

CARBON REDUCTION STRATEGY

1. Hefce Expectation

- 1.1 The University is expected to reach, by 2020, 34% reduction of the 2005 Carbon Baseline, irrespective of any increase in activities since 2005. This is particularly challenging for Teesside University for three reasons:
1. The University has been increasing in size to accommodate the allocation of additional funded student numbers.
 2. The University will be opening the new Darlington Campus in 2011.
 3. The University has limited scope for dramatic reduction in carbon emissions because most of its buildings are modern and relatively energy efficient.
- 1.2 The University's Carbon Baseline, derived from emissions recorded in 2005, is 9136 tca (tons of CO₂ emissions per annum). 34% savings is a reduction of 3106 tca, resulting in 6030 as the permissible tca by 2020.

Meanwhile, the University's emission base has increased by 1676 tca, [reflecting the development of Athena (529), Phoenix (512), Cook (149), Centuria South (229) and Darlington (297), and the demolition of Pegasus (19) and the Staff Club (21)]. Therefore, in relation to the 2005 Carbon Baseline of 9136 tcas, the challenge to reduce to 6030 the permissible tons of emissions per annum is the cessation of 4782 tcas (i.e. 3106 + 1676 tcas).

On the other hand, various initiatives have already resulted in an improved position. During 2008/2009, before commissioning of Centuria South and Darlington and before the demolition of Pegasus and the Staff Club, the University achieved 9734 tcas. Therefore, in relation to the 2009 position, the total reduction required to meet the target of 6030 tcas is 4190 tcas (i.e. 9734 + 229 + 297 - 19 - 21 - 6030).

2. Carbon Reduction Strategy

The University will reduce its level of carbon emissions in four ways, as follows:

2.1 Efficiency Measures

The primary contribution to reduction of emissions will be a comprehensive programme of infrastructural "efficiency measures". 17 projects have been identified which would either reduce energy waste or would increase the efficiency of energy use. This category includes re-cladding of several buildings (such as the Clarendon), the replacement of electrical heating by gas, the deployment of Combined Heat & Power (CHP) units, and improved lighting systems. The cost, at 2010 prices, is estimated as £6,220,000 for a reduction of approximately 2406 tcas (c£2585 per tca). This significant

investment to enable compliance will be partially offset by reductions in the total cost of gas and electricity, and by a beneficial outcome of carbon trading (which remains a positive possibility, despite the recent dampening of expectations introduced as part of the Comprehensive Spending Review).

2.2 Vacation of Premises

In addition to Pegasus and the Staff Club, a further 580 tcas could be removed if the University demolished, or at least ceased to use, some buildings. For the purposes of this plan, the following buildings have been included:

a) Buttery	40
b) Two of University House/Aurora House/Minerva	65
c) Parkside West Offices and Nursery	146
d) Parkside Halls of Residences (lease expires June 2018)	<u>289</u>
	<u>540</u>

The cost of demolition of these buildings is estimated as £1,220,000. This appears to be more cost effective than the “efficiency measures” (at £2,259 per tca) – but of course the potential cost of replacement space could be considerable, and even new buildings will still entail some carbon emissions which would need to be offset by other means.

At a time of great uncertainty for higher education, it is not yet possible to identify which of the following possible strategies would be most appropriate for relocating the activities currently taking place in the premises identified above:

- (i) On the one hand, the University’s range and/or scale of activities might contract, enabling space to become available for potential relocation of the activities currently undertaken in (a), (b) and (c). Similarly, reduction in the number of full-time students attracted from outside the region would entail less demand for residential accommodation, enabling the University to dispose of Parkside Halls of Residence in due course.
- (ii) On the other hand, if the University continues to have successful prospects in the new era, enabling the Board to confirm the proposal to construct a Teaching/Conference Building in “University Square”, significant teaching space in the Middlesbrough Tower (or its equivalent) could be re-designated for the activities currently undertaken in (a), (b) and (c). Similarly, a robust market for student residences could be met in a variety of ways, supporting the pressure to provide different accommodation – which, in comparison with Parkside Halls of Residences, would provide a superior experience, would be more efficiently maintained, and would emit considerably less carbon.

2.3 Campus Development

The annual programmes of maintenance and replacement of ICT equipment and building components will incidentally entail fewer carbon emissions. For example, the migration to Windows 7 will enable automatic PC energy

conservation, estimated to reduce the total by at least 105 tca. Overall, the contribution of this group of initiatives is expected to reduce the University's tcas by 303.

2.4 Awareness Initiatives

Staff and Student awareness initiatives, at £100,000 over 10 years, could be particularly productive, resulting in a reduction of 430 tcas (c£233 per tca).

3. Summary

The four components identified above can be combined to constitute a framework for carbon reduction, as outlined in the attached Carbon Reduction Plan for 2010-2020 (Appendix A).

Efficiency Measure	£6,220,000	2406 tcas
Vacation of Premises	£1,220,000	580 tcas (including Pegasus & Staff Club)
Campus Development	0	303 tcas
Awareness Initiatives	<u>£ 100,000</u>	<u>430 tcas</u>
	<u>£7,540,000</u>	<u>3719 tcas</u>

If, over the next ten years, the University maintains activities at recent levels (supplemented by Centuria South and the forthcoming development of the campus at Darlington), and achieves the reduction of 3719 tcas as outlined above, the new baseline of 6541 tcas (i.e. 9734 + 229 + 297 – 3719) exceeds the target of 6030 by only 511 tcas. This is regarded as an acceptable planning framework in the current climate of uncertainty for higher education. Furthermore, there are a number of positive possibilities not yet factored into the calculations, including the accelerating rate of technological development of energy conservation devices and the impact of a review of the University's Policy on Business Travel.

4. Implementation

This Carbon Reduction Strategy provides a framework whereby the 2020 target could be met. Funding has already been made available in support of the programme for Year 1.

A key decision at the implementation stage is the need for a detailed review of the extent to which the vacation of premises can be achieved without replacement buildings. To the extent that existing buildings are not vacated, or replacement buildings are required, the new levels of carbon emissions must be offset by initiatives not identified in this document.

Similarly, any increases in carbon emissions relating to increases in University activities must be offset by corresponding increases in carbon reduction initiatives.

5. Recommendation

The Committee is invited to recommend this Strategy for establishment by the Board of Governors.

