

Briefing

Can renewable power help to tackle the UK's inflation problem?

August 2023



Summary

Rapid declines in the cost of renewables mean they are now outcompeting fossil fuel powered electricity generation on cost in most of the world. This has happened faster than most scenarios predicted, with consequences for fossil fuel demand. Our analysis shows that gas demand in 2030 could be 24 per cent lower than the Climate Change Committee's central scenario, if the power sector decarbonises by 2030.

Cheaper renewable power not only means less oil and gas, it also has the potential to lower inflation. The invasion of Ukraine saw inflation peak in the UK at 11.1 per cent, largely reflecting a fossil fuel price spike. The UK's net zero transition will substantially reduce future exposure to fossil fuel price spikes. Our analysis shows that, if the UK had a decarbonised power system, the effects of the invasion of Ukraine on UK inflation would have been at least 11 per cent lower over the past year. Because fossil fuel price spikes also indirectly increase inflation, this is likely to be an underestimate. It would have kept inflation lower than inflation in Italy and Germany in the second half of 2022.

However, despite the UK's progress towards clean energy, today's fossil fuel price rises have a hidden risk for cheap renewables. The Bank of England's main tool to reduce inflation, raising interest rates, has the perverse effect of making renewables more expensive to build. Policy makers can and should avoid this unintended consequence and aim to keep energy prices and inflation low. They can do so by encouraging the Bank of England to use prices stability mechanisms at its disposal, to give renewables developers access to cheaper financing.

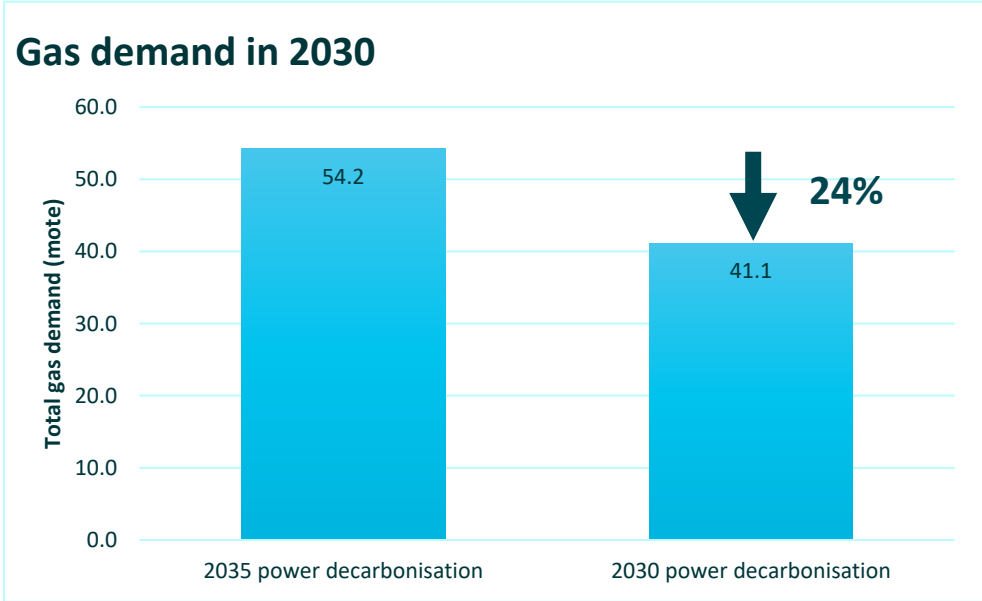
We probably need less fossil fuel than we think

Claims of peak fossil fuel demand are growing because alternatives like renewables are now cheaper. This is particularly the case for the power sector, where the costs of renewables have fallen dramatically globally. Since 2021, solar and wind power have become the cheapest sources of new electricity in 96 per cent of the world. It is also cheaper to build new wind and solar than to operate existing coal and gas plants in 60 per cent of the world. Costs are predicted to continue to fall as more renewables are deployed. And the faster change happens, the cheaper renewables become.¹ In the UK's last round of contracts for difference auctions (AR4), offshore wind was offered at a strike price nine times cheaper than gas-fired electricity generation.²

The UK planning system and electricity grid are limiting the pace of renewable rollout. If these blockers were reformed, there could be a much more rapid decline in fossil fuel demand than central scenarios would predict and lower power costs. For example, the Climate Change Committee’s Balanced Net Zero pathway suggests gas demand in 2030 will be 54 million tonnes of oil equivalent (mtoe). This assumes power decarbonisation by 2035, in line with the current government target.

Our analysis shows that if, instead, the UK decarbonises its power system rapidly by 2030, in line with Ember’s clean power 2030 pathway and current Labour party proposals, the UK would need 24 per cent less gas in 2030 than the Climate Change Committee’s Balanced Net Zero pathway.^{3,4} That would mean 13 mtoe less gas needing to be drilled in the UK, or a reduction in gas imports of 32 per cent.⁵ Even if the UK overshoots the 2030 target and achieves decarbonisation of the power system by 2032, gas demand in 2030 would still be 19 per cent lower, requiring 10.5 mtoe less gas to be drilled or 25 per cent less imports.⁶

Total gas demand across the economy could be 24 per cent lower in 2030 if the power system is decarbonised by 2030, rather than 2035



Renewables lower inflation

Cheaper renewable energy not only means lower oil and gas demand and fewer imports, but it also has the potential to cut energy bills for consumers. Lower energy bills would help households directly, and would also cut inflation and, therefore, interest rates and housing costs.

Inflation hit a 41 year peak in October 2022 at 11.1 per cent and has remained stubbornly high. A major driver of the recent rise was high energy prices. Gas prices were at least ten times typical levels from the last few years in March and April 2022 following Russia’s invasion of Ukraine.⁷ High gas prices pushed

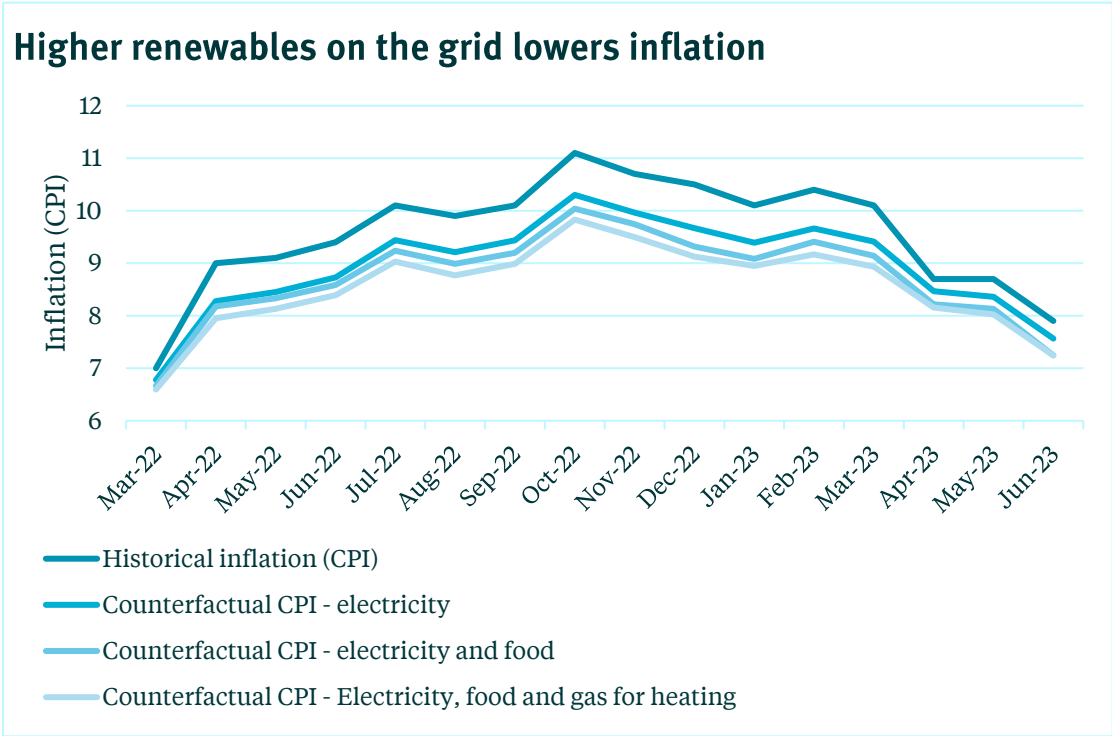
up electricity prices for consumers as well, due to the structure of the electricity market in the UK.⁸

To bring down inflation and avoid energy bill price spikes, the UK must reduce its reliance on gas.

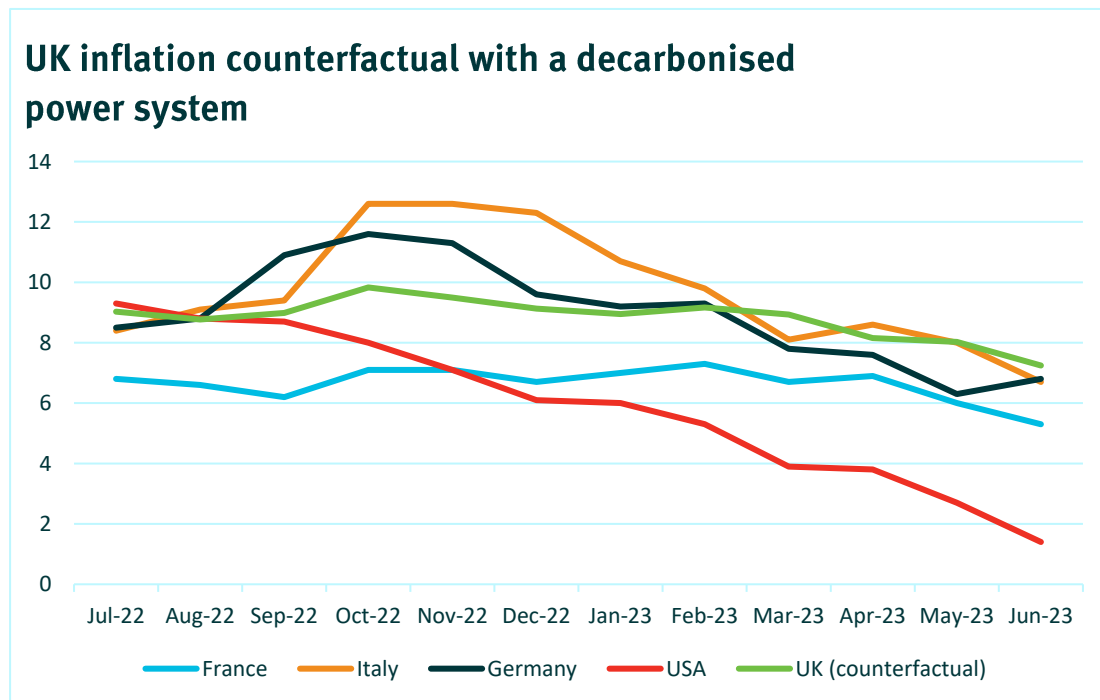
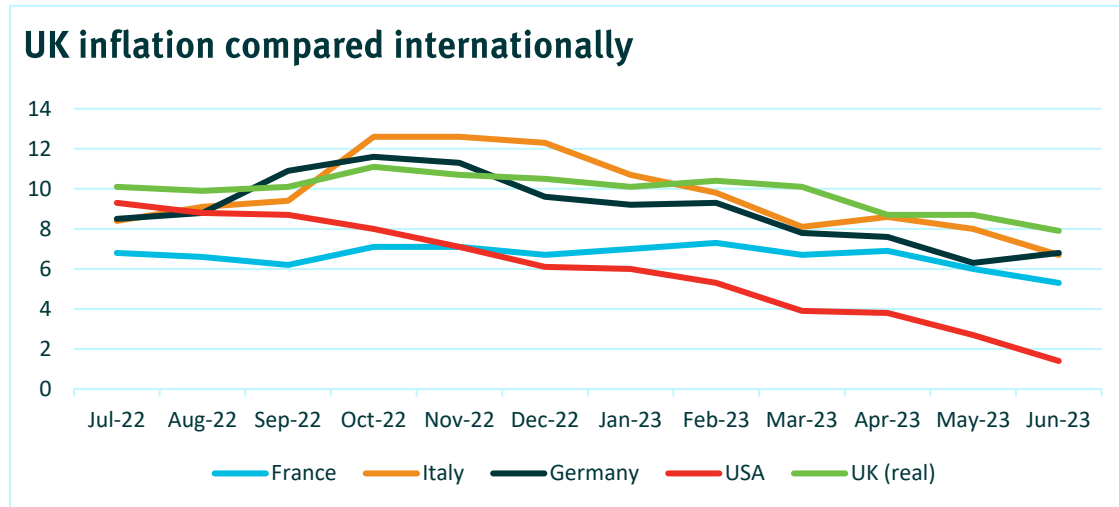
Our analysis shows that inflation would have been seven per cent lower over the past year with a decarbonised power system, rather than one that relies on gas, as the Climate Change Committee envisions for 2035.⁹ And that is just the direct effects of lower energy bills. If an estimate of the indirect effects of lower electricity costs on food production is included, that figure rises to nine per cent.¹⁰ If the UK had also switched to electrified home heating in line with the Climate Change Committee’s Balanced Net Zero pathway projections for 2035, that figure rises to 11 per cent.¹¹ This would have kept UK inflation lower than that in Italy and Germany for the second half of 2022.¹²

The actual impact would be much higher as energy costs for food processing, manufacturing and other industries would be reduced. If these reduced costs were passed onto consumers, the prices of products including food would have risen less quickly too. Furthermore, if inflation is brought down, then interest rates would not need to continue to be raised by the Bank of England, which would make mortgages and housing costs more affordable.

In scenarios with higher renewables on the grid, inflation over the past year would have been at least 11 per cent lower



In a scenario with higher renewables on the grid, UK inflation would have been lower than Germany and Italy during the second half of 2022



How to avoid high interest rates and inflation

Current government policy is raising consumer bills and the cost of renewables, keeping inflation higher. It is increasing UK reliance on oil and gas imports, which is keeping interest rates high, raising the cost of housing. This is against the interests of consumers and the need to tackle climate change.

Rising interest rates disproportionately impacts renewable energy developers. Wind and solar tend to have high initial upfront costs, compared to their very low operating costs. This means that higher interest rates make the cost of financing a renewable energy project much greater, which will delay rollout. Slower rollout means more expensive power generation, higher bills and, therefore, higher inflation.

This is a doom loop for the economy where, to lower inflation, the Bank of England raises interest rates, which increases the upfront cost of building renewable power, which in turn delays its rollout.¹³ Delaying renewables, and artificially raising their cost by increasing the cost of debt, prevents cheap power bringing down inflation. Perversely, inflation rises due to the action taken to lower it.

To break this cycle, the government should update the Bank of England's remit to enable it to provide lower financing costs to renewable energy projects. The Bank of England has a mandate to ensure price stability and bring down inflation in a way that supports the transition.¹⁴ The bank could use tools for price stability to ensure low financing costs for renewables, thereby helping to deliver its core inflation goal. This could include issuing credit guidance that lowers the risk weighting for renewable energy projects, for example.

Central banks can also use dual interest rates as an incentive to lend to certain sectors. The Bank of England has a precedent for this type of intervention, as it used the Term Funding Scheme to encourage bank lending to the private sector in response to the pandemic. Targeting a similar scheme towards green energy projects would lower the cost of financing renewable development.

A recently appointed member of the monetary policy committee has been supportive of central banks using price stability tools to support green energy projects stating:

“Given the scale of the economic and financial risks posed by climate change, central banks simply cannot ignore the issue. Their own price stability mandates demand that they start playing an active role in pushing the private sector and the broader economy toward decarbonisation and greater climate resilience.”¹⁵

These actions would help the Bank of England deliver on its mandate to bring down inflation to two per cent, by lowering the cost of energy through cheap renewables.

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Endnotes

¹ Rocky Mountain Institute, 2023, *Peak fossil fuel demand for electricity*

² *Carbon Brief*, 8 July 2022, 'Analysis: record-low price for UK offshore wind is nine times cheaper than gas'

³ Ember, 2022, *A path out of the gas crisis*

⁴ UK Labour Party, 2023, *Make Britain a clean energy super power*

⁵ This calculation uses Climate Change Committee Balanced Net Zero pathway gas demand as the baseline, and replaces power system gas demand from Ember's clean power 2030 pathway for the UK to demonstrate how much less gas demand could be needed in 2030. Conversion from TWh electricity demand to TWh gas demand is based on Thermal Efficiency factor from the Department for Business, Energy and Industrial Strategy (BEIS) 'Electricity generation cost' report 2020 of 53 per cent for a combined cycle gas turbine (CCGT) H-class. Conversion from TWh gas demand to million tonnes of oil equivalent (mtoe) gas demand is based on North Sea Transition Authority conversion factor of 11.63.

⁶ This calculation uses a stylised S-curve for gas use between today and Ember's clean power 2030 target and shifts the end date by two years to 2032, to give an indication of the gas demand in 2030 if the 2030 power decarbonisation target is missed.

⁷ ECIU, 21 February 2023, 'The cost of gas since the Russian invasion of Ukraine'

⁸ Ibid

⁹ This calculation is based on the direct effects of substituting renewables for gas in electricity generation in the Consumer Prices Index measure of inflation. The high renewables scenario is based on the Climate Change Committee's 2023 report, *Delivering a decarbonised power system*. The calculation uses Levelised Cost of Energy estimates for onshore wind, solar and offshore wind, based on the latest BEIS 'Electricity generation cost' report, 2020, and electricity prices from Nordpoolgroup.com to reflect the cost of gas-fired power. It also assumes that all differences in cost between generation technologies are passed on to the consumer in electricity bills.

¹⁰ According to a survey of Food and Drink Federation members from Q3 2022 (Food and Drink Federation, State of Industry report, Q3 2022) an average of 22 per cent of costs were due to energy bills. This calculation is based on the indirect effect that lower electricity costs would have on food production costs and assumes these are translated into lower prices for consumers in the Consumer Prices Index (CPI).

¹¹ This calculation is based on a heat pump rollout in line with Climate Change Committee's sixth carbon budget Balanced Net Zero Pathway. The relative weighting of electricity and gas in the Consumer Prices Index is adjusted to account for higher electricity consumption and lower gas consumption.

¹² Inflation data for Italy, Germany, France and the United States is taken from the Eurostat Harmonised Indices of Consumer Prices (HICP).

¹³ *Project Syndicate*, 12 September 2022, 'Why central banking must go green'

¹⁴ HM Treasury, monetary policy remit letter, autumn statement 2022

¹⁵ *Project Syndicate*, 12 September 2022, op cit