift compared with the previous year stands out: while rooftop PV grew from 16 to 18%, the share of households that obtain green electricity exclusively through a green electricity rate (without generating electricity themselves) has remained stable. 47% of households now use the German electricity mix only (previous year: 52%). Still, 6% of households have plans to use green electricity in future. One possible explanation for this shift is that rising electricity prices and falling investment costs for PV systems have increased interest in generating one's own electricity. Households with suitable roof areas are increasingly switching to self-generation, thereby reducing the electricity they draw from the German grid, while demand for green electricity rates remains constant, above all among households without the option of generating electricity themselves.

This engagement builds on a solid foundation: In 2025, renewable energies already covered 56% of the electricity consumed in Germany; wind and solar energy, with a combined share of more than 45%, were jointly the leading sources of electricity generation for the first time. The two sources complement each other through opposing seasonal and diurnal profiles, so that wind and sun deliver little electricity simultaneously on only 15 days per year on average. On these days, which are concentrated in the months from October to February, storage, flexible demand, European electricity trading and secured reserve capacity help to stabilise the electricity system.[23] Those who electrify – whether for heating or driving – are relying on an electricity system that is increasingly based on domestic renewable sources.

**Figure 4.1: Household electricity supply**

Proportion of households by access to green electricity.




Note: The category rooftop PV system also includes households that additionally use plug-in solar, a green electricity rate or both. The category plug-in solar also includes households that have additionally signed up for a green electricity rate.[24]

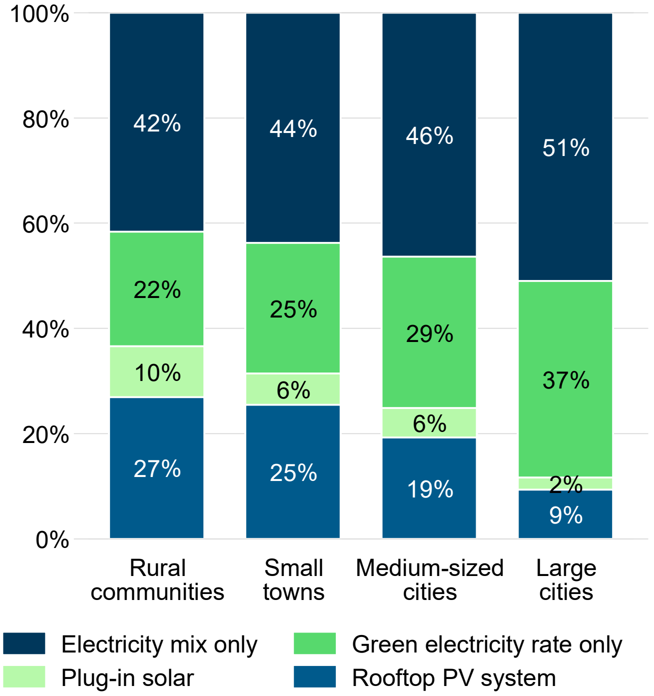
Source: KfW Energy Transition Barometer 2026.

[23] Cf. Rode and Römer (2026): Wind- und Solarstrom ergänzen sich (Wind and solar power complement each other – our title translation, in German), Focus on Economics No. 530, KfW Research.

[24] Based on all households, the share of households with a green electricity rate is around 42% and the share of households with plug-in solar around 6%.

**Figure 4.2: Electricity supply by settlement structure**

Proportion of households by access to green electricity.

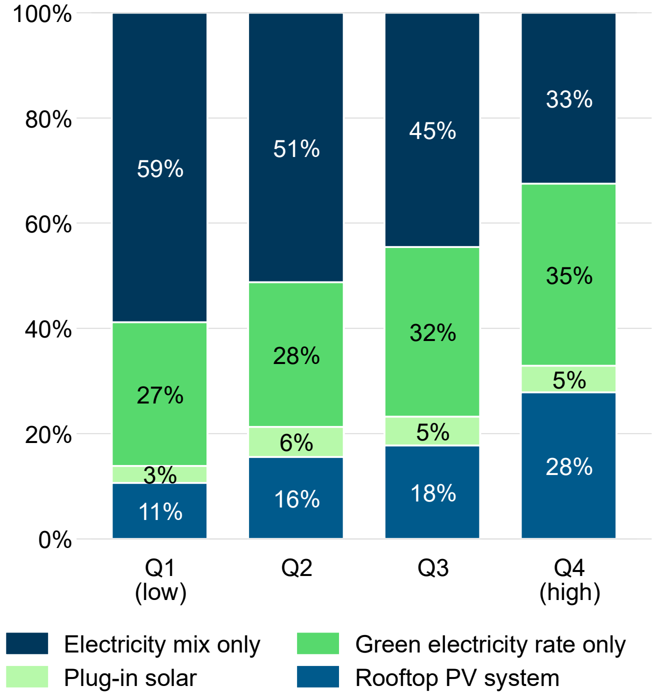



Note: Figure 4.1 contains details on the categories.

Source: KfW Energy Transition Barometer 2026.

**Figure 4.3: Electricity supply by income**

Proportion of households by access to green electricity.




Note: Figure 4.1 contains details on the categories.

Source: KfW Energy Transition Barometer 2026.

## 4.2 Marked differences in uptake between population groups

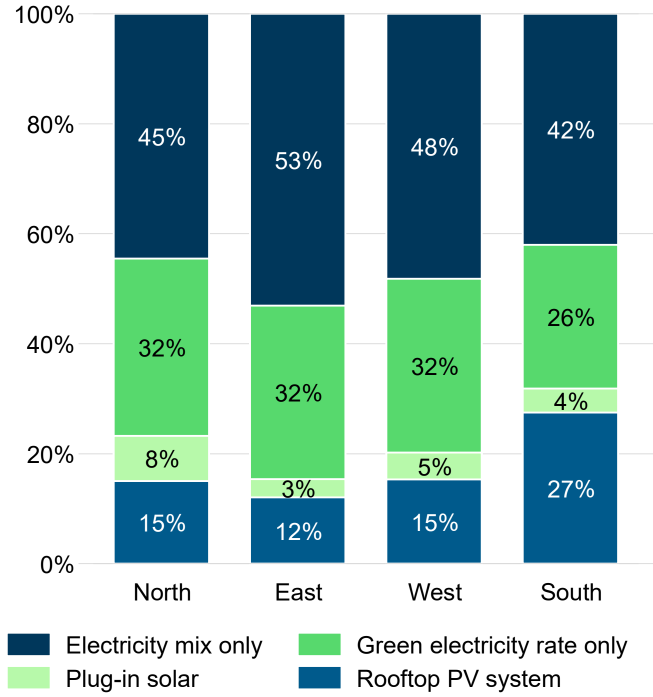
A clear **urban-rural divide** is evident in self-generation of electricity (Figure 4.2). In rural communities, more than one third of households generate their own green electricity, either on the roof (27%) or at least via a plug-in solar device (10%). In large cities, the combined share is only 11% (9% rooftop, 2% balcony).

Similarly, **income** is a significant factor in differences in electricity supply (Figure 4.3). In the top income quartile, only around one third now use the electricity mix only (33%). A similar number of households have their own PV system on the roof or balcony (33% combined). In the bottom income quartile, by contrast, almost twice as many households use the German electricity mix only (59%), while just 14% generate their own green electricity.

**Regional** differences are most evident in rooftop PV, which is most common in the sunny south (27%) and least common in the east (12%). Accordingly, the use of the German electricity mix only is most widespread in the east (53%) and least widespread in the south (42%, Figure 4.4).

**Figure 4.4: Electricity supply by region**

Proportion of households by access to green electricity.




Note: Figure 4.1 contains details on the categories.

Source: KfW Energy Transition Barometer 2026.

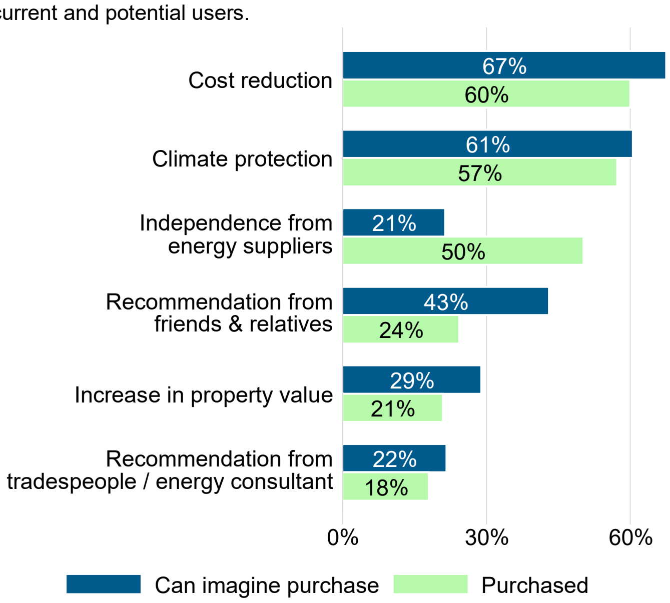
### 4.3 One in two PV systems with a home battery

PV systems are increasingly combined with home batteries. Today, 10% of all households and 23% of homeowners use a home battery (cf. Figure 3.7). More than half of all rooftop PV systems (55%) are used in conjunction with a home battery. Two years ago, it was 45%, and three years ago only 31%. Among homeowners, the shares are even higher. Around two thirds (66%) of PV owners also use a home battery.

A key driver of the decision to combine the two is the dramatic fall in the price of home batteries: between 2013 and 2024, prices fell by around 85%.[25] Batteries increase self-consumption and independence – both, in turn, important motives for acquiring a rooftop PV system.

**Figure 4.5: Benefits of rooftop PV systems**

Proportion of households that see the respective aspect as a benefit – current and potential users.




Source: KfW Energy Transition Barometer 2026.

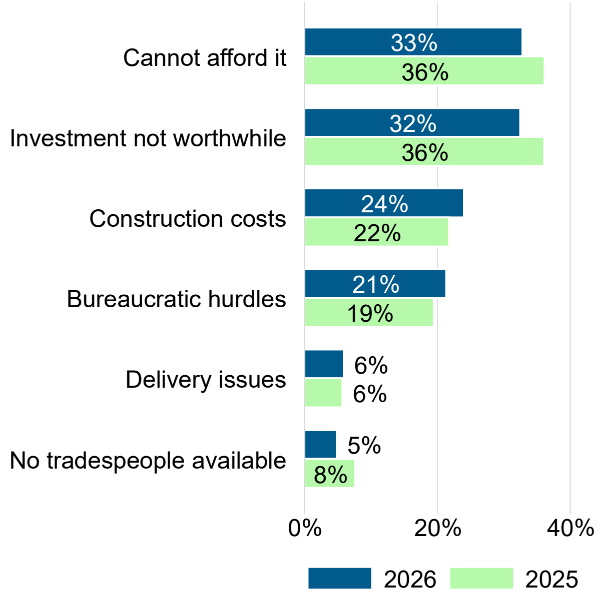
### 4.4 Perceived benefits and barriers

What motivates households to install a rooftop PV system? Among existing and potential users alike, cost reduction and climate protection top the list of perceived benefits (Figure 4.5), closely followed by independence from energy suppliers. Recommendations from the social environment also play a role – an indication that the diffusion of PV systems is also carried by social networks.[26]

Among the barriers, financial aspects continue to dominate: around one third each (33 and 32%) of the households that can generally imagine acquiring such a system state that they cannot afford it or doubt that the investment is worthwhile (Figure 4.6). Construction costs (24%) and bureaucratic hurdles (21%) follow at some distance; delivery and tradespeople bottlenecks, at less than 10%, hardly play a role anymore. With rising demand – or generally high construction activity – these bottlenecks could increase again, however.

**Figure 4.6: Reasons against rooftop PV systems**

Frequency of reasons given for not yet purchasing a rooftop PV system. Multiple responses were possible.




Source: KfW Energy Transition Barometer 2026.

The dominance of financial hurdles is consistent with a key finding of the adoption literature: households value the electricity cost savings of a PV system accruing over many years much less than their present value – they heavily discount future returns. For an earlier Belgian support programme, for example, a study shows that an upfront subsidy at the time of purchase would have achieved the same level of diffusion at a much lower cost than the chosen support through future feed-in tariffs.[27] Support instruments that reduce the initial investment therefore directly address the documented barriers.

[25] Cf. BloombergNEF (2024): Lithium-Ion Battery Pack Prices See Largest Drop Since 2017, Falling to $115 per Kilowatt-Hour, last visited on 26 June 2026.

[26] Cf. for Germany Rode and Weber (2016): Does localized imitation drive technology adoption? A case study on rooftop photovoltaic systems in Germany, Journal of Environmental Economics and Management, 78, 38–48, and for the USA Bollinger and Gillingham (2012): Peer Effects in the Diffusion of Solar Photovoltaic Panels, Marketing Science, 31(6), 900–912.

[27] Cf. De Groote and Verboven (2019): Subsidies and Time Discounting in New Technology Adoption: Evidence from Solar Photovoltaic Systems, American Economic Review, 109(6), 2137–2172.

# 5. Household heating supply

**Almost two thirds of households (63%) still heat with gas or oil.** Heat pumps are used primarily in newer, owner-occupied homes, with a share of 18% among homeowners in houses.

**Openness towards heat pumps is solid – but doubts about cost-effectiveness remain.** Households that have obtained information on the energy condition of their home are much more likely to use a heat pump.

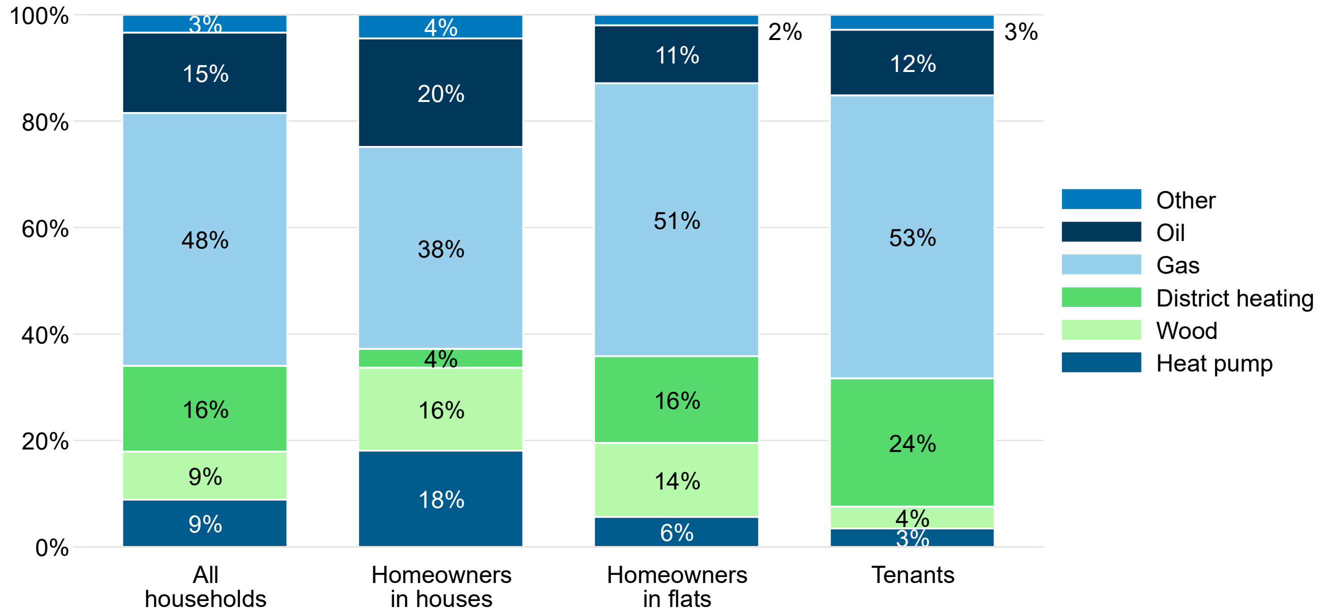
### 5.1 Heating is still dominated by fossil fuels

A look at the current heating supply reveals the need for adjustment on the road to climate neutrality (Figure 5.1). Heat pumps (9% of all households) and wood (9%) – whose combustion only releases previously stored $CO_2$ – are compatible with a climate-neutral building stock. Households connected to district heating (16%) have no investment needs of their own either, although network operators face substantial investment in the medium term. By contrast, almost two thirds of households (63%) heat directly with gas (48%) or oil (15%). These households face either investment in a new system or rising costs from carbon pricing in the coming years.

How strongly these costs reach households depends on the pass-through. The evidence from energy markets suggests that emission costs are largely passed on to end customers: for the Spanish electricity market, a pass-through of more than 80% of emission costs is documented.[28] Households with gas or oil heating should therefore expect rising heating costs when the EU-ETS2 takes effect from 2028 – especially as natural gas has already become expensive: in the second half of 2025, the gas price was around 80% higher than in the second half of 2021, before Russia's war of aggression against Ukraine.[29] The burden is unevenly distributed: since low-income households have so far been much less likely to switch to a heat pump (Figure 5.2) and energy expenditure accounts for a larger share of their budget, carbon pricing without accompanying measures has a regressive effect – that is, it places a proportionately heavier burden on low-income households.[30]

**Figure 5.1: Primary source of heating**

Primary energy source used for heating by ownership situation.




Source: KfW Energy Transition Barometer 2026.

[28] Cf. Fabra and Reguant (2014): Pass-Through of Emissions Costs in Electricity Markets, American Economic Review, 104(9), 2872–2899.

[29] Cf. Federal Statistical Office (2026b): Strompreise für Haushalte im 2. Halbjahr 2025 um 1,6 % gestiegen (Electricity prices for households up 1.6% in the second half of 2025 – our title translation, in German), press release No. 111 of 31 March 2026. Brüggemann and Rode (2025): Wie entwickeln sich die Energiepreise weiter? (How will energy prices develop? – our title translation, in German), Chapter 13, KfW Research.

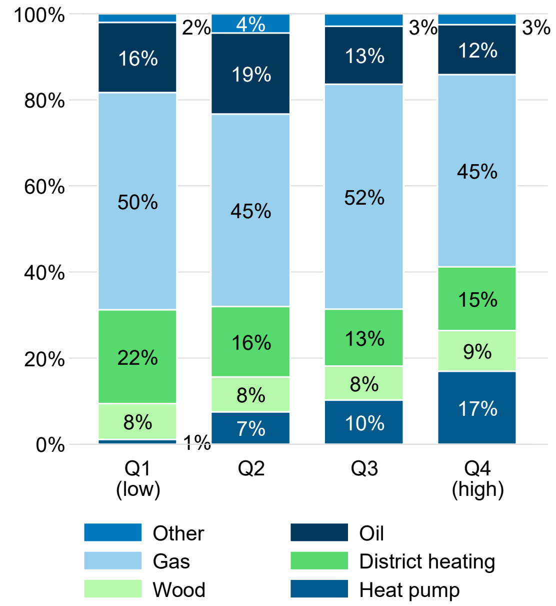
[30] Cf. Känzig (2026): The Unequal Economic Consequences of Carbon Pricing, American Economic Review, forthcoming (NBER Working Paper 31221).

## 5.2 Different needs for action in the respective population groups

Heat pumps are used much more frequently by **homeowners in houses** (18%) than by homeowners in flats (6%) or tenants (3%). By **income**, heat pumps are used by 17% of households in the top quartile. In the bottom income quartile, the figure is only 1% (Figure 5.2). District heating cushions the gradient. **Regionally**, there is a slight south-north divide in heat pumps, a high use of district heating in the east (29%) and a high share of wood in the south (Figure 5.3).

### Figure 5.2: Source of heating by income

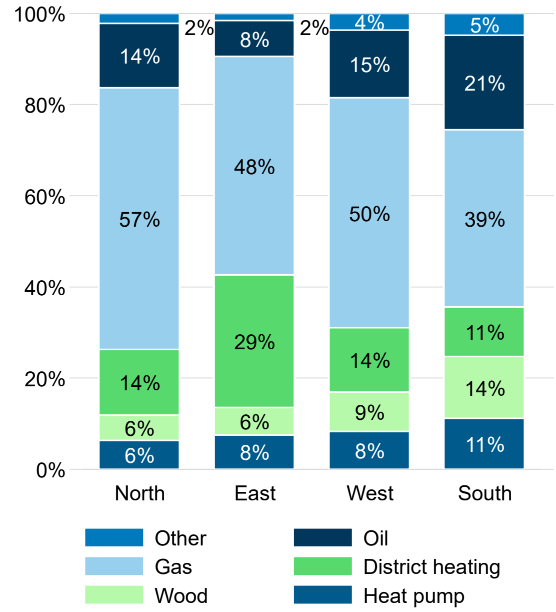
Primary energy source used for heating by income quartile.




Source: KfW Energy Transition Barometer 2026.

### Figure 5.3: Source of heating by region

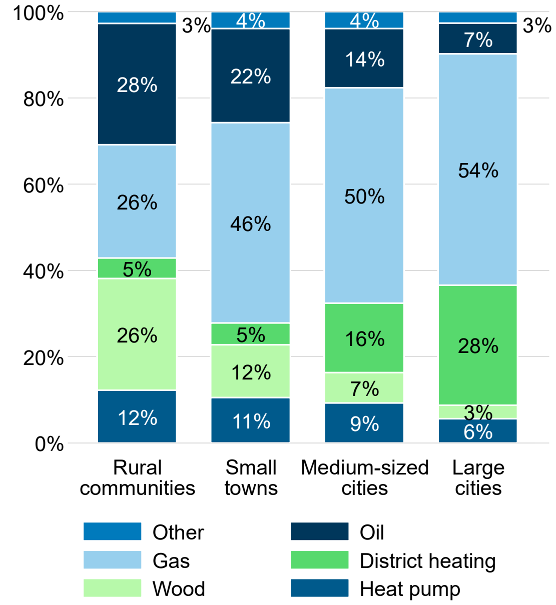
Primary energy source used for heating by region.




Source: KfW Energy Transition Barometer 2026.

### Figure 5.4: Source of heating by settlement structure

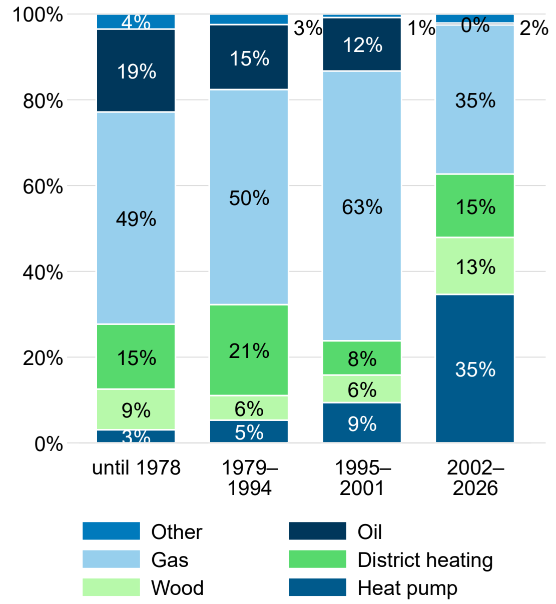
Primary energy source used for heating by settlement structure.




Source: KfW Energy Transition Barometer 2026.

### Figure 5.5: Source of heating by year of construction

Primary energy source for heating by year of construction of dwelling.




Source: KfW Energy Transition Barometer 2026.

By **settlement structure**, heat pumps and oil heating systems are used most frequently in rural communities, whereas district heating is most common in large cities (Figure 5.4).

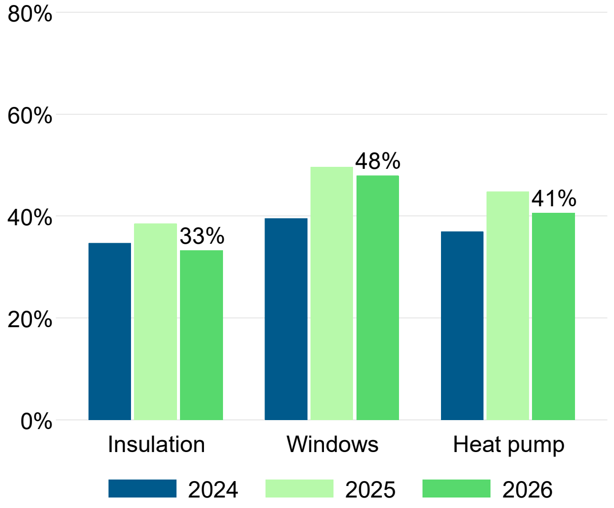
The **year of construction** of the dwelling plays a central role (Figure 5.5): in buildings constructed since 2002, the share of heat pumps is 35%, compared with only 3% in houses built up to 1978. Thanks to improved thermal insulation, buildings constructed between 1995 and 2001 offer great potential for reducing the still high share of fossil energy of 74%.

### 5.3 Information fosters openness towards modernisation and switching technologies

Whether households can imagine using a technology in future is decisive for the further ramp-up. Of homeowners without a heat pump, 41% can imagine acquiring one, 48% an upgrade of windows and 33% insulation measures (Figure 5.6).

**Figure 5.6: Conceivable measures**

Proportion of homeowners who are not currently using the relevant technology but can imagine acquiring it in future.




Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

The level of information plays an important role: households that have obtained information from energy consultants (24% with heat pump use), tradespeople (23%) or the internet (15%) are much more likely to use a heat pump than those without information (3%, Figure 5.7).

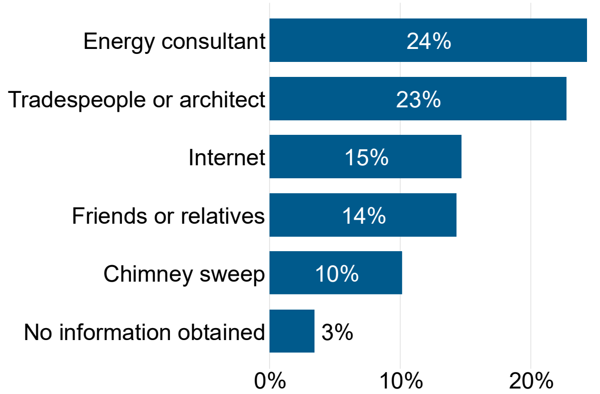
### 5.4 Barriers to the adoption of heat pumps

The biggest barrier remains doubts about cost-effectiveness: around 43% of households that can generally imagine a heat pump consider the investment not worthwhile (Figure 5.8). This is followed by financial constraints (around 32%) and the lack of decision-making authority in multi-family dwellings (16%). The greatest hurdles are therefore primarily economic in nature. This is where the carbon price and investment support come in, as both directly address cost-effectiveness.

The carbon price increases expected under the EU-ETS2 are likely to improve the cost-effectiveness of heat pumps. The currently still considerable concerns show, however, that this development is not yet sufficiently present – owing to uncertainty or the well-known stronger discounting of future payment flows.[31] Strengthening energy advice appears helpful,[32] as does targeted support to mitigate the barriers relating to the individual affordability of acquiring a heat pump, which were cited more frequently than in the previous year.

**Figure 5.7: Uptake of heat pumps depending on the source of information**

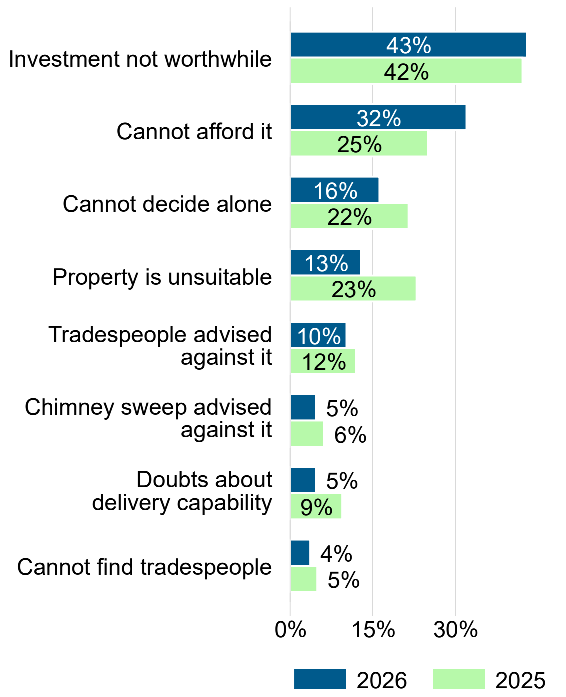
Proportion of households with a heat pump depending on the information obtained on the energy condition of the home. Multiple sources of information could be given.




Source: KfW Energy Transition Barometer 2026.

**Figure 5.8: Concerns about cost-effectiveness take centre stage**

Frequency of mentions as a barrier by households that are not currently using a heat pump but can imagine acquiring one. Multiple responses were possible.




Source: KfW Energy Transition Barometer 2025 and 2026.

[31] Cf. De Groote and Verboven (2019): Subsidies and Time Discounting in New Technology Adoption: Evidence from Solar Photovoltaic Systems, American Economic Review, 109(6), 2137–2172.

[32] On the importance of the electricity price for cost-effectiveness, cf. Letz, Rode and Römer (2025): Die Wärmepumpe etabliert sich in Europa – der Strompreis als Faktor (Heat pumps are gaining ground in Europe – electricity prices matter – our title translation, in German), Focus on Economics No. 487, KfW Research.

Equally telling is what has receded: only 13% of households now consider their property to be unsuitable (compared with 23% in the previous year) and tradespeople and chimney sweeps are less likely to advise against using one: currently, only 10 and 5% of households respectively report this. This reflects the assessment in the specialist literature, which has long seen a broad range of applications for heat pumps. Bottlenecks in tradespeople or deliveries are only rarely cited as a barrier anymore.

### 5.5 Insulation as a supporting factor

Heat pumps work particularly well in energy-efficient buildings. Energy-efficient upgrades are an important factor in the energy transition. Here, continuous progress has been evident for years. However, at well below 1%, the renovation rate has been at a level that is clearly too low for several years.[33] On a positive note, more and more households are open to energy-efficient renovation: almost one in two households can imagine replacing their windows (Figure 5.6).

Energy efficiency measures are paying off more and more, as various studies show. Changes in house prices in the wake of the 2021 energy price crisis, for example, reveal much smaller price discounts for energy-efficient buildings.[34] Moreover, the price premium for energy-efficient properties has continued to rise in recent years – in Belgium, for example, where the differences are attributed, among other things, to uncertainty about future heating costs and to greater consideration of energy efficiency in mortgage lending.[35] There are also signs in the German property market that the energy condition of a property is increasingly reflected in prices.[36]

**Info box: Summer of extreme heat, cooling and climate adaptation**

The hot summer of 2026 draws attention to a second function of heat pumps and insulation: cooling. Modern (reversible) heat pumps can actively cool in summer and heat in winter. Likewise, good insulation can reduce the need for heating in winter and for cooling in summer. The technologies combine climate action and climate adaptation. In the case of the heat pump, this applies in particular in combination with a PV system, whose yield in summer coincides with the need for cooling.

With rising temperatures and growing prosperity, demand for cooling is growing strongly worldwide: air conditioning is spreading above all through the interplay of heat and income and substantially increases electricity consumption – a conflict with climate action if the additional electricity is not renewable.[37] Adaptation works: in the USA, excess mortality on hot days fell by around 75% over the 20th century – since 1960 almost entirely thanks to air conditioning.[38] Climate change is altering the structure of energy demand: while the need for heating declines, the need for cooling rises – with regionally different consequences for energy expenditure.[39]

Heat does not affect everyone equally: older people and low-income households are particularly affected, both in terms of health and financially – and can often least afford adaptation. Adaptation measures reduce damages but are themselves costly; together, the two amount to several per cent of GDP globally.[40] For the energy transition, this implies that efficient buildings, heat pumps with a cooling function and self-generated electricity from PV form a synergy of climate action and heat protection – one that should be made accessible to low-income and older households in a targeted manner.

[33] Cf. BuVEG (2026): Sanierungsquote 2025: Talfahrt für energetische Gebäudesanierung geht weiter (Renovation rate 2025: downward slide in energy-efficient building renovation continues – our title translation, in German), press release of 2 February 2026.

[34] Cf. Brolinson et al. (2026): European energy crisis: Did electricity prices shock real estate markets? Journal of Environmental Economics and Management, 137, 103283.

[35] Cf. Reusens et al. (2026): Impact on house prices of an energy renovation obligation for homebuyers, Energy Economics, 158, 109317.

[36] Cf. FAZ (2026): Der Hitze-Effekt auf dem Wohnungsmarkt (The heat effect on the housing market – our title translation, in German), article of 18 August 2026, p. 23, online version: Welche Wohnungen bei Hitze drastisch an Wert verlieren (Which homes lose value drastically in the heat – our title translation, in German).

[37] Cf. Davis and Gertler (2015): Contribution of air conditioning adoption to future energy use under global warming, Proceedings of the National Academy of Sciences, 112(19), 5962–5967.

[38] Cf. Barreca et al. (2016): Adapting to Climate Change: The Remarkable Decline in the US Temperature-Mortality Relationship over the Twentieth Century, Journal of Political Economy, 124(1), 105–159.

[39] Cf. Rode et al. (2021): Estimating a social cost of carbon for global energy consumption, Nature, 598, 308–314.

[40] Cf. Carleton et al. (2022): Valuing the Global Mortality Consequences of Climate Change Accounting for Adaptation Costs and Benefits, Quarterly Journal of Economics, 137(4), 2037–2105.

# 6. Uptake of electric vehicles by households

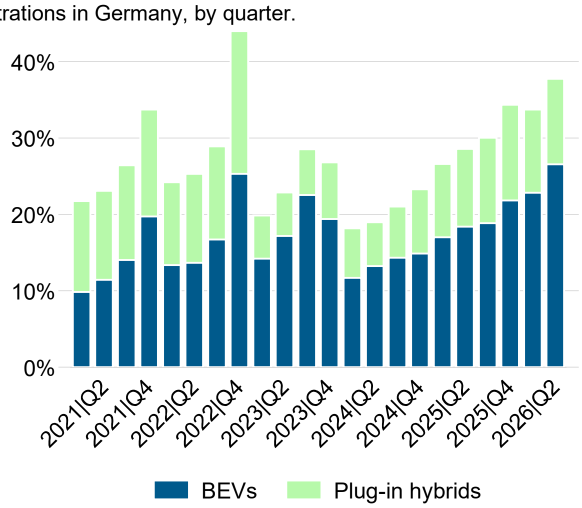
**Around one in ten households (10%) now drives electric.** The new car market continues to pick up: battery-electric vehicles account for around one quarter of new car registrations. The stock exceeds 2 million vehicles for the first time.

**Typical users have a high income, are middle-aged and own a house.** Often in combination with a PV system, which enables low-cost charging with self-generated electricity.

**The price remains the biggest barrier to purchase – but for the first time with a clearly declining tendency.** Reservations about charging infrastructure, range and the environmental footprint also continue to decline.

### Figure 6.1: Trend in new registrations of electric vehicles

Proportion of battery-electric vehicles and plug-in hybrids in new registrations in Germany, by quarter.




Source: Federal Motor Transport Authority, own calculations.

## 6.1 Electric vehicles continue to gain market share

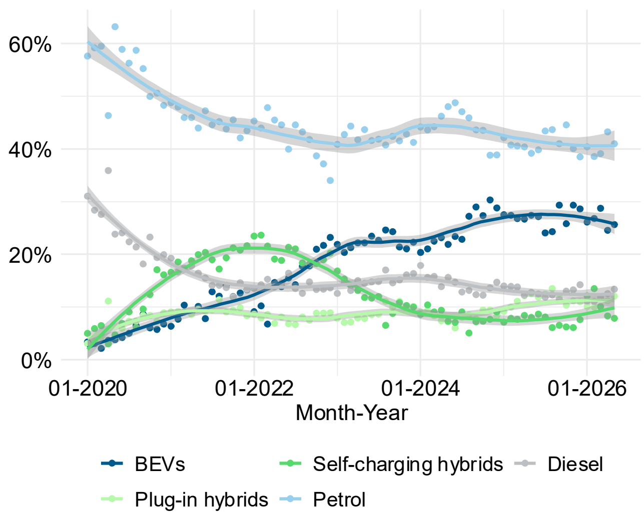
The use of electric vehicles by households has risen further – to now 10% of all households (previous year: 7%).[41] The momentum is driven by battery-electric vehicles, which rose from 5 to 8% year on year. Plug-in hybrids have increased only marginally and stand at a rounded 2% in both years.

This development is evident in the new car market, too. After the phase-out of purchase subsidies, the share of battery-electric vehicles (BEVs) in new car registrations fell well below 20% at the beginning of 2024. Since then, it has clearly recovered: from 13.5% in 2024 to 19.1% in 2025 and around one quarter in the first half of 2026. Including plug-in hybrids, electrically powered cars recently accounted for more than one third of new registrations (Figure 6.1). The stock of battery-electric vehicles has exceeded the 2 million mark for the first time.[42]

Electric vehicles are becoming increasingly important for Germany as a business location. The share of BEVs in car exports from Germany has risen from around 3% (2020) to around 27% most recently (Figure 6.2). From January to May 2026, an average of around 81,000 BEVs worth around EUR 3 billion were exported each month. By way of comparison: over the same period, around 121,000 petrol cars worth EUR 4.3 billion were exported each month.[43]

### Figure 6.2: Exports of new cars from Germany by type of engine

Shares of engine types in car exports from Germany.




Source: Foreign trade statistics of the Federal Statistical Office (2026a), own calculations.

Measured by the value of exports, Germany at times achieved its largest export surplus of all engine types with BEVs: around the turn of the year 2024/2025, the

[41] As part of a stronger focus on emission-reducing technologies, full hybrid vehicles are no longer considered from this edition of the KfW Energy Transition Barometer onwards. The previous-year values reported here have been adjusted accordingly. Including full hybrid vehicles, the share of electric vehicles would be 13% this year.

[42] Cf. Federal Motor Transport Authority (2026a): Neuzulassungen von Pkw nach alternativen Antrieben (New registrations of passenger cars by alternative drive systems – our title translation, in German) and Federal Motor Transport Authority (2026b): Zahl der reinen Elektrofahrzeuge überschreitet erstmals die Zwei-Millionen-Marke (Number of battery-electric vehicles exceeds the two million mark for the first time – our title translation, in German), last visited on 8 August 2026.

[43] Own calculations based on the foreign trade statistics of the Federal Statistical Office (data as at 4 August 2026); cf. also Rode, Römer and Salzgeber (2025): Growing demand for electric cars – German exports are also picking up, Focus on Economics No. 511, KfW Research.

value of exports exceeded the value of imports more than fivefold. Since then, the ratio has settled at around 2.5, on par with petrol cars. Since export volumes remained largely stable, this decline mainly reflects increased imports of electric vehicles. The export success underlines how strongly price signals shape the direction of innovation in the automotive industry. Innovation research based on patent data shows that when fuel prices rise, car manufacturers measurably shift their innovation activity from fossil to clean propulsion technologies – and this process is self-reinforcing (path dependency), because companies build on their existing knowledge.[44]

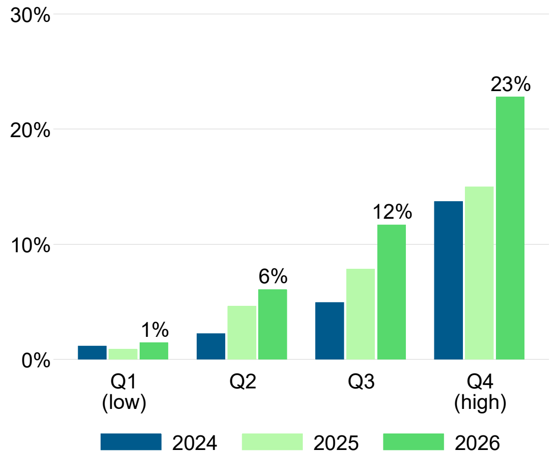
A credible carbon price trajectory – as the EU-ETS2 is intended to set – has a dual effect: it strengthens domestic demand for electric vehicles and at the same time supports the technological competitiveness of domestic industry in global markets.

## 6.2 Typical users: high income, middle-aged, own house

The use of an electric vehicle depends strongly on **income** (Figure 6.3). In the top income quartile, the adoption rate is 23%, in the bottom quartile only 1%. This is consistent with the purchase price being the biggest barrier – although many low-income households do not own a car at all and therefore have no need to invest.

### Figure 6.3: Adoption of electric vehicles by income

Proportion of households with an electric vehicle by quartile of net household income.

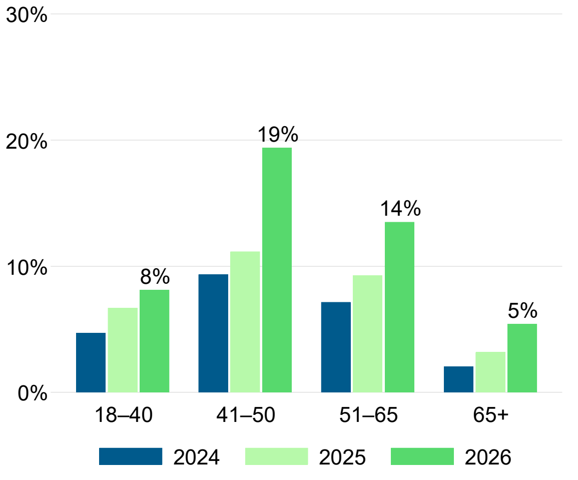



Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

Once cheaper models also become available as used cars, electric vehicles could become more affordable for lower income groups as well. By **age**, the group of 41 to 50-year-olds has the highest adoption rate (19%), while older households aged 65 and over remain the most reluctant, at 5% (Figure 6.4).

### Figure 6.4: Adoption of electric vehicles by age group

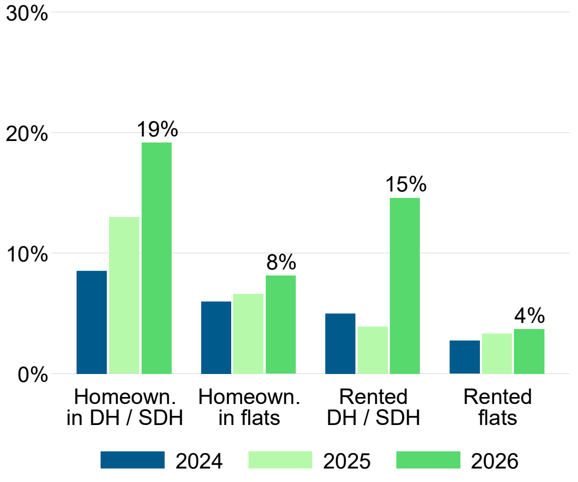
Proportion of households with an electric vehicle by age of respondent.




Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

### Figure 6.5: Adoption of electric vehicles by housing tenure type

Proportion of households with an electric vehicle by housing tenure type. DH are detached houses, SDH are semi-detached houses.




Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

The **housing tenure type** is decisive: electric vehicles are most widespread in owner-occupied detached and semi-detached houses (19%) and least widespread among tenants of flats (4%, Figure 6.5). The momentum is greatest among homeowners in houses: here, the shares have doubled within two years.

For residents of their own houses, installing a wall box is usually uncomplicated; if the car can additionally be combined with a PV system, the cost advantages increase. Current studies corroborate this link: the diffusion of household photovoltaics drives the adoption of electric

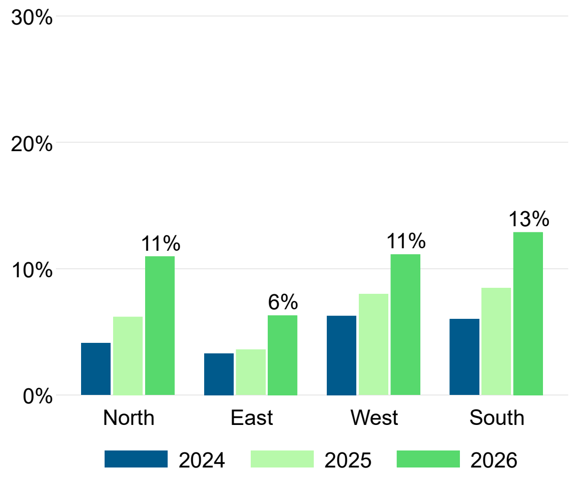
[44] Cf. Aghion et al. (2016): Carbon Taxes, Path Dependency, and Directed Technical Change: Evidence from the Auto Industry, Journal of Political Economy, 124(1), 1–51.

vehicles.[45] Adoption has also risen considerably in rented detached and semi-detached houses, to 15%.

**Regionally**, the adoption of electric vehicles is highest in the south (13%), stands at 11% in the north and west and is lowest in the east, at 6% (Figure 6.6). Over the three survey years 2024 to 2026, adoption has increased in all regions.

### Figure 6.6: Adoption of electric vehicles by region

Proportion of households with an electric vehicle by region.




Source: KfW Energy Transition Barometer 2024, 2025 and 2026.

### 6.3 Barriers to purchase: price remains the biggest hurdle, reservations are declining

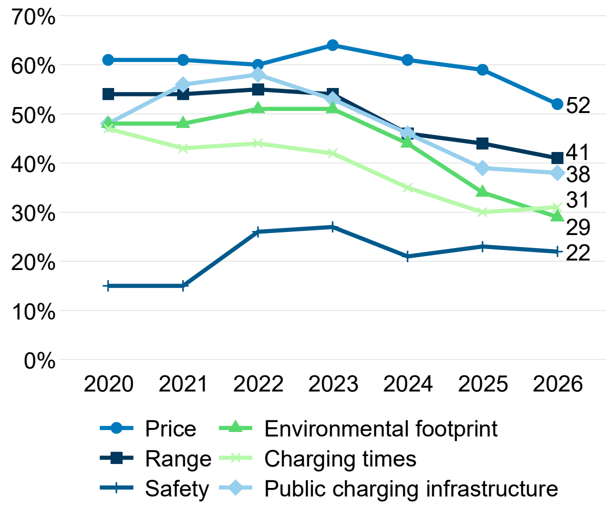
What is holding the remaining households back from switching? As with photovoltaics (Figure 4.6) and heat pumps (Figure 5.8), the KfW Energy Transition Barometer also surveys the reasons against buying an electric vehicle. The price is mentioned most frequently: just over half (52%) of households without an electric vehicle see it as a barrier. The tendency is notable: after mentions of price had hardly declined for years, they have clearly fallen for the first time compared with the previous year (59%) (Figure 6.7). This is consistent with the fact that the price difference between electric vehicles and combustion engine cars has recently narrowed.[46]

The focus on price is consistent with the close link to income shown in Figure 6.3 and draws attention to the used car market. Through this market, low-priced electric vehicles are likely to reach broader groups of buyers.

The economic evidence shows that targeted purchase incentives are effective for lower and middle incomes in particular: in California, income-dependent subsidies measurably increased demand for electric vehicles in these groups.[47]

### Figure 6.7: Reasons against buying an electric vehicle over time

Proportion of households without an electric vehicle in Germany; multiple responses were possible.




Source: KfW Energy Transition Barometer 2020 to 2026.

Overall, concerns surrounding usage continue to lose weight. Concerns about public charging infrastructure are still cited by 38% of households without an electric vehicle. That is far fewer than in the years 2021 to 2023, when the figure was at times above 50%. Range (41%) and charging times (31%) are cited less frequently than a few years ago. In addition, just under one third (31%) point to the lack of a suitable parking space. 17% cite a lack of charging options at the workplace and 18% state that they do not need a car at all (no graphic depiction).

The development regarding the environmental footprint is striking: the share of households with such concerns has fallen from 51% in 2023 to 29%. Research supports this reassessment. The climate benefit of an electric vehicle does depend crucially on how cleanly the charging electricity is generated[48], and electric vehicles often replace comparatively fuel-efficient combustion engine cars, which initially dampens the savings.[49] With the growing share of renewable energies in the electricity

[45] Cf. Lyu (2023): Are Electric Cars and Solar Panels Complements? Journal of the Association of Environmental and Resource Economists, 10(4), 1019–1057, and Rode (2024): Solar Photovoltaics and Battery Electric Vehicles, Working Paper (SSRN).

[46] Cf. also Rode, Römer and Salzgeber (2025): Growing demand for electric cars – German exports are also picking up, Focus on Economics No. 511, KfW Research.

[47] Cf. Muehlegger and Rapson (2022): Subsidizing low- and middle-income adoption of electric vehicles: Quasi-experimental evidence from California, Journal of Public Economics, 216, 104752.

[48] Cf. Holland et al. (2016): Are There Environmental Benefits from Driving Electric Vehicles? The Importance of Local Factors, American Economic Review, 106(12), 3700–3729.

[49] Cf. Xing, Leard and Li (2021): What does an electric vehicle replace? Journal of Environmental Economics and Management, 107, 102432.

mix – in 2025 they covered 56% of gross electricity consumption[50] – the climate footprint improves from year to year, however. According to current life-cycle calculations, the carbon footprint of an electric vehicle registered in the EU today is already better than that of a comparable combustion engine car after around 17,000 km of mileage.[51]

Safety concerns are expressed by 22% of households. They are the only one of the reasons shown in Figure 6.7 that is above the 2020 level (15%). Since the peak in 2023 (27%), however, they too have been declining slightly. Objectively, these concerns appear unfounded: the breakdown statistics of the German motoring club ADAC attest that electric vehicles are more reliable than combustion engine cars of the same age.[52] Moreover, studies find that electric vehicles do not pose an increased fire risk.[53] Reducing the corresponding information deficits is therefore a distinct starting point for the further market ramp-up.

## 6.4 Starting points: charging, information, flexibility

For residents of multi-family dwellings, charging remains more cumbersome, as agreements with landlords or communities of property owners are required. Simplified rules and better public charging infrastructure can help.[54] Here in particular, residents could also benefit from smart meters in combination with dynamic electricity rates by shifting their charging to times of low electricity prices. Recent studies show that electric vehicle users are sensitive to price signals and do indeed adjust their charging.[55] Timing the charging can reduce the costs of the entire electricity system by matching growing demand with the increasingly weather-dependent supply.

Electric vehicles can become a growing flexibility resource for the electricity system. The size of this potential is illustrated by a nationwide field experiment in the United Kingdom with 2.7 million participants. Households reduce their electricity consumption during peak-load windows by 23% on average when they are rewarded for this load shifting. Households with an electric vehicle, home battery, heat pump or PV system participate particularly frequently.[56]

Public charging infrastructure continues to grow dynamically: as at 1 April 2026, around 200,000 public charging points were in operation in Germany, 17% more than a year earlier. That equates to one public charging point for every ten BEVs.[57] The further expansion of public charging infrastructure pays off twice over because the market for electric mobility is characterised by indirect network effects: a denser charging network makes electric vehicles more attractive and more electric vehicles improve the utilisation of charging points.[58] Evidence from Norway shows in this regard that funds for expanding charging infrastructure at times increased sales of electric vehicles more per euro spent than direct purchase subsidies.[59]

The motives for buying an electric vehicle are revealing. In the current survey wave, 61% of households with an electric vehicle cite the contribution to climate action as a reason for their purchase, while 45% cite the option of charging the vehicle with green electricity. This is in line with the cost benefits described above: household photovoltaic systems are predominantly found on detached and semi-detached houses, whose residents can benefit from cost savings through self-generated electricity.

[50] Cf. Rode and Römer (2026): Wind- und Solarstrom ergänzen sich (Wind and solar power complement each other – our title translation, in German), Focus on Economics No. 530, KfW Research.

[51] Cf. ICCT (2025): Life-cycle greenhouse gas emissions from passenger cars in the European Union: A 2025 update and key factors to consider, International Council on Clean Transportation.

[52] Cf. ADAC (2025): ADAC Pannenstatistik 2025: Elektroautos zuverlässiger als Verbrenner (ADAC breakdown statistics 2025: electric vehicles more reliable than combustion engine cars – our title translation, in German).

[53] Cf. Fraunhofer ISI (2025): Batterien für Elektroautos: Faktencheck und Handlungsbedarf – ein Update (Batteries for electric vehicles: fact check and need for action – an update – our title translation, in German), Policy Brief 01/2025.

[54] Cf. Moritz and Rode (2026): Ein öffentlicher Ladepunkt versorgt zehn Stromer (One public charging point serves ten electric vehicles – our title translation, in German), Economics in Brief No. 262, KfW Research.

[55] Cf. Bailey et al. (2025): Show me the Money! A Field Experiment on Electric Vehicle Charge Timing, American Economic Journal: Economic Policy, 17(2), 259–284 (freely available as NBER Working Paper 31630).

[56] Cf. Bernard, Metcalfe and Schein (2026): Critical Peak Rewards: Evidence from a Nationwide Demand Response Program, NBER Working Paper 35485.

[57] Cf. Moritz and Rode (2026): Ein öffentlicher Ladepunkt versorgt zehn Stromer (One public charging point serves ten electric vehicles – our title translation, in German), Economics in Brief No. 262, KfW Research.

[58] Cf. Li et al. (2017): The Market for Electric Vehicles: Indirect Network Effects and Policy Design, Journal of the Association of Environmental and Resource Economists, 4(1), 89–133.

[59] Cf. Springel (2021): Network Externality and Subsidy Structure in Two-Sided Markets: Evidence from Electric Vehicle Incentives, American Economic Journal: Economic Policy, 13(4), 393–432.

# 7. Conclusion and outlook

Human-caused climate change is becoming ever more evident – the summer of extreme heat in 2026 is a striking example. The KfW Energy Transition Barometer documents that households in Germany have taken note: support for the energy transition has risen to 84% and households' willingness to act has increased after years of decline – from 59 to 66%.

The technology ramp-up has picked up speed. The share of households with green technology has risen to 34% (around 14 million households); around 1.1 million of them are new adopters. 18% use a rooftop PV system, 10% an electric vehicle, 10% a home battery and 9% a heat pump. The advantages of green technologies are obvious: low emissions, health benefits, independence from fossil fuel imports and – not least – falling costs because renewable energies and batteries have become dramatically cheaper in recent decades.[60]

The summer of extreme heat brings climate adaptation to the fore. Improved insulation of the building envelope combines climate action and heat protection. The same applies to heat pumps with a cooling function – particularly efficient here in combination with electricity from one's own PV system. Such synergies deserve greater weight in the design of the energy transition, not least for vulnerable groups such as older people.

The growing cost advantage of green technologies must not be undermined by fossil fuel subsidies. The price of electricity relative to gas and oil is crucial for decarbonisation. The new European emissions trading system EU-ETS2 can make a decisive contribution from 2028: expected prices of between EUR 71 and 261 per tonne of $CO_2$ in 2030 would set substantial incentives for electrification. For a typical gas-heated detached house consuming around 20,000 kWh, that means around 4 tonnes of $CO_2$ per year – at EUR 71 to 261 per tonne, this corresponds to around EUR 300 to more than EUR 1,000 in additional heating costs per year.[61] The reliability of the price trajectory is important here: experience with the existing EU ETS shows that this carbon pricing has reduced emissions without demonstrable losses in value added or employment[62], and that it incentivises innovation in the field of clean technologies.[63]

Pricing fossil fuels also imposes a burden – particularly on low-income households, which are more likely to heat with gas or oil. The KfW Energy Transition Barometer shows that the transformation is slow in the lower income segment. These households often lack the funds to invest, which points to potential tensions in the coming years, because energy demand is inelastic in the short term: households can hardly cut their consumption at short notice.[64] Rising carbon prices can dampen support for climate policy, particularly among low-income households. Support arises where measures are perceived as effective and fair.[65] To maintain broad support as the financial burden rises, information and targeted investment support are key – all the more so as many heating systems will need replacing in the coming years.

This suggests four starting points for support policy. First, investment grants and low-interest loans lower the initial cost hurdle – more effectively than payments made later, because households heavily discount future returns.[66] Second, information pays off: households that have consulted energy consultants or tradespeople are much more likely to use a heat pump and knowledge about how measures work increases acceptance.[67] Third, the EU-ETS2 needs social compensation so that acceptance among low-income households does not erode.[68] The European Social Climate Fund has provided a framework for this since the start of this year. Fourth, a reliable carbon price trajectory remains key because it steers investment and innovation towards climate-friendly technologies for the long term.[69]

[60] Cf. Roser (2020): Why did renewables become so cheap so fast? Our World in Data, last updated 2025, last visited on 26 June 2026.

[61] Own rough calculation; emission factor for natural gas around 0.2 kg $CO_2$ per kWh, annual consumption of approx. 20,000 kWh. Cf. German Environment Agency (2023): Heizungstausch: Mehr Klimaschutz mit einer neuen Heizung (Replacing the heating system: more climate action with a new heating system – our title translation, in German) (which states 'natural gas by 4–8 cents/kWh' at EUR 200–400/t).

[62] Cf. Colmer et al. (2025): Does Pricing Carbon Mitigate Climate Change? Firm-Level Evidence from the European Union Emissions Trading System, Review of Economic Studies, 92(3), 1625–1660.

[63] Cf. Aghion et al. (2016): Carbon Taxes, Path Dependency, and Directed Technical Change: Evidence from the Auto Industry, Journal of Political Economy, 124(1), 1–51, and Känzig (2026): The Unequal Economic Consequences of Carbon Pricing, American Economic Review, forthcoming (NBER Working Paper 31221).

[64] Cf. Känzig (2026): The Unequal Economic Consequences of Carbon Pricing, American Economic Review, forthcoming (NBER Working Paper 31221).

[65] Cf. Dechezleprêtre et al. (2025): Fighting Climate Change: International Attitudes toward Climate Policies, American Economic Review, 115(4), 1258–1300.

[66] Cf. De Groote and Verboven (2019): Subsidies and Time Discounting in New Technology Adoption: Evidence from Solar Photovoltaic Systems, American Economic Review, 109(6), 2137–2172.

[67] Cf. Dechezleprêtre et al. (2025): Fighting Climate Change: International Attitudes toward Climate Policies, American Economic Review, 115(4), 1258–1300.

[68] Cf. Känzig (2026): The Unequal Economic Consequences of Carbon Pricing, American Economic Review, forthcoming (NBER Working Paper 31221).

[69] The analysis covered the manufacturing sector in France in the years 2005 to 2012. Cf. Colmer et al. (2025): Does Pricing Carbon Mitigate Climate Change? Firm-Level Evidence from the European Union Emissions Trading System, Review of Economic Studies, 92(3), 1625–1660.

**The KfW Energy Transition Barometer**

The KfW Energy Transition Barometer is a study that has been published annually since 2018. It is based on a representative random sample of regularly around 4,000 private households resident in Germany. In each household, one adult member who takes decisions on the household's energy supply and energy consumption is surveyed. The aim of the survey is to find out to what extent technologies relevant to the energy transition are being used in the different households. Planned use is surveyed to estimate where the greatest increases can be expected. Taken together, the data collected provide an insight into current sentiment and households' participation in the energy transition in Germany.

The field phase of the KfW Energy Transition Barometer 2026 comprised a total of around 15 field weeks from 10 December 2025 to 1 April 2026. A total of 4,381 households in Germany were surveyed.

A methodological adjustment was made with the current survey wave: combined heat and power (CHP) plants and full hybrid vehicles are no longer counted as green technologies from this edition onwards. The background is a stronger focus on emission-reducing technologies. As a result, both the usage rates of electric vehicles and the share of households with at least one green technology are lower. This applies both to current values and to the shares in previous years.

Further information on the structure of the current survey of the KfW Energy Transition Barometer can be found in the related volume of methods and tables (KfW-Energiewendebarometer 2026 – Methoden- und Tabellenband, only available in German): www.kfw.de/energiewendebarometer

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