

How to reduce household energy bills

November 2025

Summary

The cost of living crisis has been a fossil fuel driven energy crisis. A typical energy bill remains £478 a year higher in October 2025 than it was in October 2021, an increase of 37 per cent. The government must reduce this.

By implementing the following actions, the government could start to reverse this increase by reducing a typical household bill by up to £178 per year by 2030:

- immediately move £2.3 billion of levies off electricity bills into government spending;
- reduce system costs by 2030 by:
 - lowering voltage on the low voltage network;
 - moving gas power stations into a strategic reserve;
 - reducing renewables financing costs;
 - investigating other options, such as UK and EU ETS linkage and reducing transmission system losses.
- implement a private rental sector minimum energy efficiency standard equivalent to Energy Performance Standard (EPC) C by 2030.

This route offers immediate savings on bills while limiting the long term impact on public finances. It incentivises the uptake of heat pumps which will further lower system costs over time. It is also compatible with further measures to support fuel poor households.

While other options we set out below could offer slightly larger bill savings or a stronger signal to adopt heat pumps, they do not achieve both.

With some elements of bills due to increase because of ongoing global instability and cost of living pressures, the government urgently needs to decide how it will reduce household energy bills.

The imperative to reduce energy bills

Almost nine million UK households are in fuel poverty, the level of total energy debt has risen dramatically and energy bills remain higher today than before the 2021 gas price spike.^{1,2,3} Action is needed to reduce energy bills and improve peoples' lives.

This situation has been created predominantly by an increase in the price of gas used for generating electricity and heating homes, though increasing policy costs on electricity are also having an impact.^{4,5} Renewables, by contrast, can increase energy security by reducing the UK's reliance on hostile regimes and volatile international markets for gas.

Meanwhile, evidence that renewables are starting to have a positive effect on the cost of electricity is emerging. In Britain, renewables reduced the wholesale cost of electricity by £25 per megawatt hour in 2024.⁶ And, in Spain, a large expansion of renewables means gas sets the price of electricity just 19 per cent of the time and Spanish prices are a third cheaper than the EU average.⁷

But factors are pushing against the positive impact of renewables on bills. Electricity consumption is increasing and will continue to do so, requiring investment in new generation capacity and the grid to transport it to our homes, which will be paid for through bills.⁸ And achieving a net zero carbon economy by 2050 for a safer climate no longer has cross party political support, despite firm public support across all voting intentions for tackling climate change.^{9,10}

Household energy is an essential good and reducing its cost is a political and social imperative. There are three main approaches to bring down household bills. Reducing system costs will reduce bills for everyone. Reassessing how the costs of the system are allocated to households can reduce pressure on those struggling most. And home improvements can cut the amount of energy needed to maintain quality of life. All three are equally important for improving living standards and ensuring the net zero transition works for everyone.

The government must act. It will soon publish the Warm Homes Plan and Fuel Poverty Strategy and it is likely to introduce an Energy Independence Bill in the coming months. These vehicles, in combination with the Clean Power 2030 Action Plan, provide the government with the means and tools to act.

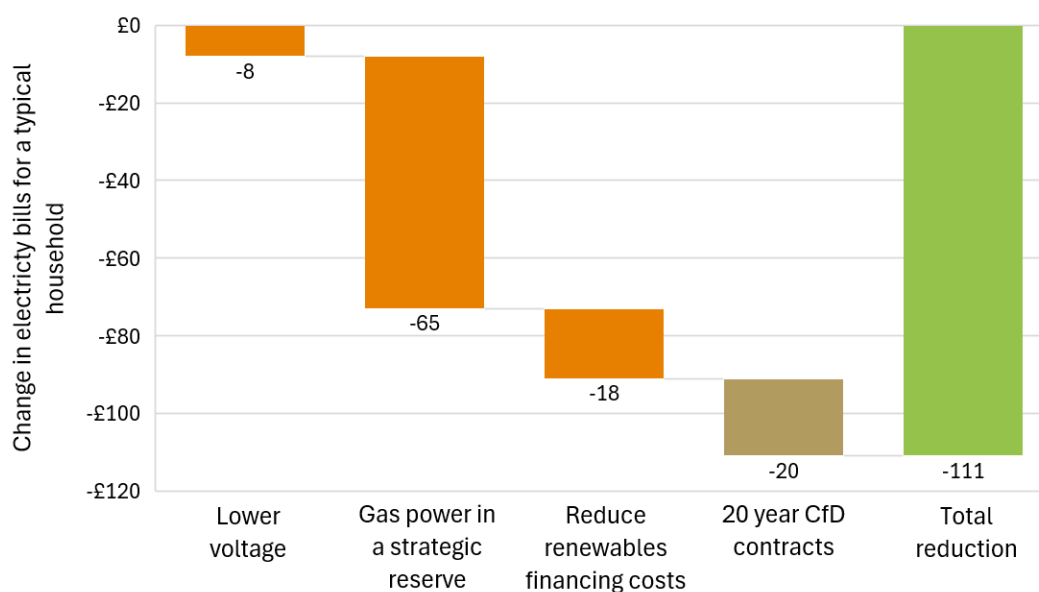
Reducing system costs

These are no regret options. Reducing the system cost for everyone gives space to redistribute costs across households and government's finances in a fairer way while also providing an incentive to decarbonise home heating as electricity becomes cheaper.

Household electricity bill reductions of up to £91 a year are achievable through three actions: lower voltage levels on the low voltage network, gas power in a strategic reserve and reducing renewables financing costs (see below). And, a policy already enacted, increasing the duration of contracts for difference (CfD) to 20 years is expected to reduce bills by a further £20 a year by 2030.

In total, these actions can reduce bills by up to £111 a year by 2030, when compared to a situation where they do not happen. Further, and harder to quantify, system cost reductions are expected from linking the UK and EU emissions trading schemes (ETS) and reducing transmission system losses.^{11,12}

System cost reductions achievable by 2030¹³



It is important to note that these actions may not result in a net decrease in bills as other factors will increase energy bills in the coming years. For example, in April 2026 additional gas and electricity network costs (£53 gas, £40 electricity) and new nuclear funding (£12) will be included in household bills.¹⁴

The new gas network investment, approved by Ofgem and front loaded onto energy bills, is based on a scenario where the UK fails to meet its required emissions reductions targets and remains reliant on gas for longer.

At a time when there are numerous upward pressures on bills, and a clear commitment from government - backed by a legal obligation to reduce emissions - to move away from using fossil gas for heating, such extensive investment in the gas network is likely to see network companies profit at the expense of households.

How costs are distributed across households and the state

While reducing system costs benefits all households, looking again at how these costs are distributed across and between households, and the state, can improve fairness and incentivise electrification of home heating (see annex 1 for a full breakdown of bill costs).

Adjusting VAT and levies are the two quickest mechanisms for reducing household energy bills. VAT adds £84 to a typical household bill under the October 2025 price cap.¹⁵ Levies applied directly to household bills include risk reduction mechanisms for building renewables (Renewables Obligation (RO), Feed in Tariff (FiT), contracts for difference (CfD)) and the cost of social support schemes such as the Warm Homes Discount. These add £156 per year to a household electricity bill, but just £59 to gas.¹⁶ This counteracts the government's requirement to achieve net zero as it makes electrification of home heating more expensive.

The government is considering zero rating VAT on domestic energy bills, at a cost of £2.3 billion per year.^{17,18} We have designed three options at equivalent cost in 2025-26, that redistribute costs to reduce bills. These are explored below, with detailed information on each option in annex two.

Options*	Effect on unit price of electricity** (pence)	Effect on unit price of gas** (pence)	Energy bill reduction	Decarbonisation incentive	Cost to the government over ten years (£)
Remove £2.3 billion of RO and FiT levies from electricity bills	-2.5	No effect			
Remove VAT from electricity and mains gas bills	-1.3	-0.3			

Move FiT and RO levies from electric onto mains gas bills and remove VAT	-5.1	+1.1			
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*All options could reduce the number of houses in fuel poverty by around 20 per cent **Based on the October 2025 price cap charges

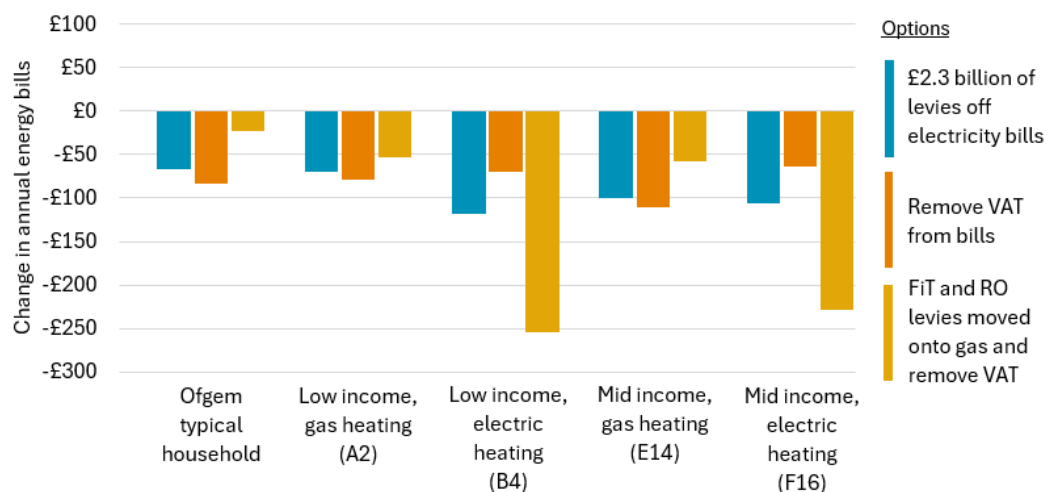
Removing £2.3 billion of levies (100 per cent of FiT and 53 per cent of RO) from electricity bills provides the best overall package for bill reduction and home heat decarbonisation, lifting out of fuel poverty up to 22 per cent of households currently experiencing it.^{19,20}

Removing levies results in slightly lower bill reductions for households with mains gas heating than zero rating VAT but offers significantly greater savings for those households using direct electric heating that tend to be lower income and in deep fuel poverty because of their high running costs.

Moving RO and FiT levies onto gas bills and zero rating VAT results in the least good outcome in terms of bill reductions but is the strongest home heat decarbonisation incentive.²¹

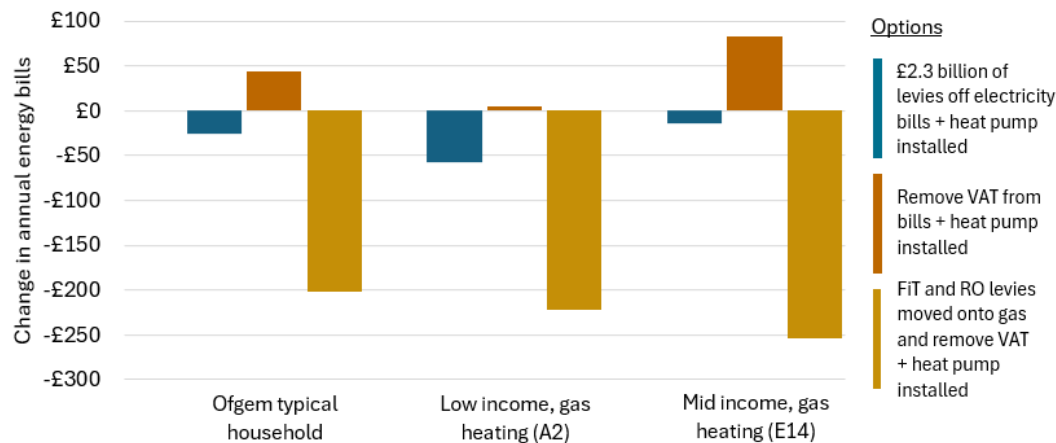
While each option has an equal cost in the coming financial year, RO and FiT schemes are closed to new entrants and so will reduce in cost each year towards the schemes' conclusion in 2037. This means it is likely to be a cheaper option for government than zero rating VAT over a ten year time horizon.

Impact on selected Ofgem household archetypes and price cap typical consumption values*



*The code in brackets on the chart denotes the Ofgem archetype²²

Impact on selected Ofgem household archetypes after installing a heat pump and price cap typical consumption values²³



While not shown above, installing a heat pump in households that use direct electric heating will reduce energy consumption, as heat pumps are more efficient than other domestic electric heating technologies.

None of these options are sufficient to end fuel poverty, so further targeted support will be needed. Current support schemes, the Warm Homes Discount and Winter Fuel Payment, should be replaced by a social tariff in 2028 that can lift a greater number of households out of fuel poverty.²⁴

Reducing consumption without impacting quality of life

Installing a smart meter (for both gas and electricity) is a low cost intervention shown to reduce consumption and, therefore, energy bills. But only 63 per cent of households have one installed and operating in smart mode, while a further six per cent have a smart meter running in traditional mode.²⁵ Getting smart meters operating in smart mode in the remaining 37 per cent of households could reduce their energy bills by at least £44 per year (October 2025 price cap), split by £23 on electricity and £21 on gas.²⁶

Coupling these measures with a higher minimum energy efficiency standard of EPC C by 2030 for domestic private rental sector accommodation, as proposed by government, would mean a household moving from EPC E to EPC C could benefit from up to £377 a year bill reduction.²⁷

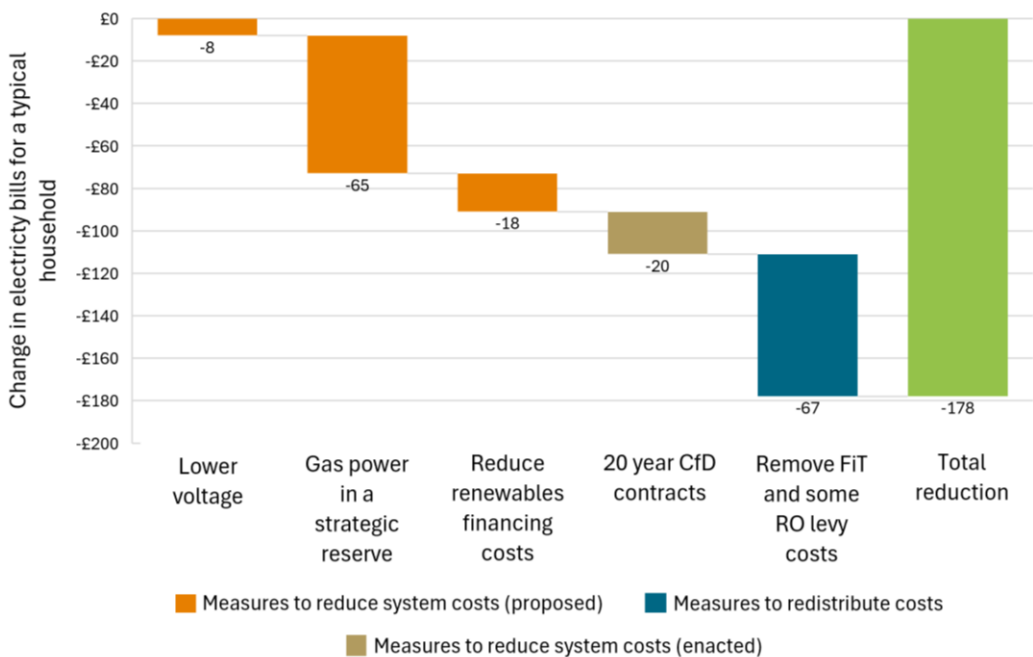
If the household already has a smart meter installed, the bill reduction from this energy efficiency improvement is £365, because households with smart meters already consume less energy.²⁸

For a household with a heat pump installed, ensuring as high home energy efficiency as possible will maximise bill reductions. The current average installed heat pump efficiency is 278 per cent (known as a seasonal coefficient of performance (SCOP) of 2.78 (for one unit of electricity input, 2.78 units of heat are output)) compared to a typical newly installed gas boiler which is 90 per cent efficient.²⁹ At a SCOP of 3.19, a heat pump running cost would be the same as a newly installed gas boiler when £2.3 billion of levies are removed from electricity bills. This can be achieved through improved installation practices and system design.³⁰ The Warm Homes Plan should, therefore, target an installed SCOP of at least 3.2 per cent for new heat pumps.

Putting it all together

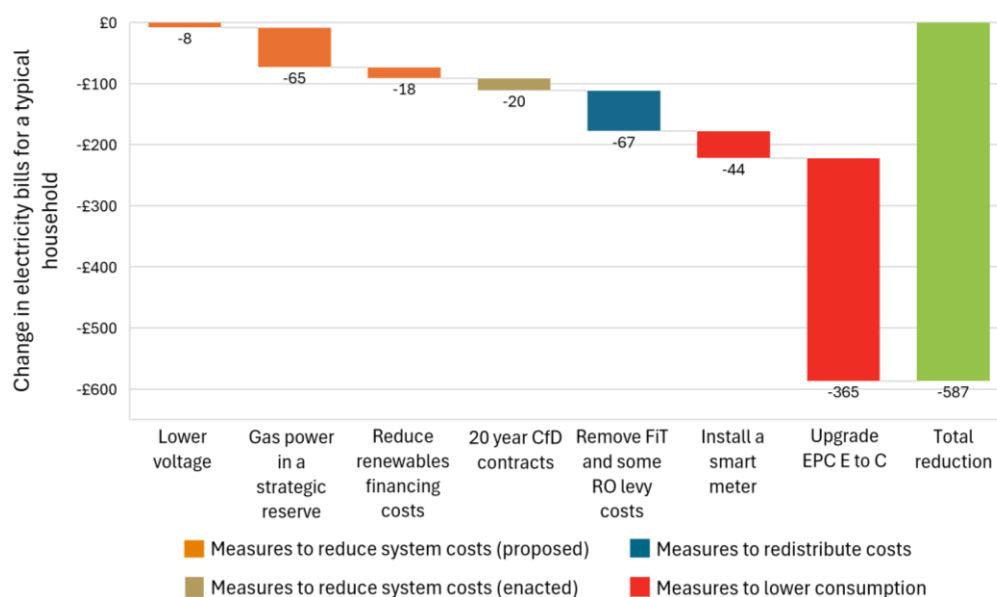
Households could benefit from bill reductions of up to £178 per year by 2030 (at the October 2025 price cap) by implementing the system cost savings and moving £2.3 billion of levies off electricity bills, of which £67 can be realised almost immediately. Taking these actions are crucially important as other costs will increase energy bills in the coming years, including a £100 increase in April 2026 for new gas and electricity network investment and nuclear funding.

Household bill reduction by 2030



However, bill savings could be substantially higher for certain households. A household in the private rental sector in a home rated EPC E could see reductions of up to £587 per year from the package above, when combined with improving energy efficiency to EPC C and installing a smart meter.

Household bill reduction for a private rental home without a smart meter, by 2030



Recommendations

To reduce household energy bills, the government should:

- immediately move £2.3 billion of levies off electricity bills into government spending;
- reduce system costs by 2030 by:
 - lowering voltage on the low voltage network;
 - moving gas power stations into a strategic reserve;
 - reducing renewables financing costs;
 - investigating other options such as UK and EU ETS linkage and reducing transmission system losses.
- implement a private rental sector minimum energy efficiency standard equivalent to EPC C by 2030.

Annex one

What’s in a household energy bill?

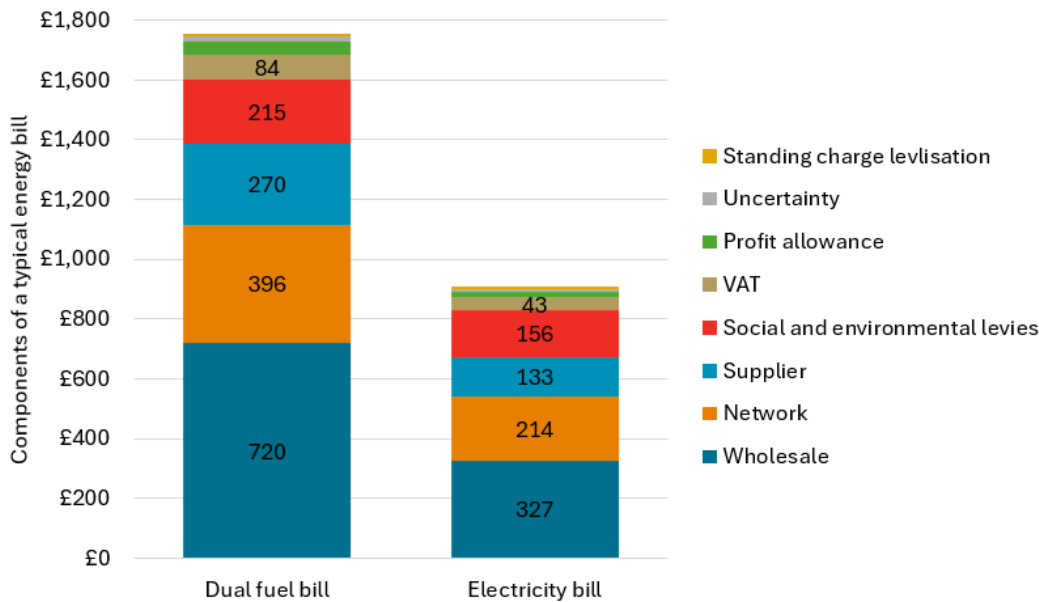
A household energy bill is made up of eight components that cover the full cost of producing and distributing electricity and gas to households and businesses.

These costs are apportioned to a fixed daily standing charge and a variable unit cost. The standing charge covers the costs of moving electricity and gas to homes, suppliers’ business costs and some social and environmental schemes.³¹

All other costs, such as the cost to a supplier of buying electricity and gas, are covered by the unit cost, ie the cost of consuming one kilowatt hour (kWh) of electricity or gas.

Every household’s energy bill depends on how much electricity and gas they consume. Ofgem, the electricity and gas regulator, sets a cap on the standing charge and unit rate that a supplier can charge a household. This is known as the price cap. As of October 2025, for a ‘typical’ household, the price cap would result in a dual fuel bill of £1,755 per year, of which electricity accounts for £907.³²

Default tariff direct debit price cap October to December 2025³³



To express the price cap in household bill terms, Ofgem uses Typical Domestic Consumption Values (TDCV) to translate the capped standing charges and unit rates.³⁴

Annex two

Options for reducing energy bills by redistributing costs

Reduce the impact of social and environmental levies on electricity bills

Levies on energy bills, known as ‘policy costs’ in the price cap, fund a range of vital social and environmental programmes. These include the Renewables Obligation (RO) which adds £88 a year to a typical household’s electricity bill and the Warm Home Discount (WHD), split across electricity and gas, which adds £39 per year after its 2025 expansion (October 2025 price cap).

However, levies applied to electricity bills are significantly higher (£156) than gas bills (£59), artificially inflating its cost relative to gas, disincentivising heat pump uptake. Fixing this is crucial for the success of the Warm Homes Plan and the decarbonisation of home heating required to meet climate budgets.

Changing the levy structure is important to make bills more affordable and ensure low carbon heating is always cheaper than gas. The government can achieve both aims by moving RO and FiT levies into government spending and achieve the latter aim by rebalancing RO and FiT levies onto gas.

The government could take powers in the forthcoming Energy Independence Bill to enact these changes and should implement the change from 2026.

Below, the impact of three approaches to levy rebalancing are outlined.

Recommended option:

£2.3 billion of RO and FiT moved to government spending

£67 decrease per household a year (October 2025 price cap)

The government is rumoured to be considering zero rating VAT on energy bills at a cost of £2.3 billion per year (October 2025 price cap). If it instead removed £2.3 billion worth of RO (53 per cent) and FiT (100 per cent) levies from electricity bills, this would reduce a typical household bill by £67 and, of the households experiencing fuel poverty, it will lift 22 per cent out. Households reliant on direct electric heating will experience some of the biggest benefits, with bill reductions of up to £186.

Alternative option:

Move RO and FiT into government spending

£109 reduction per household a year (October 2025 price cap)

Removing all RO and FiT levies from electricity bills reduces household bills by £109 and, of the households in fuel poverty, it will lift 33 per cent out. Households reliant on direct electric heating will experience some of the biggest benefits, with bill reductions of up to £300.

The move will increase government spending by £3.8 billion per year.³⁵ But, unlike zero rating VAT which has an open ended impact on government spending, the cost of RO and FiT falls each year as the scheme winds down towards its 2037 end date. In the context of the government's fiscal situation, ahead of the autumn 2025 budget, incorporating £3.8 billion into government spending is challenging, which is why we recommend the option to remove £2.3 billion of RO and FiT, despite it lowering bills by less.

Option 3:

Move RO and FIT onto gas bills

£64 increase per household a year (October 2025 price cap)

Moving RO and FiT levies onto gas bills provides the strongest price signal for switching to a heat pump and has no direct cost to government. But it would require pairing with a complimentary policy such as zero rating VAT or a targeted support scheme for vulnerable households, or they would experience an increase in their dual fuel energy bill.

The energy bill for a typical household would increase by £64 per year (October 2025 price cap). This is because almost all households use electricity, whereas only 74 per cent of households use mains gas.³⁶ To recover the same total cost across a smaller population, each household would need to pay more. Particularly impacted groups include those with high gas consumption, such as the Ofgem Archetype I22 (high income, 45-64 years old) and D12 (lower-middle income; retired 65). Both archetypes have low levels of poverty of one and eight per cent respectively.

However, the ten per cent of households reliant on direct electric heating, that are often deepest in fuel poverty, would see bill reductions between £193 and £277 per year across the archetypes.

Depending on the timing of this move, different mitigants are available.

If RO and FiT were moved to gas in 2026, it would be too soon for a targeted social tariff to be introduced to support those least able to afford the increase in dual fuel bills. Instead, zero rating VAT (see below) would ensure that households did not experience an increase in bills as a result of the shift.

If RO and FiT are moved in 2028, there would be sufficient time to design and implement a social tariff to achieve a fairer allocation of support for households that need it than through zero rating VAT.

A related problem that arises from moving RO and FiT to gas bills is that, over time, gas network costs will be recovered from a smaller number of households as an increasing number adopt heat pumps. This will result in higher costs for households still on the gas grid, which are likely to be those on lower incomes and in fuel poverty.

Zero rate VAT on household energy bills

£84 reduction per household a year (October 2025 price cap)

Value Added Tax (VAT) is applied to household energy bills at a reduced rate of five per cent, but for many of life's essentials, it is zero rated. Given energy is an essential and the dual fuel price cap in October 2025 was still £478 higher than in October 2021, zero rating VAT on domestic energy is a quick and lasting mechanism for reducing the cost of living.

The government can zero rate VAT on domestic energy in the 2025 autumn budget. This would reduce government revenue by £2.3 billion per year (October 2025 price cap). But the move would immediately reduce energy bills for a typical household by £84 (£43 electricity and £41 gas, October 2025 price cap) and could lift as many as 730,000 households out of fuel poverty.³⁷

However, zero rating VAT has two drawbacks. The largest savings will flow to the wealthiest households, due to their higher energy use, rather than those most in need. And it will not narrow the ratio between the price of electricity and gas needed to make heat pumps the cheapest technology for home heating.

By failing to narrow the difference between the cost of electricity and gas, the government is not using its limited financial resources for bill reductions in a way that can also help to achieve the aims of the Warm Homes Plan.

In the absence of a targeted scheme supporting households that need it with their energy bills, zero rating VAT is a policy that will reduce bills for all households and help to tackle the cost of living crisis, but it is a less targeted and efficient use of government money than removing £2.3 billion of levies from electricity bills (see above).

Implement a social tariff

In 2024, the average fuel poor household in England (under the low income low energy efficiency definition) needed an £407 more a year to avoid spending over ten per cent or more of their income, after housing costs, on energy bills.³⁸ This ‘fuel poverty gap’ was 62 per cent higher in 2024 than in 2020, showing the ongoing and growing severity of the cost of living crisis for millions of households.³⁹ Most fuel poor households are concentrated in the two lowest income deciles, earning below £22,366 a year.⁴⁰

Structural changes we propose will lift some households out of fuel poverty, by reducing system costs and, therefore, household bills. But further, targeted bill support is required.

A social tariff can be designed in several ways, from a block tariff structure to a rebate like the current WHD, to an income-based reduced rate tariff. We have previously modelled and proposed a percentage unit rate and standing charge discount, as this provides flexibility and greater financial support for households with higher energy needs than the other options.⁴¹

Reports suggest the Treasury is considering zero rating VAT on energy bills, a move that would cost the government £2.3 billion per year (October 2025 price cap). For £2.9 billion per year, the government could fund a broad and tiered social tariff that lifts 19 per cent of households in fuel poverty out of it.⁴² Households in the lowest four income deciles would receive bill support, with the largest quantity targeted at the lowest two income deciles.

The government can use the forthcoming Energy Independence Bill to create the framework of powers necessary for a social tariff mandate. A social tariff linked to fuel poverty would require data sharing between energy suppliers and Department for Energy Security and Net Zero, Department for Work and Pensions and HMRC. Powers in the Digital Economy Act should be used to facilitate this.

Annex three

Options for reducing energy bills by lowering consumption

Finish the smart meter roll out

£44 reduction per household a year (October 2025 price cap)

Smart meters are crucial enablers for many actions that can reduce household energy bills, from active voltage management to flexing demand to times when electricity is cheaper. But Britain's smart meter rollout has been slower than in other European countries. The original target completion date for all homes and small businesses to have smart meters installed was 2019.⁴³ But, in 2025, only 63 per cent of households have an active smart electricity meter, with a further six per cent having a smart meter operating in traditional mode.⁴⁴ This slow progress is limiting the ability of households to save money directly by shifting their demand, and indirectly by reducing peak demand, therefore requiring less network infrastructure and fewer power stations to be built.

When a household has a smart meter installed, it uses 3.3 per cent less electricity 2.9 per cent less gas, which would result in a dual fuel bill reduction of £44 per year (October 2025 price cap) for the roughly 40 per cent of households without a smart meter functioning in smart mode.^{45,46}

The UK opted for an energy supplier led opt-in rollout. Countries that have achieved greater than 90 per cent rollout, such as Norway, Sweden, Spain and France, instead pursued a network operator led rollout.⁴⁷ Changing to a network operator led rollout in the UK should be explored. At a minimum, to speed up rollout, the government should switch to an energy supplier led opt-out approach, with a smart meter installed in traditional mode if the customer opts-out.

Low carbon technologies and demand flexibility

£25 reduction per household a year (October 2025 price cap) for a heat pump, after removing £2.3 billion of levies

When paired with a smart meter and time of use tariff, low carbon technologies, such as heat pumps and battery storage, allow households to consume electricity when it is cheapest, reducing their energy bills. This flexible use of electricity can also make the overall system smaller and cheaper to run by reducing peak demand and therefore needing less generation and network capacity to be built, benefiting everyone.⁴⁸

But the high upfront cost of heat pumps, battery storage and solar is prohibitive for many households, particularly those that are lower income and classed as fuel poor. These households are at risk of being locked out of the transition, while wealthier households benefit from the resulting reduced bills. This is counter to the desire to ensure fairness through the net zero transition and could undermine public support for climate action.

Installing a heat pump with the average installed efficiency (Seasonal Coefficient of Performance (SCOP) of 2.8) will result in a net energy bills increase of £133 per year (October 2025 price cap), with no other policy intervention. But, when coupled with moving £2.3 billion of levies off electricity bills (see above) and disconnecting from the gas grid, installing a heat pump will result in a net reduction in energy bills of £25 per year (October 2025 price cap). If installed with a SCOP of 3.19 rather than 2.78, the heat pump will have the same running cost as a gas boiler and the household bill reduction will be £139 (October 2025 price).

Real world monitoring shows a SCOP of 4.1 and above is possible.⁴⁹ Higher efficiencies can be achieved through improved installation practices and system design, such as properly insulating outdoor piping and avoiding superfluous components.⁵⁰ But care must also be taken to avoid reducing thermal comfort or incurring excessive installation costs in achieving this SCOP.

If a target is included in the government's forthcoming Warm Homes Plan (WHP) for a minimum SCOP of 3.2 for new installations, low carbon technologies, such as heat pumps, battery storage, solar panels and energy efficiency improvements, would reduce bills for fuel poor and vulnerable households.

The government's WHP should target the installation of low carbon technologies in lower income homes and those experiencing fuel poverty, coupled with energy efficiency improvements, if needed. Using both the WHP's £13.2 billion of funding and the energy supplier led Energy Company Obligation (ECO) scheme, there are existing financial pots that could be used to fund this rollout.

This does not include the full potential savings from using electricity flexibly with a range of low carbon technologies, such as heat pumps, battery storage, solar panels and EV charging, which could reduce a typical household bill by a further £375 by 2040.⁵¹

Tackling levies can reduce the grant needed for the Boiler Upgrade Scheme (BUS) to make a heat pump and gas boiler the same cost over their lifetime.

This could free up already committed BUS funding to achieve more heat pump installations, or to provide free heat pumps for households in fuel poverty.

It is important to have adequate protections in place for a successful rollout to fuel poor households. A focus on bill reductions and wellbeing, alongside decarbonisation, is vital. Stronger consumer protections and guarantees for government funded programmes would ensure the scheme does not replicate past insulation installation failures.⁵² A rapid pilot scheme for heat pump deployment in fuel poor households could provide information on user satisfaction and bill savings to inform the wider rollout.

Increase private rental sector minimum energy efficiency standards

Up to £377 reduction per rental sector household a year by 2030

The energy efficiency of a property has a significant impact on the amount of energy required to heat a home to a comfortable temperature. It is correct that under the proposed reforms to the EPC regime fabric improvements will form the primary metric, as raising a property's EPC rating from E to C could save an average of £377 a year on a household's energy bills.⁵³ The government has proposed to increase minimum energy efficiency standards to the equivalent of EPC C for all domestic private rented accommodation by 2030 in England and Wales, but has not yet confirmed this as policy.⁵⁴ If the household already has a smart meter installed, the bill reduction from this energy efficiency improvement is £365, because households with smart meters consume less energy (see above).

Finalising this policy would help the government to achieve its target to move as many fuel poor homes as reasonably practicable to a minimum of EPC C equivalent by 2030, while cutting bills for the five million households in the private rental sector.

Annex four

Options for reducing energy bills by reducing system costs

Lower interest rates for renewables

Up to £18 reduction per household a year by 2030

Renewables are cheap and stable in price once they are operating, but the cost of financing their construction has a big impact on the cost of the electricity they produce. Higher interest rates on the initial investment makes the electricity they produce more expensive.

The interest rate (bank rate) set by the Bank of England was one per cent or below between February 2009 and May 2022 but has since risen to four per cent and above, because of inflation, driven in part by the spiralling cost of gas following Covid and Russia's invasion of Ukraine.⁵⁵ Renewables act as a buffer against rising fossil fuel prices pushing up the cost of electricity, as an increasing proportion of the country's renewable energy is sold at a fixed price (under a contract for difference (CfD)). But the increase in the bank rate since 2021, intended to control inflation, has had the perverse effect of making renewables more expensive to build, in turn reducing their inflation controlling effect.⁵⁶

The New Economics Foundation calculated that a 2.5 percentage point reduction in the interest rate on loans to build renewables can reduce the lifetime levelised cost of electricity by up to 11 per cent.⁵⁷ If this applied to all new renewables and grid infrastructure required for the government's Clean Power 2030 plan, system costs could fall by up to £1.9 billion per year by 2030, equivalent to £24 per household.⁵⁸ However, bids have been submitted for CfD Auction Round 7 already without this policy in place, meaning the actual realised benefits of this policy will now be lower.

The Bank of England has existing tools to provide low interest finance to renewables developers through its Term Funding Scheme. It used this to provide reduced cost finance to small and medium sized enterprises (SMEs) during the Covid pandemic, despite having no direct impact on meeting its price stability (two per cent inflation) objective.⁵⁹ The government should ask the Bank of England to provide a 2.5 percentage point reduction in interest rate to renewable energy development financing by amending the Term Funding Scheme to provide additional incentives for renewable energy development.

Reduce voltage on low voltage (LV) networks

At least £8 reduction per household a year by 2030

Voltage is what makes electrical charge move through a wire.⁶⁰ Since the UK and EU harmonised standards in 1995, the permissible range on low voltage networks is 216 volts (V) to 253V.⁶¹ However, harmonisation required no adjustment in practice from the UK's pre-harmonisation nominal voltage of 240V.⁶² This means that the average voltage supplied is unnecessarily high for today's household appliances, resulting in households consuming more electricity than they need to and costing them money.⁶³

A voltage reduction trial in South Wales found that a small reduction in voltage at 11kV primary substations reduced average and peak electricity consumption on the LV network, saving households money.⁶⁴ If this was replicated across all households, energy bills would be £8 a year lower (October 2025 price cap).⁶⁵

A separate trial found no statistically significant difference in reported satisfaction with appliance performance from customers receiving voltage outside the permitted range versus those receiving voltage within the permitted range.⁶⁶

The government should therefore require voltage levels on LV networks to be lowered, ideally to the nominal 230V European standard. This has the potential to deliver bill savings of at least the £8 per household observed in the South Wales trial.

Implementation could occur in line with the routine inspection and maintenance schedule of Britain's primary substations, completing the work within three years at little to zero additional cost to network operators.

While most households will notice no difference, some households reliant on direct electric heating could experience a reduction in the efficiency of their heating systems. As part of the Warm Homes Plan, it is imperative that they are identified and targeted for immediate support to switch to a heat pump, along with any necessary fabric improvements to homes.

End the role of gas in setting the electricity price

£65 reduction per household a year by 2028

Britain uses a marginal pricing system for short term wholesale electricity markets, where the market price is set by the most expensive source of

electricity needed to meet demand. In 2024, the marginal unit was a gas power station 85 per cent of the time, despite gas producing just 39 per cent of electricity.⁶⁷ This is significantly above the European average of 40 per cent.⁶⁸

Gas power stations also have an impact on the cost of electricity through the Balancing Mechanism, the system operator's tool for balancing supply and demand on a second by second basis. Gas power stations can extract windfall returns through this, which push up bills for everyone.⁶⁹

The Clean Power Plan will reduce the amount of time gas sets the price of electricity, but gas will remain an important component of balancing the system beyond 2030. Quickly reducing the amount of time gas sets electricity's price and limiting gas companies' ability to make windfall profits is vital to bring down energy bills.

It could be achieved by taking gas power stations out of the market and into a strategic reserve, under a Regulated Asset Base (RAB) model, with the system operator NESO determining when to generate electricity from gas. This could reduce household bills by up to £65 per year by 2028.⁷⁰

While the net outcome is a reduction in household bills, the cost to the government from implementing this measure is reduced tax revenue of £2.1 billion in 2028, falling to £0.6 billion by 2035, from gas power stations' exclusion from the ETS and Carbon Price Support. All other costs associated with the introduction and management of the RAB would be recovered through energy bills.

However, the exclusion of gas power stations from the ETS could affect the linkage of the UK and EU emissions trading schemes, so this needs careful consideration.

Annex five

Option for reducing energy bills being enacted

20 year contract for difference (CfD)

£20 reduction per household a year by 2030

CfD contracts awarded before 2025 are 15 years in duration, but a typical renewable development operates for more than 20 years. The revenue uncertainty after the CfD period means developers bid higher prices in the CfD auction. Extending the contract duration will reduce this uncertainty. It should reduce the bid prices by extending the cost recovery period and reducing upfront financing costs.^{71,72} The government has extended CfD contracts for wind and solar to 20 years from CfD Auction Round 7 onwards which could reduce household bills by up to £20 a year by 2030.⁷³

Authors: Stuart Dossett and Amira Jamal

For more information, contact:

Stuart Dossett, senior policy adviser, Green Alliance
sdossett@green-alliance.org.uk

Endnotes

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¹³ CIRED, 2017, 'Impacts of a reduction in 11 kV voltage settings in South Wales', *Open Access Proc. J*, vol 2017, pp 2346–2349. This paper models that a 0.88 per cent reduction in system voltage results in an average decrease in consumption of 1.16 per cent. This decrease results in a 32kWh annual reduction in electricity consumption for the Ofgem typical household, which equates to a £8.25 saving when multiplied by the Ofgem electricity unit price cap for October 2025.

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¹⁵ VAT is applied at a five per cent rate for domestic energy bills. The Ofgem typical household uses 2,700 kWh of electricity and 11,500 kWh of gas per year, which equates to a total bill of £1,755 using October 2025 price cap charges. At five per cent, VAT is £84 on a typical bill.

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²¹ The cost of RO and FiT levies on the October 2025 unit price cap for electricity were multiplied by annual total electricity consumption, then divided by the annual gas consumption, to estimate the impact on the gas unit price cap and the redistribution of costs to gas users. See endnote 18 for total energy consumption sources. Costs were then applied to the Ofgem typical household.

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