

## Low Carbon Buildings Programme - Phase 2

### Benchmarks

Information gathered from section D of the application form will be used to estimate the cost (based on total installation cost) of saving a unit quantity of carbon dioxide over the expected lifetime of the installation. These figures are compared to the following "benchmarks" and if they are significantly higher, it may cause BRE to reject the application or request further information and clarification. The benchmarks (figures in bold) are expressed as £/tonneCO<sub>2</sub>. Please note: benchmark figures may change from time to time. The applicant will need to check these before applying.

	Solar PV	Solar thermal	Ground source heat pumps	Wood pellet stoves	Wood fuelled boilers
<b>Displaced fuel/energy</b>	<b>Assumed life (years)</b>				
	25	20	20	20	20
<b>Electricity</b>	<b>£990</b>	<b>£388</b>	<b>£119</b>	<b>to be confirmed</b>	<b>£106</b>
<b>Natural Gas</b>	N/A	<b>£563</b>	<b>£212</b>	<b>tbc</b>	<b>£315</b>
<b>Oil</b>		<b>£489</b>	<b>£225</b>	<b>tbc</b>	<b>£171</b>
<b>Coal</b>		<b>£296</b>	<b>£86</b>	<b>tbc</b>	<b>£83</b>
<b>LPG</b>		<b>£523</b>	<b>£263</b>	<b>tbc</b>	<b>£185</b>

	<b>Wind turbines ( by size in kW)</b>				
	<b>Assumed life - 20 years</b>				
<b>Displaced energy</b>	<b>less than 1.5</b>	<b>1.6 – 5.0</b>	<b>6.0</b>	<b>15.0</b>	<b>20 and larger</b>
<b>Electricity</b>	<b>£1,049</b>	<b>£531</b>	<b>£419</b>	<b>£345</b>	<b>£294</b>

#### Carbon dioxide emission factors to be used in the £/tonneCO<sub>2</sub> calculations:

- Electricity= 0.43 kgCO<sub>2</sub>/kWh
- Natural Gas= 0.19 kgCO<sub>2</sub>/kWh
- Coal= 0.3 kgCO<sub>2</sub>/kWh
- Oil= 0.25 kgCO<sub>2</sub>/kWh
- LPG= 0.21 kgCO<sub>2</sub>/kWh

#### Calculation formula:

£/tonneCO<sub>2</sub> = (Total cost (based on eligible costs) x 1000) / (Energy yield x emission factor x assumed life)

Example for PV system costing £12,000 with an estimated annual yield of 1500 kWh:

(12,000 x 1000) / (1500 x 0.43 x 25) = **£744.19 /tonneCO<sub>2</sub>**