

**Carbon Management
Progress Report 2019**



SOAS
University of London

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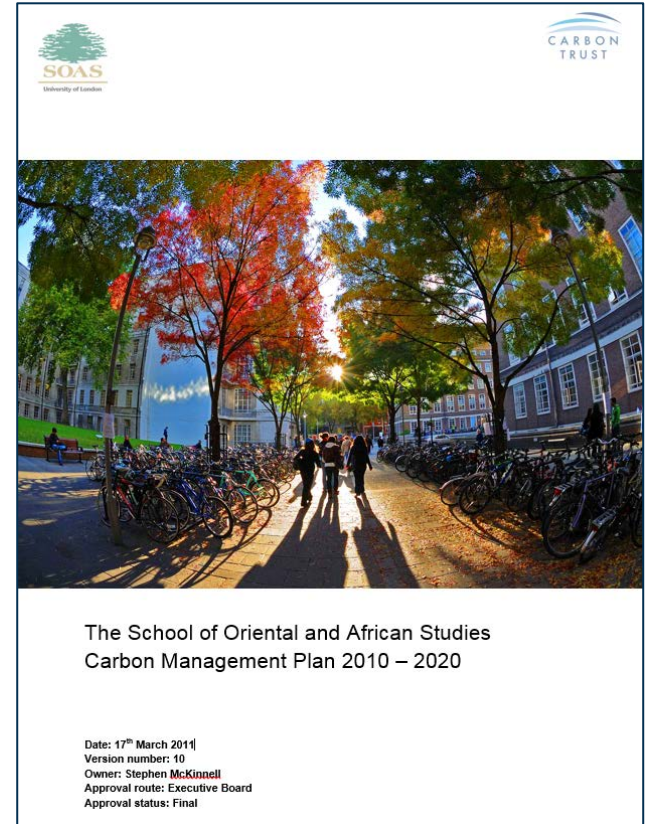
Welcome to the SOAS Carbon Management Progress Report 2019

Our Carbon Management Plan, produced in 2010, outlined a commitment to reduce emissions by 48% by 2020 (against a 2008-09 baseline).

We're proud we have far exceeded this target and reduced our emissions by 58% by 2015.

We retain a strong commitment to mitigating our environmental impact and reducing emissions, therefore SOAS will be publishing a new Carbon and Energy Management Plan in September / October 2019 which will layout ambitious aims to reduce our carbon emissions post 2020.

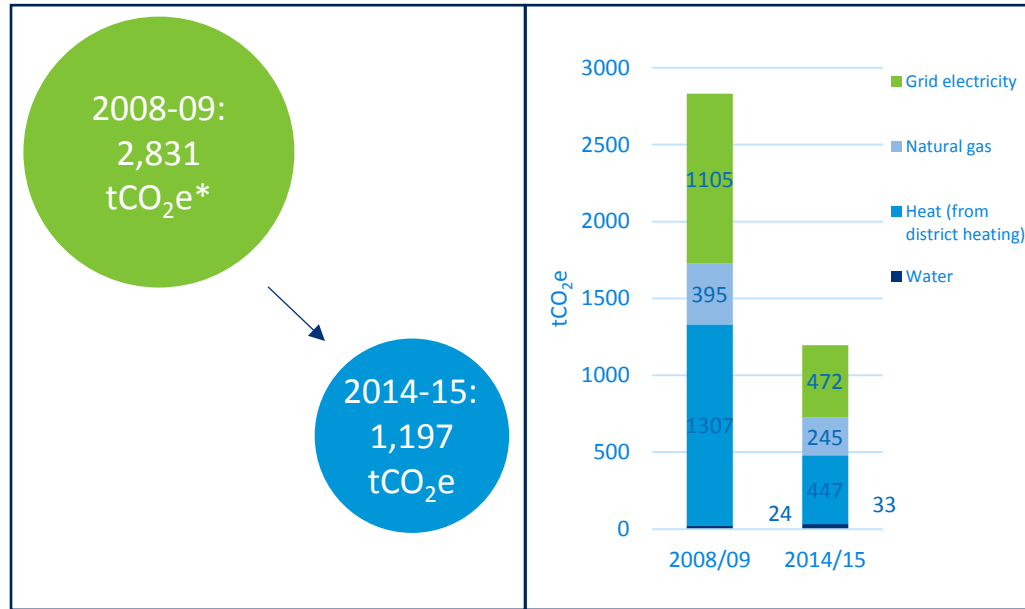
This progress report serves as an update on our recent performance as well as detailing some specific information prior to the release of the new 2020 – 2030 plan later this year.



Progress Review

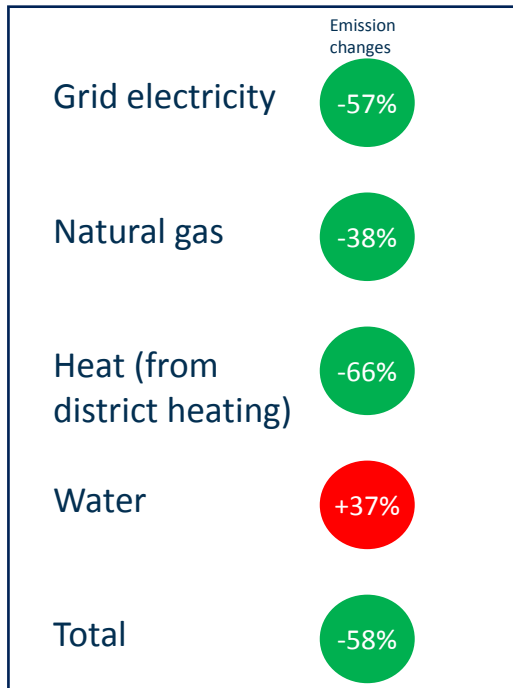
Progress review

SOAS reduced emissions by 58% between 2008-09 and 2014-15 far exceeding the 48% by 2020 reduction target.



*The original 2010-2020 SOAS CMP reports emissions totalling 3,556 tCO₂e in 2008-09. An explanation of the changes relating to emissions reported in 2008-09 can be found in Appendix A. This emission inventory was produced in line with the world recognised WRI GHG Protocol methodology, more details can be found on in Appendix B. Appendix C lists the conversion factors applied in this emission inventory.

Emission changes between 2008-09 and 2014-15



The 58% reduction in emissions has come about as a result of:

- The successful implementation of several carbon reduction projects (see slides 6-7).
- The decarbonisation of the UK grid. The introduction of cleaner forms of energy powering the grid resulted in a 6% decrease in emissions intensity per kWh of electricity consumed via the UK grid between 2008-09 and 2014-15.

The rise in emissions from water use appears significant but the improvement in data quality over this timeframe makes it difficult to ascertain whether emissions from water use have in fact risen. Data quality in the baseline year 2008-09, against which performance is being compared, was relatively poor as water consumption data was predominantly based on estimates. Since then significant strides in data quality have been made and water consumption data now reflects accurate usage. This will enable us to monitor emissions resulting from water more accurately in the future and take appropriate courses of action to manage resulting emissions.

Progress review

The projects we have implemented over the past 10 years to reduce carbon emissions include;



Ventilation improvements

Upgrade to the ventilation plant in the library in 2014 which involved integrating technologies such as **waste heat recovery, variable speed drives** and **automatic windows** to reduce electricity consumption.



Heating/cooling system upgrades

Addition of **heat recovery** facility to the Combined Heat and Power plant (CHP) in 2011 which reduced primary heat consumption considerably.

Upgrade of the **Building Energy Management system (BEMS)** and **chiller system** within the Brunei Gallery building (previously the worst energy performer on the estate) drastically improved the energy performance rating of the building; the Display Energy Certificate (DEC) rating improved from G to D.



Lighting upgrades and improved lighting controls

Installation of efficient **LED lighting technology** in parts of the Faber building and Brunei Gallery
Installation of **improved lighting controls** across the SOAS estate.



Building fabric improvements

Replacement of critical windows with **new double glazing** equivalents (due to listed status of the building) within the Old Building.

Improved **insulation** of heating pipework and plant, as well as the inclusion of energy efficiency considerations into **refurbishment** projects.



Improved building controls

Addition of **zoned heating controls** to the Philips building in 2011.

Improvements to the **BEMS controls** across the SOAS estate.

Installation of electricity **sub metering** to improve management and monitoring of energy use.



Deployment of zero-carbon technologies

The set up of a not-for-profit community energy scheme which has resulted in the installation of a 30kWp **solar PV** array which generates zero-carbon energy

Progress Review Photos



SOAS Solar Community Energy Project

An array of 114 solar PV panels were successfully installed on top of the Old Building roof in 2016, led by the Students Union [Solar SOAS group](#).



Library Air Handling Plant

The thermal wheel pictured here captures waste heat from the library building to be redistributed, in turn increasing efficiency, and improving natural ventilation.



LED lighting upgrades

Older, more energy intensive fluorescent and incandescent lights across numerous buildings in the estate were replaced with more efficient, long lasting LED lights.



New energy efficient chiller

An energy efficient chiller was installed in the Brunei Gallery, helping to reduce energy consumption by 25%.

2020 and beyond: Planning for the future

2020 and beyond

SOAS will be working towards an ambitious net zero carbon emissions target

The latest reports from the Inter Governmental Panel on Climate Change ([IPCC](#)) and Committee on Climate Change ([CCC](#)) are clear in their message that reductions in carbon emissions are necessary, and needed in a shorter time period than previously thought to meet the Paris Agreement targets of avoiding global temperature rise to well below 2 degrees Celsius. A revised CCC target published in May 2019 recommended the UK adopt, as a minimum, a 2050 net zero emissions target, which was later approved by government in June.

SOAS's new 2020-2030 Carbon and Energy Management Plan will outline our reduction targets to achieve within the next decade, and also propose ambitious steps to achieve a net zero carbon target for scope 1 and 2 emissions over an extended timeline. Scope 1 and 2 emissions arise from direct fuel combustion on site from boilers and vehicles, as well as purchased electricity, heat, and steam.

For scope 3 emissions, which cover indirect aspects including procurement, business travel, waste generation and water use, we are not currently able to accurately assess our impacts in order to propose reliable targets. Therefore we will be working to put in place the mechanisms to properly baseline our scope 3, enabling us to capture usable data and thus generate aims at a later stage to properly reflect our commitment to meeting a net zero carbon target.

The timescales in which SOAS will aim to deliver projects to achieve energy and carbon targets will be published in the revised Carbon and Energy Management Plan - due to be completed in September / October 2019 once practicality and feasibility scenarios have been established and forecast.

2020 and beyond

Working towards a net zero emissions target will not be without its challenges. Namely there is a possibility the University estate will expand in size in the coming years which will cause emissions to increase. However we are now in a position to begin planning for a significant decarbonisation of our buildings and facilities to uphold our environmental responsibilities, joining others in the HE sector in adopting new innovative approaches to mitigate our impacts.

In addition, there is a strong financial case for reducing carbon and energy use in the long term too. The Department for Business, Energy, and Industrial Strategy (BEIS) UK [energy forecasts](#) specify that in 2030, energy prices will be significantly higher than in 2018-19.

We are determined to play our part in reducing our emissions, and slides 11-12 show some of the planned carbon saving projects that will put us on the road to further reductions over the next 5 years. A more detailed breakdown of these projects will be included in the new 2030 Plan.

Bloomsbury Heat and Power District Heating Upgrade

An influential factor in achieving our future energy and carbon reduction aims is the Bloomsbury Heat and Power (BHP) district heating network. The district heating scheme is over 50 years old with combined heat and power (CHP) installed onto the network in 2000. It has provided SOAS with lower carbon electricity and heat, in addition to supplying several other institutions within the University of London precinct.

The BHP is now at the end of its operational life and a once-in-a-generation upgrade and expansion is currently being planned which will ensure a sustainable supply of electricity and heat for the next 40 years. Innovative new low carbon technologies are being considered for the upgrade including the use of waste heat from nearby sewers.

This upgrade is expected to be completed in 2023. More information will be disclosed in the new Carbon and Energy Management Plan in September / October 2019.



2020 and beyond

Other planned carbon saving projects



Lighting upgrades

LED lighting installations continue across the estate, including the Brunei Gallery, Philips building, Library and Faber building



Improved lighting controls

Install lighting controls in appropriate locations around the estate



Air conditioning improvements

Improvements to the air conditioning plant on the main campus



District heating improvements

Upgrade and expansion of the district heating network incorporating low carbon technologies.



Building fabric improvements

Fabric improvements including double glazing In the Philips building and roof insulation in the Philips and Faber buildings



Heating system upgrades

Install 2-port zone valves throughout the Old Building to improve control over heating



Improved heating controls

Upgrades and improvement to building energy management system (BEMS)

2020 and beyond

Your feedback

An integral part of the 2030 Carbon and Energy Management Plan's development will be ensuring that members of the SOAS community have had the opportunity to provide feedback on the content within it.

A consultation event, engagement stalls, and an online feedback forum are currently being planned which will provide students and staff from all departments the chance to voice their feedback on a draft version of the plan later this summer.

From first year undergraduates to final year PhD researchers, and lecturers to professional services staff, we all have a part to play in reducing the energy and carbon impact at SOAS. We need your support and input into this plan to ensure it is fit for purpose, facilitating SOAS to play a leading role in building a sustainable future.

Information on how to get involved will be communicated in the coming months.

Summary

Summary

Since 2010 SOAS has made significant positive reductions in its carbon emissions, exceeding its original target and reducing emissions by 58% by 2015 (against a 2008/09 baseline).

We will be publishing a revised Carbon and Energy Management Plan in September / October 2019 which will cover our plans for the next 10 years. It will include targets to achieve within the decade, in addition to an ambitious new net zero carbon target, covering scope 1 and 2 emissions, and outline the timeframe in which we hope to achieve this. We will also develop the resources to accurately baseline our scope 3 emissions enabling us to set an emissions target for these aspects at a later time.

Projects to achieve our targets will be wide ranging, covering large scale upgrades such as the Bloomsbury Heat and Power District Heating Network and Brunei Gallery refurbishments, as well as smaller scale long term projects.

We retain a strong commitment to mitigating our environmental impact and reducing emissions. For more information and to view our current policies and plans please visit the [Bloomsbury Greenthing website](#).

Appendices

Appendix A: Explanation of changes relating to emissions reported in 2008-09

The original 2010-2020 SOAS CMP reports emissions totalling 3,556 tCO₂e in 2008-09. This document reports emissions totalling 2,831 tCO₂e in 2008-09. The reasons for this discrepancy are as follows:

- Business travel and waste emissions have been removed from the scope of the assessment. This is due to a lack of data available on both these areas in 2014-15 therefore they have been removed from the 2008-09 assessment for comparability purposes. Business travel emissions amounted to 404 tCO₂e and waste emissions amounted to 205 tCO₂e in 2008-09. If these emissions had formed part of the assessment, reported emissions would have totalled 3,439 tCO₂e. SOAS intends to collect data on business travel emissions and waste going-forward, so that emissions arising from these activities can be reported on and therefore managed and reduced.
- A reporting error led to emissions in 2008-09 being labelled as 3,556 tCO₂e in 2008-09 rather than 3,439 tCO₂e. This was revealed in the independent review (undertaken by Carbon Trust) which was conducted as part of this progress report.

Appendix B: Methodology statement (1/2)

Summary

SOAS asked Carbon Trust to review and record the Greenhouse Gas (GHG) emissions SOAS produced in 2008-09 and 2014-15. This is to aid transparency, to ensure emissions are calculated consistently (i.e. same scope and boundary) as well as accurately and finally, to ensure emissions accounted for are relevant to SOAS. This approach is in line with guidance produced by the WRI GHG Protocol, the globally recognised methodology for carbon emission accounting in organisations.

Methodology

Accounting approach used: Operational control

Organisational boundary: SOAS

Operational boundary: the energy consuming assets over which SOAS has control comprise of the following:

Buildings:

- 21-22 Russell Square
- Faber Building
- Brunei Gallery
- Vernon Square (now closed)
- Philips Building
- 53-55 Gordon Sq (aka Doctoral School)
- Old Building (aka college building)

Vehicles: none

Heat and Power generators: none. SOAS do not have operational control over Bloomsbury Heat and Power owned assets. They are a Private Limited Company and operate the District Heating Scheme and the Combined Heat and Power (CHP) plant infrastructure providing electricity to SOAS.

Appendix B: Methodology statement (2/2)

Carbon footprint scope

Scope 1: Fuels combusted on sites controlled by SOAS

Scope 2: Purchased electricity consumed by the company

(Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company)

Scope 3: Emissions produced as a consequence of SOAS activities, but occur from sources not owned or controlled by the company.

Activities included under scope

Included in scope 1:	Gas burnt from boilers located at 21-22 Russell Square, Faber Building, Vernon Square (now closed), Paul Webley Wing and Brunei Gallery
Included in scope 2:	Grid electricity purchased and consumed at 21-22 Russell Square, Faber Building, Vernon Square (now closed), Paul Webley Wing, Brunei Gallery, Philips building, Old Building and Gordon Square Electricity generated via CHP and consumed in Brunei Gallery, Philips building and Old Building Heat generated via DH scheme and consumed in Philips building, Old Building and Gordon Square
Included in scope 3:	Water

Conversion factors use

Defra conversion factors for 2009 and 2015 were used respectively.

	kgCO ₂ e per unit (Defra 2009)	kgCO ₂ e per unit (Defra 2015)
Grid Electricity	0.53291	0.50035
Natural Gas	0.18358	0.18445
Water	0.404	1.052

Carbon conversion factors specific to the Bloomsbury Heat and Power district heating network and CHP system exist. These factors have been reviewed by BuroHappold Engineering and are as follows:

	kgCO ₂ e per unit (2009)	kgCO ₂ e per unit (2015)
CHP electricity	0	0
Heat consumption	0.38	0.38

Appendix C: List of emissions included within scope of assessment

Carbon dioxide equivalent emissions in 2008-09

	kgCO ₂ e per unit (Defra 2009)	kgCO ₂ e
Grid Electricity	0.53291	1,104,927
Gas	0.18358	394,922
Heat consumption	0.38	1,306,486
Water	1.052	24,187
Total kg CO ₂ e		2,830,522

Carbon dioxide equivalent emissions in 2014-15

	kgCO ₂ e per unit (Defra 2015)	kgCO ₂ e
Grid Electricity	0.50035	471,763
Gas	0.18445	244,643
Heat consumption	0.38	447,359
Water	1.052	33,145
Total kg CO ₂ e		1,196,909

% change - comparison 08/09 with 14/15

Grid Electricity	-57%
Gas	-38%
Heat consumption	-66%
Water	37%
Total	-58%



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Published in the UK: 2017.

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