Arts University Bournemouth
Carbon Management Plan
2018-21 v7

V7 09.02.18: James Jackson: Senior Campus Services Officer

ARTS UNIVERSITY BOURNEMOUTH

CARBON MANAGEMENT PLAN 2018-21 v7

INTRODUCTION

As part of its commitment to Corporate Social Responsibility (CSR), outlined in the Strategy Map associated with the Strategic Plan, the University has developed a Sustainability Plan that sets out its priorities and targets for environmental sustainability.

The Plan is owned and monitored by the Environment Committee, and progress reported regularly to the Estates Committee of the Board of Governors. A supporting document, giving the background to the Plan, is also available.

The AUB is currently pursuing ISO14001:2015 certification through EcoCampus.

There are six immediate areas of focus

- **Minimising emissions and utility usage**
- **Sustainable Resource Management**
- **Reducing emissions associated with travel**
- **Managing the estate efficiently**
- **Developing staff and student awareness and engagement**
- **Promoting biodiversity and Fairtrade**

HIGHER EDUCATION SECTOR

The Higher Education sector target is a 43% reduction of CO_2e emissions by 2020 against a 2005/6 baseline. Due to the eminent shift from HEFCE to Office for Students and consultation currently in place regarding potential baseline, target for 2030 and discussion as to whether targets will remain voluntary, the AUB through CMP steering group has decided to date the next Plan until 2021. This will take the AUB up to the 2020 target, allow time (including any delays) for the consultation to confirm scope and then establish the next CMP for 2020 onwards.

The CMP steering group also confirmed that once the 2018-2021 plan was established work would begin immediately on the 'AUB long-term carbon strategy' (name not confirmed). This strategy would likely evolve into the next CMP.

RELEVANCE

Moral / ethical

The Stern Report made clear that climate change is one of the greatest challenges of modern times.

The Paris Agreement 2015 was signed initially by 195 countries with the aim to strengthen their ability to tackle climate change. The target being to limit global temperature rise this century to 2 degrees Celsius maximum above pre-industrial levels.

Legislative

The UK was one of the first countries to recognise the threats associated with climate change. In 2008 it passed legislation committing the UK to an ambitious target of reducing greenhouse gas emissions by at least 80% by 2050 against 1990 levels.

Financial

The price of a barrel of oil has decreased since 2005 (to 2017) by 37% and m^3 of gas by 84%. Yet the average cost of a unit of electricity has increased since 2005 (to 2016) by 108% and for gas 41%. Costs to consumers over the next 5 years are likely to increase significantly with most of the increase due to influences outside of the wholesale supply cost such as transmission, distribution, long-term CRC projects and especially Contracts for Difference.

Reputational

Climate change with the help of media attention has become an important issue to students, potential students, staff and the wider public. AUB as a leading university education provider wishes to play its part in limiting climate change by minimizing its carbon and other emissions.

ECOCAMPUS

AUB is currently seeking the ISO14001:2015 framework via EcoCampus signing up in November 2017 and awarded the Bronze certificate in December 2017. In consequence the building scope will increase alongside further emission contributions meaning a new data line will ensue. The AUB will likely run two sets of data for the time of this CMP. One will be in line with the Sustainability Plan and one in line with EcoCampus scope. As EcoCampus certification is currently at Bronze and with no historical trendline available the 2018-21 CMP will use the Sustainability Plan data (this does not exclude projects from happening at the wider scope level). The aim for the next CMP will be to use the new data line.

SCOPE

Scope 1, 2 and 3

Scope 1 (Direct emissions): Activities owned or controlled that release emissions straight into the atmosphere. They are direct emissions. E.g. emissions from boilers, furnaces and vehicles.

Scope 2 (Energy indirect): Emissions being released into the atmosphere associated with consumption of purchased electricity, heat, steam and cooling. These are indirect emissions that are a consequence of activities but which occur at sources you do not own or control.

Scope 3 (Other indirect): Emissions that are a consequence of actions, which occur at sources that you do not own or control and which are not classed as scope 2 emissions. e.g. business travel.

AUB Scope

All AUB buildings used for educational and residential purposes. This will be inclusive of buildings owned or leased, directly managed or managed by third party on the AUB's behalf. It will not include residential buildings that are owned and managed by a third party.

Scope 1, 2 and 3 projects inclusive of emissions from energy, water, waste and AUB fleet vehicles.

AUB Baseline and Target

Reduce CO_2e emissions per head 40% against 2005/6 levels by 2020.

RELEVANT & HISTORICAL DATA

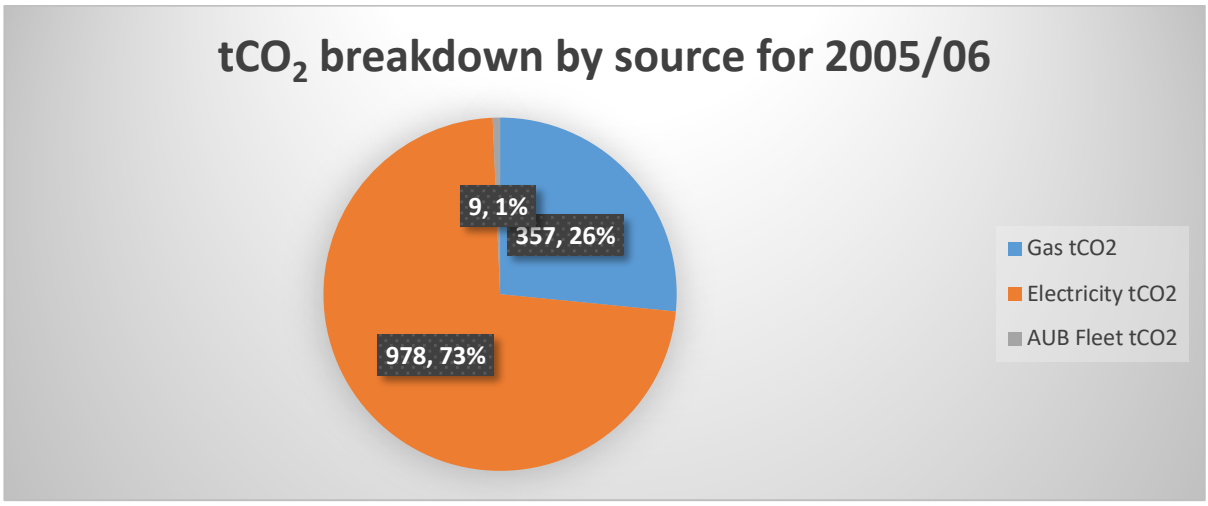

Figure 1. tCO_2 breakdown by source 2005/06 baseline year

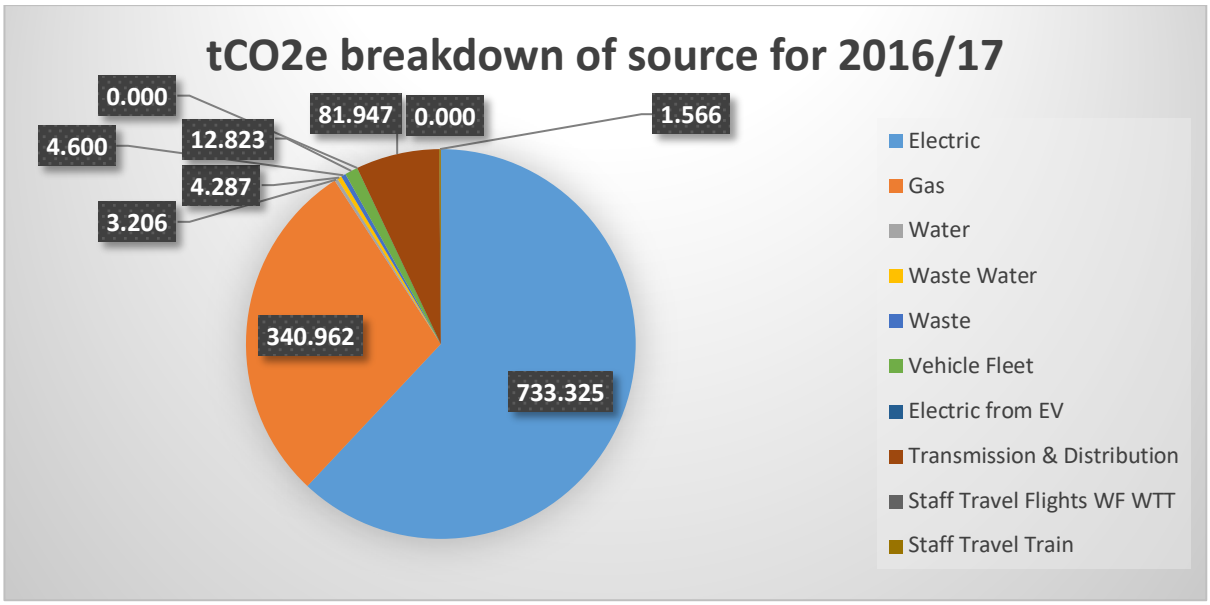

Figure 2. tCO_2e breakdown by source 2016/17

t CO_2/CO_2e Source	2005/06	2009/10	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Gas	357	300	280	392	260	289	316	340
Electricity	978	1209	934	989	1168	992	841	733
AUB Fleet	9	4	12.2*	12.2*	12.8	11.8	12.2	12.8
Water	0	5	1.2	4	3.4	2.4	3.7	3.2
Waste	0	142	unavailable	3.4	5	4.9	5.2	4.7
Total	**1344**	**1660**	**1227.4**	**1400.6**	**1449.2**	**1300.1**	**1178.1**	**1093.7**
Diff y/y	N/A	326	-432.6	173.2	48.6	-149.1	-122	-84.4
Diff b/y	N/A	326	-116.6	56.6	185.2	-43.9	-165.9	-250.3
tCO_2 / CO_2e pp	0.56	unavailable	0.3348	0.3821	0.3929	0.3588	0.3036	0.273

Table 1. tCO_2 / CO_2e breakdown by source 2005/06, 2009/10 and 2011/12 to 2016/17. Diff y/y is difference year on year (larger than year on year where the timeframe leaps). Diff b/y is difference from baseline year 2005/06. tCO_2 / CO_2e pp is tonnes of Carbon Dioxide or Carbon Dioxide equivalent per person (per person represented by full-time students and staff). * Estimation based on mean of future data. Note: CMP v4 supplied waste data for 2009/10 as tCO_2 142. This is excessively high and very likely incorrect.

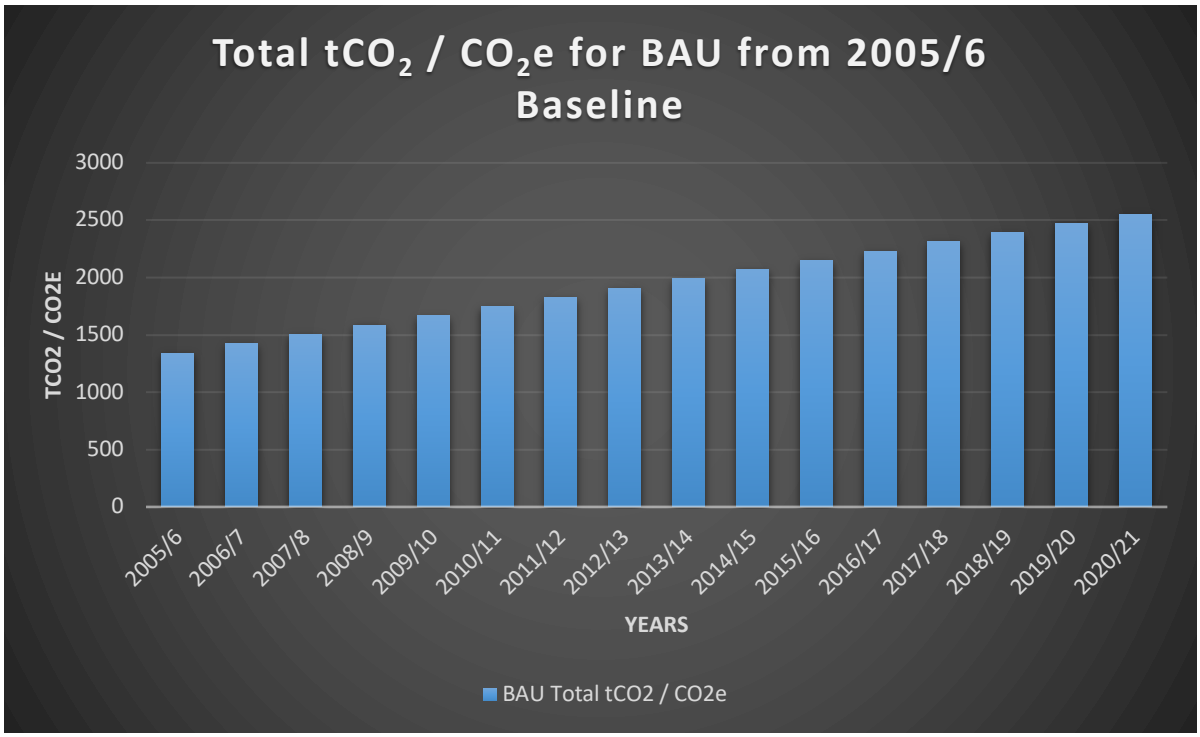

Figure 3. tCO_2 / CO_2e for Business As Usual from a 2005/06 baseline. This uses an average 6% annual growth against 2005/6 emission level. Based on: AUB population increase of 67% between 2005/6 and 2016/17 averaged to 147 extra people per year calculated at 0.56pp emission from 2005/6.

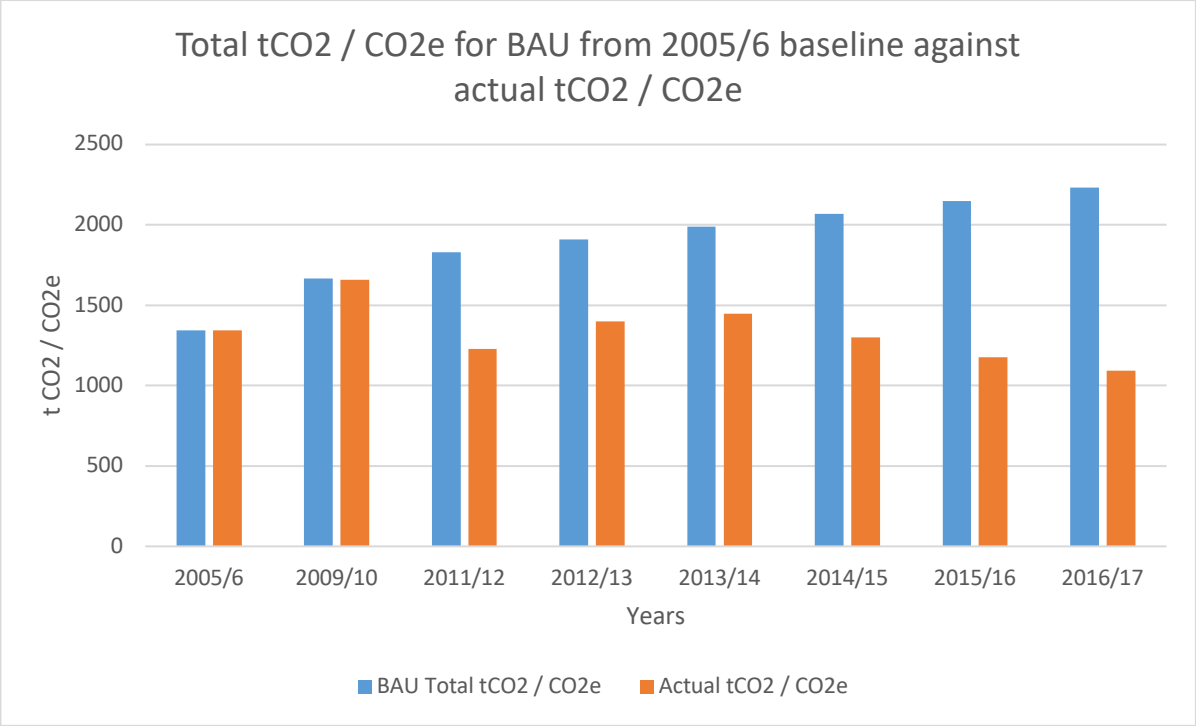

Figure 4. Total tCO_2 / CO_2e for Business as Usual from 2005/6 baseline against actual tCO_2 / CO_2e for 2005/6, 2009/10 and 2011/12 to 2016/17.

Figure 1 and 2 demonstrates that although the pool of sources and pollutants calculated has increased from the 2005/06 baseline data the overall CO_2 / CO_2e has decreased. Table 1 breaks down the data and shows the total per person has decreased towards the AUB target. Figure 3 projects the level of emissions associated with no carbon reduction activities and Figure 4 shows this against actual emission total.

The annual difference (Figure 4) between the Business as Usual and the Actual tCO_2 / CO_2e is the Annual Value at Stake (AVaS). The AVaS in regards to cost savings for 2016/17 is £425,004.92. (Calculated against emissions assuming half from electricity and gas using 2017 conversion and unit cost prices). The AVaS carbon saving is in Table 2 below.

	2005/6	2009/10	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
t Carbon AVaS	N/A	67	601	508	540	770	972	1137

Table 2. Total tCO_2 / CO_2e AVaS for 2005/6, 2009/10 and 2012/13 to 2016/17.

PROJECTS

No	Description	Lead	Capital Cost	Funding Route	Annual Saving Cost	Annual Saving tCO2e	Payback	Scope	Timeframe
1	LED Lighting	JJ	£133,215	Salix**	£26,002	58	5.12	2	Year 2
2	Solar Car Ports*	JJ	£40,000 (approx.)	Salix / AUB	£3,847.50	8	10	2	Year 2/3
3	AUB Vehicle Replenishment	ME	Capital cost less about emissions more business need.	AUB	N/A	3	N/A	1	Year 1
4	DCS Projects	SH	Ongoing	AUB	Ongoing	10	N/A	2	Year 1,2,3
5	Light Timers / Sensors	JJ	£13,860	Salix	£4,005	9	3.46	2	Year 2
6	BMS Upgrade	BW	£59,878.41	Salix	£11,871	34	5.04	2	Year 1
7	Combined Heat and Power	JJ	£162,162	Salix	£25,844	21	6.27	1	Year 1
8	Insulation	JJ	£1,841	Salix	£854	3	2.16	2	Year 1
9	Replace Boilers	JJ / ME / BW	£138,600	Salix	£18,352	66	7.55	1	Year 1
Total			**£549,556.41** **£509,556.41 (Salix)**		**£90,775.50** **£86,928.00 (Salix)**	**212**	**6.05** **5.86 (Salix)**		

* Solar car port cost also incorporates a significant part or all of the cost of new waste compound and potential financial and emission savings from improved waste facilities. The table only represents the benefits from the PV solar panels and not improvements to waste. Other intrinsic benefits such as protecting AUB fleet vehicles from the elements as well as users is not included.

** Salix funding confirmed for all projects

Unquantified Projects

- Digital Campus Services entrance doors
- Staff Induction (10% reduction Carbon Trust)
- Meat Free Mondays
- Elliott Road re-use scheme
- Green week and other awareness campaigns (10% reduction Carbon Trust)
- Travel Plan & Travel to AUB
- Staff Sustainability Ambassadors