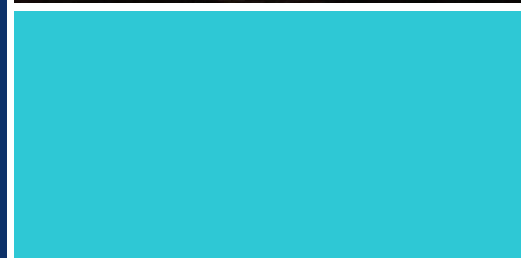




Leading education
and social research
Institute of Education
University of London

Academic Forum Sustainability

25 November 2010



The Estates Strategy 2010 – 2015

- A low carbon, sustainable environment
- Open, yet secure buildings that are fit for purpose and functional suitable
- An efficient space management strategy
- Areas of specialism, e.g. science laboratories, art and design workshops, dedicated computer rooms, library facilities and research facilities
- A welcoming environment for students, staff and visitors

Carbon Reduction Plan

The Institute will reduce its annual CO₂ emissions by 15% by the end of 2015 academic year, compared to its 2005 Scope 1 and Scope 2 emissions baseline of 2,667 tonnes of CO₂. In addition, the Institute will reduce its Scope 3 emissions, giving a cumulative aspirational target of for Scope 1,2, and 3 emissions reduction of 5,200 CO₂ tonnes.

Low carbon environment

CHP improvements

Reduction of carbon emissions, participation in CRC

Introduction of carbon saving actions

Challenges - listed buildings, security strategy, high utilisation

Carbon reduction sub committee

CHP provides the following direct benefits:

minimum 10% energy savings, but typical savings of between 15% and 40% over electricity sourced from the grid and heat generated by on-site boilers

minimum 10% CO₂ savings for in comparison to conventional forms of energy generation

high overall efficiency – up to 80% or more at the point of use

additional guarantee of continuity in energy supplies for operator & consumer

increased flexibility and reliability of energy supply, as CHP can complement and enhance other forms of energy generation

flexible and responsive heat supplies – the thermal energy (heat or cooling) produced by CHP can be easily stored and later delivered to meet demand

2005 baseline – Scope 1 & 2

Utility	Energy Consumption		Cost		Energy Consumption	CO ₂ Emissions
	kWh/year	%	£/year	%	kWh/m ²	
Electricity (inc CHP & grid)	4,765,729	47.4%	£262,764	49.3%	112	2,569 tonnes
Gas	428,558	5.3%	£28,622	3.2%	13	79 tonnes
Transport						19 tonnes
Total energy (excluding heat)	8,073,926	100%	£291,386	100%	153	2,667 tonnes



2005 baseline Scope 3

Type of emission	Consumption	CO2 emissions
Heat from CHP	2,879,639 kWh/year	532 tonnes
Waste	602 tonnes	269 tonnes
Water	22,653 m ₃	9.06 tonnes
Staff car travel	128,000 miles	27 tonnes
Staff and student international travel		unknown

Carbon emissions 2005/06 – 2008/09

	2005/06	2006/07	2007/08	2008/09
HEI income	60,967,000	64,250,000	69,057,000	77,212,000
Student FTE	2981	2858	2988	3442
Staff FTE	729	1013	811	857
Emissions scope 1 & 2	2667	2257	2557	2269
Emissions per unit income	0.0437	0.0351	0.0370	0.0293
Emissions per student / staff numbers	718	583	673	527



Carbon reduction projects	Capital cost estimate	Status
Reduction in hot water storage	-	Completed
Introduction of heat exchangers	£200,000	Completed
Extension of Trend BMS management system	37,500	To be completed 2010
Shorten heating period by 4 weeks for 20 Bedford Way	-	Ongoing
Replacement of chillers with more energy efficient system	£750,000	Completed
Replacement of tungsten spotlights	£400	Ongoing
Use of voltage optimisation systems	£50,451	To be completed 2010
Replacement of obsolete fluorescent lights	£26,250	Ongoing
Replacement of low voltage tungsten halogen lighting	£6,450	Ongoing
Roof insulation	£240,000	Unfunded
Computer out-of-hours shutdown	£5,200	Completed
Insulate pipe work, valves and flanges	£4,500	Ongoing
Replace old gas boilers in 9 – 11 Endsleigh Gardens	£50,451	Completed
Share van with local college	-	Completed
Shared Energy Manager	£10,000 per year	Completed



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