



'BREAKING THE LINK'

The only way to lower energy bills for good
Dale Vince OBE

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FOREWORD

'Breaking the link'

How much! An increasing number of people feel like they're being taken for a ride, when their latest energy bill lands. It wasn't meant to be this way. Labour won last year's election, promising to bring bills down using homegrown green energy. But they've gone up three times since then, even as we make record levels of our electricity from the wind and the sun.

And this is being weaponised by parties on the right wing, with the Tories and Reform using energy bills to argue against the move to net zero. It's understandably confusing for the public, they've heard a lot about green energy being cheaper and better for the planet — but their energy bills keep going up even as we build more. Why?

There's an easy answer to that. The problem is not the price of green energy, it's the price of fossil gas. Incredibly, even when our power comes from the wind or sun — which is homegrown and cheaper — we're paying top dollar because we allow the international market price of fossil gas to be the price of our own wind and sun.

Right now, we've got a broken energy market — one that ties the price of all electricity to the most expensive source on the grid, which is nearly always fossil gas — dirty, mostly imported, and wildly volatile in price.

This utterly mad system has been costing us billions. Our latest research shows that in 2023 alone, this broken market mechanism added £43 billion to UK energy bills. That's £367 per household, money that could've stayed in people's pockets. Businesses took a hit too — over £30 billion in extra costs.

This isn't a one-off, we live in a time of heightened political uncertainty. If we see another energy price spike like in 2022 — even in a future powered by mostly clean electricity — this nonsensical market rule could still cost us nearly £87 billion. That's £741 per household. And let's not forget what it cost the country. The UK government spent £78 billion in energy support schemes to protect households and businesses from the worst impacts of the energy crisis — that's more than the UK defence budget. It's not just unaffordable — it's unsustainable and it's a national security issue.

The answer is simple — break the link.



This report shows the savings households and businesses can make if we do break the link and warns about the huge costs of not doing it. It lays out a clear plan to once and for all end this destructive and dysfunctional relationship between our bills and the global fossil fuel market — the one dominated by dictators, petrostates and price-fixing cartels like OPEC. That's not energy independence — that's energy servitude.

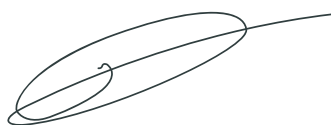
Labour has made a big promise — to lower energy bills — it's a promise they will be judged on at the next election. But here's the rub: they won't be able to do that with green energy unless they break this link. It doesn't matter how many wind and solar farms we build — if we don't fix the rules, we'll keep paying gas prices for green power and we'll stay on the rollercoaster.

This matters for the economy too. High energy bills and price volatility are throttling British industry — especially sectors like steel and data that need loads of power. If we don't get costs down, we'll lose jobs, lose competitiveness, and miss the chance to lead the world in the green economy.

The solution is staring us in the face: use our own clean, cheap, British energy — and charge people the right price for it. This report shows how we can do it.

We can get to 100% green energy. We can slash bills. We can become energy independent — for real. But only if we break the link.

Let's get on with it.



Dale Vince OBE
Founder of Ecotricity

EXECUTIVE SUMMARY

This report sets out how to lower electricity bills for families and businesses by reforming the wholesale energy market.

It finds that although the UK is sourcing more electricity from renewables – which are cheaper than fossil gas – this does not and will not have a meaningful impact on lowering bills under the current electricity market arrangements.

The report sets out a solution that would ‘break the link’ between the price of electricity made from gas and the price of electricity made from renewables, which would lead to lower energy bills. It recommends moving away from a ‘pay-as-clear’ system to a ‘pay-as-bid system’. It also evaluates other approaches/systems, including the government’s current reform plans under the Review of Electricity Market Arrangements (REMA).

The UK government has a 2030 Clean Power target, which would mean 95% clean energy on the grid. It has also promised that this will lower bills for families and businesses.

In this context, the report also evaluates the ability of the government to meet its promise to lower bills under the current market arrangements/without reforming the current market arrangements. It finds that the government will fail to meet its promises and severely damage its reputation if it does not change policy.

Section 1

Renewable energy is cheaper than fossil fuels, but this doesn't lead to cheaper bills in the uk

Renewable energy is cheap. It's cheaper than fossil fuels and it's getting cheaper all the time. It's also becoming the primary source of electricity generation in the UK with the government aiming for Clean Power by 2030. From 2010 to 2023, the average global cost of renewable electricity generation fell significantly. For Solar PV, it fell by 90%, for onshore wind by 70% and for offshore wind by 63%. The 'levelised cost of electricity' (LCOE) figures in the table below cover the lifecycle costs of each renewable technology, including the costs of building and operating each installation.

LCOE costs of renewable energy

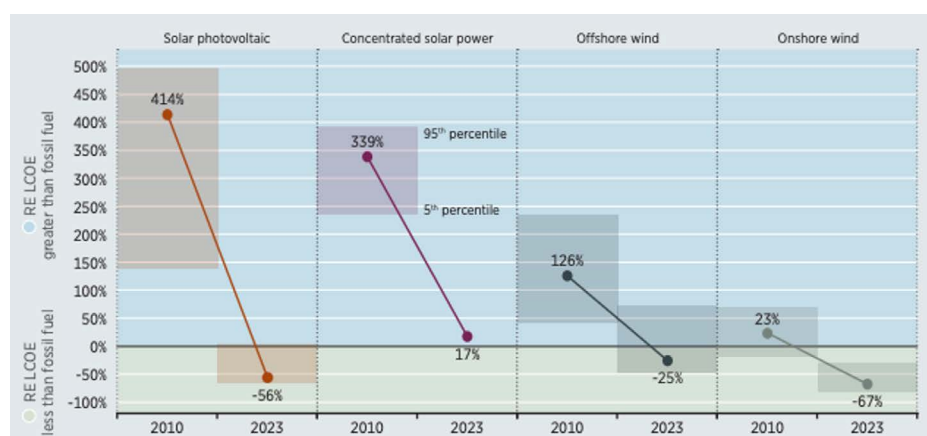
	Levelised cost of electricity		
	(2023 USD/kWh)		
	2010	2023	Percent change
Bioenergy	0.084	0.072	-14%
Geothermal	0.054	0.071	31%
Hydropower	0.043	0.057	33%
Solar PV	0.460	0.044	-90%
CSP	0.393	0.117	-70%
Onshore wind	0.111	0.033	-70%
Offshore wind	0.203	0.075	-63%

Source: IRENA, [Renewable Power Generation Costs in 2023](#), September 2024 (also includes Total Installed Costs and Capacity Factor statistics)

Section 1

In that time the price of fossil fuel generation has stood still. In 2010, Solar PV was 414% more expensive than the cheapest fossil fuel solution. In 2023, it was 56% cheaper. The story is exactly the same with wind technology. In 2010, offshore and onshore wind technologies were 126% and 23% more expensive than fossil fuel generation respectively. In 2023, they were 25% and 67% cheaper.

Cost of renewable electricity generation vs fossil fuels



Source: IRENA, *Renewable Power Generation Costs in 2023*, September 2024

The UK has huge renewable energy potential, with ambitious government targets for offshore wind, onshore wind and solar (this is without factoring in wave and tidal energy)¹. This means that there is a huge opportunity for households and businesses to benefit from an abundance of cheap, homegrown clean energy through lower bills and energy security. Cheaper energy should lead to lower bills, but as explained below, it doesn't unless we change the electricity market rules.

¹ UK targets of 43-50 GW for offshore wind, 27-29 GW for onshore wind, and 45-47 GW for solar power, [Clean Power 2030 Action Plan](#)

Section 2

Current electricity market rules mean that cleaner cheaper energy doesn't lower bills

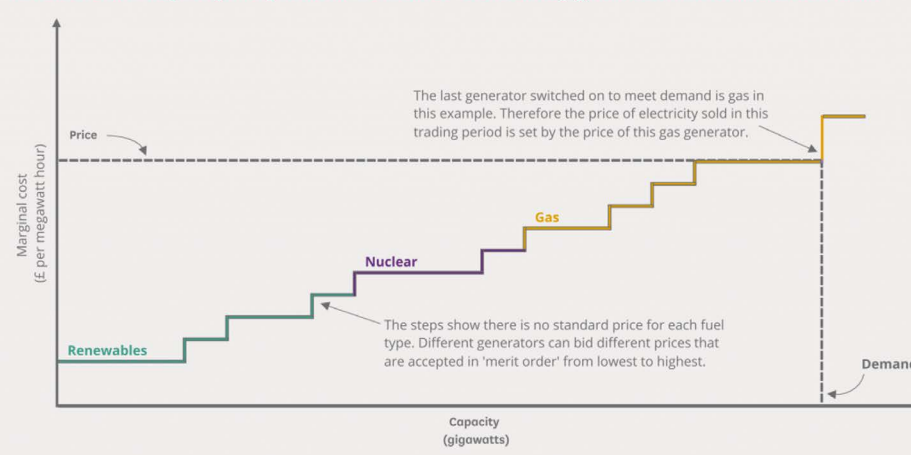
The wholesale market for electricity in the UK uses a 'marginal cost pricing' system (also known as 'pay-as-clear'). In this system, electricity is sold at the price of the most expensive unit of energy needed to meet demand at that point in time. Typically, this is fossil gas. For example, in 2023 and 2024 the price of gas set electricity prices 100% of the time.

Under the 'marginal cost pricing' system, to meet demand at a particular point in time, electricity generators bid the price they will accept to generate electricity. Demand is met in a 'merit order' where the cheapest bids are accepted first and so on, until demand is met. The most expensive bid used to meet total demand is the 'marginal price', which is then the price that every generator gets for their electricity. This means every unit of electricity is paid for at the rate of the most expensive, even if most of it was actually much cheaper to produce.

Illustrative example

Imagine you needed to buy 10 apples from the supermarket. 9 of those apples cost 50p and 1 of them cost £2.50. If the supermarket used the same rules as the energy market, you'd have to pay 2.50 for each of the 10 apples. This is what happens in the energy market.

Illustration of marginal pricing and the 'merit order' of electricity generators in the wholesale market



Source: House of Commons Library, [Why is cheap renewable electricity so expensive on the wholesale market?](#), 14/09/2023

Section 2

In the UK, this system means that the price of gas typically determines the price we pay for electricity. This is because the UK does not have enough renewable energy capacity to meet 100% of the demand and so must still use a proportion of gas, which is more expensive than renewables because these generators must buy fuel to burn.

As a result of this system, the UK currently gets no benefit from the growing cheap supply of renewable energy because it is priced the same as the price of gas.

It also means that the UK, British businesses and British households are vulnerable to the fluctuations of international markets and price spikes witnessed during the energy crisis of 2022.

This is because the price of gas is set by international markets that the UK has no meaningful control over. When this cost increases gas generator costs directly increase as they are critically dependent on buying this gas to burn to produce electricity. In turn this increases the marginal price of electricity for energy suppliers.

Not only are these international markets subject to shocks in supply, but they can also be manipulated by dictators, petrostates and cartels like OPEC.

This means the current market is bad for 1) energy bills and 2) energy security.

Section 3

Why this is a problem for the government & its promise to lower bills

The Labour government has made lower energy bills a central part of its promise to the public. It was elected on a platform that promised to “cut bills by £300 on average and deliver real energy security”. To deliver this promise, it has pledged to decarbonise the electricity system by 2030, take advantage of the UK’s supply of cheap green electricity and become a Clean Energy Superpower.

However, it will never be able to deliver on these promises if it doesn’t ‘break the link’ between the price of electricity made from gas and the price of electricity made from renewables. This is because even if they achieve their 2030 Clean Power Mission, there will still be some degree of gas used in our system under their plans, which governed by the current market arrangements means that the price of gas will set the price for all of our electricity. As set out in the next section, **the planned government changes will not lower bills for families and business.**

There is a severe risk to the government’s reputation if it fails to meet its promises. At this early stage, it has already come under pressure from opposition parties and the media on their promise to lower bills.

The only way for Labour to truly deliver on its promises to “*save families hundreds of pounds on their bills, not just in the short term but for good*” is to ‘break the link’.

Section 4

Why the government's current reforms won't lead to lower bills

Consecutive governments have acknowledged the need to reduce the UK's vulnerability to international gas prices and to ensure that cheaper renewable energy leads to cheaper bills for households. Unfortunately, consecutive governments have failed to put in place the reforms that will make this a reality.

The current Labour government claim that they'll lower bills by reaching their 2030 Clean Power target and delivering on the growth in cheap renewable energy that requires, but in practice this won't happen without reforming wholesale markets and breaking the link.

What Labour's 2030 target means in practice

This is because even if they achieve their 2030 Clean Power Mission, there will still be some degree of gas used in our system under their plans, which governed by the current market arrangements means that the price of gas will set the price for all of our electricity.

At the end of 2024, the National Energy System Operator (NESO) released advice on the viability and path towards Clean Power by 2030. They defined a Clean Power electricity system as one where less than 5% of energy comes from unabated gas. The 95% of the energy that comes from 'clean' sources will also include gas with carbon capture and storage (CCS), which is as expensive, if not more expensive, than unabated gas. In fact, in one of their 'pathways' to 2030, gas (either unabated or with CCS) "would still be used in 47% of periods". This was endorsed by the government.

Therefore, under current market arrangements, the same issue that we have now would persist. The price of all electricity used will be determined by the most expensive source needed at that point in time, which will often be gas. NESO has confirmed this. Despite themselves saying that Clean Power by 2030 "breaks the link between volatile international gas prices", they later acknowledge that the government's current plans won't actually 'break the link' in either of the pathways that they propose:

Section 4

"The New Dispatch pathway would leave the British system somewhat more exposed to volatile international gas prices. Gas (whether for unabated plants or those using CCS or CCUS enabled hydrogen) would still be used in 47% of periods, rather than around 15% in the Further Flex and Renewables pathway. Under current market arrangements, this would feed through to wholesale price setting in those periods."

They go on to say that while the UK would be less exposed to international gas markets, they wouldn't be immune to the same impacts suffered during the energy price crisis, stating that a repeat of the 2022 spike in gas prices "would add only £5 billion [to costs] in a clean power system", rather than £10 billion without a clean power system.

Current market reforms don't go far enough

The last government launched the Review of Electricity Market Arrangements (REMA) in 2022 to explore market reform options to support their objective to deliver a fully decarbonised electricity system by 2035. One of the challenges it set out to solve was 'passing through the value of a renewables-based system to consumers'.

Despite originally considering a 'pay-as-bid' model as an option (which is a recommended model later in this report), this was ruled out in favour of proposals that would keep the marginal pricing system.

In December 2024, the new Labour government published a 'REMA Autumn Update' assessing how these reforms fit with their 2030 Clean Power target. This provided a crucial opportunity to change course and pursue a more substantial policy that would actually lead to lower bills.

However, they decided to continue with the direction of the Review under the previous government "to assess whether zonal pricing or reformed national pricing would be the best approach for the future GB electricity system" before making a final decision later this year.

Zonal pricing – this would split the market into a handful of geographical zones. Each zone would have a different electricity price based on the circumstances in that area, such as supply, demand and grid access.

Reformed national pricing – a package of reforms to the current market model, which is likely to consist of changes to transmission charging and balancing incentives.

Section 4

Neither of these options would be a good solution to reforming wholesale markets. Neither would address the fundamental issue of breaking the link with the price of gas. Reforms to national pricing boils down to some incremental reforms to the current system, whereas zonal pricing would be a more radical reform, but one that would create or exacerbate structural market issues.

Replacing national pricing with zonal pricing won't bring down bills. Costs may reduce in some part of the country, but they'd have to increase in others. This is basic economics. It's wrong for advocates of zonal pricing to suggest that we can lower prices in some areas without them rising in others. Zonal pricing won't make power cheaper, just cheaper for some people and more expensive for others.

Setting up multiple market zones would fracture the market. Large generators or the companies owning demand in a particular zone would be able to exert pricing power and exploit the market.

It would also significantly disadvantage companies with generation and demand spread across the country. These companies would need to trade in several zones at once (rather than one as is now the case) and also need to buy/sell transmission rights across zones to get power to where it's needed. This creates a system that favours certain generators, such as those focused in one area or the larger generators, which would ultimately stifle competition and create a barrier to entry.

Zonal pricing is also justified on the basis that it incentivises generation to be built closer to demand, but this fundamentally disregards where the best renewable resources lie, which may be in different parts of the country. It is also argued for on the basis that demand will locate closer to where the generation is, but this ignores the fact that many businesses can't up sticks and move closer to where there is excess generation, so could be stuck with higher bills. This is a criticism made by businesses, including UK Steel, in a letter to the government arguing against zonal pricing, where they made clear it was not possible for them to change location on the basis of zonal pricing. In contrast to breaking the link, any theoretical benefits to zonal pricing would be long-term and in practice these are still unmodelled, with critics arguing that zonal pricing is simply a means of shifting costs around rather than lowering them overall.

Section 4

Finally, under a zonal system, you'd be essentially creating a postcode lottery for energy prices. It could lead to situations where less affluent inner-city households pay more for their energy than affluent households in the countryside. Politically this would be extremely controversial, especially given that densely-populated cities would typically be paying more for energy than rural areas with greater access to renewables.

Contracts for Difference (CfDs)

Advocates for the status quo often argue that CfDs protect against spikes in the gas price by creating a mechanism that passes prices back to generators and ultimately to consumers (if the market price is higher than the CfD strike price).

However, this argument ignores the fact that the energy price cap is still set by the price of gas which flows through to the economy, with the price of energy being one of the single biggest drivers of inflation and the recent cost-of-living crisis.

Section 5

The solution – how to ‘break the link’

Breaking the link is the only way to fix the market, permanently lower energy bills and deliver energy security.

Move to ‘pay-as-bid’ system

A solution to actually ‘break the link’ would be to change the current ‘pay-as-clear’ system to a ‘pay-as-bid’ system.

In ‘pay-as-clear’, every generator gets paid the price of the most expensive type of electricity needed at that point in time. In ‘pay-as-bid’, every generator gets paid the price they bid, rather than the highest price bid for that particular period. This would decouple the price of electricity from the price of gas and bring down wholesale costs.

By ensuring that the price every generator receives would be closer to the true cost of generating that source of energy/their true running costs, the UK would be able to take advantage of its growing renewable energy capacity.

This would be a preferable reform approach to a zonal pricing system which doesn’t sever the link in practice. It would guarantee greater monetary savings and be easier to implement (see below Comparison Table). Note you could adopt ‘pay-as-bid’ under a zonal pricing system, but the approach so far has typically treated these as independent options for reform. This would also fail to alleviate some of the fundamental issues with zonal pricing.

Illustrative market design

1. Auction opens at 08.00 day ahead
 - a. Generators (sellers of power) submit offers at a variety of prices according to needs.
 - b. Similarly, buyers (mostly energy suppliers, with some energy traders) submit bid (buy) stack, bidding for MW at a variety of prices and amounts.
 - c. Auction house uses its algorithm to match up the stack of bids & offers until balance is achieved – i.e. effectively a demand and supply curve, and where they cross.
2. On the day generators and suppliers needing to adjust their positions so as to be in balance in each half hour (HH) of the day, trade their positions on the M7 market (Spot Market). This is a ‘pay as bid market’. Each HH trades up to one hour before delivery (gate closure). NESO will be active in this market also, procuring any power it needs/wishes to offload according to system needs.

Section 5

Policy option	Description	How it breaks the link
Zonal pricing	Splits the market into a handful of geographical zones. Each zone would have a different electricity price based on the circumstances in that area	This does not break the link as the gas price still sets the price for all forms of generation in any zone that gas is used
Reformed national pricing	A package of reforms to the current market model, which is likely to consist of changes to transmission charging and balancing incentives	This does not break the link as the gas price still sets the price for all forms of generation
Pay-as-bid	Move from pay-as-clear where every generator gets the price of the most expensive generator, to a system where they get the price they bid	This breaks the link as the gas price is not tied to other forms of generation

Section 6

The financial impact of breaking the link

To show the financial impact of breaking the link, we've modelled the potential savings to business and domestic energy bills in a range of scenarios. This includes historical savings for the years 2022-2024, as well as potential savings in both 2025 and 2030 under a Clean Power grid. For potential savings, our modelling uses energy prices similar to those experienced in 2022, as well as more normal energy prices to show a range of impacts.

How breaking the link protects us from energy crises

2022-24 savings

£46.6 billion (£33 billion for businesses & £13.6 billion for consumers), £397 per household

2025 savings

£41.6 billion (£29.4 billion for businesses and £12.2 billion for consumers), £356 per household

2030 savings

£86.7 billions (£61.3 billion for businesses and £25.4 billion for consumers), £741 per household.

Historical savings

Our research shows that from 2022 to 2024, the current market system added £46.6bn to energy bills. This equates to £33bn for businesses and £13.6bn for consumers, or £397 per household.

This period covers the energy price crisis and shows how vulnerable the current system makes the UK to international gas prices. In 2023 alone, which is when the energy price spike of 2022 fed through to bills, breaking the link would have saved £43bn, which would have been £30.4bn saved for businesses and £12.6bn saved for consumers, or £367 per household.

Future savings

We also looked at what breaking the link could save UK billpayers today and in the future. Again, these calculations show just how vulnerable the UK is to future price spikes and the whims of international markets.

Section 6

If we experienced a similar energy crisis in 2025, breaking the link would save £41.6bn on energy bills. This would mean £29.4bn in savings for businesses and £12.2bn in savings for consumers, or £356 per household.

The savings are even more stark if we look to 2030. Even if the government achieves their 2030 Clean Power target, we are still just as vulnerable to fluctuations in gas prices unless we break the link. This is because of what Labour's 2030 Clean Power target means in practice, which is set out in section 4.

An energy price crisis in 2030 could add £86.7bn to bills unless we break the link. That means an extra £61.3bn for businesses and £25.4bn for consumers, or £741 for every single household.

Additional savings

In addition to direct savings on bills, breaking the link could also save the government money on support payments during future energy crises.

The government spent £78.2bn between 2022-24 during the last energy price crisis to protect households from spiralling energy costs. If you break the link, you stop energy bills from spiralling when the price of gas goes up. This removes the need for the government to spend additional money protecting households.

Section 6

Methodology & calculation assumptions

The below gives an overview of the key assumptions used in the example savings calculations:

- **Energy prices** – based on forward prices, using a weighted average forward curve price. This most accurately reflects the way that market participants operate and how costs are passed through to customers.
- **Future energy price** (average year) – based on forward prices for the year 2024, adjusted for inflation.
- **Future energy price** (crisis year) – based on forward prices for the year 2022, adjusted for inflation.
- **Renewable energy prices** – based on Contracts for Difference (CfD) average price.
- **2025 electricity demand** – all 2025 electricity demand figures, including business vs domestic split, are based on the 2024 Digest of UK Energy Statistics (DUKES).
- **2030 assumptions** – assumptions on demand and energy mix for the two 2030 scenarios are based on the government's Clean Power 2030 Action Plan. Prices are adjusted for inflation using 2.5% RPI per annum.
- **Household energy demand** – based on Ofgem TDVC demand figures.



Green Britain Foundation
The Green Britain Foundation
 provide data, insight and information to enable the changes that need to be made — in pursuit of a truly green Britain.



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