

### **Why are “Unsubsidised” Wind Farms Receiving Constraint Payments?**

Payments to wind farms to reduce output are an ongoing national scandal, with the cost to consumers now totalling well over £1 billion since the payments began in 2010.

We have repeatedly observed that the prices charged by wind farms to reduce output not only routinely exceeded the subsidy income lost when constrained but were hard to justify in any case. Grid congestion preventing dispatch is a foreseeable commercial risk and the windfarms should not be compensated at all for such an eventuality.

However, it has been accepted by government and the regulator that such compensation – for lost subsidy – should be paid.

However, in recent months Scottish wind farms that are not in receipt of income support subsidy, so called “subsidy-free”, wind farms have also been charging the electricity system operator to reduce output when generation in Scotland exceeds grid capacity and local demand.

These wind farms usually have a power purchase agreement (PPA) with commercial entities such as Tesco, who have a PPA with Halsary wind farm, and Amazon, with Beinn an Tuirc III windfarm. The commercial companies, who buy the electricity, almost certainly do so to comply with recently introduced pressure via the Streamlined Energy and Carbon Reporting framework, which is embedded in the Companies Act and thus backed by criminal sanctions, to demonstrate their commitment to carbon reduction and to renewable energy. It is the existence of this little understood legal pressure that raises questions about whether such wind farms are really “subsidy-free” but this is a separate question. The fact of the matter is that these wind farms are not in receipt of income support subsidy levied on the consumer, and they suffer no loss of subsidy when they are constrained.

Why, then, are these “subsidy free” wind farms charging for constraints, and, more pertinently still, why is the regulator, Ofgem, allowing them to burden the consumer with these charges?

It should be recalled that neither subsidised nor unsubsidised generators forego payment for the electricity which would have been supplied to the grid if the curtailment had not been necessary. This may seem strange but is reasonable in terms of current market structures; the generator has sold their electricity to a customer, either a supplier or an industrial consumer under a PPA; and it would be wrong for that bilateral contract to be jeopardised by grid management necessities. However, this is not efficient from the consumer’s point of view. While the curtailed wind farm is paid by their customer as usual, the energy shortfall on the other side of the grid bottleneck is supplied by the Electricity System Operator (ESO) from other generators (typically fossil fuelled generators) and usually at premium price because of the extremely short notice.

Electricity consumers ultimately foot the bill for this electricity balancing action: the PPA consumer honours its contract; and the general consumer (including the PPA consumer) then pays any constraint payments to the wind farm, and the cost of the replacement electricity from the, usually fossil fuelled, generator plus any other costs incurred by the ESO in carrying out the constraint balancing action.

We have argued, see above, that even subsidised generators should not be compensated for lost subsidy in this eventuality. We think they should simply take the hit as normal commercial risk which would have the benefit of removing the perverse incentive that currently encourages the building and extending of wind farms in the highly constrained areas of rural Scotland. But we accept that there are arguments in favour of compensation, though we think those to be very weak arguments.

But it is difficult to see any justification whatsoever for allowing wind farms that are not losing income when constrained to charge for this reduction in output. Their commercial position is not harmed, and the constraint payment represents additional income. We think that is wrong, and that Ofgem should step in to protect the consumer from what will seem to many to be ruthless opportunism.

The following table lists the unsubsidised wind farms and their constraint volumes and costs for 2022 to date.

**Table 1:** Unsubsidised wind farms constraints volume in GWh and cost of this in 2022 (as at 27 October 2022) plus the average price per MWh being charged by the wind farm to reduce output.

Wind Farm	Date first Constraint Payment	GWh Constrained Off	Constraint Cost (GBP 000's)	Average Price (GBP/MWh)
Beinn an Tuirc III	24/05/2021	34.7	621.0	£18
Crossdykes	29/07/2021	24.9	1,296.3	£52
Gordonbush Ext	11/09/2021	64.2	520.5	£8
Aikengall 2A	24/12/2021	67.9	3,231.0	£48
Douglas West	05/02/2022	9.6	706.4	£74
Windy Rig	28/02/2022	7.7	570.5	£74
Glen Kyllachy	28/02/2022	6.9	514.3	£75
Halsary	02/03/2022	27.0	668.0	£25
Twenty Shilling	18/09/2022	2.5	187.0	£74
Kennoxhead	05/10/2022	5.1	113.5	£22
Blary Hill	06/10/2022	0.2	14.5	£78

The wide variation in prices charged per MWh constrained is evidence that the bidding strategy adopted by the individual wind farms is being set in response to market forces, and does not represent a cost of reducing output. The System Operator is over a barrel in some cases depending on time, weather and location, and not quite so desperate in others; the prices charged by wind farms reflect this.

This behaviour seems to us to contravene the Transmission Constraint License Condition (<https://www.ref.org.uk/publications/332-transmission-constraint-licence-condition-consultation>), as set down by the regulator, Ofgem, which clearly states that constraint prices should be a fair reflection of the costs of reducing output and not a profit making opportunity.

We note in passing that it is particularly insensitive for owners of unsubsidised wind farms to be charging in this way at this time when wholesale prices and consequently generator income levels are so high. Public confidence in the energy sector, never high, will be further undermined.

The scale of this impact on consumers is not trivial. We have estimated the various income streams for these wind farms using published half hourly system prices (Table 2)

**Table 2:** The three income streams for constrained unsubsidised wind farms for 1 January 2022 to end of September 2022 and the resulting price per MWh of electricity obtained by the wind farms as estimated by REF.

Wind Farm	Generation Proceeds (GBP 000's) <sup>1</sup>	Constraint Cost (GBP 000's) <sup>2</sup>	Constrained Volume Proceeds (GBP 000's) <sup>3</sup>	Total (GBP 000's)	Price £/MWh <sup>4</sup>
Beinn an Tuirc III	16,758	514	4,033	21,306	£245
Crossdykes	14,673	1,030	2,680	18,383	£239
Gordonbush Ext	10,260	455	9,367	20,082	£413
Aikengall 2A	27,090	2,744	8,020	37,854	£276
Douglas West	15,181	439	716	16,336	£195
Windy Rig	16,285	310	404	17,000	£195
Glen Kyllachy	19,291	290	340	19,922	£192
Halsary	11,611	521	3,678	15,810	£262

<sup>1</sup> Generation proceeds in £000's is estimated from the windfarm's actual generated electricity for the first 9 months of 2022 multiplied by the system price for each half hour period

<sup>2</sup> Constraint cost is the amount paid to the windfarm for the constrained off volume in the 9 month period

<sup>3</sup> Constrained volume is the volume supplied by the ESO during the constraint period on behalf of the constrained wind farm and the proceeds are estimated from the windfarm's constrained volume in MWh multiplied by the system price for the appropriate half hour period

<sup>4</sup> Price per MWh actually generated is derived from the total income value divided by the actual volume generated by the wind farm.

It should be noted that the total income per MWh being achieved, which range from £192/MWh to £413/MWh is extremely high compared to previous years, for example in 2019 and 2020 such prices were around £30-£40 per MWh. However, the income is also high compared with that received by an unsubsidised wind farm sited where there are no grid constraints, which we estimate would be £178 per MWh for the equivalent period.

The Gordonbush wind farm extension stands out in the table above because it has been charging least (£8/MWh), and so has been called on relatively often by the ESO to reduce output. As a result, approximately 56% of the potential generation of the Gordonbush wind farm extension is being discarded (See Table 3). This increases the ultimate cost per MWh to the consumer who has to pay the constraint cost plus the cost of the replacement energy.

If one includes these costs, the electricity actually generated by Gordonbush extension has cost the consumer over £400 per MWh on average in 2022. This is 2.3 times what wind generated electricity would have cost in this period if it were unsubsidised and was sited where there were no constraints. Constraints on this scale also raise important questions about the balance of harm and benefit underlying the grant of planning permission. Did decision makers understand that Gordonbush was very likely to be heavily constrained, rendering its putative benefits much reduced

and thus, at least arguably, vastly outweighed by its harms. (See REF's earlier blog: <https://www.ref.org.uk/ref-blog/353-gordonbush-wind-farm-extension>)

**Table 3:** Actual energy generated and constrained in GWh for the unsubsidised wind farms in receipt of constraint payments for the period 1 January 2022 to end of September, and the discarded proportion as a percentage of the potential total output.

Wind Farm	Generated GWh	Constrained GWh	Discarded %
Beinn an Tuirc III	87	29	25%
Crossdykes	77	21	21%
Gordonbush Ext	49	56	54%
Aikengall 2A	137	58	30%
Douglas West	84	6	7%
Windy Rig	87	4	5%
Glen Kyllachy	104	4	4%
Halsary	60	21	26%

For the consumer, this is a wholly unsatisfactory state of affairs. We believe that Ofgem has an obligation under its legally defined duties to ensure that constraint payments are not made to unsubsidised generators and the bills of British households and businesses unreasonably increased.

Ofgem should compel the owners and other beneficiaries of these unsubsidised wind farms to justify these opaque but punitive charging strategies, and if such justification is inadequate to hold them to account.