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ADDRESSING THE UK'S ENERGY NEEDS AT SPEED

WHY ENERGY EFFICIENCY,
ELECTRIFICATION AND RENEWABLES
ARE THE RIGHT TOOLS FOR THE JOB

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Summary

- > By 2025, energy efficiency, clean heat and renewables alone could replace four times the gas we currently import from Russia – faster than the time taken to construct a new oil and gas field. Energy efficiency measures and clean heating installations are the quickest way for the UK to reduce its dependence on expensive gas, eliminate Russian imports and lower consumers' energy bills for the long term.
- > Onshore wind and solar power are the electricity sources that can reduce our reliance on Russian gas fastest, given their short construction times. Bottlenecks in planning can be resolved through changes to regulation and doing so will unlock enough new power to eliminate Russian gas from our energy mix.
- > Government can supercharge renewables deployment this decade by ensuring all relevant bodies have a mandate aligned with the UK's 2035 net zero power system target, scaling up support to attract renewable supply chain investment to the UK, and setting ambitious interim targets for renewables technologies.
- > While existing oil and gas production should continue to be used, future licensing rounds will not play a part in eliminating our reliance on Russian gas due to the long time to bring projects online. Additional domestic production will do nothing to change the prices consumers pay for oil and gas which are set by the international market.



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War in Ukraine and the energy bill crisis

The tragic events unfolding in Ukraine have sent shockwaves through global energy markets. Fears of a supply disruption from one of the world's largest oil and gas producers combined with the possibility of further sanctions on Russian exports have meant that the price of both oil and gas has rocketed globally. This has happened hot on the heels of a winter energy price crisis, which saw gas prices quadruple year-on-year and resulted in an unprecedented £693 rise to consumer energy bills as the energy price cap is set to rise to £1971 in April.¹

The impact that these rising oil and gas prices will have on UK consumers will be severe. Research by Cornwall Insights has highlighted that energy bills could increase to as high as £3000 per year in October when the energy price cap is raised again if prices continue to remain elevated.² This could place one in three UK households in fuel poverty according to National Energy Action.³

The most rapid way to bring down energy bills and eliminate Russian gas imports

Government now faces two urgent questions at once: How to protect consumers from these rising energy bills, and how to halt the flow of money to Russia that stems from importing fossil fuels. The answer to both lies in reducing our dependence on gas and can be achieved through pushing ahead with measures to better insulate our homes, heating our homes with electricity, and boosting our home-grown renewables sector.

Speed of delivery is a key factor when deciding what appropriate solutions to these questions look like. Renewables, energy efficiency and clean heat, when considered together, will enable the UK to end its reliance on Russian gas imports even before any new oil and gas production could be brought online.

Crucially, energy efficiency and clean heat will also lead to immediate and significant savings for consumers. This contrasts with additional oil and gas production, which multiple assessments have shown would not shift the price consumers pay for their energy. While pushing forward with cheap renewables

¹ **Ofgem**, *Price cap to increase by £693 from April*

² **City AM**, *Household bills could rise to nearly £3,000 per year warns Cornwall Insight*

³ **National Energy Action**, *Charities warn £3,000 energy bill could leave 8.5 million UK households in fuel poverty*



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will lower bills in the longer-term, they will make a limited dent on consumers prices for electricity immediately, as this is set by the price of gas generation in the UK due to the way the energy market is structured.⁴

The following page contains an overview of how quickly different solutions can be brought online, the impact they will have on gas demand between now and 2025, and whether they will do anything to affect consumer energy bills.

⁴ **Recharge News**, *The impact of high gas prices on the power sector shows that market reform is urgently needed for a greener world*



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What can be brought online and when

Technology	Development time (full)	Construction time (each project)	Impact by 2025?	Savings on bills?
Energy efficiency and clean heat in homes	<1 year*	<1 year*	Yes - 149% of current Russian gas imports could be avoided by 2025	Yes
Energy efficiency and clean heat in commercial and public sector buildings	<1 year*	<1 year*	Yes - 112% of current Russian gas imports could be avoided by 2025	Yes (for businesses, public sector)
Solar	1 year	1 year	Yes - 25% of current Russian gas imports could be avoided by 2025 (if projects awaiting construction are built)	Limited under current market design
Energy efficiency in industry	2 years	2 years	Yes - 65% of current Russian gas imports could be avoided by 2025	Yes (for industry)
Onshore wind	6 years	2 years	Yes - 92% of current Russian gas imports could be avoided by 2025 (if projects awaiting construction are built)	Limited under current market design
Offshore wind	8 years	3 years	No	Limited under current market design
Nuclear	13 years	8 years	No	Limited under current market design
New oil and gas fields	28 years	3 years	No	No



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Risks of additional oil and gas production

Although there is a common-sense logic to wanting to replace Russian oil and gas with our own domestic production, doing so will not reduce the price UK consumers pay for energy. The rapidly falling costs of renewables and the quick installation times for energy efficiency measures make them the cheapest and most effective way to eliminate our reliance on Russian gas, and these can be scaled up without compromising on future climate security.

Even once fully approved, new fields take an average of three years to be constructed.⁵ If the Government pursues faster deployment of renewables and energy efficiency measures, the UK will no longer be dependent on Russian gas by then. However, consumers will still be shouldering the cost of expensive energy bills – and this is something that bringing new fields online will not address. As highlighted by BEIS ministers and the Climate Change Committee, additional domestic production will do little to shift the dial on energy prices.⁶

But the difference is even more stark when considering licensing areas for new exploration. It takes on average 28 years for an oil and gas field to progress from first discovery of oil and gas to first production.⁷ The UK and other European countries aim to significantly reduce their dependence on gas by 2030 – bringing new fields online in the 2040s and 2050s runs the risk of exposing the North Sea to stranded assets and will do nothing to help consumers in the current crisis.

Annex

Data used in the table as part of this briefing was obtained from a range of sources outlined below. Full development time includes the time taken for construction of a project.

Energy efficiency and clean heat in homes

Data was taken from E3G's briefing *'The home energy security plan: demand-side measures to lower bills and get off gas'*.⁸ It examines 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.

⁵ **Oil and Gas Authority**, *2018 UKCS Project Insights Report*

⁶ **The Climate Change Committee**, *Climate Compatibility of New Oil and Gas Fields*

⁷ **Oil and Gas Authority**, *2018 UKCS Project Insights Report*

⁸ **E3G**, *The home energy security plan: demand-side measures to lower bills and get off gas*



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Across the UK economy, it achieves net zero before 2050. The key metrics – derived from the combined impact of fabric efficiency measures, low carbon heating, behavioural change and efficient appliances.

* District heat accounts for 11% of gas savings by 2025 from homes and buildings, facing full development time of 5-7 years and construction time of 3-5 years.

Energy efficiency and clean heat in commercial and public sector buildings and industry

Data was taken from the CCC ‘Tailwinds’ scenario.⁹ For industry, we have only included the share of gas demand reduction from energy efficiency, i.e. from a mix of heat recovery, process and equipment upgrades, and industrial clustering. Additional gas and electricity savings to 2025 can be achieved through resource efficiency in production and materials substitution.

Power generation technologies

Power generation development and construction times are taken from the Department for Business, Energy, and Industrial Strategy’s Electricity Generation Costs report.¹⁰ Data on impact by 2025 is taken from Carbon Brief analysis by Simon Evans.¹¹ This is likely an underestimate as it only looks at whether the current pipeline of projects awaiting construction is built. Some projects announced in this year’s Contracts for Difference (CfD) auction will also come online before 2025.

New oil and gas fields

Data on development and construction timelines is taken from the Oil and Gas Authority’s UKCS Project Insights Report.¹² The data on impact on bills is supported by recent evidence from the Climate Change Committee.¹³

⁹ **The Climate Change Committee**, *Sixth Carbon Budget*

¹⁰ **BEIS**, *Electricity Generation Costs*

¹¹ **Carbon Brief**, *Simon Evans (twitter)*

¹² **Oil and Gas Authority**, *UKCS Project Insights Report*

¹³ **The Climate Change Committee**, *Climate Compatibility of New Oil and Gas Fields*



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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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