The Great Grid Gamble

Executive Summary

- On entering office, Ed Miliband commissioned a report from the National Energy System Operator (NESO) on his plan to decarbonise the power grid by 2030. Upon publication, he hailed this as providing 'independent, expert analysis of the pathways to clean power' and 'conclusive proof that clean power by 2030 is not only achievable but also desirable'.
- But as with his pledge to save households £300 on their energy bills, these claims – and the conclusions of the report – rest on a set of highly dubious assumptions.
- As critics have pointed out, the NESO report itself says that 'several elements' of the plan involve delivering 'at the limit of what is feasible'. For example, it envisages building twice as much transmission network capacity in the next five years as was built in total over the last decade, with zero delays, and increasing demand flexibility by 4-5 times from today's levels.
- Far more alarming, however, is that the NESO modelling justifies Miliband's plans by forecasting high gas and carbon prices – substantially higher than market projections, or even the numbers produced by his own department.
- The figures for gas prices, for example, have been produced by treating the highest estimates of various independent consultancies as the central price scenario. The result is a price range is between 72p/therm and 290p, with a central estimate of 101p. But the energy department itself forecasts a range of 42p to 114p, with a central estimate of 72p. Meanwhile, the International Energy Agency is predicting a 'glut' of Liquified Natural Gas (LNG) which sends gas prices in Europe to a third or half of today's levels by 2030.
- Likewise, NESO assumes a carbon price that is 2.7x higher than today's figure, including an extra £25 tariff to deter power stations from sending non-green energy overseas.
- Using the central price forecasts produced by Miliband's own department, his plans would make UK electricity more rather than less expensive. The counterfactual scenario modelled as an alternative is a strawman, where we make pitiful progress this decade. And the numbers only add up if 'clean power' is defined as a grid that is 95% decarbonised, rather than 100% – a definition the Government has yet to confirm it will adopt.
- The Centre for Policy Studies fully supports the transition to a clean, secure, abundant energy system, as well as the wider goal of reaching Net Zero. But it is vital that we make such vital decisions about our energy mix and energy security on the basis of objective numbers, rather than distorting the data to suit one man's ideological preferences.

Introduction: Ed Miliband's Big Ambition

During the general election, the Labour Party pledged to decarbonise the power grid by 2030, with Ed Miliband – now Secretary of State for Energy Security and Net Zero – arguing that it would save the average household £300 on annual bills.

We (among others) pointed out that the £300 figure did not stack up, for two reasons. First, it was based on a level of the energy price cap which was a year out of date: in fact, as gas prices subsided, bills had already fallen substantially, delivering a large proportion of the promised savings. Second, the £300 figure did not represent the price differential between Labour's plan and the status quo. The analysis quoted by Labour stated plainly that more than 85% of the 'savings' would be delivered even in a lower-ambition scenario where the UK did not hit Net Zero by 2050.

We hoped that, on actually taking power, Labour would start producing some more grown-up numbers – not least given the vital significance of energy policy, and energy prices, to millions of households and businesses. Sadly, those hopes have been dashed.

Upon taking office, Miliband requested 'advice' from the new National Energy System Operator (NESO) on how to achieve the 2030 target. NESO is a new public body that runs the electricity system on a day-to-day basis, and is set up to be operationally independent of Government (though as a public body is 100% owned by the Secretary of State).

Setting aside the familiar spectacle of a Government setting a controversial target and only subsequently working out the details of how to achieve it (a crime the Conservatives were equally guilty of), the NESO report was intended to do two things. First, to prove that Miliband's target was achievable – something most in the energy industry strongly doubted. Second, to prove that it would indeed deliver lower costs for consumers.

When the report was published, Miliband duly claimed vindication. He argued that 'independent, expert analysis' had provided 'conclusive proof that clean power by 2030 is not only achievable but also desirable'. The concluding paragraph of his *Guardian* editorial begins: 'The Neso report is so important because it shows that clean power by 2030 is the right choice for Britain, unlocking cheaper electricity, a more secure country, the good industrial jobs we need and economic growth.'

But these claims are not supported by an analysis of the paper itself.

The NESO report – produced by credible, authoritative experts, who have clearly done their homework – puts a brave face on the question of 'how on earth can we do this'. The target is 'a huge challenge' but 'achievable', while 'several elements must deliver at the limit of what is feasible'.

As Miliband's opposite number, Claire Coutinho, has pointed out, the specifics are in fact even more daunting than that suggests. The preconditions for meeting the target include (among much else) increasing demand flexibility by 4-5 times from today's levels; expanding the transmission network

by twice as much in the next five years as was built in total over the last decade, and delivering all of it on time; and a more than 200% increase in our solar capacity from 2023 levels.[1]

But setting aside the *how*, the report also tries to take on the *why*. In other words, it tries to provide a justification for Miliband's decision to sprint ahead to 2030, outpacing even our own pre-existing carbon targets.[2]

In addition to the usual nods to green growth, green jobs and the environment, the crux of the argument is that hitting 2030 will 'cut the link between electricity bills and volatile international gas prices, without increasing costs to consumers'.

The Secretary of State has consistently expressed a belief that gas is expensive, as it became ruinously so in the wake of Putin's invasion of Ukraine. Getting off it will be good for our wallets, as well as our carbon budgets.

If another gas price shock comes along, he could well be vindicated. But there is another plausible narrative. Namely that sprinting ahead puts substantial pressure on supply chains for renewables and grid components, pushing up costs for the infrastructure we need. Meanwhile, rather than becoming more expensive, gas instead becomes cheaper, as global LNG export capacity ramps up and demand growth moderates (or perhaps declines) as a result of decarbonisation.

And this is where the report truly comes unstuck. Because the fine print shows that NESO has made a number of assumptions tilted towards the former scenario – in a way that appears designed to justify Miliband's pre-existing policy, rather than actually estimate a realistic path for UK energy costs.

For example, the report uses a substantially higher gas price than the Government itself forecasts, brushing aside the (equally real) possibility that prices could be far lower later this decade. Ditto for carbon prices, implying a huge uplift from our current trajectory. The 'counterfactual' scenario that Miliband's plans are compared to is a strawman, rather than a realistic assessment of our existing policy path. And the report also quietly adopts a rather loose definition of the clean power target, to make it easier to hit.

All of these acrobatics are carried out simply to justify Miliband's claim that energy costs won't increase. Yet the same report shows that on his own department's central forecasts, costs will indeed rise. And if global gas prices fall as the International Energy Agency and others project, then the economic case becomes even less convincing.

In the rest of this briefing, we will set out the problems with the assumptions made – and why the public deserve a more honest accounting on Britain's energy future.

[1] From 15.1 GW in 2023 to 47.4 GW in 2030 in both pathways

[2] Referring to the CB6 Balanced Pathway – see Annex 4 page 15. Of course going further in the power sector would help make the wider carbon targets easier to meet, closing the current policy gap

Gas Price Assumptions

The price of gas is an important input into any model of the power system. Because, for better or for worse, today gas rules the roost.

As a legacy of the dash for gas in the 1990s, our failure to build new nuclear stations, and the phasing out of coal, gas is Britain's 'marginal producer'. That is to say, gas fills the gaps left by weather-dependent renewables, and as a result almost always sets the price of power in the system.

Even in Ed Miliband's brave new world, gas will still play a key role. In one of the two pathways to clean power that NESO sets out – 'Further Flex and Renewables' – it sets the price 15% of the time by 2030. In the other – 'New Dispatch' – it sets the price 47% of the time. (The former scenario involves building huge amounts of new offshore wind, while the latter involves large amounts of new wind power but also some new provision of low-carbon hydrogen and/or gas plants using carbon capture and storage (CCS).)

So if you are trying to estimate how cheap – or expensive – Britain's electricity will be over the next decade, one of the most important variables in your modelling will be the price of gas, and how much of it you use.

The NESO report uses a forecast price for 2030 of around 100p/therm, around where (short-term) prices were in mid-October. This is described as 'the average of the forecast data from third party suppliers based on their highest projections in line with the Holistic Transition pathway (FES 2024) narrative'.

Tracing this assumption back to the Future Energy Scenarios (FES) 2024, from which it derives, the document explains: 'We take an average of Aurora and Oxford Economics price forecast for their respective high, base and low cases for carbon and natural gas prices… different cases are then used across the pathways'.

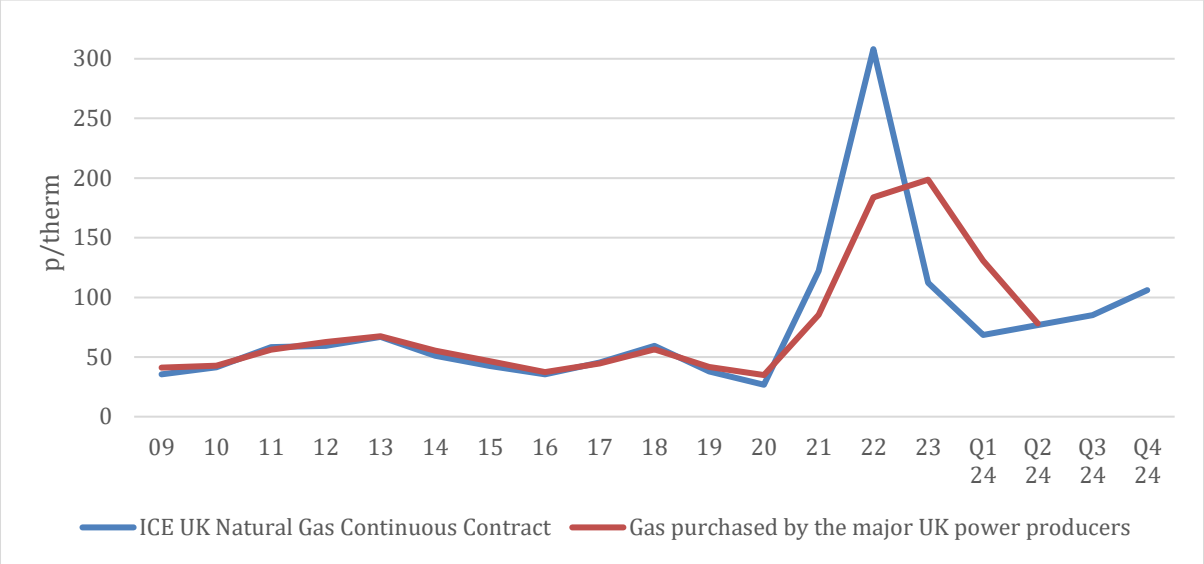
Aurora and Oxford are independent, respected forecasters. But the key phrase in the NESO report is 'based on their highest projections'. FES 2024 makes clear that 'for Holistic Transition, all carbon and gas prices use the high case'.

In other words, by choosing the 'Holistic Transition' assumptions to feed into its 2030 model, NESO has deliberately chosen to use those forecasters' most pessimistic modelling of the gas price, rather than their default assumptions.

What justifies this? The document explains that 'this assumption provides comparability against today, while it could also represent elevated prices due to geopolitical events and supply chain issues continuing into the future.'

In other words, NESO is essentially making a subjective judgment that geopolitical instability and tight supply chains will keep gas prices high.

Historic UK natural gas prices[3]



This projection is not just dubious from a historical perspective (as demonstrated by the above chart), but when compared to almost every other available forecast.

The 'base case' of the independent forecasters is not disclosed, presumably for commercial reasons.[4] But a press release in June from Aurora, one of the two forecasters whose data is used, says that they 'expect gas prices to average 69.7p/th until 2027'.

Even more notably, Ed Miliband's own department provided its own energy forecast a few months ago. Its central case for 2030 was 72p/therm.[5] These projections are used as inputs into work across Government. So what justification could there be for a separate part of the state using entirely different assumptions for such a critical piece of work?

What about other sources? Getting a hold of UK-specific gas price projections is not easy. But the International Energy Agency (IEA) released its World Energy Outlook last month, in which it forecast 'an increase of nearly 50% in global LNG export capacity', leading to 'lower natural gas prices'. And if countries went faster on decarbonisation, this would 'exacerbate the LNG glut'.

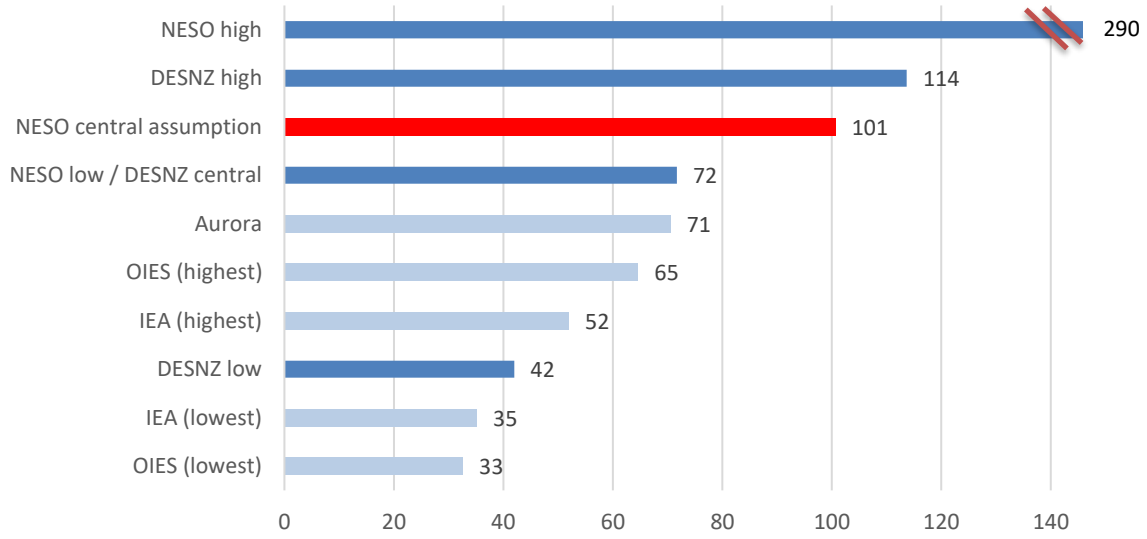
For example, in 2023 alone, final investment decisions were taken on 38 million tonnes per year (mtpa) of LNG liquefaction capacity, including the 17mtpa Rio Grande Phase in the US. In Qatar, the ongoing North Field East, South and West expansions are scheduled to raise LNG production

[3] Showing both near-term prices and gas as purchased by major power producers (usually in advance). Sourced from MarketWatch and DESNZ (and both showing nominal prices)
[4] Note the FES Data Workbook discloses only High Case and Low Case (not Base Case) numbers for the NBP Gas Price (see tab CP1)
[5] 70p in 2023£, uprated to 72p in 2024£. Note that technically these are 'fossil fuel price assumptions', not forecasts, but they are used as inputs into wider Government work, such as the DESNZ Energy Emissions and Projections and the Dynamic Dispatch Model

capacity to 142mtpa by 2030, an increase of almost 85% from current production levels.[6] The IEA accordingly predicts gas prices in the EU to fall from $12.1 per million British thermal units (MBtu) in 2023 to between $4.4 and $6.5 in 2030, depending on the scenario.[7] And the election of Donald Trump could mean an even greater wave of LNG export capacity in the US coming onstream towards the end of the decade, leading to yet lower gas prices in Europe (as Aurora recently pointed out).[8]

Looking to other publicly available sources, Fitch ratings also sees European prices declining later this decade, as does S&P to a lesser extent (though neither of them have specific forecasts beyond 2027). The Oxford Institute for Energy Studies also sees prices coming down as the decade goes on.[9]

2030 gas price projections compared (p/therm)[10]



Note: light blue shading indicates European price projections

In short, using such a high gas price assumption is out of kilter with independent forecasters, who all expect lower prices to varying degrees.

Of course, the NESO report does not just give a central estimate. Like others, it provides a high case and low case to represent the range of outcomes. But again, these raise significant questions.

Let's start with NESO's high case for 2030, 'Raised gas price sensitivity', of 290p. This is miles above the high case produced by the Department for Energy Security and Net Zero, which sits at 114p.

[6] See pages 32-35 of the GIIGNL Annual Report 2024
[7] See Table 3.2 on page 144 in the *World Energy Outlook 2024*
[8] The same press release mentions 'In the late 2020s, an increase in LNG supply from the US and Qatar is expected to gradually lower prices. By 2030, Aurora forecasts a 7% reduction in European gas prices to €29/MWh…'
[9] See pages 26-28
[10] Both the IEA and OIES have a range of scenarios for European prices, three for the IEA and six for the OIES – the chart shows lowest and highest of each

Now that's not crazy relative to prices seen at the height of the energy crisis, but again that was a short-term shock, not a generally higher price environment.

But what about the low case? At 72p, this is more reassuring. But it is also the central price estimate produced by DESNZ! And it is far above DESNZ's own low case of 42p.

Now, price forecasting is a difficult business. But it would appear that both the central figures it uses in its model, and its high and low cases, are substantially skewed upwards relative to what others are projecting – with implications we shall explore later.

Carbon Price Assumptions

The cost of carbon is another crucial component of system costs, particularly for gas power stations. In the UK this cost is market-driven, via the auctioning and trading of allowances in our Emissions Trading Scheme (ETS) – currently £36 per tonne of CO_2.

On top of the normal ETS cost, power stations also have to pay a supplement called the Carbon Price Support (CPS) of £18/tonne. So every time a gas power station is generating, not only do they have to pay for their fuel, they also have to pay the tax on carbon.

So where does NESO think we'll be in 2030? The answer is that the report projects a carbon price of £147 per tonne of CO_2 – 2.7 times today's level.

How did the authors derive this assumption? Perhaps unsurprisingly, they use the same methodology as for gas prices – namely, taking an average of independent forecasts, but in each case using their high case rather than their base case.[11]

In this case, however, there is an added wrinkle. The NESO report also adds an additional £25 per tonne on top. Why? To quote from the main report: 'To limit generation from unabated gas for export, our modelling includes a £25/tonne carbon differential for Great Britain against connected markets'.

In plain English, that means increasing costs for gas power plants that don't have CCS fitted relative to their European counterparts, to discourage them from feeding their electricity into the European market.

This may seem slightly bonkers. The explanation is that carbon emissions are measured on a territorial basis – so while imports are treated as carbon-free, exports count against us for the sake of this decarbonisation target.[12] (Not that the planet cares one bit where the emissions are

[11] This isn't explicitly confirmed in the 2030 report documents (unlike for the gas price), but Annex 4 (page 7) reads 'We also take our carbon price projection, which is based on an average of independent forecasts, from the Future Energy Scenarios Holistic Transition assumptions'. As discussed in the previous section, the Holistic Transition scenario in FES 2024 uses the high case for all carbon and gas prices

[12] Indeed, Annex 1 includes the elliptical critique that 'careful consideration must be given to how much value is placed in interconnectors simply to meet higher clean power metrics'

generated, of course). NESO does stress that this £25 deterrent is a modelling assumption, not a policy recommendation. But it is one made purely in order to hit the decarbonisation targets – which in turn means that it should surely be considered a cost of Miliband's plans, rather than a basic fact of economic life.

And again, these numbers are substantially higher than the Government's own forecasts. The latest projections from DESNZ, from this time last year, have ETS prices at £87 in 2030 in their central case, £56 in their low case and £118 in their high case.[13] If the Government chose to keep the Carbon Price Support, it would add an extra £18 on top.

In short, in a similar vein to the gas price assumptions, NESO's carbon price assumptions look to be at the top end of projections.[14]

Of course, unlike the gas price, the Government has substantial control over the carbon price – it's a price we impose on ourselves after all. Via the Carbon Price Support, it directly increases it for electricity generators, and of course by deciding how many allowances should be auctioned off and which sectors should participate it indirectly affects the price.[15] In other words, the £147 should be seen more as an indication of how high prices could potentially have to go in order to achieve the system Ed Miliband wants. Which makes it all the more remarkable that such a high carbon price is being used as a justification for why his policies are cheaper than the alternative.

The Impact of High Prices

On pages 75-77, the NESO report compares one of the two 2030 pathways it has come up with, 'New Dispatch', to today's system. It uses this comparison to argue that 'overall costs to consumers would not increase from the shift to a clean power system'.

This is not quite the same thing as declaring – as Ed Miliband has – that bills would actually fall. But this is the verdict which has enabled him to declare himself vindicated.

The problem is that this is entirely dependent on the price assumptions NESO has made. If gas power is so expensive, then all that wind power looks to be good value. And assuming high prices in its modelling allows NESO to make Miliband's 2030 system seem artificially cheap.[16]

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[13] With inflation, £87 in 2023 £ is £88 in 2024 £. Also, similar to the DESNZ gas price assumptions, these are technically 'traded carbon values for modelling purposes' rather than official 'forecasts' of future prices

[14] It's worth noting that the projected carbon price seems to be based on European carbon prices, eg Annex 4 states 'A high carbon price including modelling based on a raised price for the UK (forecast European carbon price plus £25 GBP/t) is applied for both pathways and the Counterfactual.' This could indicate that NESO believes alignment with the EU on the ETS is on the cards. According to the latest BNEF forecasts, EU ETS prices will hit €145/t in 2030, or £121 at today's FX rates

[15] The Government also has other methods to influence the carbon price, such as the Cost Containment Mechanism (CCM)

[16] And of course high prices ensure unabated gas only runs infrequently, allowing the system to achieve the 2030 decarbonisation limit of 5%

Cost comparison between today's system and 2030

Table 4: Costs in 2030 in the New Dispatch pathway compared to today's system (figures rounded to the nearest £5/MWh)

Cost component	Direction of impact	New Dispatch v today's system
Average cost of generation, per MWh produced	↓	- £15 / MWh
Higher curtailment (at times of 'excess' wind/solar)	↑	+ £5 / MWh
Exporting at low cost (at times of 'excess' wind/solar)	↑	+ £5 /MWh
Building storage and round-trip losses	↑	+ £10 / MWh
Grid expansion and constraint costs	↑	+ £5 / MWh
		Total = + £10 / MWh
Bill components resulting from clean power pathways		
Merit order effect reducing infra-marginal rents	↓	- £10 / MWh
Other bill changes to 2030		
Falling legacy policy costs	↓	- £10 / MW
Energy efficiency improvement in typical households	↓	c. 5-10% consumption

The chart above, taken from the NESO report, sets out the assumptions the authors are making. Though it does need a little unpacking.

Comparing the 2030 system (in this case 'New Dispatch') with the 2023 system, and holding constant inputs such as gas & carbon prices (at their projected 2030 levels), NESO is attempting to determine how the costs stack up (albeit only showing them on a relative basis).

As discussed above, given its aggressive assumptions on gas and carbon prices, gas generation is expensive relative to renewables, and thus by moving away from it, generation costs decrease on average.

However, balanced against this is the extra power that will be needed to cover curtailment, losses from storage and the costs of exporting. The additional costs of expanding the grid are also tacked on, though the authors mention that constraint costs (the costs of paying renewables to turn down

and gas generators to turn up when there is congestion on the grid) 'need not increase to 2030' if all of the pylons are delivered on time – which is of course far from a given. But even under the sunny assumption that all grid infrastructure will be built on time, adding this all together increases costs in 2030 by ~£10/MWh.

Balanced against that is the fact that, with gas setting the price less frequently, other generators with lower marginal costs (such as nuclear plants and renewables on the older Renewables Obligation scheme) will receive lower prices for their power, saving costs for consumers. Thus +£10/MWh is balanced neatly with - £10/MWh, leading the NESO to be able to claim that overall costs will not increase.

There are also a couple of rather cheeky additional 'savings', reminiscent of Miliband's £300 per household claim. First, NESO includes 'falling legacy policy costs' as an additional reduction to bills, eg as older wind farms roll off their lucrative contracts – even if 'repowering' with a new CfD, this would be at lower prices. But as the authors themselves admit, 'this effect would happen even without a shift to clean power'. Similarly, they assume a 5-10% efficiency improvement in lights and household appliances, which is also independent of the Miliband's plan.

But still – to repeat ourselves, at the core of this calculation is an assumption that both gas and carbon prices will be substantially higher than most of the other estimates out there, including the energy department's own forecasts.

Buried in an Annex to the main report, NESO does confront the issue of the assumptions it's using. To quote directly: 'Under our Reduced Gas price assumption the relative cost of the clean power system would be around £5-10/MWh higher, although the system cost as a whole would of course fall compared to a world with higher gas prices. Using DESNZ's central case for traded carbon values would also shift relative costs by around £5-10/MWh.' (It's worth emphasising, as they do, that lower gas prices would lead to lower costs and thus lower bills across all pathways – but what's relevant here is the *relative* difference between the two systems).

This is a hugely important point – because this 'reduced gas price assumption' is, as we said before, DESNZ's central case! In other words, under the central forecasts produced by Miliband's own department, the system will be £10-£20/MWh more expensive as a result of his dash for clean power. The mind boggles at the difference if NESO had used an actual low case forecast, similar to the International Energy Agency's.

It's also notable that the authors chose to compare the 2023 system with only one of the two 2030 pathways, New Dispatch – which just so happens to be the one with the lower system costs in the 2030 comparison below.

Now, projections are only ever projections. Few people foresaw Russia's invasion of Ukraine, or how severe the economic impact of our dependence on gas would be. It is perfectly reasonable for a Secretary of State to take the view that getting off gas as quickly as possible is good for the UK's energy security. But it is much less acceptable to use aggressive modelling assumptions to make it

look as if this is cost-free for billpayers – especially as there are equally plausible scenarios in which it would end up substantially more expensive than the current system.

Of course, gas prices and carbon prices are only one side of the coin – the other is the cost of renewables. While CfD strike prices for offshore wind had been on a downward trend, the most recent auction (AR6) saw higher prices, after the AR5 saw no bids at all.

The report uses 'a similar approach and prices to those in AR6', alongside sensitivities in the systems cost analysis. However, as the authors point out, 'a particular risk we consider is that the need to contract and then build a large amount of generating capacity in a short period, especially for offshore wind, could lead to an escalation in CfD strike prices.'

Indeed, there are two risks here. One is that trying to build so much, so quickly risks pressuring supply chains and thus pushes up costs. The other has to do with the auctions for CfD contracts, and the potential that whacking up the budget (as Miliband did for AR6) and weaker competition results in higher prices.

NESO ran a cost sensitivity exercise to account for this, and found that the combined effect of these two risks could see strike prices escalating from £86/MWh to £116, with the CfD top-up on consumer bills escalating by another £15/MWh.[17]

A Flawed Counterfactual

In addition to looking at the 2030 system relative to today's system, the report also looks at costs from the lens of *other* futures for the grid in 2030. After all, cheapness is only ever relative – and thus the report compares system costs for the two 2030 pathways, as well as a 'counterfactual'.

In modelling and statistics, a counterfactual is essentially the status quo, or rather what one would expect to happen in the absence of a given intervention – in this case the dash for clean power by 2030.

The summary of this comparison is the graph below. It is pretty hard to decipher, but the key takeaway is that all three scenarios end up in roughly the same place - £114/MWh for the counterfactual, £117/MWh for 'New Dispatch' and £123/MWh for 'Further Flex and Renewables'.

[17] Admittedly the sensitivity sees all offshore wind procured in a single auction, rather than the current structure of annual auctions (alongside a 25% uplift in capex). Conversely, the scenario where each asset is renumerated in line with its individual cost profile (eg avoiding infra-marginal rents) would reduce costs to consumers, though by only £2/MWh. We should also note that this sensitivity was run on the Further Flex & Renewables pathway, whereas the cost comparison table above uses the New Dispatch pathway

Cost comparison between different systems in 2030

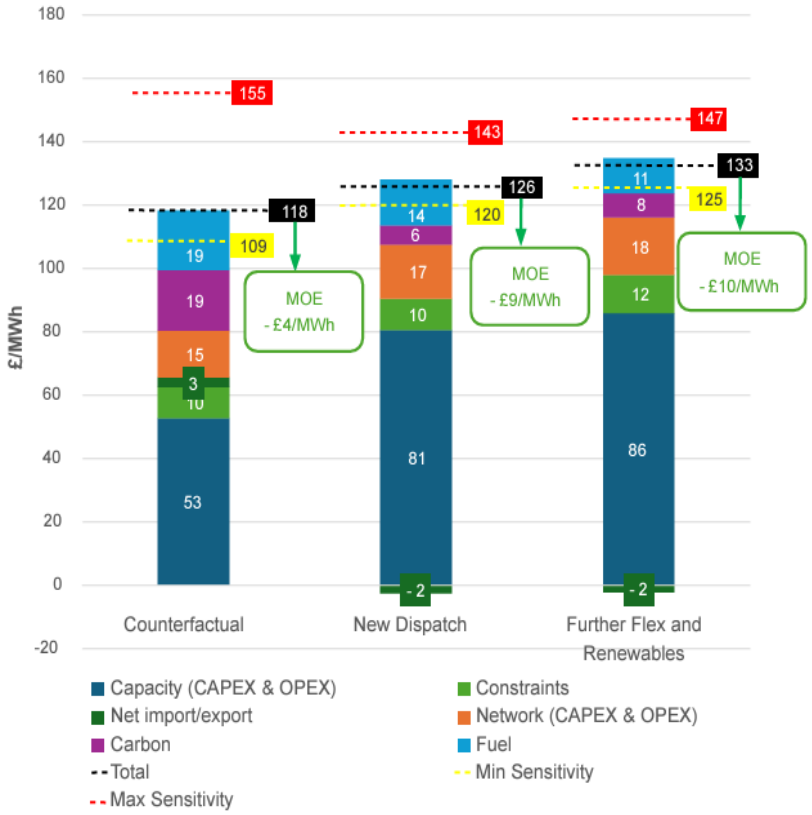

Figure 20: 2030 Annuitised system costs per useful unit of electricity with sensitivities

MOE = Merit order effect, reducing payments to some older plants

In this graph NESO is comparing three different 2030 scenarios – the two Clean Power pathways against the counterfactual (discussed further below). Again, the comparison is on a per unit basis. Each bar chart builds up the different components of system cost – capital expenditure, operating costs, fuel and carbon costs, alongside network spend, constraint payments, and net import/export.

As one can see, given the far higher level of renewable deployment in the two Clean Power pathways, Capacity (Capex & Opex) is substantially higher than in the counterfactual scenario. However, given lower gas generation, fuel and carbon costs are correspondingly lower in the Clean Power pathways.

The black dotted lines give the total system costs, ranging from £118/MWh in the counterfactual up to £133/MWh in Further Flex and Renewables. However, as discussed above, the effect of lower gas generation brings down prices overall and thus cuts payments to nuclear and RO renewables, which is the 'Merit Order Effect' in the green boxes. Subtracting that gives us the totals outlined above, leading NESO to conclude that the costs of the three pathways are not materially different.

NESO also sensitises gas prices (as discussed above), capex assumptions for CfD technologies and CO_2 transport & storage costs. The dotted yellow and red lines represent the minimum and maximum sensitivities, respectively.

Finally, it's worth pointing out that system costs are not the same thing as costs to the consumer – how those costs ultimately get translated into bills depends on our retail market, as well as the impact of further policy costs, taxes and so on. This whole discussion also relates only to electricity. In short, there are many things that ultimately affect household and business energy bills – but of course the underlying cost of the system is a crucial component.

In discussing this exercise, NESO claims: 'Our analysis in this report suggests that, together, these will lead to overall costs for clean power – the costs that are passed on to consumers – in 2030, that are no higher than they would have been without the shift to clean power.' Again, this seems like vindication for the Secretary of State.

But there are two big problems here. First, NESO qualifies this statement, by acknowledging that 'there is no material cost advantage for the Counterfactual *unless gas and/or carbon prices are at materially lower levels*.' (Our emphasis.) But as we have seen, pretty much everyone else – including DESNZ itself – thinks that this is likely to be the case.

Second, we need to look at what exactly the counterfactual scenario is that they're comparing the two Clean Power pathways to. Presumably, it must be the trajectory set by the previous Government. After all, to a reasonable observer, that is the status quo.

But no. In fact, NESO is using the same counterfactual scenario as in the FES documents, in which Britain does not merely miss its Net Zero targets but does so by a huge margin.[18]

This counterfactual doesn't envisage a complete standstill in terms of renewables deployment – for example, offshore wind increases to 29GW by 2030 vs 43GW or 51GW in the two pathways (relative to 15GW in 2023).[19] But looking under the bonnet, it's difficult to see this scenario as a realistic status quo. For example, it assumes that we have no further CfD auctions that deliver any additional offshore wind capacity by 2030.[20] In other words, the Government stops the annual power auctions, at least for delivery this decade. Would even a Conservative government do such a thing, let alone a newly elected Labour administration that is vocally committed to Net Zero?

[18] The one change being that gas and carbon price assumptions are aligned with the two 2030 pathways to allow for comparability

[19] See Annex 4, page 3

[20] The gap of ~14GW between 2023 and 2030 in the counterfactual (see FES Data Workbook 2024, tab ES.12) is ~4GW less than the 17.8GW due to be delivered between 2024 and 2030 across AR2-6 according to the LCCC's Portfolio Dashboard . However we note this may be double-counting in some cases given the effect of permitted reductions in AR6. And this excludes project capacity that is sold on a PPA or merchant basis, such as Moray West and Seagreen. See also the Clean Power 2030 Data Workbook, tab CP.07 (15.6 GW due to be delivered between 24/25 and 28/29), although those numbers do not tie with the LCCC.

Indeed, even NESO doesn't think this the most likely outcome. Alongside the FES scenarios, it also publishes a 'Five Year Forecast' for planning purposes such as capacity market auctions. The FES documents describe this as 'our best view for demand and supply over the short to medium term'. It sees offshore wind getting to 35GW in 2029 (the forecast only goes for 5 years) – a full 6GW ahead of the 2030 counterfactual.[21]

Or take solar, which stood at 15 GW in 2023. In both Clean Power 2030 scenarios we get to 47GW – a huge step up. In the counterfactual, we are generating a measly 22GW. Yet the Five Year Forecast gets to 25GW a year earlier. Extrapolating forward, we'd be at 28GW by 2030.[22]

Now, you can certainly argue that the previous Government was falling short of the efforts needed to hit its Net Zero targets, both in the power sector and across the wider economy. The Climate Change Committee, as well various Select Committees and think tanks, have said exactly that.

But to use as your core counterfactual a scenario in which the UK misses its Net Zero target (and where the carbon intensity of our electricity in 2030 is barely changed from today, as the 'status quo' to compare the 2030 plan against stretches credibility[23]

A more realistic and credible version of a 'status quo' scenario would be NESO's Five Year Forecast, or something like it – ie a reasonable guess as to the path we'd be on had the Conservatives won the election, or had Labour decided to stick with the Tories' 2035 target for decarbonising the grid, rather than pushing it forward to 2030. What effect this would have on the systems cost comparison above is difficult to say with certainty – but, if combined with more balanced price forecasts, it would at least give us a more accurate picture of the true cost of the 2030 plan.

How Clean Is 'Clean Power'?

There is one final point in the NESO report that is worth discussing – one which could substantially reduce the costs of the Government's clean power commitments, at least as long as the Energy Secretary opts for pragmatism over dogmatism.

The Labour Party repeatedly promised, pre-election, to deliver 'clean power' by 2030. The party's manifesto described this as a 'zero-carbon electricity system', while it was described on the Labour Party website last year as 'one hundred per cent clean power by 2030'.

[21] Given the Five Year Forecast is identical to the Hydrogen Evolution scenario, this would indicate 43GW in 2030

[22] Again taking the Hydrogen Evolution numbers

[23] Per FES 2024 Pathways at a Glance page 10, annual average carbon intensity of electricity is 133g CO_2/kWh in 2023 vs 134 in 2030 in the counterfactual. Note that in the 2030 report on page 68 (Footnote 2) it is mentioned that carbon emissions in the 2030 counterfactual are 'slightly lower' than those in the FES documents given the aligned carbon prices across all three pathways in the 2030 report

But getting to 100 per cent clean power, as the NESO report repeatedly points out, is both difficult and costly – and in the absence of substantially more zero-carbon dispatchable generation, could expose our power supply to significant shortages and price spikes.[24]

In 2022, the Conservative government under Boris Johnson set out in the *British Energy Security Strategy* that 'by 2030, 95% of British electricity could be low-carbon', in the context of moving to a decarbonised system in 2035. However, this target did not reappear in last year's *Powering up Britain*. Instead, the 'ambition' was for a 'fully decarbonised power system by 2035, subject to security of supply'. This extent of this latter point was left ambiguous, perhaps deliberately.

The Climate Change Committee set out in their report last year on the subject that they 'regard a small amount of remaining unabated fossil gas capacity in 2035 as compatible with a decarbonised power system… meeting up to around 2% of annual electricity production in 2035)'. In simpler terms, that means as long as 98% of our electricity production is clean, the CCC will 'count' that as decarbonised.

Similarly, the modelling by the think tank Ember which was the basis of the infamous '£300 off bills' figure also used the 98% definition, this time for 2030, not 2035.

However, the NESO report adopts a more generous definition. It says that for Britain to have 'clean power', 'by 2030… unabated gas should provide less than 5% of Great Britain's generation in a typical weather year'.[25] So 95% clean, not 98% clean.

This is of course very sensible if you want to keep costs down, but certainly a far looser definition of the goal than they could have gone for. The question, of course, is whether the Energy Secretary will adopt the same definition: as the footnote explains, 'This is the description of Clean Power used in this report. Government will set out how it is defining Clean Power 2030 in due course.'

It's fair to say that while decarbonising by 2030 will still be an all-out sprint, by adopting a looser definition of decarbonisation NESO has let the Government off the hook to some degree – while also making its Clean Power pathways less costly than if the target were 98% or 100%.

If the Energy Secretary adopted the same approach, it would be a sensible decision, for the country and our wallets. But of course, if he were to adopt a stricter target, it would raise further question marks over his claim that the 2030 plan will cut costs rather raising them.

Conclusion

The Secretary of State believes that gas is the enemy, and that only by getting off of it as quickly as possible can the UK be energy-secure and save money on bills.

[24] Though of course over the 2030s and 2040s unabated gas will be replaced by CCUS, hydrogen power and other forms of low-carbon flexible capacity such as long duration batteries

[25] Note the definition is in fact two-fold – the above, as well as 'clean sources produce at least as much power as Great Britain consumes in total', eg including exports

However, in order to justify the claim that costs will not increase, the nominally independent NESO has made a series of modelling assumptions that appear built to fit a narrative – that look, in many ways, more like policy-based evidence-making than the reverse.

To summarise: the report argues that decarbonisation by 2030 is possible, but only if almost every element of the strategy goes according to plan – and only if 'clean power' is defined in a way that is looser than the definition adopted by the Climate Change Committee.

Furthermore, the claim that this plan will be cost-neutral to consumers and businesses, let alone reduce their bills, rests on assumptions about gas prices and carbon prices that are substantially higher than those produced by other forecasters, including Ed Miliband's own department.

As the report itself admits in several places, using equally plausible gas and carbon price assumptions – or, you might argue, more plausible ones – Miliband's plan is not actually cost-competitive at all. The report also sets up a strawman to compare the Government's plan to, rather than adopting a realistic counterfactual based on existing energy plans.

Now, all of the NESO report is simply 'advice' – the Government will choose how it wants to take things forward. But it is clear that it will move forward not on the basis of an impartial, objective evaluation of the costs and benefits of the 2030 target, but in accordance with a strategy that the Energy Secretary is determined to pursue come what may. In short, as far as energy is concerned, it's now Ed Miliband's world – we're all just living in it.