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THE HOME ENERGY SECURITY PLAN: DEMAND-SIDE MEASURES TO LOWER BILLS AND GET OFF GAS

NINE STEPS GOVERNMENT COULD TAKE NOW

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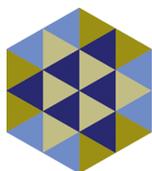
Reducing demand for gas has never been more essential to the UK's national, energy and climate security. This briefing sets out nine steps the government could take immediately, using existing policies and mechanisms, to cut Russian imports by 80% this year and save an average of £150 per household.

Europe is rapidly re-evaluating its reliance on Russian energy imports in response to Vladimir Putin's invasion of Ukraine. The UK is fortunate that it does not import a high proportion of its gas directly from Russia.¹ But as the price for gas is set internationally regardless of where it is produced, the UK is still exposed to the unfolding energy crisis.

We must respond with a step-change in the pace of investment in secure, clean energy – fast tracking new solar and onshore wind - and a plan to move away from our dependence on fossil fuels (the prices of which we simply cannot control). As important as supply is, the quickest way to reduce our exposure to soaring prices is to use less gas, by reducing demand in homes and industry. The Energy Supply Strategy and Spring Statement are a chance to act decisively on household demand by:

- **Increasing support for energy efficiency through existing schemes**
- **Accelerating take-up of the most efficient appliances**
- **Launching a major new public information campaign**
- **Expanding the Boiler Upgrade Scheme to speed up the electrification of heat**
- **Removing the tax penalties holding back energy saving home upgrades**
- **Lowering bills and incentivising electrification by removing legacy policy costs**
- **Introducing a comprehensive training offer to fill skills gaps**
- **Incentivising energy efficiency by amending the stamp duty system**
- **Accelerating the phase-out of gas boilers in new build homes**

¹ Russia is the source of about 4% of total UK gas supply. **BEIS, DUKES, Chapter 4: Natural Gas, July 2021.**



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A Home Energy Security plan to rapidly reduce bills and end Russian imports

Even before the invasion, energy prices had risen rapidly and were projected to rise further still, contributing significantly to a cost-of-living crisis for UK households. Over 85% of UK homes are connected to the gas grid, and our building stock is among the coldest and leakiest in Western Europe. Experts say one in three UK households will be thrown into fuel poverty if – as some analysts anticipate - energy bills rise to £3,000 or above this autumn.² The government set out some measures to mitigate these costs in February, but the wider context has changed dramatically. Much greater ambition is now called for.

Deep reductions to our demand for gas will not happen overnight. We will need a long-term package of incentives, regulations, and policy support to decarbonise our grid, electrify heating through the mass deployment of heat pumps, help households install insulation and other energy efficiency measures, take sensible steps to reduce consumption, and give businesses and the finance industry the confidence needed to invest in the transition at scale. We must avoid the ‘boom-bust’ policies of the past which have decimated the green home retrofit industry, and long-term clarity will be needed to grow the skills and supply chains we need.

But there is also a pressing need to act now, in a way that shores up energy security and cost benefits by the end of this year – by converting fossil dependency into reduced living costs – while deepening them across the decade.

Home energy security plan: what it achieves

We have examined the Climate Change Committee’s ‘Tailwinds’ scenario – which is underpinned by assumptions around ‘considerable success’ in innovation and a high degree of willingness for behavioural change. The current crisis underscores the need for this success. Across the UK economy, it achieves net zero before 2050. Specifically, we consider its impact in the ‘now’ (by the end of this year) and medium term (end of 2025) for existing homes. The key metrics – derived from the combined impact of fabric efficiency measures, low carbon heating, behavioural change and efficient appliances – are shown in Table 1.

² **National Energy Action, ‘Charities warn £3000 energy bill could leave 8.5 million UK households in fuel poverty’, 4 March 2022.**



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Table 1: Key metrics for existing homes from CCC 'Tailwinds' scenario³

Indicator		2022	2025
Final energy saving [TWh]	Gas saving	-2.0	-18.0
	Electricity saving	-11.7	-15.1
	Heating oil saving	-0.4	-2.2
Avoided gas use in power generation [TWh]		-24.9	-32.2
Total gas saving as share of 2021 Russia imports		80%	149%
Investment required [£bn, public + private, cumulative]		£ 6.7	£ 33.6
Low energy prices	Reduced consumer energy costs [£bn, annual]*	£ 3.6	£ 4.0
	Simple payback [yrs]	1.9	8.4
	Average household saving [£]	£ 131	£ 145
Central energy prices	Reduced consumer energy costs [£bn, annual]*	£ 4.1	£ 5.7
	Simple payback [yrs]	1.7	5.9
	Average household saving [£]	£ 148	£ 207
High energy prices	Reduced consumer energy costs [£bn, annual]*	£ 4.7	£ 6.6
	Simple payback [yrs]	1.5	5.1
	Average household saving [£]	£ 169	£ 240

* Considers only savings in final gas, electricity and heating oil consumption, not solid fuels and bioenergy

2022 features rapid adoption of sensible behavioural steps and energy efficient lighting and appliances, while building up the deployment of energy efficiency, heat pumps and district heating that ramps up to 2025. Deployment levels over these timescales are ambitious but credible in the context of the imperatives we currently face, as well as aligned with multiple pathways to net zero by 2050.

Measures that can be taken to the end of this year save a lot of electricity, and therefore gas in power generation: equivalent to 80% of Russian LNG imports. Households would see a saving of between £130 and £170 on average, and the capital investment from public and private sources of £6.7 billion would pay back within two years.

³ Source: CCC (2020) Sixth Carbon Budget dataset; own energy price scenario assumptions



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To 2025, the package can save gas equivalent to 149% of Russian LNG imports. The cumulative total investment of £33.6bn could secure annual savings of between £145 and £240, paying back in five to nine years and lasting for many more.

Home energy security plan: how to make it happen

Below are nine actions that the government could take immediately, mostly working through existing mechanisms, to get on track for the scenario outlined above. They would reduce the UK's demand for gas and thereby protect consumers while enhancing both our energy and climate security. The following steps should be included in the anticipated Energy Supply Strategy and funded through the Spring Statement where necessary. They should act as a stepping stone towards a long-term green home retrofit drive, supporting all homes to get to EPC C by 2030, and phasing out fossil fuel heating.

Step 1: Increase support for energy efficiency through existing schemes

The government has several designed and functioning energy efficiency schemes, some of which have now been in place for two years, through which it could deliver a strategic surge in investment. These are: the Local Authority Delivery Scheme, the Home Upgrade Grant, and the Public Sector and Social Housing Decarbonisation Funds, collectively worth just under £3.4bn from 2022 to 2025.⁴ This figure is £2bn short of pledges made to these schemes in the 2019 Conservative manifesto.⁵

The government should immediately expand the money available to reduce gas demand in homes by fulfilling their manifesto pledges with £1.4bn through the Home Upgrade Grant, £200m through the Social Housing Decarbonisation Fund, and £400m through the Public Sector Decarbonisation Fund. They must also ensure that the transition to the next phase of the Energy Company Obligation (ECO4) – the scheme through which energy companies pay for energy saving measures in fuel poor homes – does not lead to a hiatus in installations. The relevant legislation has not yet been brought to Parliament, despite the new phase being due to start in April. Government must bring this legislation forward now and extend ECO3 on a pro-rata basis to cover the transition period so that companies working to the previous scheme can continue to upgrade homes and fulfil their obligation.

⁴ Between 2022 and 2025 the third phase of the Local Authority Delivery Scheme is due to deliver £200m, the Home Upgrade Scheme is due to deliver £950m, the Social Housing Decarbonisation Fund is due to deliver £800m, and the Public Sector Decarbonisation Fund is due to deliver £1.425bn. **BEIS, Heat and Buildings Strategy, October 2021.**

⁵ **The Conservative and Unionist Party Manifesto, 2019.**



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As well as fulfilling these prior commitments, government should raise its ambition through the Local Authority Delivery (LAD) scheme. The LAD programme allows local authorities in England to bid for funding to support the installation of low-carbon heating and energy efficiency measures for low-income households. Its first two phases have delivered £500m in upgrades.⁶ Government should extend the scheme to 2025 (and announce an intention to roll it over in the subsequent parliament) and commit £1.8bn in further funding.⁷ This funding should as far as possible be distributed based on area needs, rather than a ‘postcode lottery’ of funding awards.

Step 2: Accelerate the take-up of the most efficient appliances

The deployment of efficient appliances is key to achieving significant gas savings this year. The supply chains are well established, replacement efficient appliances are instantly installed, and electricity savings translate into significant gas savings in power generation. The challenge is to incentivise accelerated adoption of best-in-class efficient appliances across major white goods, lighting and consumer electronics categories.

Previous supplier obligations, including in other European countries, have been successful at accelerating the market transformation for efficient appliances in short time frames – in Britain, this has included remarkable deployment of efficient televisions and lighting. A temporary increase to, or time-limited obligation parallel to, the Energy Company Obligation can be set that includes the most efficient fridges, freezers, lighting, electric cookers and televisions as eligible measures. For households who have inefficient appliances to trade in, partnerships between energy suppliers and major retailers could promote discount vouchers on the most efficient appliances in each product class, with larger discounts offered to customers presently eligible for ECO support. The costs of this should be borne by the Exchequer. Alongside this, obligated energy suppliers should be permitted to offer low-flow shower heads and smart heating controls as standalone measures to reduce heating energy demand across this year.

Step 3: Launch a major new public information campaign for ‘Simple, Sensible and Safe’ energy saving options

Further swift and significant gas savings can be secured through safe and sensible steps to reduce heating energy demand. Given the current focus on these issues, the public is likely to be highly receptive to a major public information campaign – which could

⁶ BEIS, *Heat and Buildings Strategy*, October 2021.

⁷ The Energy Efficiency Infrastructure Group identified a £3.6bn funding gap for energy efficiency upgrades, particularly for owner-occupied households. In recognition of the need for a combination of near-term actions and long-term measures, the Home Energy Security plan proposes splitting this figure equally between the LAD scheme and a new grant scheme open to all, to run in the final two years of this Parliament. EEIG, *Better Buildings Investment Plan*, 19 July 2021.



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bolster appliance, insulation and electric heating take-up too – as was been done in the oil crises of the 20th century and the COVID-19 pandemic.

In contrast to energy saving campaigns in historic crises, this time the message needs to focus on steps that do not compromise on warmth and comfort. A carefully designed national campaign would be a low-cost intervention with potentially huge results.

For example, turning down the flow temperature on all condensing boilers could save 17TWh in demand and save households between 6 and 8% of their annual costs.⁸ This means changing the temperature of the water sent to radiators, not changing the room temperature itself, and is a very simple step that millions of households will be able to take. Similarly, turning the thermostat down by one degree can save around 10% on annual bills, potentially reducing demand by 21TWh.⁹ It would be vital that government makes clear that these messages should not be confused with heat rationing, which can be particularly damaging for elderly and vulnerable people, and should emphasise that experts say a healthy room temperature is between 18 and 21 degrees.¹⁰

As homeowners look for ways to reduce their energy bills and heat their homes more efficiently for good, there is an important ongoing role for public awareness raising and the provision of tailored and trusted advice.¹¹ Building on a high-intensity campaign for quick savings this year, a longer term green homes awareness campaign would build the public's understanding of what they can do to lower emissions and heat their homes efficiently, accompanied with information on support available (financial and non-financial), including local support.

Step 4: Expand the Boiler Upgrade Scheme to speed up the electrification of heat

With gas prices rising and likely to stay high, many more households will want to replace their gas boilers with electric heat pumps. The government rightly put in place grant support to support households making the switch, with grants of £5000 available from April. The scheme will be administered by Ofgem, and installers rather than customers will be responsible for claiming the grant, which means the scheme should avoid the consumer complexity which beset the Green Homes Grant.

⁸ The Heating Hub, 'Save 8% on your gas bills, by turning down the 'flow' temperature', 18 October 2021.

⁹ Energy Saving Trust, 'New research finds 96% of UK homeowners are concerned about their home energy efficiency', 21 January 2021 and Simon Evans, Carbon Brief, Twitter, 7 March 2022.

¹⁰ Public Health England, Minimum home temperature thresholds for health in winter, October 2014.

¹¹ Electrify Heat, 'Building trust in clean heat with engagement and advice – what's needed next?', accessed 11 March 2022.



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However, with only £450m allocated until 2025 the Boiler Upgrade Scheme will support a maximum of 90,000 heat pump installations in total. This is well short of the government's own delivery targets which call for the heat pump market to scale to deliver at least 600,000 installations per year by 2028. The scale and urgency of the challenge we now face make it clear that the scheme is insufficiently funded.

The Energy Efficiency Infrastructure Group has suggested that a grant programme worth £4.15bn to 2025 is necessary to be on track for the Climate Change Committee's recommended net-zero compatible installation target by the end of this decade.¹² By expanding the Boiler Upgrade Scheme to this level, the government could support 820,000 heat pumps to 2025, reducing gas demand by around 8TWh per year and boosting demand for a vital technology for our energy and climate security.¹³

Step 5: Remove the tax penalties that currently hold back energy saving upgrades

Energy efficiency and low-carbon heating installations are currently subject to 20% VAT on both materials and labour, compared to 5% for new build construction.¹⁴ Reducing gas demand must now be viewed as a national priority – in this context, applying a tax disincentive to the energy efficiency and home renewable measures we desperately need is completely unjustifiable. Eliminating this discrepancy would immediately lower costs for consumers looking for long-term ways to tackle high energy bills and would encourage businesses to invest.

Removing VAT from energy efficiency upgrades entirely would give the strongest signal that the government is serious about helping households and businesses reduce their gas demand and energy bills, but even equalising VAT at 5% could provide a significant boost. An independent research report conducted on behalf of the Federation of Master Builders and RICS found that the benefits of cutting VAT on home improvement works to 5% to 2025 would result in a £51bn stimulus at a £2.7bn cost to Government, and support nearly 350,000 jobs.¹⁵

¹² EEIG, *Analysis of the Heat and Buildings Strategy, November 2021* ; EEIG, *Better Buildings Investment Plan, 19 July 2021* ; Climate Change Committee, *The Sixth Carbon Budget, December 2020*.

¹³ Simon Evans, *Carbon Brief, Twitter, 7 March 2022*.

¹⁴ Federation of Master Builders, *Cut the VAT: a proposal for building back better and greener, 1 March 2021*.

¹⁵ Federation of Master Builders, *Cut the VAT: a proposal for building back better and greener, 1 March 2021*.



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Step 6: Lower consumer bills and incentivise heat pump uptake by removing legacy policy costs from bills

Household energy bills are rising because of huge price increases and volatility in the market for gas – not because of ‘green’ policy costs (indeed policy costs have declined in the last year).¹⁶ The legacy policy costs, essentially those used to pay for historic investment in renewables like the Renewables Obligation, Feed-in-Tariffs, and Contracts for Difference, have delivered excellent results and have contributed to the success of the UK offshore wind sector.

But while the policies themselves have proved valuable, their costs fall disproportionately on electricity bills.¹⁷ This disincentivises replacing demand for gas with demand for electricity by distorting their relative prices. This is a particularly harmful outcome given the grid is rapidly decarbonising and reducing gas demand is essential. Because the costs are levied on bills, they are also not paid for progressively. The government has already committed to looking at removing policy costs through the Fairness and Affordability consultation due later this year, as part of the Heat & Buildings Strategy. By paying for legacy policy costs through general taxation, the government could lower energy bills noticeably at a stroke and simultaneously eliminate an importance disincentive to the electrification of heat.¹⁸

Step 7: Introduce a comprehensive training offer to ensure the supply chain is ready to help households get off gas

Installing energy efficiency measures and replacing gas boilers with heat pumps requires skilled labour – the Heat Pump Association estimates 50,000 trained installers will be needed by 2030, up from around 2000 today.¹⁹ The UK will struggle to reduce its dependence on expensive gas if the supply chain is not ready to deliver the necessary home and heating upgrades to enable the transition.

Although the UK has relatively few trained heat pump installers, there are 130,000 registered heating engineers in the country who could relatively quickly add heat pump installation to their core skillset. According to the Heat Pump Association, a 4 or 5-day course delivered by manufacturers for NVQ Level 2 trained plumbers costs around £300, and includes instruction in heat pumps and generic low temperature heating, which is

¹⁶ [Ofgem, Default Tariff Cap, accessed 11 March 2022](#) and [Ember, ‘UK electricity prices quadrupled in 2021 and fossil gas is to blame’, 14 January 2022.](#)

¹⁷ [Energy and Climate Intelligence Unit, Energy bills: getting the balance right, 10 February 2021.](#)

¹⁸ The Energy Company Obligation (an ongoing rather than legacy policy cost) is also recovered via bills. The relative stability of this funding mechanism means there is a strong argument for retaining ECO on bills while removing the other costs.

¹⁹ [Heat Pump Association, Delivering Net Zero: A roadmap for the role of heat pumps, 2019.](#)



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seen as important for all heating installers. Accreditation from the Microgeneration Certification Scheme – the industry standards body – costs around £750.²⁰

Getting off Russian gas as quickly as possible, and reducing our overall reliance on gas thereafter, must be viewed as a national mission. Government should be bold. Given the costs outlined above, paying the full training and accreditation costs for 10,000 new heat pump installers this year would cost just £10.5m. Recognising the urgency of the situation, the government could compensate installers' time, directly or through tax incentives.²¹ This would bring costs to £19.5m. If it chose, the government could cover the *entire* costs of training every one of the 50,000 heat pump installers needed by 2030 to get British homes off gas and meet our net zero target for less than £100m spread over 8 years. The returns on this relatively limited investment could be enormous.

Step 8: Incentivise energy efficiency investment through the stamp duty system

Home purchases are an important “trigger point” when households are more likely to invest in home improvements, including energy efficiency upgrades and new heating systems. The point of purchase is also a unique moment where the value of the home is unlocked and those with asset wealth but without high incomes can retain capital to cover the costs of home energy upgrades.

Government should incentivise the uptake of energy saving measures by introducing an energy saving stamp duty incentive, whereby more energy efficient homes pay a lower rate. Home buyers would be incentivised to improve their home's energy performance after purchase with a rebate that could be claimed within the first 2 years after purchase. An enhanced rebate level, which tapers out as property value increases, could be set to give greater support to those buying lower-value homes. This policy has the advantage of affecting all homes, including owner-occupiers ineligible for other support. Analysis shows this could be designed to be revenue-neutral for the Treasury, while catalysing significant investment.²²

Given the need for proposals which can be enacted quickly, the incentive principle could be announced immediately, sending a clear message of intent to homeowners and the marketplace, with actual changes to Stamp Duty coming into place in 2023.

²⁰ **Electrify Heat, Training, Trust and Tariffs: Electrify Heat's priorities to boost the heat pump market, 10 December 2021.**

²¹ Based on average gross annual pay for gas boiler installers, this would amount to £900. Figures based on Heat Pump Association research [forthcoming, shared with permission].

²² **UK Green Buildings Council, A housing market catalyst to drive carbon emission reductions, April 2021.**



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Step 9: Accelerate the shift to net-zero ready new builds and end the installation of gas boilers in new homes

The government's new Future Homes Standard is due to come into force from 2025. It will raise the efficiency standards that new homes must meet and make low carbon heating via a heat pump the standard.²³ But in the context of energy crisis, 2025 is too long to wait. The government should do everything it can to limit the number of new households who will be left with high gas bills and boilers they will need to replace.

The Department for Levelling Up, Housing and Communities should bring the start date for the Future Homes Standard forward to 2023. This should include an end to the installation of gas boilers in new build homes, to reduce the number of homes that will need to be retrofitted with low-carbon heating systems and efficiency upgrades.

Urgent action must be followed by a long-term strategy

The nine measures outlined above could all be introduced in the Energy Supply Strategy and at the Spring Statement and would start to deliver gas demand reductions immediately. But the national mission to move off gas swiftly and safely will not end in 2025. The government must set out clear intentions to extend successful schemes throughout this decade and to fill in identified policy gaps. This will mean:

Funding for individual owner-occupied homes

No direct support for energy efficiency upgrades open to all households nationwide currently exists. In practice this means there is a significant gap for owner-occupied homes, as highlighted recently by the Climate Change Committee's independent assessment of the Heat and Buildings Strategy.²⁴ The government should commit £1.8bn to 2025 to a new scheme, with further funding in the 2025-30 window.²⁵

Green finance

Unlocking private finance will be essential to the long-term, sustainable growth of the market for energy saving home upgrades. The built environment should be a priority for the UK Infrastructure Bank, and the government should explore the possibility of

²³ **DLUHC, The Future Homes Standard: changes to Part L and Part F of the Building Regulations for new dwellings, last update 27 January 2021, accessed 11 March 2022.**

²⁴ **Climate Change Committee, Independent Assessment: The UK's Heat and Buildings Strategy, March 2022.**

²⁵ The Energy Efficiency Infrastructure Group identified a £3.6bn funding gap for energy efficiency upgrades, particularly for owner-occupied households. In recognition of the need for a combination of near-term actions and long-term measures, the Home Energy Security plan proposes splitting this figure equally between the LAD scheme (see Step 1), which is already up and running, and a new grant scheme open to all, to run in the final two years of this Parliament. **EEIG, Better Buildings Investment Plan, 19 July 2021.**



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distributing concessional loans to households through the bank (this is also a potential delivery mechanism for the subsidy outlined above).

This could be modelled on the German KfW loan scheme, which has helped create a mass-market for retrofit. Money is provided to households via intermediary financial partners, with subsidies offered for whole-house deep retrofits through improvements, and more modest grant contributions for individual measures. This structure helps encourage additionality. The KfW's focus on home retrofits started in the 1970s oil crisis and subsequent spike in fuel prices – a situation sadly analogous to today's shock.²⁶

Regulation and incentives

Government already uses energy efficiency regulation in the commercial sector and in the private rented sector through Minimum Energy Efficiency Standards. Signalling an intention to introduce MEES at the point of sale or major renovation across the housing market – with sensible exemptions and measures to support low-income and vulnerable households – would be a powerful driver of action and investment.

Coupled with a stamp duty incentive (as outlined above) and requirement on mortgage lenders to disclose the average energy efficiency of their portfolios, these measures could also act as a major spur to innovation and growth in the green finance market. Government could also introduce specific energy tariffs for households using heat pumps as an incentive to switch heating systems alongside energy efficiency upgrades.

Skills and training

Getting off gas and improving the nation's building stock in the next decade could create at least 190,000 jobs spread across the country.²⁷ A stable investment environment, with long-term policies in place underpinned by a regulatory framework will give businesses confidence to invest and create jobs. But government must also ensure there are affordable and attractive training and apprenticeship routes into the industry.

Consumer advice and support

In addition to a major public campaign this year, the government should establish a consistent, independent and impartial service to help people make informed decisions about their energy. This should build on the Home Energy Scotland model, where consumers can be connected with local installers, retrofit co-ordinators and delivery partners and access local networks of skilled and trusted businesses compliant with government-backed standards like PAS and bodies like TrustMark and MCS.

²⁶ E3G, [Making markets through the UK Infrastructure Bank, 13 December 2021](#).

²⁷ EEIG, [Better Buildings Investment Plan, 19 July 2021](#).



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About E3G

E3G is an independent European climate change think tank with a global outlook. We work on the frontier of the climate landscape, tackling the barriers and advancing the solutions to a safe climate. Our goal is to translate climate politics, economics and policies into action.

E3G builds broad-based coalitions to deliver a safe climate, working closely with like-minded partners in government, politics, civil society, science, the media, public interest foundations and elsewhere to leverage change.

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