

A Cheaper Route To Net Zero

Twenty low-cost ideas to cut
energy bills and boost investment

By John Penrose

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Executive Summary

International gas prices have fallen steadily as the world has adjusted to the aftermath of Russia's invasion of Ukraine. But energy bills for British households haven't fallen nearly as far or as fast.

The new Government has promised to cut energy bills for British households, while simultaneously decarbonising the electricity grid by 2030. This paper argues that our energy bills are stuffed with extra costs imposed by clunky old rules about how power is generated, regulated, traded, stored and transmitted on its journey from the place it is created to the homes and businesses where it is used. If we modernise those rules, everyone's energy could be cheaper, potentially to the tune of hundreds of pounds per household; taxpayer subsidies could be lower; British manufacturing could be more competitive; and we would be choosing a much cheaper path to Net Zero than the one we are currently on.

‘Our energy bills are stuffed with extra costs imposed by clunky old rules about how power is generated, regulated, traded, stored and transmitted’

This policy paper therefore proposes 20 ideas that the new Government could adopt. All of them cut energy bills; none are likely to cost taxpayers substantially more, and several would save money instead. All of them are future-proofed against rival energy technologies leapfrogging each other before being overtaken in turn; all of them would improve our economic productivity and rate of growth; and one – the Carbon Border Adjustment Mechanism (CBAM) outlined in the final chapter – could help start a renaissance in British manufacturing after decades of decline.

Even better, none of the 20 ideas contradict any of the policies announced by the new Labour Government, and several would help ministers deliver the goals in their election manifesto. Indeed, Ed Miliband recently wrote to the director of National Grid ESO seeking ideas on how to decarbonise the electricity system, and many of the proposals in this paper could contribute to that process.

These recommendations represent a potential starting point for the kind of long-term, cross-party consensus which is essential to attract the private sector investment in energy infrastructure we desperately need if we are to get to Net Zero in a timely and cost-effective way.

But they also challenge some longstanding bureaucracy and vested interests, as well as several deeply held political prejudices. Delivering them will set an early test of ministers' technocratic competence, and of their political courage too.

Summary of Recommendations

Uncoupling Energy Bills From The Price Of Gas

First and foremost, we should rewire UK energy markets away from using the short-term 'spot' gas price as their benchmark, as renewables provide more and more of our energy in future.

1.	Limit total financial trading risks which retail energy firms can take on , to reduce the chances and costs of firms going bankrupt and ensure they compete by delivering for their customers rather than focusing on short-term trading gains.
2.	Amend future 'Contracts for Difference' (CfDs) to use a wider range of longer-term reference prices rather than just the short-term gas price. This will deliver keener prices and better liquidity so firms can hedge more cheaply by matching the maturities of their deals more easily.
3.	Stop offering CfDs to repower existing green energy generation. The risks of these investments are lower, so this change will not only drive investment to the most economically efficient projects, but also ensure taxpayers and billpayers aren't underwriting the risks taken by investors forever.
4.	Amend the Energy Price Cap so it no longer uses short-term gas prices as a benchmark.

Choosing The Cheapest Green Energy

We must address the challenges caused by intermittency in renewable energy, otherwise our route to Net Zero will be far more expensive than it ought to be.

5.	Amend CfD auctions to buy dispatchable zero-carbon power. The costs of intermittency are already embedded in our energy bills, so recognising them clearly won't add anything extra. But making them transparent will mean we can choose the cheapest ones, and see how best to reduce them further in future.
6.	Allow all new energy technologies to bid for CfD auctions, without pre-approvals, providing they meet the required environmental and safety standards. This will mean bigger and faster investments in UK green power generation because the process will become simpler and more certain, with less red tape.
7.	Limit the value of separate CfD auctions for innovative technologies to a maximum of 10% of each CfD round. Separate auctions create enormous incentives for special interests to lobby for a billpayer-subsidised easy ride. We should reduce this pressure on ministers by capping the size of separate auctions.

Slashing Energy Transmission Costs

Upgrading our electricity grid to cope with Net Zero will be enormously expensive. But we can minimise the extra costs by being more efficient, cutting hundreds of millions of pounds off bills in the process.

8.	Introduce 'local pricing' for energy transmission costs , to use existing grid capacity more cheaply and efficiently, and reduce the total amount of extra investment we will need. The first step is to reform the existing charging system (known as Transmission Network Use of System or TNUoS).
9.	Exempt energy firms whose demand and supply are balanced from contributing towards any constraint costs that National Grid incurs during that period. This will incentivise firms to ensure their supply and demand are always balanced, minimising constraint payments
10.	Allow 'local discounting' for customers who agree to pylons or onshore wind turbines being built near them. This will be more democratically legitimate, save time, cut costs and uncertainty, and reduce complexity.

11.	Encourage customers to use less energy, or to use it at another time of day ('demand management') . Some energy firms are doing this already, and it is a very efficient way to cut the amount of extra investment in energy generation, storage and transmission.
12.	Ban 'postcode pricing' Other than the Local Discounts (policy 10), grid pricing should be treated like other commercial costs (such as international wholesale gas prices) and absorbed in retail firms' national pricing tariffs in the usual way.

Cutting Red Tape

We can cut out many extra costs which are embedded in our energy bills by replacing expensive red tape with stronger competition and undiluted industry standards.

13.	Amend Ofgem's legal duties so its first priority is to introduce Pro-Competitive Interventions (PCIs) which sharpen competition while maintaining standards. The Digital Markets, Competition & Consumers (DMCC) Act already takes this approach for most other digital sectors, so applying it to Ofgem in energy is a sensible extension of the same principle.
14.	Give Ofgem a subsidiary legal duty to publish an independently audited annual report of the red tape costs it has created or removed every year, and to ensure the net change is zero or a reduction every year. This will create a long-term and permanent ratchet that progressively reduces the costs and burdens of red tape as the industry grows over time.
15.	Give regulators a short-term duty to report on and minimise the economic and regulatory costs which we are currently imposing on consumers and businesses, and a longer-term one to introduce pro-competitive interventions wherever and whenever they will produce superior outcomes. This will help improve efficiency and lower costs in those areas (like the energy transmission network monopolies at the core of the sector) where it will be hard to achieve enough competition.

Reforming The Energy Price Cap

The Energy Price Cap was introduced – at the suggestion of this author – to deal with the scandal of 'loyalty penalties'. But it has gone far beyond what was originally intended, resulting in the effective removal of market competition from energy pricing.

16.	Reform the Energy Price Cap so it instead caps the maximum mark-up between each firm's best deal and their default tariff.
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Levelling The Playing Field For UK Manufacturing

High energy prices mean UK manufacturing firms struggle to win business against rivals based in countries where energy is cheaper because it is less green. It is a key reason why UK manufacturing has been declining steadily for decades.

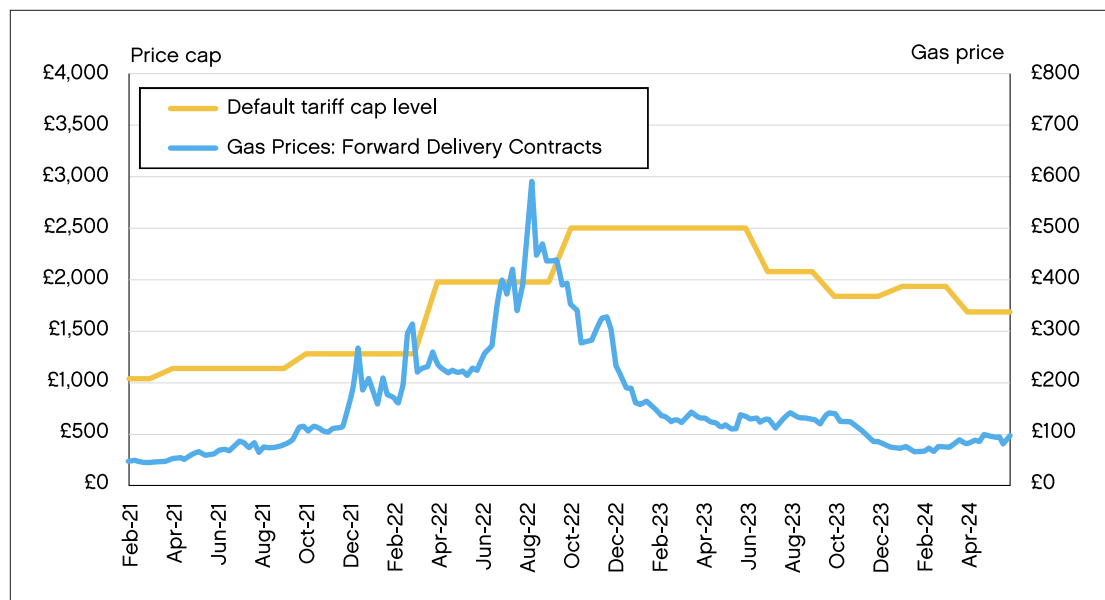
17.	Introduce a Carbon Border Adjustment Mechanism (CBAM) so foreign-made imported manufactured goods pay the same price as UK firms for each tonne (or gram) of embedded carbon which they contain. The price of dirty, high-carbon imports would go up, while anything made and shipped using clean, green energy would be unaffected.
18.	Ensure the CBAM covers all UK manufacturing industries, with no exceptions.
19.	Exempt UK manufactured exports from paying UK Emissions Trading Scheme (ETS) carbon costs to level the playing field between green, low-emissions UK manufactured exports and competitors abroad.
20.	Use the revenues from any CBAM to reduce fuel duty, or lower green levies on energy bills. This will cut energy costs for everyone, and would make sure we aren't taxing carbon twice by levying multiple charges on the same embedded emissions.

1. Why Our Energy Bills Ought To Be Cheaper But Aren't

The Problem

Wholesale gas prices rose sharply when Russia invaded Ukraine, and have since fallen back as Europe has found alternative sources of supply (mainly LNG from America and the Middle East). But the same cannot be said for retail energy bills, where the default price cap rose quickly to reflect the increased wholesale price of gas,¹ but then fell far more slowly.

The Energy Price Cap and natural gas prices



Source: Ofgem²

The result has been genuinely awful: household energy bills are now far more expensive than before Russia invaded Ukraine. If they had fallen back as far and fast as wholesale gas prices, then they would now be several hundred pounds a year cheaper. And of course what is true for households is true for companies as well, to an even greater extent.

1 Retail energy bills would have gone even higher without the Government's Energy Price Guarantee, which reduced the height of the orange line on the graph from October 2022 until June 2023

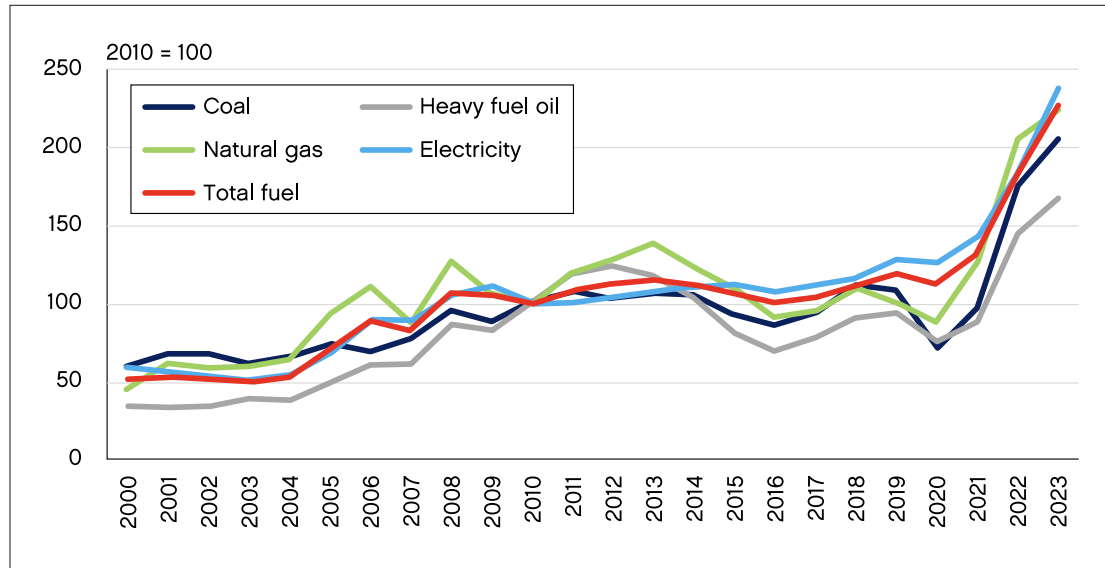
2 Ofgem, 'Gas Prices: Forward Delivery Contracts – Weekly Average (GB)' [accessed 16 September 2024].

[Link](#)

Ofgem, 'Retail price comparison by company and tariff type: Domestic (GB)' [accessed 16 September 2024].

[Link](#)

Fuel price indices for the UK industrial sector



Source: DESNZ³

How can this be? It isn't happening because energy firms have used the Ukraine crisis to profiteer by ripping customers off: in fact, over 30 energy firms have gone bankrupt in the last few years. Nor is the difference caused by other types of energy (such as renewables) becoming more expensive. Yes, the cost estimates of some new renewable projects have ticked up in recent years, mainly due to supply chain issues, but these projects won't come online for a number of years, so can hardly be affecting bills now.

‘If we modernise those rules properly, everyone’s energy could be cheaper. Taxpayer subsidies could be lower. British manufacturing could be more competitive’

So what's going on? The answer is that our energy bills are stuffed with extra costs because of clunky, antiquated rules about how power is generated, regulated, traded, stored and transmitted on its journey from the place it is created to the homes and businesses where it is used. They are the reason why retail energy bills have stayed so much higher for so much longer than wholesale gas prices.

If we modernise those rules properly, everyone’s energy could be cheaper. Billpayer subsidies could be lower. British manufacturing could be more competitive. And we would be on track to reach Net Zero via the cheapest possible route.

In summary, these rules fall into six broad categories.

³ Department for Energy Security and Net Zero, 'Industrial energy price indices: Fuel price indices for the industrial sector in current and real terms: excluding/including CCL (QEP 3.3.1 and 3.3.2)' [accessed 16 September 2024]. [Link](#)

Rules About The Price Of Gas

Broadly speaking, UK energy prices are based on short-term ('spot') prices in international gas markets. Fossil fuel power plants can be turned on or off quickly and cheaply ('dispatchable power') and so they are the generators used to fill the gaps whenever lower-carbon power isn't available. Hence they tend to set the price for power overall.⁴

However, using short-term gas prices as our benchmark for everyone's energy bills introduces fundamental problems:

- a) It creates windfall profits for wind farm and solar array owners if gas prices suddenly rise, as happened after Russia invaded Ukraine.
- b) It adds costs for energy firms looking to sign long-term power contracts which match the long lifespans of energy generation investments.
- c) It turns energy firms into financial traders that focus on managing risks and volatility in the wholesale energy markets, rather than on satisfying the households and businesses that are their customers.

Rules That Ignore The Real Costs Of Intermittent Energy

The UK's Contracts for Difference (CfD) scheme has been brilliant at getting new low-carbon energy generation capacity built, using private investment. But it ignores the extra costs of many zero-carbon power technologies, which derive from their being either predictably intermittent (like tidal) or volatile (like solar or wind).

**‘ The UK's Contracts for Difference (CfD) scheme
has been brilliant at getting new low-carbon energy
generation capacity built, using private investment ’**

We can reduce these costs by persuading households and businesses to cut their usage at times when generators can't produce, but beyond that we have to build hugely expensive power stations or energy storage facilities to fill the gaps when the sun isn't shining or the wind isn't blowing.

These extra costs ultimately land on household and business energy bills – but nobody knows exactly how much they are because the amount of intermittency in wind or solar generators is different, and the variations come at different times of day or seasons of the year. Furthermore, the costs of reducing intermittency change all the time as the efficiencies of the different technologies change (like batteries, or gas power plants with carbon capture).

Without knowing what the extra costs of intermittency are, it is impossible to be sure whether we are investing in the most or least efficient and expensive types of green energy – even though the impact of getting these decisions right or wrong will affect our entire economy for decades to come. So we need to understand the missing costs, otherwise our route to Net Zero will be far more expensive than it ought to be.

⁴ This is a simplification, but it is the broad principle behind an incredibly complex system.

Rules About Energy Transmission

Our electricity transmission grid is having to cope with two big, once-in-a-generation changes at the same time:

- Switching from a largely one-way transmission system, in which almost all of our power comes from a few central power stations, to handle a much larger number of smaller, more varied and more widely spread suppliers, where power flows in many different directions throughout each day.
- Coping with significant increases in the amount of electricity we use, for everything from heating and lighting to transport and heavy industry.

The strains of this transition are starting to show. Average waits to connect a big new wind farm or solar array to the grid are currently five years. For building new electricity grid infrastructure the figure is currently 12-14 years.

‘If we can minimise constraint costs by using the grid more efficiently, we can cut hundreds of millions of pounds off customer bills’

Both of these figures are expected to fall, as the new Government builds on its predecessor’s attempt to tackle the many blockages in our planning system. But these strains are already proving very expensive. ‘Constraint costs’ (where the grid is overloaded and can’t cope) currently add between £500m and £1.5 billion to customer bills each year, and are forecast to get much worse from 2025 to 2030. If we can minimise them by using the grid more efficiently, we can cut hundreds of millions of pounds off customer bills.

Rules That Create Red Tape

Economic regulators such as Ofgem are supposed to reduce political and regulatory risks so firms can make big investment decisions faster and more cheaply, giving everyone higher quality products and services, and lower customer bills.

But over the last 40 years, the regulations dictating how energy firms should behave have become steadily more complicated, detailed, expensive and slow. Ofgem, like other regulators, is attempting to manage more and more of the way every part of the industry acts. Many decisions now take years and provide a rich living for a specialist industry of lawyers, consultants and lobbyists, who in turn require vastly more regulatory staff to manage.

Worse, all the extra rules don’t seem to be working. Between 2021 and 2023, more than 30 energy suppliers went bust. While customers were safely transferred to other firms, the costs of the rescues means at least £4.6 billion has been added to bills while customer satisfaction has got worse. It is more than possible to reduce these costs, without lowering standards.

Rules Around The Energy Price Cap

It's a hard thing to admit when you've made a mistake, but it's time to accept the Energy Price Cap has been a big one.

When I first advocated for the idea, the aim was to fix 'loyalty penalties', where energy firms made money from the gap between the price of their best deals and the sneaky default tariff which most people ended up paying – effectively, funding tantalising deals for switchers by milking your most loyal customers (many of whom were elderly, less-informed customers). It wasn't just the energy companies either: in 2020, the Competition and Markets Authority (CMA) estimated loyalty penalties were costing UK customers £3.4billion in total across the entire economy.

‘ We have now created a de facto electricity price for the whole market, removing pretty much any form of price competition ’

There was cross-party backing for an 'absolute' cap (where Ofgem sets the price everyone pays) rather than my 'relative' version to cap the maximum mark-up between each firm's best deal and their default tariff. But the absolute cap hasn't worked. After it was introduced the size of the mark-up at best stayed the same, and at worst got wider. Customers were still being ripped off. Then the war in Ukraine turned the cap into a temporary way to limit the pain of higher bills, helped by huge – but temporary – subsidies from the Government's Energy Price Guarantee.

Now prices are coming back down again. But we not only have now created a de facto electricity price for the whole (domestic) market, removing pretty much any form of price competition, but still have the same old problem of rip-offs from automatic renewals on a default tariff for anyone who isn't paying attention.

Rules About The Price Of Carbon

High energy bills aren't just bad for consumers. They mean that UK manufacturing firms struggle to compete against goods produced in countries where energy costs much less. It is one of the biggest reasons why UK manufacturing has been declining steadily for decades, and has big environmental effects because cheap foreign energy is often generated using coal or other fossil fuels with very large carbon emissions. That means that imports from those countries have more 'embedded carbon', so buying them adds to total emissions rather than reducing them – they just move the place where they happen from the UK to somewhere else instead.

This is known as 'carbon leakage', and it turns decarbonisation into deindustrialisation, because manufacturing firms will move jobs, exports, investments and production out of the UK to countries where low energy costs make their products more competitive and successful, even though the total emissions are much higher. We need to create a level playing field.

In this report, I will go through each of these areas, and set out 20 proposals to make life easier and cheaper for consumers and businesses, while helping the new Government deliver on its policy pledges. All of the proposed solutions would cut energy bills; none are likely to cost taxpayers substantially more; and several would save money instead. All of them are future-proofed; all of them would improve our economic productivity and rate of growth; and one would start a renaissance in British manufacturing after decades of decline. I urge ministers to seize the opportunity they present.

2. The Long Shadow Of Short-Term Gas

Gas Is Important...

Despite our best efforts to decarbonise, gas is still at the heart of Britain's energy system. It is how most of us heat our homes. But it also, crucially, tends to set the price for the electricity we produce across our entire grid.

This is because most of the UK's electricity bills are ultimately based on a reference point provided by short-term ('spot') prices in international fossil fuel (mainly gas) markets. Even though we are leading the world in weaning ourselves off fossil fuels, and are switching to alternative sources of hydrocarbons where fossil fuels are still needed – like LNG (liquefied natural gas) from the USA or the Gulf states – the gas price is still the benchmark that matters most for everyone's electricity bills.

‘The issue is that some kinds of power generation are hard to dial up or down as required’

This, as outlined in the previous chapter, happens because electricity use changes continuously, depending on the time of day and the season of the year. Generators must be able to raise or lower the amount of power to match what's required (called 'dispatchable power'). Otherwise there would either be power cuts or expensively wasteful over-production.

The issue is that some kinds of power generation are hard to dial up or down as required. Nuclear reactors work best if they run at a steady rate. Solar farms only produce power when the sun is shining. Wind farms don't work on still days. In the future, this will be less of a problem, as we will be able to store lots of the energy they generate (for example in batteries or as hydrogen gas) and then dispatch it when we need it. But it will take years to build enough storage capacity to handle the scale of what's required, and the current costs of storage are so high that it would make everyone's energy bills even less affordable than they are already.

But Creates Problems...

Fossil fuels are easily stored, and the power plants they fuel can be turned on or off fairly quickly. As a result, they are the dispatchable power-generators everyone uses to fill the gaps whenever lower-carbon power isn't available. It is this on-demand dispatchability that makes them the benchmark for everyone's energy bills⁵.

‘ If short-term gas prices spike upwards, the effects are passed on in higher bills for everyone ’

This system works well in keeping the lights on. But it also creates some fundamental structural problems for the way UK energy markets work:

- a) If short-term gas prices suddenly spike upwards, as happened after Russia invaded Ukraine, the effects are passed on in higher energy bills for everyone, even for consumers who are on green-only energy tariffs that don't contain any fossil fuel energy at all. That creates windfall profits for wind farm and solar array owners, because their costs haven't changed so their profit margins suddenly get fatter.⁶ And it makes energy bills even less affordable for hard-pressed families, or for UK manufacturers in energy-intensive industries like ceramics, aluminium or steel.
- b) Short-term gas prices can easily change many times during the lifespan of longer-term energy contracts where the price is fixed for one, two or three years. This makes it harder for firms to sign long-term power contracts, because of the risk that short-term prices will fall so far that a higher-priced long-term agreement becomes too expensive. These risks of mismatched contract maturities can be hedged, but only at an additional cost which is ultimately passed on to customers. They could be reduced if energy firms had a more keenly priced, liquid market which offered prices in a much wider range of matching maturities.
- c) The risks and costs of hedging between long- and short-term contracts also hurt new-build power generators (which tend to be green, renewable technologies) more than established plants (which tend to use fossil fuels). That's because new generation has high capital start-up costs, whereas established plants will have repaid or depreciated their initial build costs many years before. So a new renewable generator is more likely to prefer a long-term contract over a short-term one, at least until their upfront investments have been paid back. This makes them structurally more likely to face higher hedging costs than older fossil fuel generators.
- d) Price volatility driven by the gas price turns energy firms into financial traders that live or die by their success in managing risks in the wholesale energy markets, rather than being better or worse at catering to households and businesses. There's nothing inherently wrong with UK wholesale energy markets including financial energy traders – they can be extremely useful for improving liquidity and delivering keener prices by arbitraging away inefficiencies – but their focus, culture, capital requirements, bankruptcy risks and regulatory needs are all very different from those required by successful retail energy firms. We need retail firms to focus making their organisations and supplier networks more productive, efficient and customer-focused, rather than on the profits and losses from their trading floors.

5 This is a complex process – it is not that the price cap literally uses gas prices as the reference point, but that Ofgem analyses forward contracts for gas and electricity. But ultimately, electricity prices are very heavily correlated with, and driven by, gas prices.

6 If the windfarm or solar array was built using a Contract for Difference, these underlying windfall profits only reach the owners after it expires.

...Which Have Low-Cost Solutions...

We will have greener and cheaper energy bills alongside happier customers if we rewire UK energy markets away from using the short-term 'spot' gas price as their reference benchmark, towards longer-term contracts instead. There are several steps which could help us do this, at very little cost to the Government or taxpayers alike. Those steps are:

1. **Limit total financial trading risks which retail energy firms can take on, to reduce the chances and costs of firms going bankrupt and ensure they compete by delivering for their customers rather than focusing on short-term trading gains.**

This wouldn't prevent firms from being both wholesale energy traders and customer retailers, but it would mean their retailing businesses would have to be kept at arm's length from their trading units, and could have cheaper capital requirements (which would pass through to their customers) because they weren't taking the same risks.

2. **Amend future 'Contracts for Difference' (CfDs) to use a wider range of longer-term reference prices rather than just the short-term gas price.**

Contracts for Difference (CfDs), which has been highly successful, guarantees a preset price for new renewable power plants like wind farms and solar arrays. Future CfDs could be changed to use a wider range of longer-term reference prices rather than just the short-term spot price.⁷ This would deliver keener prices and better liquidity, allowing firms to cut the costs of hedging (which would be passed on to customers through lower bills) by matching the maturities of their deals more easily.

3. **Stop offering CfDs to repower existing green energy generation.**

This would be a controversial proposal for many in the renewables sector. But 'repowering' – when you renew or upgrade an existing site, for example by installing more modern and efficient wind turbines when the original ones come to the end of their operational life – is a fundamentally different economic proposition from commencing a new project, with all the attendant uncertainties. Given that the risks of such projects are lower, the cost of capital should be too – so there is less of a need for the taxpayer or billpayer to guarantee prices.

Moving repowering projects to a separate regime would progressively reduce CfD liabilities, and push investors to opt for the most economically efficient renewal of their existing generation assets rather than always going for the most expensive 'as new' refit through a CfD. It would also steadily add volume and liquidity to the 'secondary' or 'open' commercial energy market of Power Purchase Agreement (PPA) deals, rather than the Government-dominated primary CfD contracts, which will not only drive investment to the most economically efficient projects and uses, but provide a strong and ready-made successor to the CfD market once enough renewable generating capacity has been built to achieve the goal of energy security. That way, neither taxpayers or billpayers will be expected to underwrite the risks being taken by energy investors forever.

4. **Amend the Energy Price Cap so it no longer uses short-term gas prices as a benchmark.**

There is more detail on how to do this in Chapter 6, along with wider proposed reforms to the cap.

⁷ This was one of the options being considered in the previous Government's REMA process.

Taken together, these measures should mean that retail energy firms will have less need for short-term energy contracts, using them only when they are temporarily short of power for a particular period of a specific day and need a short-term top-up to ensure their power supply is enough to match their customers' needs. Alongside the ongoing shift in our energy mix towards renewables, it would mean the price of short-term gas will eventually only affect a residual and tiny part of everyone's electricity bills.

‘ The outcome would be a better, cheaper, more efficient, more competitive and more customer-focused energy industry ’

...That The New Government Hasn't Acknowledged Yet

None of these ideas contradict any of the energy policies announced by the new Labour Government, and several would help them deliver the goals in their election manifesto.⁸ But they also challenge long-established parts of the regulatory and bureaucratic status quo. In doing so, they set an early test of ministers' technocratic competence and political courage in challenging vested interests, in the interests of consumers.

The upside of taking on this challenge is that the proposals would have no up-front cost to government or taxpayers. The outcome would be a better, cheaper, more efficient, more competitive and more customer-focused energy industry.

8 The Labour Party, 'Labour Manifesto 2024: Make Britain a clean energy superpower' (13 June 2024). [Link](#)

3. Choosing The Cheapest Green Energy

The previous chapter explained how the short-term price of gas prevents cheaper renewable electricity prices from feeding through to energy bills. This next chapter tackles a different rule which stops us knowing whether we are buying the most or least expensive types of renewable green energy, and proposes changes which will allow us to better understand whether we are getting these huge investment decisions right or wrong.

The Problem With Contracts For Difference

The Government's Contracts for Difference (CfD) scheme has been extremely successful in getting new low-carbon energy generation capacity built fast and efficiently. It guarantees a preset price for new renewable power plants like wind farms and solar arrays, so new green generating capacity can be built with much less risk.

‘ Many zero-carbon power technologies like wind or solar are intermittent and volatile ’

But it isn't perfect. Crucially, it doesn't allow for the fact that many zero-carbon power technologies like wind or solar are intermittent and volatile, because they don't produce on still days or when the sun isn't shining. Others are intermittent but predictable, like tidal power, and only a few are fully controllable ('dispatchable') like gas or coal with carbon capture and storage.⁹

The country needs energy which is available on tap whenever it is needed, rather than in several hours when the tide has come in or the wind starts to blow. That means we need to build other sources of fully controllable power which can be switched on whenever intermittent green energy isn't available.

How Much Does Intermittent Power Really Cost?

Building extra power stations or energy storage facilities to fill the gaps when the sun isn't shining or the wind isn't blowing is a very important part of the costs of most types of green energy,¹⁰ which ultimately gets added on to household and business energy bills. But nobody knows exactly how important, because the costs aren't included in the headline prices of green energy that are paid by winning bidders in our (highly successful) CfD process.

9 There are many technologies which could potentially deliver this, including the 'Allam-Fetvedt Cycle' which burns natural gas or coal in pure oxygen, producing water, electricity and a pure carbon dioxide exhaust which can be piped directly to storage.

10 Ministers recently announced plans to commission new gas-fired energy generation for precisely this reason. Department for Energy Security and Net Zero, 'Energy Secretary takes action to reinforce UK energy supply' (12 March 2024). [Link](#)

We know those prices don't tell the full story and that they understate the real costs of green energy by quite a lot. But nobody knows by how much, or even which technologies have the biggest gap between headline costs and real prices.¹¹

This is because the amount of intermittency and predictability in each technology is different, and the variations come at different times of day or seasons of the year. The costs of reducing intermittency are also enormously variable and hard to calculate: it might require building a brand new gas power plant with carbon capture and storage, or installing lots of battery storage, or building wind farms in different places to diversify the risk that the wind won't blow in one of them. And even if we could somehow calculate all these costs accurately today, the figures would soon be out of date as the efficiencies of all the different technologies improve at different speeds, often leapfrogging each other as breakthroughs are made.

Without knowing the extra costs of intermittency, it is impossible to be sure whether we are unknowingly investing in the least efficient and most expensive types of energy, or the best¹¹

This isn't just an academic problem: it has huge consequences for the size of our energy bills and the costs of getting to Net Zero. Without knowing the extra costs of intermittency, it is impossible to be sure whether we are unknowingly investing in the least efficient and most expensive types of energy, or the best.

Given the amount of investment going into UK green energy generation and the very long lifespans of the power plants once they are built, getting these decisions right or wrong will affect our entire economy for decades to come.

Transparency Will Fix It

All this means we must be a great deal more transparent about how big or small those missing costs really are, and how they are changing as technologies leapfrog each other over time. Otherwise our route to Net Zero will be far more expensive than it ought to be.

I am therefore proposing three key changes.

5. Amend CfD auctions to buy dispatchable zero-carbon power.

The costs of intermittency are already embedded in our energy bills, so recognising them clearly won't add anything extra. But making them transparent will mean we can choose the cheapest ones, and see how best to reduce them further in future.

This is why we should require successful bidders in CfD auctions to provide dispatchable power, rather than promising it whenever the wind blows or the sun shines. That way we will be buying what we really need, rather than only part of it. The costs of converting unpredictable or intermittent energy into dispatchable power will automatically be included in the prices which are being paid, and those costs will be future-proof because they will adjust automatically every time the economics of each green energy generation or storage technology get better or worse.

The change will require each CfD bidder to work out how they are going to eliminate their technology's intermittency (for example they could do deals with battery storage firms,

¹¹ Government officials are forced to estimate this in the absence of real prices. For example, see discussion of 'Enhanced levelised costs' in Section 7 of: Department for Business, Energy & Industrial Strategy, 'BEIS Electricity Generation Costs (2020)' (24 August 2020). [Link](#)

or gas generators with carbon capture and storage)¹² and include the costs in their bid. Including them transparently in CfDs will mean we can understand how big they are for the first time, and start choosing the cheapest ways of reducing them too.¹³

This change will also deliver a huge boost for building the vital new infrastructure that we will need to reduce intermittency costs, because it will become linked to the CfD auctions which have proved so effective at funding new generating capacity. But it also challenges a great many vested interests and is therefore relatively controversial, even though the logic is sound and clear.

6.

Allow all new energy technologies to bid for CfD auctions, without pre-approvals, providing they meet the required environmental and safety standards.

Some new energy technologies are ready for deployment but still going through a lengthy and cumbersome pre-approvals process.¹⁴ This means that newer or more entrepreneurial firms are excluded from the bidding process, which creates delays in adopting the best and latest technologies.

We should allow any and all types of energy generation technologies to take part in the new dispatchable zero-carbon CfD auctions outlined above, providing they can satisfy the same environmental and safety standards as everybody else. This will ensure the UK commissions the cheapest possible green energy generation fleet, getting us to Net Zero via the least costly route. And it will be future-proof because the keenest bids will automatically adjust as the performance of different technologies leapfrog each other over time.

‘ We should allow any and all types of energy generation technologies to take part in the new dispatchable zero-carbon CfD auctions ’

This revised approach will stimulate bigger and much faster investments in UK generation and storage from both entrepreneurs and incumbents, because the faster, simpler and more certain CfD process will mean investors will demand lower regulatory and political risk premiums (which reduce costs to be passed on to customers) than today’s multi-stage administrative pre-approvals which have high levels of investment-detering uncertainty and often take years to complete. And it will mean lower customer bills because a faster, cheaper, less bureaucratic, more certain and more nimble approach imposes fewer red tape costs (which are also passed on to customers) across the sector as a whole.

12 Some firms are already striking these types of deals, to manage risks or improve prices in order to get specific projects underway.

13 This is different from Professor Sir Dieter Helm’s proposal for ‘equivalent firm power’ auctions, which require a calculation of the amount of power lost through intermittency for each technology which is then used to discount the price compared to fully-dispatchable (and often un-green, high-carbon) power. The ‘dispatchable green power’ auctions which are outlined here should have the advantage that they automatically adjust for the different costs of intermittency in different places and over time, rather than only reflecting a calculated quantity derived from a spreadsheet. And they are future-proof so if either the amount or the costs of intermittency change as technologies develop in future, they will automatically be incorporated into the CfD auction bids too.

14 For example the Best Available Technology (BAT) process.

7.

Limit the value of separate CfD auctions for innovative technologies to a maximum of 10% of each CfD round.

One of the results of making CfD auctions open to every energy generation technology without pre-conditions will be that more mature zero-carbon energy technologies like wind or solar will often outbid newer ones like tidal, geothermal or modular nuclear reactors. To deal with this risk, we have always run separate CfD auctions for new energy technologies which are not yet ready to compete against more mature technologies, to give them a chance to get established.

Yet separate auctions can also be dangerous, because they create enormous incentives for special interests to lobby for a taxpayer-subsidised easy ride. The result is that politically fashionable or well-connected but inferior technologies are protected and feather-bedded against competition at taxpayer expense.

This isn't just a waste of taxpayers' money, but it also puts genuinely viable new technologies at a disadvantage, reducing their chances of getting to market successfully or quickly because they have to beat not just mature incumbents but also rivals with poorer technologies but better political connections.

↳ These ideas represent an opportunity for ministers to make the UK's electricity generation and storage fleet the lowest-cost and most technologically efficient in the world

Capping the value of these smaller pots will reduce this pressure on ministers. It will also save money for taxpayers and billpayers, since these separate auctions by definition result in our paying higher prices, pushing up energy bills and increasing our costs of getting to Net Zero.

As with the recommendations in the previous chapter, none of these ideas contradict the new Government's energy policies, and several would help them deliver the goals in their energy manifesto too. But again, they challenge deeply embedded energy market customs and structures, and so represent a further test of ministers' technocratic competence political courage at taking on vested interests to deliver lower bills for customers

The upside is that these ideas represent an opportunity for ministers to make the UK's electricity generation and storage fleet the lowest-cost and most technologically efficient in the world, and to speed up the scale and pace of investment dramatically at less cost to Government and taxpayers alike. That would significantly improve the odds of the UK reaching its Net Zero targets in time, while ensuring we choose the most economically efficient path to get there.

4. Slashing Energy Transmission Costs

An Awfully Big Grid Upgrade

One of the main drivers of rising energy bills in the coming decades is that the UK's electricity transmission grid needs a very big and very expensive upgrade. This is happening for two reasons:

- We are in the early stages of a switch away from the long-established system where our electricity is generated by a relatively small number of large power stations, to a world with a much larger number of smaller, more varied and more widely spread power suppliers (everything from a few solar panels on individual householders' rooftops through to fleets of electric cars which act as large but widespread battery storage facilities when they aren't on the road). This means the grid must switch from being a largely one-way transmission system from a few central power stations, to become a network where power flows in many different directions throughout each day.

‘The UK's electricity transmission grid needs a very big and very expensive upgrade’

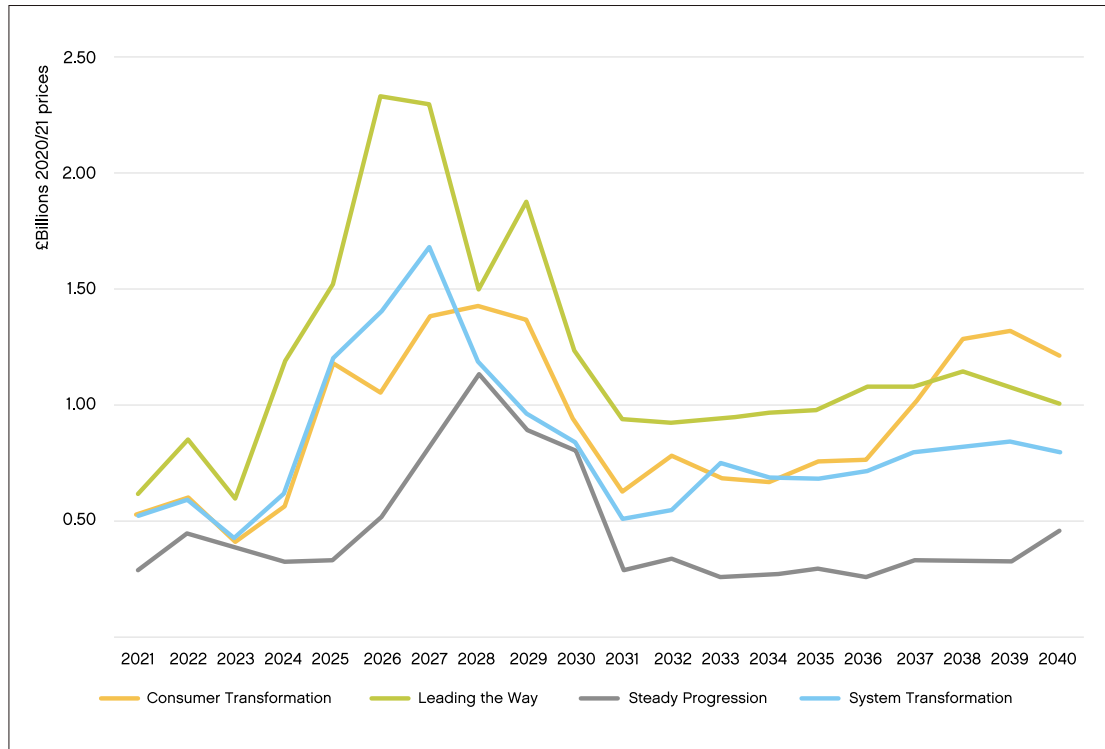
- At the same time, far more of the UK's power needs, for everything from heating and lighting to transport and heavy industry, will be provided as electricity rather than through gas or coal boilers and furnaces, or internal combustion engine vehicles. This means the grid must become significantly bigger to handle the extra volume which is going to be needed.

Transmission Costs are High & Rising...

The scale and strains of this transition are already visible. As the graph below shows, 'constraint costs' (where the grid is overloaded and can't cope) already add between £500m and £1.5 billion to customer bills each year.¹⁵ These costs are forecast to get substantially worse between 2025 and 2030.

¹⁵ S. Gill, 'Exploring options for constraint management in the GB electricity system: the potential for constraint management markets. A Report for Scottish Renewables' (January 2024). [Link](#). (See Total Cost chart on page 6.)

Modelled constraint costs after NOA6 optimal reinforcements



Source: National Grid ESO¹⁶

A large part of the answer will be to upgrade and improve the capacity of our electricity grid. This will mean hugely expensive infrastructure investment lasting many years. So how can we reduce the time and costs of the work?

First, we can improve the speed and efficiency of connecting new generation capacity by implementing the recommendations of the last government's Connections Action Plan.¹⁷ Currently, the average wait for a connection for a big, newly built power generator like a wind farm or solar array is five years. This is intended to fall to just six months once the plan is in place, helping unlock between £50bn and £100bn of associated investments.

Similarly, we can improve the speed and efficiency of building new grid infrastructure (things like new pylons) by implementing the recommendations of the Winser Review.

At present, the average lead time for such projects is an economically ruinous 12-14 years. Again, this is expected to fall to seven years once the Review's recommendations are introduced, as outlined in the last Government's Transmission Acceleration Action Plan. And again, this should help unlock billions in associated investments.¹⁸

Fortunately, the new Government agrees that this is a priority. The Labour manifesto argued that our national electricity transmission grid is 'the single biggest obstacle to the deployment of cheap, clean power generation and the electrification of industry. With grid connection dates not being offered until the late 2030s, important business and

¹⁶ National Grid ESO, 'Modelled Constraint: NOA 2020/21'. [Link](#)

¹⁷ Department for Energy Security and Net Zero and Ofgem, 'Electricity networks: connections action plan Joint government and Ofgem action plan on accelerating connections to the electricity network' (22 November 2023). [Link](#)

¹⁸ Department for Energy Security and Net Zero, 'Transmission Acceleration Action Plan Government response to the Electricity Networks Commissioner's report on accelerating electricity transmission network build' (November 2023). [Link](#)

infrastructure investment is being stalled or lost overseas. Labour will work with industry to upgrade our national transmission infrastructure and rewire Britain.¹⁹

This cross-party consensus is very welcome – and indeed essential to solving these fundamental problems. The new Government should minimise uncertainty and investment risks by confirming it will continue delivering the recommendations in the Connections Action Plan and the Winser Review as soon as possible.

...But The New Government Can Minimise Them If They're Clever

There is, however, a third option for cutting the costs of all this extra infrastructure: to avoid or minimise the amount that's got to be built in the first place. To do that, we need to use our existing grid more efficiently. In particular, we need to change the way National Grid charges energy retailers for using the electricity transmission network, so it fairly and transparently reflects both the distance each energy retailer's power is transmitted from their generators and storage assets to reach their customers and, where necessary, their share of constraint payments if their supply contracts don't match what their customers are using too.

To do this, we must make several radical changes.

- | | |
|-----------|--|
| 8. | Introduce 'local pricing' for energy transmission costs , to use existing grid capacity more cheaply and efficiently, and reduce the total amount of extra investment we will need. |
|-----------|--|

Prices should be lower for energy retailers which move electricity through parts of the grid and at times of the day when the grid has plenty of spare capacity, but higher where and when it is scarce. This rewards retailers that transmit their energy to be stored close to their customers at the cheapest times or via the cheapest routes. This will use existing grid capacity more cheaply and efficiently, and reduce the total amount of extra grid investment we will need.

‘ We need to change the way National Grid charges energy retailers for using the electricity transmission network ’

The easiest way to quickly introduce local pricing would be by reforming the existing charging system (known as Transmission Network Use of System or TNUoS). There are other options – such as varying charges at every node on the electricity grid ('nodal pricing') or in broader areas which contain many nodes ('regional' or 'zonal' pricing) – which would provide even stronger locational transmission pricing signals, but they are more complicated to introduce, and create higher risks for new energy infrastructure investments.²⁰ This solution is simpler, easier and already well understood within the sector.

¹⁹ The Labour Party, 'Labour Manifesto 2024: Make Britain a clean energy superpower' (13 June 2024). [Link](#)

²⁰ Department for Energy Security and Net Zero, 'Review of Electricity Market Arrangements: Summary of responses to consultation' (7 March 2023). [Link](#)

- 9. Exempt energy firms whose demand and supply are balanced from contributing towards any constraint costs that National Grid incurs during that period.** This will incentivise firms to ensure their supply and demand are always balanced, minimising constraint payments

At the moment constraint costs are passed on to retail firms – and then ultimately to the billpayer. This is particularly unfair on customers of companies which have balanced their supply and demand, but are still expected to pay for problems caused by other suppliers across the wider network.

‘ We should allow ‘local discounting’ so that customers – both businesses and households – can be offered cheaper electricity if they consent to a particular asset being built near them ’

As a result, any retailer whose demand and supply is balanced should only have to pay for the distance and time of day when their power is travelling from their generation plant to storage or to their customer, rather than contributing towards any constraint costs that National Grid incurs during that period. This change will incentivise energy retailers to ensure they have the right long-term contracts with generators (Power Purchase Agreements or PPAs) and energy storage firms to ensure their supply and demand are always balanced, to minimise the constraint payments which they face. It will also incentivise National Grid to prioritise new grid capacity investments (mainly extra transmission cables or strategic energy storage facilities) as efficiently as possible, because they won't be able to pass the costs of bottlenecks and constraints to firms that have balanced their supply and demand correctly.

- 10. Allow ‘local discounting’ for customers who agree to pylons or onshore wind turbines being built near them.**

Making community consent easier to achieve for important new pieces of energy infrastructure will not only be more democratically legitimate but will also save time, cut costs and uncertainty, and reduce complexity. We should therefore allow ‘local discounting’ so that customers – both businesses and households – can be offered cheaper electricity if they consent to a particular asset being built near them, such as a wind farm or pylons. Several energy firms are already offering this to their customers, so the scope should be significantly expanded.

- 11. Encourage customers to use less energy, or to use it at another time of day.**

Some energy retailers are already using ‘demand management’ as a cost-effective way to reduce pressure on existing grid capacity, and therefore to cut (potentially very significantly) the total amount of extra investment in new generation, storage and transmission which the UK will need. Ministers and regulators should strongly support and encourage a lot more of this.

- 12. Ban ‘postcode pricing’**

Regulators should not allow retailers to pass on the effects of local grid pricing to their customers in the form of ‘postcode pricing’ (other than through the Local Discounts or Demand Management which are described above). Local grid pricing should be treated in the same way as other variable commercial costs (such as international wholesale gas prices) and absorbed in retail firms’ national pricing tariffs in the usual way.

These proposals build on the existing cross-party consensus for a very significant grid upgrade, but also should reduce the total amount (and therefore the cost) of extra capacity which will be needed in two ways: first, by cutting the very large constraint costs of having too much power for the transmission grid to deal with when the sun is shining and the wind is blowing, and second by minimising the (potentially even bigger) insurance or contingency costs of building extra fossil fuel generation plants to prevent power cuts when they aren't. It also means that calls for very expensive, short-term power from the 'capacity market' will happen less often and in smaller amounts than at present.

‘ These proposals build on the existing cross-party consensus for a very significant grid upgrade ’

Taken together, these reforms give the new Government an opportunity to minimise the costs of these essential improvements, potentially cutting huge amounts off household and business energy bills. But they also go further than proposals which were already being considered by officials and regulators on behalf of the previous Government, and so will provide an immediate test of Ministers' political leadership and organisational grip to challenge a course which is already set.

5. Cutting Red Tape

The last chapter explained how we can minimise the huge extra costs which are about to be added to our energy bills, by upgrading the electricity grid as efficiently as possible. This section will lay out how we can do the same by replacing expensive and bureaucratic conduct regulations with stronger competition and better controls on the costs of red tape.

Independent Regulators Are Better Than Interfering Politicians...

In principle, independent economic regulators are a better mechanism than elected politicians and lobbyists for reaching predictable, economically rational and evidence-driven decisions on how established rules and policies should apply to individual firms and customers.²¹ They reduce political and regulatory risks by establishing easily identifiable precedents and consistent decision-making. That means quicker investment and management decisions, and faster economic growth as a result.

...Unless They Start Micromanaging As Well

But theories don't always work in practice. Over the last 40 years the costs, delays and uncertainties caused by conduct regulations have mushroomed as independent economic regulators like Ofgem have tried to dictate how firms should behave in ever more complicated, intricate and expensive detail.

Over the last 40 years the costs, delays and uncertainties caused by conduct regulations have mushroomed

The results have been the exact opposite of what independent economic regulation is supposed to achieve. Many decisions now take years, are harder for investors and managers to predict, and provide a rich and expensive living for a specialist industry of lawyers, consultants and lobbyists, who in turn require vastly more regulatory staff to manage too.

And all this regulation hasn't left customers any better off: more than 30 energy suppliers went bust in a brief period between 2021 and 2023,²² and while Ofgem successfully ensured their customers were transferred to other firms, the costs of the rescues (at least £4.6bn) was added to energy bills.²³ Customer satisfaction has got worse, the sector has

21 See for example J. Penrose, 'Power to the People: Stronger Consumer Choice And Competition So Markets Work For People, Not The Other Way Around' (16 February 2021). [Link](#)

22 C. Cyrus, 'Failed UK Energy Suppliers Update', Forbes (18 February 2022). [Link](#)

23 Public Account Committee 'Regulation of Energy Suppliers: 25th Report of Session 2022-23', 13 November 2022. [Link](#) Note includes £2.7bn costs for firms that left the market plus £1.9bn running Bulb Energy up to 2023. However it's worth noting that the Treasury will subsequently recoup nearly all of the cost of temporarily nationalising Bulb in 2021 (from Octopus Energy who took it over), and thus billpayers will not be burdened with these costs.

become a serious drag on economic growth and – most fundamentally of all – the moral legitimacy and customer acceptance of the entire sector and its regulatory regime have become much weaker.

Stronger Competition Is Better Wherever It's Possible...

Fortunately there is an alternative to this ever-growing burden of red tape. Both the Furman Review and the independent report on competition policy that I produced for the last Government, 'Power to the People', pointed out that stronger competition is often a cheaper, faster, nimbler and more future-proof alternative to conduct regulations. Forcing firms to jostle against each other to satisfy their customers and steal business from their rivals is a far stronger and more relentless way to ensure customers always win.²⁴

‘Ministers should give Ofgem a subsidiary legal duty to publish an independently audited annual report of the regulatory costs and burdens which it has created or removed’

In industries which take this approach, regulators are responsible for making sure industry standards on things like environmental protections, product safety and workers' rights are safely maintained or improved, and also for setting the simplest possible rules which allow firms to compete continuously to deliver those standards in the cheapest, nimblest way possible. So how can we shift the energy market in that direction?

13.

Amend Ofgem's legal duties so its first priority is to introduce Pro-Competitive Interventions (PCIs) which sharpen competition while maintaining standards.

Rather than Ofgem trying to work out what consumers want and then ordering companies to do it, via ever more detailed, expensive and cumbersome rules and regulations, ministers should amend Ofgem's legal duties. The regulator's first step should be to introduce Pro-Competitive Interventions (PCIs) which sharpen competition while maintaining standards, giving consumers more power to make informed choices between a wider range of options wherever possible. The Digital Markets, Competition & Consumers (DMCC) Act already takes this approach for most other digital sectors, so applying it to Ofgem in energy is a sensible extension of the same principle.

14.

Give Ofgem a subsidiary legal duty to publish an independently audited annual report of the red tape costs it has created or removed every year, and to ensure the net change is zero or a reduction every year.

Once the switch to PCIs is underway, Ofgem will need to remove the existing red tape conduct regulations which will steadily become obsolete as competition grows. So ministers should give Ofgem a subsidiary legal duty to publish an independently audited annual report of the regulatory costs and burdens which it has created or removed every year, with a mandate to ensure that the net change is zero or a reduction every year. This will create a long-term, permanent ratchet that progressively reduces the costs and burdens of red tape as the industry grows over time.

²⁴ J. Furman et al., 'Unlocking digital competition, Report of the Digital Competition Expert Panel' (13 March 2019). [Link](#)

J. Penrose, 'Power to the People: Stronger Consumer Choice And Competition So Markets Work For People, Not The Other Way Around' (16 February 2021). [Link](#)

...And Minimising Red Tape Is Essential Wherever It Isn't

Once ministers have delivered these changes, the vast majority of Britain's energy industry will have become a 'normal' pro-consumer, high-standards, competitive market where tough and relentless competition from rival firms makes it impossible for incumbents to raise prices or cut quality without risking losing customers. But there will still be some areas where it is hard to achieve enough competition, mainly in the energy transmission network monopolies at the core of the sector.

15.

Give regulators a short-term duty to report on and minimise the economic and regulatory costs which we are currently imposing on consumers and businesses, and a longer-term one to introduce pro-competitive interventions wherever and whenever they will produce superior outcomes.

For these areas, regulators should have a short-term duty to report on and minimise the economic costs (including regulatory burdens) which are imposed on consumers and businesses, but also a longer-term one to introduce pro-competitive interventions wherever and whenever they will produce superior outcomes instead. This will minimise bureaucracy and red tape without accepting that monopolies are either inevitable or immortal, and ensure that the costs they impose on households, businesses and economic growth will be reduced or even eliminated over the longer term.

The Biggest Political Challenge So Far

These proposals will reduce political and regulatory risks and uncertainty. That will mean firms can make big investment decisions faster and more cheaply, because investors will demand a lower cost of capital. The result ought to be higher quality products and services, increased investment, faster economic growth, more well-paid jobs and lower customer bills, at zero cost to taxpayers.

‘ The pro-regulation, micromanaging culture has become very deeply embedded ’

Yet in spite of these very significant benefits, these ideas are likely to cause political neuralgia. It will also be harder for ministers in the new Government to introduce them than their Conservative predecessors, because the centre-left is often suspicious that this kind of better regulation (where regulators maintain or improve industry standards but use competition instead of red tape to deliver those higher standards wherever possible) is really just a cover for rapacious capitalists to make money from deregulation (in which standards are reduced, increasing the risk that customers, workers or the environment will be harmed). So this will be a big and economically important early test of whether ministers really do prioritise growth, as they consistently claim.

This will not be easy. The pro-regulation, micromanaging culture has become very deeply embedded in the habits, processes and reward systems of Ofgem, the Department for Energy Security & Net Zero and many (although not all) regulated firms over several decades.

As successful leaders in other walks of life regularly confirm, driving culture change in any large bureaucratic organisation, let alone an entire sector, can be a Herculean challenge. Yet without such a culture change, the new Government's ambitious rhetoric on growth will never turn into reality.

6. Reforming The Energy Price Cap

The last section laid out how we can cut red tape costs that are embedded in our energy bills by replacing a lot of expensive and bureaucratic conduct regulations with high standards and stronger competition instead. This Chapter will explain how we can do the same by reforming the Energy Price Cap.

The Price Cap Was Supposed To Stop Energy Bill Rip-Offs...

The Energy Price Cap was originally introduced – at my urging among others – to deal with the scandal of ‘loyalty penalties’, where energy customers were persuaded to switch their energy suppliers because of eye-catching introductory deals which were then stealthily marked up when the initial offer finished.²⁵ Under this model, energy firms made their money from the gap between the price of the best deals and the marked-up default tariff which most people ended up paying. The bigger the gap, the bigger the rip-off – and it was the most loyal (and most vulnerable) customers who were paying the most.

‘ The problem here is that the cap didn’t work ’

This was not just a problem for the energy sector: in 2020, the Competition and Markets Authority (CMA) estimated such loyalty penalties were costing UK customers £3.4 billion across the economy.²⁶

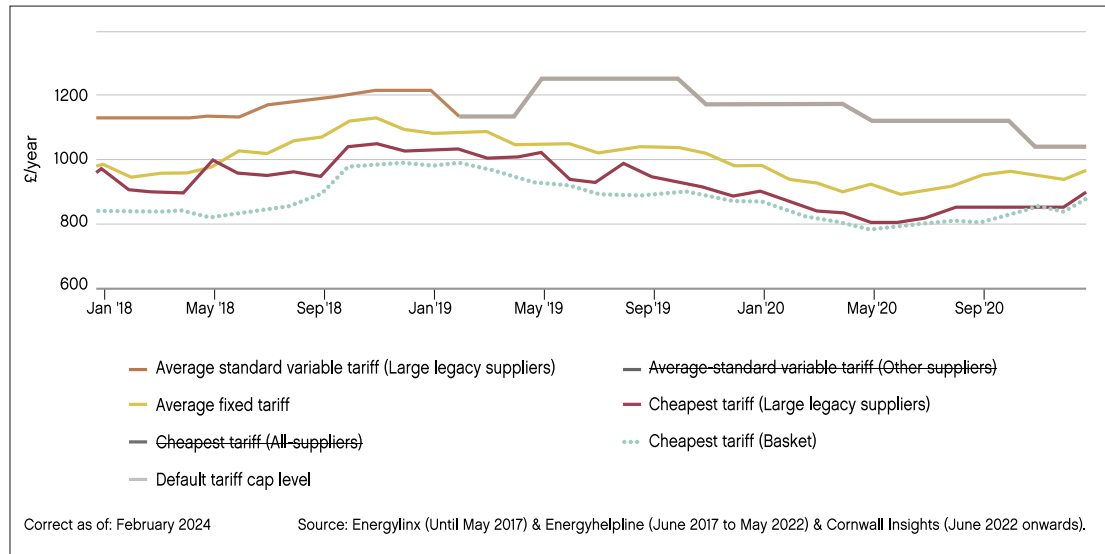
...But It Didn’t Work

The problem here is that the cap didn’t work. There was cross-party backing for an ‘absolute’ cap (where Ofgem sets the price everyone pays) rather than my ‘relative’ version to cap the maximum mark-up between each firm’s best deal and their default tariff. So the absolute cap was introduced instead, and it hasn’t worked. The graph below shows the size of the markup before and after the cap was introduced in January 2019. If the cap had worked, the gap between the default tariff (the brown part of the top line) and the price of other deals (the other three lines) should have got narrower after the cap was introduced in January 2019, when the top line turns grey. But in fact the gap got wider – or at best, was no better than before the cap began.

25 This technique has other names too, including ‘tease and squeeze’; ‘price walking’ or ‘front book-back book pricing’

26 Competition & Markets Authority, ‘Loyalty penalty update - progress two years on from the CMA’s super-complaint investigation’ (December 2020). [Link](#)

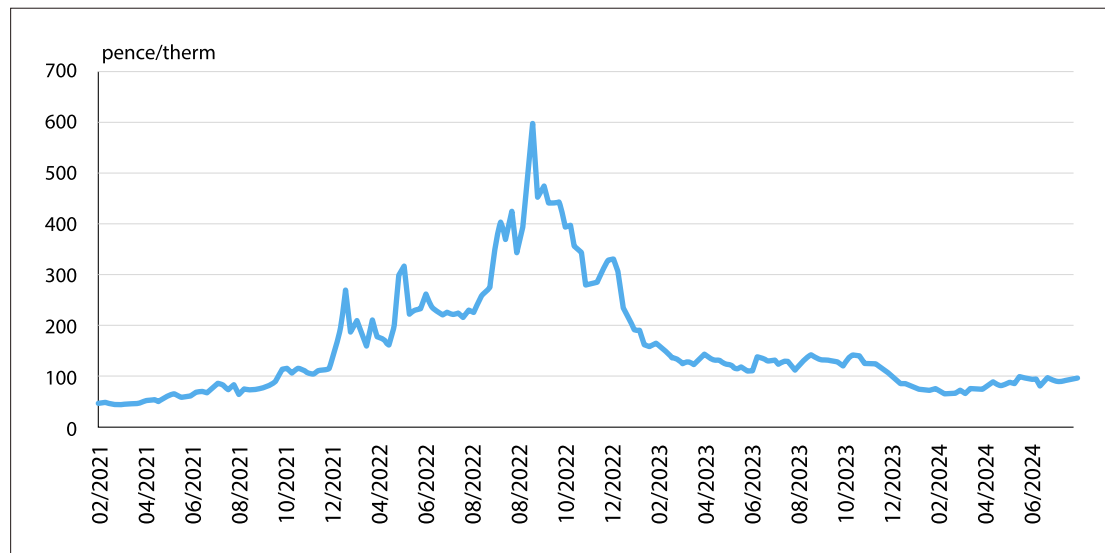
Retail price comparison by company and tariff type: Domestic (GB)



Source: *Ofgem*²⁷

Then the war in Ukraine meant gas prices and energy bills soared, and the cap became a temporary and very useful way to limit at least some of the pain, alongside the then-Government's temporary and extremely expensive Energy Price Guarantee.²⁸ The price cap wasn't designed to do this, of course – we were lucky rather than clever – but nonetheless it helped. But now the market has found other sources of gas and prices are coming back down again, so this very welcome but temporary and unintended benefit is fading away.

Gas prices: forward delivery contracts, weekly average



Source: *Ofgem*²⁹

27 Ofgem, 'Retail price comparison by company and tariff type: Domestic (GB)' [accessed 16 September 2024]. [Link](#)

28 The Energy Price Guarantee probably had a bigger effect than the price cap, subsidising everyone's bills from October 2022 until June 2023

29 Ofgem, 'Gas Prices: Forward Delivery Contracts – Weekly Average (GB)' [accessed 16 September 2024]. [Link](#)

Loyalty Penalties Won't Die

Loyalty penalties may have been temporarily interrupted by the effects of the war, and by Ofgem's soon-to-expire Ban on Acquisition-Only Tariffs (BAT) too.³⁰ But the underlying conditions which created the penalties – automatic renewals of energy contracts on a default tariff for anyone who isn't paying attention – are still there. Moreover, the cap has now expanded to become the de facto price for the entire energy market, stifling competition and – as the Centre for Policy Studies has argued – costing customers more on their bills than they should be paying.³¹

‘The cap has now expanded to become the de facto price for the entire energy market, stifling competition’

So the failure of the current price cap to solve the problem still leaves several big and expensive issues to be resolved.

The first is pretty fundamental: a market where firms make money by exploiting consumers rather than helping them is structurally unfair, and will always face uncertainty and pressure for reform from consumer groups and politicians alike. So the status quo is not a stable or sustainable option.

The second is that the current cap creates extra regulatory, reporting and compliance costs, as well as financial risks – mainly contract maturity mismatches of the kind described in the chapter on ‘The Long Shadow of Short Term Gas’ above – which each firm must manage using expensive hedging strategies.

These problems don't happen because the regulators at Ofgem who set the level of the cap are idle or stupid, but rather because it's impossible for anyone to know what the international wholesale price of gas will be three minutes from now, let alone in three weeks or three months. We've given them an inherently impossible task and we shouldn't be surprised when they inevitably get it wrong. Nor can we expect the current cap to suddenly start working any better in future than it did in the past.

A Simple & Effective (But Politically Demanding) Answer

16. Reform the Energy Price Cap so it instead caps the maximum mark-up between each firm's best deal and their default tariff.

Instead, the solution is to reform the Energy Price Cap to design out these problems at source, by setting a maximum markup of at most a few percent between each energy firm's best deal and their default tariff. This small and simple change will not only abolish loyalty penalty rip-offs, but will also deliver stronger competition, because each energy firm would have much sharper incentives to price as keenly and differently compared to their rivals as possible, giving consumers more choice but ensuring non-switchers are better off too.

The reformed cap would impose fewer regulatory and hedging costs, which would feed through into lower bills for everyone. It would create a more stable and sustainable industry for investors and managers alike, by reducing political pressure and consumer

³⁰ This requires energy firms to make their best deals available to all their current customers, rather than just their new ones. It began in April 2022 and is expected to expire in autumn 2024

³¹ D. Smith, ‘The Case Against the Energy Price Cap’, Centre for Policy Studies (August 2023). [Link](#)

complaints about rip-offs, loyalty penalties and injustice too. And it would theoretically cost taxpayers nothing at all.

To their credit, Ofgem have realised the need to change and launched a consultation on this issue in March 2024.³² It covers broader price protection issues for vulnerable or the least-well-off retail customers as well as eliminating loyalty penalties, and includes this recommendation as one of the options to be considered. The simple and effective solution would be for ministers to adopt this recommendation as part of their response to the consultation.

‘ The reformed cap would impose fewer regulatory and hedging costs, which would feed through into lower bills for everyone ’

The problem is that there is a high risk of politics getting in the way. The price cap had cross-party support when it was originally created, with many Labour MPs claiming political credit for having proposed it first. Introducing this change will require all sides to accept that, because the world has changed since Russia invaded Ukraine, the price cap should too. If Ministers fail to take the high ground and instead allow this issue to become a party-political argument about claiming credit or pointing the finger of blame, a major opportunity will be missed and consumers will continue being ripped off.

³² Ofgem, ‘Ofgem launches discussion on the future of the price cap’ (25 March 2024). [Link](#)

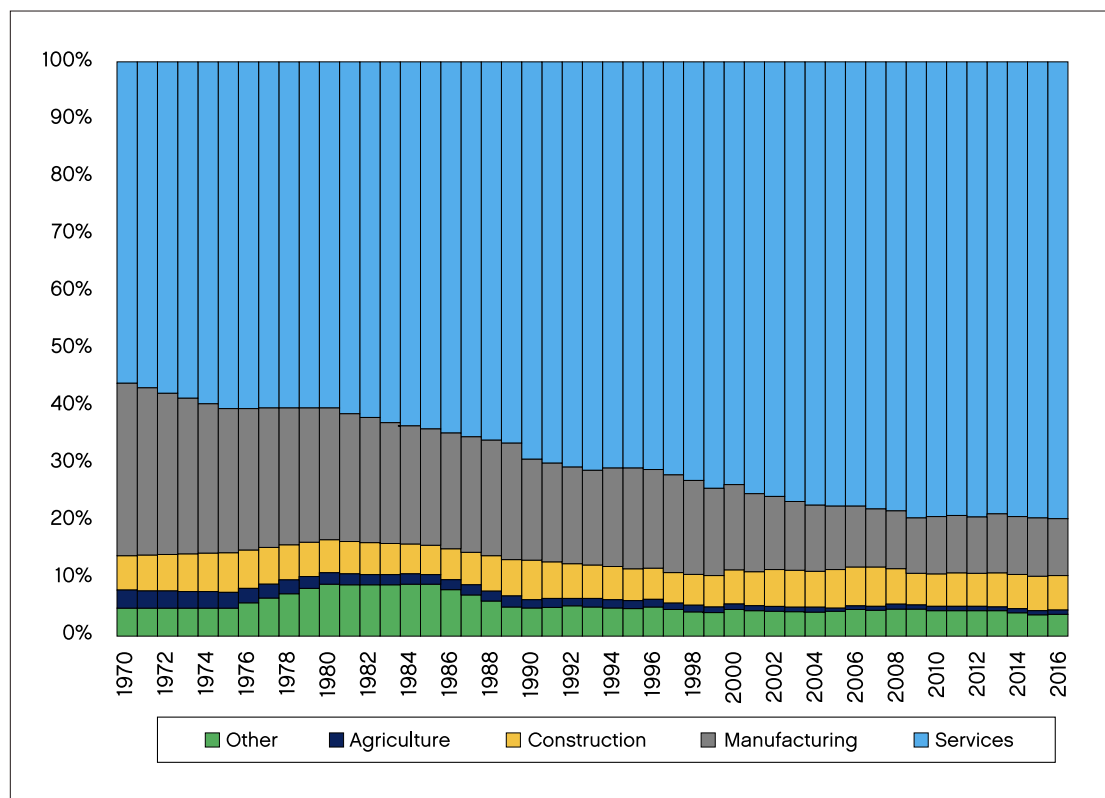
7. Levelling The Playing Field For UK Manufacturing

Expensive Energy's Part In UK Manufacturing's Long Decline

The Energy Price Cap, discussed in the previous chapter, only applies to household energy bills: it doesn't touch UK manufacturing firms at all. But manufacturing uses much more energy than services industries or domestic households, so high energy bills create severe and long-term competitive disadvantages for every UK manufacturing company. They struggle to win business against goods produced by firms and factories that are based in countries where energy costs much less.

UK industrial energy costs have been higher than in rival countries for many years. This is one of the biggest reasons why UK manufacturing has been declining steadily for decades, as the graph below shows:

Share of UK gross value-added by sector



Source: ONS³³

33 Office for National Statistics, 'Changes in the economy since the 1970s' (2 September 2019). [Link](#)

Carbon Leakage Rewards All The Wrong Things

One of the reasons why energy costs less in other countries is because their power generation is less green, often fuelled by coal or other fossil fuels with very large carbon emissions. That means the carbon which is produced during the manufacturing and shipping of products we import from one of these countries (called ‘embedded carbon’) is a lot higher than if it had been made in a cleaner, greener factory like the ones we have left in the UK – and of course, the firms in those countries have not paid the carbon levies that we impose on our domestic manufacturers, putting UK firms at an unfair disadvantage. This also means that if the UK switches to high-carbon imports, we will be making global emissions worse rather than better: all we will have achieved is to move the emissions, and the jobs, from the UK so they happen somewhere else instead.

‘One of the reasons why energy costs less in other countries is because their power generation is less green’

This is known as ‘carbon leakage’, and it makes getting to Net Zero much harder, because all the economic incentives encourage everyone to buy cheaper, higher-carbon products instead of greener ones. Even worse, it turns decarbonisation into deindustrialisation, because the same incentives push manufacturing firms to move jobs, exports, investments and production abroad to places where low energy costs make their products more competitive and successful.

The Answer Is A CBAM

Fortunately, there is a way to solve many of these problems.

17.

Introduce a Carbon Border Adjustment Mechanism (CBAM) so foreign-made imported manufactured goods pay the same price as UK firms for each tonne (or gram) of embedded carbon they contain.

A Carbon Border Adjustment Mechanism (CBAM) would make it cheaper to buy products made with clean, green energy rather than dirty, high-carbon ones, so UK manufacturing industries become more internationally competitive rather than less, and consumers will move closer to Net Zero in the most economically-efficient and lower-cost route every time they choose to buy cheaper goods too. The price of dirty, high-carbon imports would go up, while anything made and shipped using clean, green energy would be unaffected.

We already know the cost of each tonne of carbon emissions because the UK’s long-established and successful Emissions Trading Scheme (ETS) establishes a free-market price which automatically adjusts as green technologies and energy market conditions alter over time.

The European Union has already committed to introducing a CBAM, and the UK is set to follow suit – not least to avoid facing penalties for UK goods that we are selling into Europe. However, there are some important principles which I believe they need to incorporate.

18. Ensure the CBAM covers all UK a industries, with no exceptions.

By far the biggest difference in carbon emissions intensity within the UK economy is between services and manufacturing, rather than between different types of manufacturing industries. So it is environmentally better, logically clearer and legally stronger to recognise this truth by including all manufacturing in the scheme. This may not be popular with some. But any carbon regime needs to be consistent and comprehensive.

19. Exempt UK manufactured exports from paying UK Emissions Trading Scheme (ETS) carbon costs.

This will zero out domestic ETS carbon costs as UK exports leave our shores so they only face the carbon regime in the foreign market (e.g. the Inflation Reduction Act in USA or the EU CBAM). This will level the playing field between green, low-emissions UK manufactured exports and those made by competitors abroad using cheaper, high-carbon energy instead.

20. Use the revenues from any CBAM to reduce fuel duty, or lower green levies on energy bills. This will cut energy costs for everyone, and would make sure we aren't taxing carbon twice by levying multiple charges on the same embedded emissions.

The standard critique of a CBAM is that it will raise prices for consumers, by increasing the cost of imports. This is why the Government should plough the money it gets from a UK CBAM back into slashing the costs of energy in the UK, either by reducing fuel duty so pump prices for petrol go down, or by cutting green levies on energy bills. This will reduce energy bills for hard-pressed households, firms and motorists, and would be more economically efficient by making sure that ministers weren't taxing carbon twice by levying multiple charges on the same embedded emissions. It is also legally required, to prove that the UK CBAM isn't really a trade-restricting tariff measure in disguise.

A Big Opportunity For the New Government

Both the UK and the EU are planning to introduce CBAMs, but both of them have important flaws:³⁴

- a) Both the UK and EU proposals exclude key manufacturing sectors – like refining – which will leave jobs and investment in those sectors highly vulnerable to competition from rivals based in countries with low-cost, high-carbon energy instead.
- b) The UK scheme envisages slower timescales than the EU for introducing the CBAM in energy-intensive industries – like steel and aluminium. This means that we will be vulnerable to commercially and environmentally disastrous dumping by rivals from low-cost, high-carbon countries until the UK CBAM catches up.
- c) Neither proposal exempts manufacturing exports from paying carbon costs, which will make them far less competitive than their rivals from countries which use cheaper, high-carbon energy.
- d) Neither proposal includes a firm commitment that a CBAM won't be used as a stealthy tax rise, and that the proceeds will be ploughed back into cutting either fuel duty or energy bills.

³⁴ HM Revenue & Customs & HM Treasury, 'Consultation: Introduction of a UK carbon border adjustment mechanism from January 2027' (21 March 2024). [Link](#) European Commission, 'Carbon Border Adjustment Mechanism' [accessed 16 September 2024]. [Link](#)

This creates a big opportunity for ministers in the new UK Government to demonstrate their commitment to green growth and manufacturing. These changes will help lower-paid working families struggling with high household bills; boost UK manufacturing; make UK exports more competitive; and level the playing field with high-carbon manufacturers sending imports to the UK from dirty economies.

‘ These proposals will raise our economic growth rate and productivity by ensuring we reach Net Zero in the most economically efficient way possible ’

Last but not least, these proposals will raise our economic growth rate and productivity by ensuring we reach Net Zero in the most economically efficient way possible, by making high-carbon products more expensive than low-carbon ones so the market can allocate demand and investment more efficiently. Ministers should amend the UK approach to match these changes without delay.

Conclusion

The transformation of the energy sector, and energy system, over the coming decades will be hugely necessary, hugely important – and hugely expensive. If Britain decarbonises in the right way, we can move towards a future of cheap, green, secure energy abundance. If we make the wrong choices, we face paying billions of pounds more than we need to, while imposing huge burdens on British households and crippling our manufacturing sector via sky-high industrial energy prices and unfair competition from dirty factories in other countries.

**‘ If Britain decarbonises in the right way,
we can move towards a future of cheap,
green, secure energy abundance ’**

This report sets out a series of bold, pragmatic and above all low-cost (or even free) ways in which the new Government can deliver on its ambitions for decarbonisation, at the fastest speed and lowest cost. I urge ministers to study its recommendations closely.



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