

## Cabinet Office Performance and Innovation Unit

### Renewables cost modelling

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#### Notes

This note presents new modelling results. The assumptions and model have been described in previous papers and notes.

The tables below give indications of the cost to customers under different assumptions, using OXERA's Renewables Model. The costs quoted are costs over and above the assumed wholesale price of electricity of £20/MWh.

The cost to customers will be either:

- £30/MWh multiplied by the Renewables Obligation—this applies in scenarios when the Obligation *is not* fulfilled; or either of the following, which apply in scenarios when the obligation *is* fulfilled:
- the marginal cost of generation multiplied by the Obligation; or
- the total annualised cost of generation if suppliers are able to contract at cost.

#### **In 2020, in scenarios when the Renewables Obligation target *is not* fulfilled**

The cost to customers has a ceiling of the buyout price multiplied by the size of the obligation. The actual cost to customers may be lower than this if suppliers are able to contract with generators for ROCs at less than the buyout price.

#### **In 2020, in scenarios when the Renewables Obligation target *is* fulfilled**

The three figures quoted in the table are:

- the buyout price multiplied by the size of the obligation;
- the marginal cost of entry, which is assumed to be the entry cost of offshore wind; and

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- an approximation of the long-run marginal costs, calculated by multiplying by its output the entry cost of each unit of renewables that is built within the model.

The actual cost to customers is likely to fall within the range covered by these figures, depending on the contractual arrangements which generators enter into.

**Table 1: Cost to customers, final demand of 341–459 TWh/yr in 2020, £m per annum in 2020**

Renewables Obligation on Suppliers	Cap on build rate for each of offshore and onshore wind		
	250 MW/yr	500 MW/yr	1,000 MW/yr
30% in 2020	3,000–4,000	3,000–4,000	500–4,000
20% in 2020	350–2,800	350–2,800	350–2,800
10% in 2020	200–1,400	200–1,400	200–1,400

Source: OXERA calculations. Shading indicates that the Obligation is not met.

Note: <sup>1</sup> cost in 2010, all other figures are cost in 2020. All costs are reported in real terms in 2001 money. Shading indicates that the Obligation is not met. <sup>2</sup> The cost of entry of offshore wind in 2020, estimated to be £23–30/MWh, plus imbalance costs of £2/MWh and less a wholesale price of £20/MWh, multiplied by the obligation in 2020.

**Table 2: Cost to customers, final demand of 341–459 TWh/yr in 2020, percentage of household bill in 2020**

Renewables Obligation on Suppliers	Cap on build rate for each of offshore and onshore wind		
	250 MW/yr	500 MW/yr	1,000 MW/yr
30% in 2020	12%	12%	2.0%–12%
20% in 2020	1.4%–8.3%	1.4%–8.3%	1.4%–8.3%
10% in 2020	0.6%–1.6%	0.6%–1.6%	0.6%–1.6%

Source: OXERA calculations. Shading indicates that the Obligation is not met.

Note: see table 1.

The higher numbers in the ranges represent the buyout price, 3p/kWh, multiplied by the suppliers' obligation.

The lower numbers in the ranges represent the lowest likely cost of entry of offshore wind in 2020 multiplied by the suppliers' obligation. The price of Renewables Obligation Certificates is unlikely to fall below the marginal cost of entry. Offshore wind has been chosen as the benchmark, since offshore wind is likely to make an important contribution to the production mix, and is relatively expensive, so could be price-setting.