NETZERO WATCH

WHAT IS NET ZERO COSTING NOW?

Andrew Montford

Introduction

The ultimate cost of net zero is very high. Although the Committee on Climate Change suggest a figure of £1.5 trillion, or 1–2% of GDP, their estimate is now seen as seriously flawed. My own estimate, covering only some key sectors of the economy, is double that, and numbers published by McKinsey suggest it could be more like ten times as expensive. This amounts to hundreds of thousands of pounds per household.

But what is the drive for net zero costing now? This factsheet reviews the published cost for direct levies, spending programmes, and estimates the effect of renewables programmes on consumers, via their effects on wholesale and system costs.

For the current cost to consumers, I mostly use figures for 2020–21, the most recent year for all data is available. These are likely to be similar to the costs for 2022–23, with the exceptions of the costs of CfDs and of the Balancing Mechanism, which have changed radically, as the result of the rise in gas prices. For the latter, I therefore use my own estimates instead.

Note that in estimating the effect on households, I simply divide the cost to the full economy by 27 million, on the assumption that where those costs hit businesses in the first instance, they are ultimately passed on through price rises.

Direct levies on consumer bills

It has become commonplace for media commentators to refer to green levies adding 25% to bills. A word of caution is necessary, because this refers only to green levies as a proportion of electricity bills. Table 1 shows a list of the levies and the current cost to consumers. The total, of £9.2 billion, amounts to £329 per household.

Table 1. Cost of direct levies

	Economy (£m)	Household (£)
Capacity Mechanism	1,000	36
Renewables Obligation	6,400	229
Contracts for Difference	-200	-7
Feed-in tariffs	1,600	57
Warm Home Discount	400	14
Energy Company Obligation	546	20
Total	9,746	348

By far the biggest share of the total comes from the Renewables Obligation, which is little discussed nowadays, since it is closed to new entrants. However, those in the scheme are now making extraordinary profits, with their subsidies paid on top of inflated market prices.

Contracts for Difference started to pay back into the system towards the end of 2021, as market prices rose above generators' guaranteed prices. I have assumed that £200 million is henceforward going to find its way back to consumers each year, although since there is no formal mechanism to ensure this happens – only a reliance on market forces to make suppliers reduce prices – this is arguably unwarranted.

Levies are charged on both business and retail electricity bills, but are ultimately almost all paid by consumers, since commercial electricity users pass on the costs through higher prices.

Spending programmes etc

Spending programmes have received less attention than direct levies, presumably because 'taxpayer's money' is involved. Nevertheless, the amounts involved are of similar order, amounting to some £8.2 billion per year, or nearly £300 per household, as shown in Table 2.

By far the largest proportion of this cost is the Emissions Trading Scheme, which is adding nearly £200 to the cost of living. The Smart Meter programme is also significant.

Table 2. Cost of spending programmes etc

	Economy (£m)	Household (£)
EV purchase subsidies	285	10
EV charger subsidy	143	5
Renewable Heat Incentive (d)	144	5
Renewable Heat Incentive (Nd)	792	28
Green Homes Grant	230	8
Smart Meter programme	976	35
Ethanol in petrol	560	20
Emissions Trading Scheme	5,040	180
Total	8,170	292

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Grid Costs

As intermittent renewables – wind and solar – have been added to the electricity system, the costs of managing the grid have soared (Table 3).

Table 3. Cost of direct levies

	Economy (£m)	Household (£)
Balancing Mechanism	2,600	93
Transmission Grid	2,000	71
Total	4,600	164

The cost of the Balancing Mechanism, the system through which grid managers ensure that supply exactly matches demand at all times, was £0.6 billion per year in 2006, was £2 billion per year before the recent rise is gas prices, and now stands at £3.2 billion. This element of the cost of renewables is therefore adding between £50 and £93 to household bills.

Because windfarms are built far from centres of population, major upgrades to the transmission grid are required. A 30-year programme of grid-strengthening works was recently announced. The cost, at around £2 billion per year, amounts to another £71 per household.

Electrification of homes and businesses will require strengthening of the distribution grid – the lower voltage wires that take power from the transmission grid and deliver it to where it is used. I am not aware of any published figures for this. GWPF has estimated that £200 billion, or £7 billion per year will be required.[1] That amounts to £246 per household. However, it may be that the intention is to ration electricity to the extent that this spending is not required, so I do not include it above.

Wholesale electricity prices

The impact on renewables on wholesale electricity prices, and thus on consumers, is harder to address. The market price is set by gas fired power stations, so you have to assess the effect of renewables on the cost of gas-fired power. There are several effects in play.

Because renewables run preferentially, gas power stations run less often, and therefore have to earn back their fixed costs over a smaller number of megawatt hours. In addition, because they run less often, investors are reluctant to pay for new plant, so the fleet is old and inefficient. At current gas prices (150p/therm), the sum of these two effects is to increase the cost to consumers by £14 billion per year, or £491 per household.[2]

Gas prices

It's difficult to say what gas prices might have been in the absence of Net Zero policy – the fracking ban and restrictions on North Sea production. However, the recent price differential between the TTF hub in the EU and the UK's NBP hub shows that significant levels of production in the UK would reduce prices.

If UK gas prices had risen to only 100p/therm, the savings on electricity, including those covered in the last section, would have been as much as £825 per household.

There would also have been a saving on heating bills of £462.

Summary

This paper suggests that the cost of net zero policies may already be more than £2000 per household (Table 4), with an annual cost to the economy of £58 billion. It should be noted that these are the costs for addressing the 'low-hanging fruit' of easy-to-decarbonise activities. The annual cost should be expected to rise sharply in future.

Table 4. Overall effect of net zero

	Economy (£m)	Household (£)
Direct levies	9,748	348
Spending programmes etc	8,170	292
Grid costs	4,600	164
Inefficient gas-fired power	13,759	491
Higher gas prices	22,287	825
Total	58,564	2,120

Notes

1. Travers M. The Hidden Cost of Net Zero: Rewiring the UK. Briefing 48, The Global Warming Policy Foundation, 2020.

2. I assume a reduction in load factor from 90%, to their current 35% (per DUKES), and a reduction from 60% (modern plant can reach 63%) to 48% (again per DUKES).

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