

# TAKING BACK CONTROL

*ADDRESSING BRITAIN'S ENERGY CRISIS*

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## **About the authors**

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## Headlines

- The UK energy system is dysfunctional and on the verge of collapse.
- Further expansion of renewables will make our gas dependency worse; only gas can now support renewables.
- There is no alternative to improving the efficiency of our gas-fired fleet, and diversifying the sources from which we obtain natural gas.
- Radical action is required to stabilise the system and bring down consumer prices.
- Renewables must be put on the same footing as other generators, with no subsidies and no preferential dispatch, and eventually wound down.
- A long-term gas-to-nuclear strategy is wise, but because of the perilous state of Britain's electricity grid, the use of ultra-supercritical coal may be necessary to keep the lights on should nuclear fall behind on its timetable.

## Summary

This paper outlines the policies required to restore the economic and engineering efficiency of the GB electricity system and the energy sector as a whole. These counterintuitive measures would cut costs to consumers in the short term. They will also improve system stability and energy security, and prepare the sector for a medium- and longer-term reconstruction that will address the systemic failures currently prevailing, returning the system to acceptable levels of reliability, bringing further price reductions for consumers, as well as lowering carbon emissions.

The measures are practical and hard-headed; they recognise that the UK's current acute exposure to natural gas is, paradoxically, the result of the climate and renewables policies of the last two decades. The plan also recognises that gas dependency is beyond remedy in the short term, since only gas can support the large renewables fleets what we have built, battery storage being wholly uneconomic and likely to remain so. We are overly dependent on gas and must address this dependency by improving the efficiency with which we use this fuel and broadening the range of sources from which we obtain it.

In the short term there is no alternative to gas, and rather than pretending otherwise, with distracting upbeat remarks about nuclear, which is relevant only in the medium to longer term, and naive plans for additional renewables, which will only prolong and deepen the current crisis, the government should be candid with the public and focus relentlessly on replacing the older combined cycle gas turbines (CCGTs) with new models that are more thermally efficient (and thus cheaper and cleaner) and on increasing UK production of natural gas onshore and offshore.

This will be surprising to many, but it is an unavoidable conclusion from the engineering and economics of our situation. Indeed, the goal of increasing fuel diversity while cutting consumer costs requires that the UK reduce renewable energy infeed and restore the efficiency of the conventional energy system on which we are entirely reliant for security, in spite of vast investment in solar and wind power.

The principal measures recommended include:

- Rapid and proactive development of all domestic fossil fuel supplies, particularly gas and oil in the North Sea, but also onshore shale gas.
- Rapid upgrade and expansion of the gas generation fleet, improving thermal efficiency and reducing generation costs.
- Use of UK foreign policy and market power to secure long-term natural gas supply contracts from friendly sources.
- Rapid reduction of subsidies and electricity system balancing costs through the imposition of balancing costs on renewables, firm power contracts and the discounted buy-back of subsidy entitlements. These measures should be backed up by clear plans, if other measures fail, for compulsory discounted buy-back of subsidy entitlements and temporary state ownership of all previously subsidised renewable energy generation.
- Dispatch of renewables only when economic as a fuel saver, and a progressive reduction of renewable energy infeed to the electricity system as new conventional generation is built, restoring system efficiency, reducing system balancing costs, and obviating the need for underutilised network expansion.
- Firm but judicious support for new nuclear electricity generation in the longer term, and most importantly for new high-temperature nuclear modular reactors to provide industrial heat, reducing natural gas demand.
- Planning for new ultra-supercritical coal generation as a medium-term backstop should nuclear power fall behind schedule.

Decisions along these lines are now unavoidable and will have to be taken by a UK government at some point in the future, and the sooner the better if the onset of an acute national economic and security disaster is to be avoided. Unless policy is reformed, system reliability and security will begin to fall precipitately and consumer prices will continue to rise quickly.

The program of measures we outline is daunting and difficult; the consequences of timid inaction will be much worse.



## Understanding the UK's energy crisis

The UK electricity system and the broader energy supply industries and their markets are dysfunctional, the result of misguided and counter-productive environmental and climate policies.

While the current energy crisis was triggered by the economic effects of coronavirus and the Russian invasion of Ukraine, the fundamental causes of the emergency stretch back to the early 2000s when the Blair government interrupted the prudent and engineerable gas-to-nuclear trajectory that the UK was following and mistakenly made the introduction of subsidised renewable energy the governing priority of national energy policy.

By giving extreme policy and financial support to renewable generation, our policies have undermined all incentives to invest in the new, more efficient, cheaper, cleaner fossil-fuelled electricity generation that is still indispensable in spite of the overwhelming presence of renewables. Remaining coal and gas capacity is old, thermally inefficient, and, to make matters worse, used sub-optimally. Our system is much more expensive and almost certainly higher emitting than it would have been had we not subsidised renewables and coerced their intro-

duction.

The security and engineering efficiency of the network has also suffered. The grid is now fragile and susceptible to physical and economic shock. Feel-good green policies, symbolised by the wind turbine, have delivered only an illusion of fuel diversity, security, and value. In reality the grid is entirely reliant for its security on the only thermodynamically superior fuel remaining, namely natural gas.

Since market prices for electricity are set by gas-fired power stations, the poor efficiency of the UK fleet has driven up prices for consumers, who also have to pay an annual renewables subsidy bill that has now surpassed £10 billion. Further billions have to be found to deal with the system costs that renewables impose on the grid. Windfarm constraint payments are the most visible of these, but there are many others, and the cost is rising exponentially.

As a result, our wholesale electricity prices are between 20% and 40% more expensive than most countries in Western Europe. Even Ireland is 10% cheaper, despite paying much higher prices for gas.

## Solutions, false and true

Some policy analysts are naively suggesting that the UK should add more renewables to try and reduce consumption of natural gas. But, as we have seen, renewables are one of the principal causes of the current problems, and more wind and solar will only make our current difficulties worse, with system inefficiency, spiralling costs and strategic vulnerability embedded as permanent features of the British electricity and energy systems. To repeat a vital point: *deploying more renewables will raise consumer prices still further*. This must be avoided.

The UK therefore needs to redesign its electricity and energy supply systems for the next 25 years, with all other priorities put to one side and replaced with a relentless focus on:

- diversity of thermodynamically *high-quality* fuel supply
- system efficiency, security and reliability
- low cost to consumers.

The following recommendations are therefore radical. They aim to progressively remove all the subsidies and other climate policy distortions that favour high-cost renewables, allowing the UK energy sector, and particularly the electricity system, to operate as efficiently, economically and effectively as possible. Existing and new conventional generation will reach high levels of utilisation and thermal efficiency. Wholesale prices and system costs will be slashed, and the subsidy bill entirely eliminated.

Reforms of this kind are now unavoidable. Even if the UK initiates remedial action immediately, there will be some difficulties and economic pain. Delay will only make the difficulties more intractable and the economic problems deeper. Prompt action is required to limit harm.



# Recommendations

## Alleviating current consumer pain

### *Eliminate subsidies*

1. The full cost of renewables must be removed from consumer bills. This full cost includes subsidies to support renewable electricity generation, including £2.1 billion per year on Contracts for Difference, £6.6 billion per year on the Renewables Obligation, and £1.5 billion per year on the Feed-in Tariff (FiT), as well as around £2 billion of grid balancing costs caused by renewables. This measure could reduce consumer electricity bills by as much as £400 per household per year, with further savings, totalling many billions, for industrial and commercial consumers. This would lift pressure on the general cost of living (which is where two thirds of the renewables subsidies indirectly hit household budgets) and improve international competitiveness. To achieve this smoothly, and without causing a shortfall in supply, requires phased action, but action could be initiated in a matter of months, with immediate and growing benefits to consumers and the wider economy. Because of the legal complexity, and the likelihood of self-serving resistance from the renewables industry, we suggest that government should begin with the less controversial elements listed below as a) and b), but supported by clear indications that if the industry does not co-operate, government will proceed to c) full nationalisation on less advantageous terms.

(a) In the first instance, government should require renewable generators to meet their own system or balancing costs, with the charges being calculated dynamically to reflect the reality that balancing costs rise exponentially when more renewables are present on the system. Since reasonable predictions of balancing costs can be made a day ahead, this would create a strong incentive for renewable generators to self-dispatch, self-constrain, or render their output dispatchable. No constraint payments to renewables would be permitted. This option would encourage the renewables industry to address its own defects and would reduce renewables infeed, cutting subsidy costs as well

as reducing balancing costs.

(b) Should the imposition of balancing charges not produce the required results with sufficient speed, and perhaps in any case, government should replace the Renewables Obligation and Contracts for Difference schemes, requiring generators to choose between two types of new contracts:

- firm power on market terms, and with high and discouraging penalties for failure to deliver
- a separate market for low-value, non-dispatchable power, operating purely as a fuel-saving top-up.

Generators unwilling to participate in either should be offered the opportunity to bid for a voluntary buyout scheme, with payment being made in the form of index-linked tradeable bonds to enable the Treasury to spread the cost over time.

This option would remove low-value renewable generators from the market, reducing both subsidy and balancing costs.

(c) As a last resort, and only if the renewables industry is unprepared to come to terms on the basis outlined above, renewable generators should be nationalised via a compulsory discounted buy-back of the subsidy entitlements, with the generation assets vested in a new consumer-owned Electricity System Operator. The buyout payments should take account of subsidies already received by the generator. Subsequent to nationalisation, all green power stations would be put on the same basis as other generators and dispatched only when economic as fuel savers. Some of the green generators should be removed from the grid immediately to reduce system operation costs, for example in Scotland where grid connection capacity is inadequate. To further improve system efficiency, the rest of the now state-owned renewables capacity should be decommissioned gradually as the convention-



al fleet is renewed. Long-term public ownership of wind and solar farms is not the goal of nationalisation.

### ***Reduce the cost of the grid***

2. A number of supplementary measures would be required alongside all of the three phases outlined above:

(a) Some fossil fuel generators, such as CCGTs, should operate on a 'must run' basis, as nuclear generation does today.

(b) New grid connections should be denied to all wind and solar capacity consented but as yet unbuilt.

(c) Drax power station should be encouraged to abandon the burning of subsidised biomass and, if conversion is economically feasible, return to coal burning, adding approximately 2.6GW of low-cost, flexible capacity to the generation fleet while maintaining fuel diversity. Otherwise, these units should be immediately replaced with CCGTs on the same site.

(d) Government should cancel all pending grid expansion projects intended for renewable generation, for example the multi-billion-pound schemes for new interconnectors from Scotland to England on the east coast, and the Shetland-to-Scotland link, both of which are intended solely for wind-power. These under-utilised and very expensive assets are unaffordable in the present context.

### ***A single-buyer market***

3. The GB electricity markets are now inefficient, and on the verge of collapse, largely because of the presence of subsidised renewables. The reforms outlined above, though critical in themselves, would not be sufficient to address this problem in the time required. Therefore, the existing market system must be replaced, probably with a Single Buyer market model. Such a reform would necessitate that National Grid be removed from the role of Elec-

tricity System Operator. In addition, the regulator, Ofgem, would be replaced with an entirely new organisation. This would operate under new terms of reference prioritising consumer welfare through system security and economic efficiency, and have an entirely fresh staff capable of addressing, rather than perpetuating, the failures of the current regulator.

### ***Fast-track CCGTs***

4. Enable a fast-track planning consents procedure for new CCGTs. To avoid planning delays, we suggest that for the next five years, and on an emergency basis, government takes powers to award lifetime licences to new thermal power stations on the site of existing or old power plants (for example, Drax power station). In practice this would focus on gas plants co-located with liquefied natural gas (LNG) storage.

### ***Suspend the UK ETS***

5. The United Kingdom Emissions Trading Scheme (UK ETS) should be suspended to give immediate relief to the economy from the unexpectedly high burden of carbon taxation, enabling fuel diversity through retention of coal generation and the encouragement of new CCGTs.

### ***Introduce a VAT holiday***

6. Introduce a long-term VAT holiday on gas and electricity, and also, for consistency, on heating-oil. These measures would give a modest but worthwhile saving of 5% on the bill.

### ***Assistance for pensioners***

7. Make the Winter Fuel Payment more generous and widen its catchment to include all pensioners.

### ***End Net Zero coercion***

8. Cancel plans to *coerce* the adoption of electric vehicles and heat pumps, leaving this to individual consumer choice. Capital ex-

penditure on this scale is now unaffordable, as are the subsidies to force roll-out ahead of the learning curve. Since the recommendations presented here will reduce the differential between gas and electricity prices, spontaneous adoption of heat pumps, where appropriate, will be encouraged; coercion and subsidy should not be needed.

### ***Review the biofuels mandate***

9. The mandatory biofuels component in road transport fuels should be reanalysed in light of increased global food costs and insecurity arising from the Russian invasion of Ukraine, and reduced accordingly, returning farmland within and without the UK to food production.

## **Mitigating short- to medium-run strategic exposure to natural gas**

### ***Accelerate North Sea licensing***

11. Take a proactive and permissive approach to the consenting of new licences for exploration in the North Sea for both oil and gas. With the higher prices currently prevailing, many hitherto marginal resources are now likely to be economic. Government is already moving in this direction but needs to go faster and further.

### ***Lift the shale gas ban***

12. Lift the ban on shale gas exploration and hydraulic fracturing with immediate effect. This opportunity for domestic production is highly significant, and it would be irresponsible not to verify its potential scale and economic value.

### ***Conserve coal-fired capacity***

13. Extend the lives of the three remaining coal-fired power stations: at Ratcliffe (2 GW), West Burton (2 GW) and Units 5 and 6 at Drax (1.2 GW), and prepare for repowering with either gas or nuclear on these and similar sites.

### ***Secure long-term gas supply***

14. Gas supply should become a principal focus of British diplomacy. Reduced levels of fluctuating renewable generation will stabilise gas demand through optimal use of a new generation of CCGTs of high efficiency. This stabil-

### ***Reduce tax on road fuels***

10. Taxation on road transport fuels is high and forms an undesirable brake on economic growth; taxation should in principle be focused on subsequent wealth creation, not on a primary input. A significant cut, much larger than the 5p per litre offered by the Treasury, would be an efficient way of reducing pressure on all sectors of the British economy, particularly domestic households. The Treasury should consider a rolling program of substantial reductions, correlated with a partial transfer of taxation to road use charging, with the aim of reducing tax on transport fuels to minimal levels.

ity will enable the UK to use its market power to enter into longer-term gas-supply contracts with friendly countries at competitive prices.

### ***A presumption against renewables***

15. Instruct decision makers in the planning system to adopt a strong presumption against more grid-connected renewable electricity generation, with a preventative ban on solar proposed on agricultural land.

### ***Eliminate the SECR framework***

16. Suspend the burdens placed on businesses via the Streamlined Energy and Carbon Reporting framework (SECR), which is embedded in the Companies Act. This is a coercive measure encouraging businesses to enter into power purchase agreements with high-cost renewable generation on non-market terms, passing the additional cost on to consumers of goods and services. Business consumers must be left free to find the cheapest source of energy.

## A robust and affordable long-term energy supply

### *Cross-licensing of nuclear plant*

17. The short- and medium-term measures outlined above will stabilise demand for natural gas and put the UK back on the gas-to-nuclear trajectory established in the 1980s and 1990s but subsequently abandoned. The UK government will need to support this development path with a firm diplomatic agenda to encourage and facilitate cross-licensing of nuclear plant with allied democracies such as Japan and the United States. Low-cost government debt should be used to finance such projects.

### *Nuclear for industrial heat*

18. Implement advanced, small, modular gas-cooled nuclear reactors for the provision of industrial heat in order to reduce natural gas demand at low cost. Such reactors are likely to be located in close proximity to centres of demand. They are already operational in Japan and under consideration in other parts of the world.

### *Nuclear for hydrogen*

19. Engage with Japan in joint research on the use of high-temperature nuclear reactors for the thermal decomposition of water to generate hydrogen as a supplement to electricity as an economy-wide energy carrier.

### *A new workforce*

20. Create a new generation of operational nuclear engineers and their academic counterparts through the university system.

### *Coal as contingency*

21. Make contingency plans for the construction of new ultra-supercritical coal power plants to diversify fuel supply in the next decade, should nuclear generation construction be delayed.

## Conclusions

A governing party that recognises the need to reinforce our use of natural gas, nuclear, and current coal, and so restore system efficiency, with a medium-term prospect of more nuclear generation, perhaps with higher-efficiency coal as an insurance policy, will deliver real fuel diversity, security, and lower costs in the short and medium term. Such a party would survive

and be deservedly popular. By contrast, a party that fails to take radical action of this kind now will, at best, only defer the day of reckoning, and eventually be held to account for the consequences.









For further information about Net Zero Watch and the Global Warming Policy Forum, please visit our website at [www.netzerowatch.com](http://www.netzerowatch.com).

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