

Stern test for Helm – what can the cost review achieve?



Gareth Miller
CEO
01603 604400
g.miller@cornwall-
insight.com

On 6 August BEIS launched its review of energy costs. The aim of the review is to establish a framework for Great Britain to have the lowest energy costs in Europe. It will be headed by Dieter Helm, an economist with an energy sector focus, and will be supported by a

challenge panel with representation from the industrial, technology and renewables sectors.

The review has until late October to complete, which is challenging. Certain matters also remain outside its locus such as taxation, utility profits, gas, smart meters, transport and heat, making the review very power focussed. There are further objective-related constraints on the review. The fragile power balance post-election leaves the *Climate Change Act 2008* and the associated Carbon Budgets untouched. But in its report to Parliament at the end of the last session, the Committee on Climate Change assessed that, without further action, power sector emissions at 185gCO₂/kWh in 2032 would be more than double its cost-effective path of 81gCO₂/kWh. That adds an urgency to the review to find the optimum mechanisms and routes for getting to what is still a mandatory destination underpinned by statute.

The \$64,000 question the review seeks to answer is simple: how can low-carbon resources and energy efficiency be deployed at lowest cost to meet our climate change objectives? In this *Energy perspective*, we argue that the time and scope limitation of the review could significantly limit its value. But it could at least bring much needed objectivity into a debate recently punctuated by out-dated figures and the increasingly politicised backdrop of the price cap discussion.

Windbound

The government cannot control international gas prices or market derived wholesale power prices. As a consequence there will be merit order effects on wholesale prices that are ubiquitous to all decarbonisation pathways. But, helpfully, there is consensus that low-marginal cost renewable energy should continue to drive down average wholesale power prices. National Grid's wholesale power price assumptions underpinning its latest

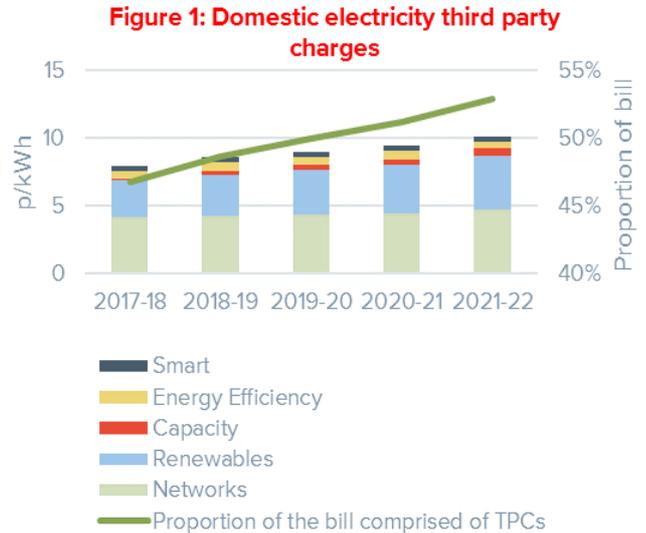
Future Energy Scenarios demonstrate the point, with the greenest scenario – “Two Degrees”, in which the carbon budgets are met – being subject to their “low” baseload power price assumption, with prices below £45/MWh in the period to 2050.

Mainstays

What the review can and should seek to shape are the policy and regulatory set costs of different pathways to the fifth carbon budget. These are what we describe as “Third Party Charges”, and it is an area that we have been covering analytically for several years, increasingly emphasising their impact on consumer prices.

Figure 1 illustrates for domestic electricity a very basic factual trend affecting all consumer energy prices: TPCs, already significant, will continue to grow, with CfD, capacity market and some system costs all set to increase materially over the period. Network costs also continue to reinforce the upward pressure.

In all TPCs are set to increase from just above 45% of the typical domestic bill to near on 55% by early next decade.



Ballast

This trend cannot be arrested by reducing support costs for policies already underpinning existing and committed assets. Thus there is a significant level of “locked-in” costs to contend with.

These locked-in costs include the cost of networks as far as the end of the current price controls in 2021 for transmission and 2023 for distribution. They also cover the policy costs through to 2021 under the £7.6bn (in 2011–12 money) the Levy

Control Framework (LCF), which is already over-spent by over £500mn to the tune of £8.2bn (in 2011-12 money) according to our modelling.

Equally relevant is that the LCF period to 2021 does not represent a hard-stop. Network costs are reset periodically, and so could be adjusted to reflect different approaches. But activity on low voltage networks is increasing, and transmission costs continue to head north as new offshore assets get rolled in. So there is unlikely to be relief in this direction.

Generation subsidy costs have a longer impact on consumers because of the fifteen to twenty-year periods of support that drive them. But even here the level of current over-spend under the LCF does not yet represent the full-scale of committed costs currently in play. It will expand shortly to include the cost of CfDs currently subject to the second CfD allocation round, for projects commissioned in delivery years 2021-2023, with a budget of £295mn available to spend.

In the last Parliament, the government also indicated a further £435mn of CfD budget across two further auctions, although the extent of commitment to spend this – since an election has intervened – is not known at this stage. We should know shortly what the government intends to do.

Beyond that there is an annual CfD levy cost for the first unit of Hinkley Point C yet to be accounted for. We estimate this to be an annual average of £200mn (in 2011-12 money) between 2027-30.

Furthermore these locked-in costs also include the annual bill for long-term capacity agreements for new build generators, which currently stands at close to £100mn per annum in current money. Curiously this is not presently part of the LCF low-carbon envelope, and there is no specific budgetary target governing them. Few are expecting these costs to come down for future auctions, at least in the short run.

Fairlead

The existence of these largely irreversible costs doesn't neuter the review. On the contrary it makes it imperative that the review addresses how to maximise the opportunity to deliver in the areas that it can impact.

The review should strategically consider the optimum way of delivering new generating capacity – low-carbon or otherwise. It should take into account dependent network and system operation costs and must fold in whether the next

price control incentives can better account for technological innovation in all parts of the system.

It is also important that the review also uses up-to-date cost assumptions on generation technologies, and accounts for the continuing declines in costs of technology that could be adopted to balance a renewables-dominated system. The latest official view on levelised costs of energy (LCoE) was set out by BEIS in November last year. The data showed that onshore renewables would become increasingly competitive with new gas without subsidy, with this effect growing over time.

Figure 2: BEIS LCoE – central case £/MWh

Onshore <5MW	67	65	63	61	60
PV solar	80	71	67	63	60
Offshore R3	121	114	106	100	96
CCGT	57	61	66	82	99

Source: BEIS, Electricity Generation Costs, November 2016

Whilst LCoE are not directly comparable to auctioned prices, these November numbers are already out of kilter with delivered tenders in the market-place. In Europe, whilst transmission and connection costs are dealt with differently market to market (and costs are therefore not directly comparable), the general trends are very encouraging, with prices in the €50-70/MWh range becoming the new normal for offshore wind. A combination of our CfD modelling and what we hear anecdotally in the market indicates compelling evidence of clearing prices for this technology in the £60-75/MWh range in the second allocation round. These are well below even the low case estimate of £85/MWh in the BEIS November figures.

In onshore renewables, the international benchmarks are similarly encouraging. On 15 August, auction results in Germany for 1GW onshore wind saw contracts awarded at an average price of €42/MWh, down from above €57/MWh in May. Reading across to Great Britain, we are aware of investors looking at business cases today for Scottish onshore wind with workable strike prices as low as £40/MWh. This is compared to an average day-ahead power price – the reference price in intermittent CfDs – of £48/MWh over the last year. At this level prices are already breaching the BEIS low case 2030 estimate of £45/MWh.

Slipways

These cost trends reinforce the merits of a “subsidy-free” CfD for onshore wind. Under this the consumer bears relatively light costs but investment is still possible at low costs of capital due to the CfD smoothing market price volatility. We expect a similar model would deliver the same results in ground mounted solar PV.

The traditional challenge critics of onshore renewables have posed about whole system costs eradicating the competitive benefits of deployment start to disintegrate at these sorts of strike price levels. Imperial College and NERA, in a report issued in February 2016, estimated that system integration costs for onshore wind and solar PV were in the range £10/MWh-£14/MWh and £12/MWh (2012 money) respectively. Frontier Economics followed up this work for BEIS, which set out a more inclusive framework against which whole system costs can be assessed, but did not quantify specifics by technology.

More work needs to be undertaken in this area, which perhaps the review could also address. But even if we assume costs at the high end of this range and total costs of onshore wind are £55-60/MWh, it looks very compelling value for money and is cheaper than the BEIS November low case LCoE for new CCGT of £60/MWh for 2018.

It is also true that, notwithstanding the undoubted efficiencies National Grid hope to deliver through their System Needs and Product Strategy, the declining costs of storage provide evidence of the improving opportunities to manage intermittency at ever lower costs. Over time, flexibility costs could also dramatically decrease, and this area too needs further consideration.

At our recent post-election briefing in London we set out a comparison of the LCF equivalent costs of achieving our decarbonisation ambition in the period to 2030. This reveals that the least cost pathway to decarbonisation is one that brings forward a basket of technologies in technology neutral auctions, including a major role for our lowest cost onshore renewables. In our estimates this works out £900mn cheaper than simply pursuing an offshore wind only approach, with total LCF equivalent spend of c£12bn in current money.

Dogwatch

The timing and timescale of the Helm Review has some positives. Of course, the review can preempt and shape the accounting controls for low carbon beyond the LCF after 2021, which are still

promised as part of the Budget Statement in November 2017. It could also possibly influence the decision outstanding on the Carbon Price Support after 2021 (although tax is outside its remit), although Brexit and the future of the EU ETS is a far bigger variable here.

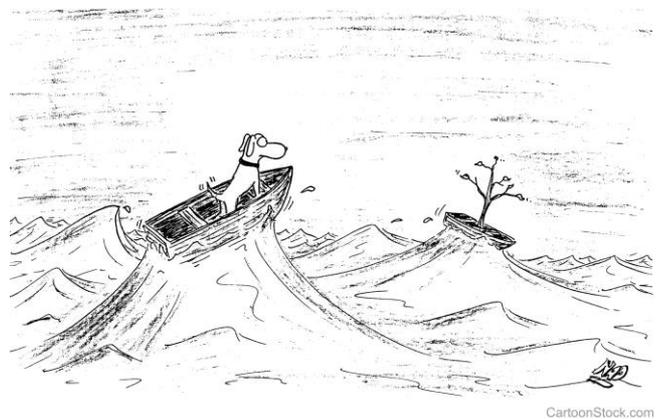
Figure 3: Technology neutral CfD auctions



Source: Cornwall Insight, Post-election energy briefing, June 2017

But, there are also risks and negatives. BEIS may end up having to backward engineer around the most important building block of all, the Clean Growth Plan (CGP), also planned for the autumn. Completion of this is apparently being fast-tracked around Whitehall after the prolonged delay caused by the EU referendum and a general election.

Ultimately, what matters in circumstances where the review will obviously be a rush job is that the government genuinely reads attentively preliminary findings that may challenge the current policy status quo. It’s important that review and the CGP are looked at together and mutually inform each other, otherwise the review may well be prevented from delivering an important critique.



CartoonStock.com