ISO 50001
Energy Management System Compliance Tool
Version 5, Winter 2022

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Rebecca Smart
<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Notes</th>
<th>Author</th>
<th>Approved by</th>
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<td>1</td>
<td>May 2015</td>
<td>First Version</td>
<td>James Baggaley (Energy Projects Support Officer)</td>
<td>Ian Lane (Head of Sustainability)</td>
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<tr>
<td>1.1</td>
<td>January 2016</td>
<td>Minor corrections and updates</td>
<td>Clare Silcock (Energy Projects Support Officer)</td>
<td>Ian Lane (Head of Sustainability)</td>
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<td>1.2</td>
<td>February 2016</td>
<td>Minor corrections and updates</td>
<td>Clare Silcock (Energy Projects Support Officer)</td>
<td>Ian Lane (Head of Sustainability)</td>
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<tr>
<td>1.3</td>
<td>February 2017</td>
<td>Minor corrections and updates</td>
<td>Rebecca Smart (Energy Projects Support Officer)</td>
<td>Ian Lane (Head of Sustainability)</td>
</tr>
<tr>
<td>1.4</td>
<td>April 2017</td>
<td>Minor corrections and updates</td>
<td>Rebecca Smart (Energy Projects Support Officer)</td>
<td>Ian Lane (Head of Sustainability)</td>
</tr>
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<td>1.5</td>
<td>August 2017</td>
<td>Minor corrections and updates</td>
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<td>1.6</td>
<td>Winter 2017</td>
<td>Minor corrections and updates</td>
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<td>1.7</td>
<td>Summer 2018</td>
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<td>1.8</td>
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<td>Minor corrections and updates</td>
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<td>Ian Lane (Head of Sustainability)</td>
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<td>2</td>
<td>Summer 2019</td>
<td>Restructured to match ISO 50001: 2018 Standard</td>
<td>Rebecca Smart (Energy Projects Support Officer)</td>
<td>Ian Lane (Associate Director – Sustainable Operations)</td>
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<td>3</td>
<td>Autumn 2020</td>
<td>Updated to reflect the impact of Covid-19</td>
<td>Rebecca Smart (Energy Projects Support Officer)</td>
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<td>4</td>
<td>Summer 2021</td>
<td>Updated to reflect a change in scope to include scope 3 carbon emissions</td>
<td>Rebecca Smart (Energy Projects Support Officer)</td>
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<td>5</td>
<td>Winter 2022</td>
<td>Updates with latest information and to reflect reduction in Covid-19 measures</td>
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1 Scope

The aim of the ISO 50001 International Standard (‘the Standard’) is to establish the systems and processes necessary to continually improve energy performance, including energy efficiency, energy use and energy consumption. The International Standard specifies the energy management system (EnMS) requirements for the University of the Arts London (UAL). Successful implementation of an EnMS supports a culture of energy performance improvement that depends upon commitment from all levels of the organisation, especially senior management. In many instances, this involves cultural changes within an organisation.

This Standard applies to the activities under the control of the organisation. Its application can be tailored to fit the specific requirements of the organisation, including the complexity of its systems, degree of documented information and available resources. The Standard does not apply to product use by end-users outside of the scope and boundaries of the EnMS, nor does it apply to product design outside of facilities, equipment, systems or energy-using processes. The Standard does apply to the design and procurement of facilities, equipment, systems or energy-using processes within the scope and boundaries of the EnMS, that are defined within this document.

Development and implementation of an EnMS includes an energy policy, objectives, energy targets and action plans related to its energy efficiency, energy use, energy consumption and carbon emissions while meeting applicable legal requirements and other requirements. An EnMS enables UAL to set and achieve objectives, energy and carbon targets, to take actions as needed to improve its energy performance, and to demonstrate the conformity of its system to the requirements of the Standard.

The Standard provides requirements for a systematic, data-driven and facts-based process, focused on continually improving energy performance. Energy performance is a key element integrated within the concepts introduced in this document in order to ensure effective and measurable results over time. Energy performance is a concept which is related to energy efficiency, energy use, energy consumption and carbon emissions. Energy performance indicators (EnPIs), key performance indicators (KPIs) and energy baselines (EnBs) are three interrelated elements addressed in this document to enable organisations to demonstrate energy performance and carbon emissions improvement.

The Standard specifies requirements for establishing, implementing, maintaining and improving an energy management system (EnMS). The intended outcome is to enable an organisation to follow a systematic approach in achieving continual improvement of energy performance and the EnMS.

The Standard:

a) is applicable to any organisation regardless of its type, size, complexity, geographical location, organisational culture or the products and services it provides;
b) is applicable to activities affecting energy performance that are managed and controlled by the organisation;

c) is applicable irrespective of the quantity, use, or types of energy consumed;

d) requires demonstration of continual energy performance improvement, but does not define levels of energy performance improvement to be achieved;

e) can be used independently, or be aligned or integrated with other management systems.

Certification of UAL’s ISO 50001 Energy Management System allows UAL to comply with the Energy Saving Opportunities Scheme (ESOS) and the Streamlined Energy & Carbon Reporting requirement. UAL has a net zero 2030 scope 1 and 2 carbon emissions reduction target (leaving a balance of circa 1,500 tonnes to offset). Scope 3 emissions are targeted to reach net zero by 2040 (the estimate of carbon emissions is under consideration at present).

2 Normative references

There are no normative references in this document.

3 Terms and definitions

Please refer to the glossary at the end of this document.

4 Context of the organisation

4.1 Understanding the organisation and its context

Achieving a balance between the environment, society and the economy is considered essential to meet the needs of the present without compromising the ability of future generations to meet their needs. Sustainable development as a goal is achieved by balancing the three pillars of sustainability. UAL wishes to promote climate and social justice in the lifetime of the current organisational strategy ‘Because the World Needs Creativity 2022 -2032’.

Societal expectations for the climate emergency, transparency and accountability have evolved with increasingly stringent legislation, growing pressures on the environment from pollution, inefficient use of resources, improper waste management, climate justice, degradation of ecosystems and loss of biodiversity.

This has led UAL to adopt a systematic approach to energy management by implementing an EnMS with the aim of positively contributing to the Climate Emergency.
UAL’s mission is to be at the forefront of learning, creativity and practice in creative arts. Comprising more than 20,000 students from over 100 countries, the University offers a range of academic programmes from further education through to undergraduate, postgraduate and research degrees. The University aims to promote talent, creativity and intellectual excellence in an organisational culture assisting staff and students to develop and commercially advance their abilities and ideas. It works to provide a bridge between higher education and professional practice, serving the creative economy.

UAL has identified the challenges and opportunities that are most important to UAL and its future. The guiding policies are our response to each of these issues in turn

Guiding policy 1, To give our students the education they need to flourish in a changing world

Guiding policy 2, To bring a high-quality creative education to more students than ever before

Guiding policy 3, To change the world through our creative endeavour

UAL has its origins in five previously independent art, design, fashion and media colleges, which were brought together to form the London Institute in 1986. The Wimbledon College of Art joined in 2006. The colleges were originally established from the 19th century to the early 20th century. In 2003, the London Institute received Privy Council approval for university status and was renamed the University of the Arts London in 2004.

Six distinctive and distinguished Colleges, residing in 17 buildings across London make up the university:

- Camberwell College of Arts
- Central Saint Martin's College of Arts and Design
- Chelsea College of Art and Design
- London College of Communication
- London College of Fashion
- Wimbledon College of Art

UAL also has direct control over four Halls of Residence: Archwood House, Portland House, Brooke Hall and Gardens House.

The approach UAL has taken is to align the EnMS with its operations. The EnMS is underpinned by the UAL Carbon Dashboard, our in-house Monitoring & Targeting System for managing utilities. The Carbon Dashboard and associated policies, data and documents are reviewed at least annually to achieve continual improvements in its performance and ensure adherence to ISO 50001. The Carbon Dashboard covers the scope 1 & 2 carbon emissions of all energy supply types at UAL. These include:

- Electricity
- Gas
- Fuel Oil
- Water
- Heat from decentralised energy networks
It also includes all 149 supply points. The full list of up to date supply points and fuel types can be found on the ‘Meter Asset Register’ Tab within the latest version of the UAL Carbon Dashboard (restricted access to ensure the integrity of the data).

Scope 3 emissions are included in the scope of the EnMS. The performance of these sources is reported on externally to Higher Education Statistical Agency and include
- Student travel at the beginning and end of term
- Staff and student commute
- Business travel
- Supply chain
- Construction
- Waste
- Water

Due to the Covid-19 pandemic, all of the university's buildings closed in March 2020 and staff and students began to work remotely. The buildings gradually reopened in the summer of 2020 for essential maintenance. The academic year 2020/21 began with a ‘blended learning’ approach of on-line learning with increasingly amounts of face to face teaching through the following academic year. Home working (referred to as dynamic working) is common for operational staff. The buildings now operate with far less precautions to reduce the risk of spreading the virus. During the Covid-19 pandemic the university functioned within a context of below average energy use.

The process of maintenance and improvement of the EnMS in accordance with ISO 50001 is laid out below.

4.2 Understanding the needs and expectations of interested parties

Interested parties that are relevant to energy performance and the EnMS, along with their relevant requirements which the EnMS will address, have been identified. A PESTLE analysis was undertaken to determine this (Appendix 1). A PESTLE analysis is a tool used to identify factors that may affect an organisation. The letters stand for Political, Economic, Social, Technological, Environmental and Legal. This analysis helps an organisation understand how it is affected by these factors and how it may need to respond to them.

In order to comply with all legal and regulatory requirements UAL Estates staff have access to an online legal update service, provided by The Compliance People. This service is open to staff members with a direct impact on equipment, facilities management and estates. It is accessed by staff who have their own login to the site and are able to personalise the updates they receive. The Associate Director (Sustainable Operations) and the Energy Projects Support Officer are ‘super-users’ of this site and can add users by creating logins for them. The service provides summaries of the legislation in plain English and these are updated on a monthly basis. The legal update service was specifically purchased for the purpose of insureing that all legal requirements were met
in relation to energy management and sustainability. The Associate Director (Sustainable Operations) and the Energy Projects Support Officer receive regular email updates regarding environmental legislation and therefore any legislation that may impact the university can be foreseen and if necessary, planned for. On the website, relevant pieces of legislation have been marked by the Energy Projects Support Officer. Updates to legislation and action taken in relation to it are recorded on the Legislation Updates Log.

In addition to the legal update service (provided by The Compliance People), key legal and regulatory requirements in relation to energy management are on the procedure tab of the carbon dashboard. These are time stamped and have review dates, so that they are kept fully up to date. Below are listed several key pieces of compliance which directly relate to energy management.

- Streamlined Energy and Carbon Reporting (SECR), UK Government
- Estates Management Records, Higher Education Funding Council
- Display Energy Certificates, Department for Communities and Local Government
- Energy Performance Certificates
- Energy Savings Opportunity Scheme (ESOS)

The UAL Carbon Dashboard includes the reporting data for the Streamlined Energy and Carbon Reporting (SECR) and Estates Management Records (EMR) with additional EMR documentation including scope 3 emissions. These provide an annual progress measure against UAL’s Carbon Management Plan. The Display Energy Certificates provided a snapshot of the current building performance from which to plan for future improvements. The latest ratings are shown in the box below:

<table>
<thead>
<tr>
<th>Building Name</th>
<th>DEC Rating in 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Saint Martins</td>
<td></td>
</tr>
<tr>
<td>- Kings Cross</td>
<td>E</td>
</tr>
<tr>
<td>- Archway Main Building</td>
<td>C</td>
</tr>
<tr>
<td>- Archway Annex</td>
<td>B</td>
</tr>
<tr>
<td>London College of Fashion</td>
<td></td>
</tr>
<tr>
<td>- John Princes St</td>
<td>D</td>
</tr>
<tr>
<td>- Curtain Road</td>
<td>C</td>
</tr>
<tr>
<td>- Mare St</td>
<td>D</td>
</tr>
<tr>
<td>- Golden Lane</td>
<td>C</td>
</tr>
<tr>
<td>- Lime Grove (Block A – C)</td>
<td>C</td>
</tr>
<tr>
<td>- Lime Grove (Block D)</td>
<td>C</td>
</tr>
<tr>
<td>- High Holborn</td>
<td>C</td>
</tr>
</tbody>
</table>
### Chelsea College of Art
- Block A & B: C
- Block C: B
- Block D: B

### Wimbledon College of Art
- Main Building: C
- Theatre Annex: B
- Studio Building: B

### Camberwell College of Art
- Peckham Road: C
- Wilson Road (modular building): B
- Wilson Road: C

### London College of Communication
- Design Block: C
- Media Block: C
- Tower Block: C
- Workshop Block: C

### Brooke Hall
- D

### Gardens House
- C

### Portland House
- East House: D
- West & Central House: E
- South House: D
- Annex: D

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### 4.3 Determining the scope of the energy management system

The PESTLE analysis shows the internal and external issues which affect the outcome of the EnMS and it shows the relevant requirements of interested parties. These issues and the requirements of interested parties cover the whole university, not just certain buildings or activities.
The scope of the EnMS covers the six Colleges that make up the university and the three Halls of Residence the university has direct control over, as outlined in section 4.1. The scope covers scope 1 & 2 carbon emissions of all energy supply types at these buildings and no energy types within this scope have been excluded. These include:

- Electricity
- Gas
- Fuel Oil
- Heat from decentralised networks

It also includes all 149 supply points. The full list of up to date supply points and fuel types can be found on the ‘Meter Asset Register’ Tab within the latest version of the UAL Carbon Dashboard. Utility consumption data is publicly available via the UAL website - https://www.arts.ac.uk/about-ual/sustainability/carbon-dashboard

Scope 3 emissions are also included in the scope. These are emissions that UAL ‘indirectly’ produces, they are emissions which are not controlled by but can be influenced by the university. Emissions from all students and staff are included in the scope.

- Student travel at the beginning and end of term
- Staff and student commute
- Business travel
- Supply chain
- Construction
- Waste
- Water

4.4. Energy management system

UAL will establish, implement, maintain and continually improve the EnMS, including the processes needed and their interaction, and continually improve energy performance, in accordance with the requirements of the Standard.

5. Leadership

5.1 Leadership and commitment

UAL’s Energy Policy is embed in the Carbon Management Plan which is drafted by the Associate Director (Sustainable Operations) and approved by the Director of Estates. The Climate & Environment Action Group (C&EAG) aims to integrate best sustainability practice, into UAL’s approach. However, the ISO Management
System is still owned by the Director of Estates – Steve Howe, who oversees its implementation, as the scope is restricted to professional services.

UAL resources two sustainability professionals (located within the Estates Department) whose key target is to reduce utility consumption. The University’s aim was to reduce carbon emissions by 43% by July 2020, from the 2005 baseline. UAL achieved this target – carbon emissions fell by 53%. By July 2022 carbon emissions had fallen by 57%.

The below table shows the progress made in reducing consumption (kWh) from 2011/12 to 2021/22.

<table>
<thead>
<tr>
<th>Utility</th>
<th>2011/12</th>
<th>2021/22</th>
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</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>17,728,012</td>
<td>15,701,412</td>
</tr>
<tr>
<td>Gas</td>
<td>16,625,336</td>
<td>13,716,755</td>
</tr>
<tr>
<td>Fuel Oil</td>
<td>3,120,216</td>
<td>1,166,397</td>
</tr>
<tr>
<td>CHP</td>
<td>5,914,076</td>
<td>4,085,213</td>
</tr>
</tbody>
</table>

UAL has set a new target - for the emissions we control directly (our scope 1 & 2 emissions), to reach net zero no later than 2030, with an ambition to reach a 92% reduction by 2030. For scope 3 emissions (indirect emissions), the target is to reach net zero by 2040. UAL has and will commit resources, policies and actions to reduce scope 3 carbon emissions by 54% by the end of academic year 2039/40. The carbon baseline for indirect sources of carbon emissions is estimated to be 98,200 tonnes of CO2e for the year 2018/19.

The energy performance of UAL’s sites are monitored through a combination of custom tools within Excel, such as the Carbon Dashboard, as well as data portals provided by utility companies. In addition to equipment upgrades, the target will be met through a series of initiatives and actions, chief amongst which are energy management and energy conservation.
The management structure of the EnMS is shown below.

<table>
<thead>
<tr>
<th>Role in Energy Policy/Management</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>A focal point for sustainable academic strategy and delivery, sustainable business operations, carbon reduction, community building using the influence of art and design as they relate to the climate emergency. It aims to ensure that there is a coordinated approach across the University for reducing its environmental impact, and developing its influence and literacy in the field of climate emergency.</td>
<td>Climate &amp; Environment Action Group</td>
</tr>
<tr>
<td>Oversees the implementation of and owns the ISO 14001 and ISO 50001 – management reviews are reported to the Director of Estates.</td>
<td>Director of Estates</td>
</tr>
<tr>
<td>Lead on creation and implementation lead of Energy Policy and Carbon Management Plan.</td>
<td>Associate Director (Sustainable Operations)</td>
</tr>
<tr>
<td>Support Lead. Maintains the EnMS and ensure it is functioning correctly. Leads on the monitoring, measurements and reporting of energy performance. Communicates performance internally and externally.</td>
<td>Energy Projects Support Officer</td>
</tr>
</tbody>
</table>

The importance of energy management and energy conservation is made clear within the Carbon Management Plan. This is available online for all students, staff and members of the public to read.

The need for energy management is also underpinned through the UAL’s sustainability website. The website is UAL’s central hub for communicating sustainability to the students and staff. It reports on the university’s efforts to reduce energy consumption and provides news of UAL’s sustainability action and events. The Sustainability Team has also engaged with the internal staff newsletter – The Big Picture and the intranet (Canvas) to publish articles.

The Sustainability Team also communicates with and works closely with relevant staff, particularly Facilities Managers. Facilities Managers are emailed monthly with the latest energy consumption data for their sites and their performance against targets in line with the Carbon Management Plan.
As well as having targets outlined in the Carbon Management Plan and systems to measure performance such as the Carbon Dashboard, UAL has also previously used an EnPI appropriate to the university, which was carbon emissions from utility consumption per full time student. This can be found on the Carbon Dashboard spreadsheet. However, carbon emissions are the EnPI, with scope 1 and 2 emissions also being measured and targeted using kWh.

A key aim in the UAL Strategy (2022-2032) is climate justice. This has been enacted through the achievement of BREEAM ‘Outstanding’ for the new studio at Wimbledon College of Arts. Sustainability is also a key consideration in the longer-term Estate’s move of LCF to Stratford and the redevelopment of the London College of Communication site at Elephant & Castle which will follow the Design Brief for Sustainability.

The structure of the leadership means that ISO 50001 is supported at the very highest level of UAL and that the performance of the EnMS can be scrutinised by those key figures within the Sustainability and Estates team. The scrutiny of the EnMS is demonstrated by the monthly review of performance as communicated to FM’s, followed by quarterly review of energy performance at Management Reviews by the Director of Estates. Monthly performance data is also available publicly via the website. This website shows our energy performance against our stated target for any given site and month (or in the case of 2020-21 (due to Covid-19) against the three year average consumption for each month). The data behind the website is kept in the most up to date version of the Carbon Dashboard.

Management reviews are conducted by the Associate Director (Sustainable Operations) after internal audits by the Energy Projects Support Officer. These are stored on the OneDrive. The Management Reviews are shared with the Director of Estates where further action or approval on actions can take place. Additionally, students from across the university come together in student-led climate assemblies to discuss and respond to pertinent issues. From this we’ve seen active communities grow across UAL with the Climate & Environment Action Group and Climate Emergency Network both contributing to the creation of initiatives and the dissemination of research, projects and information.

5.2 Energy policy

As previously mentioned UAL has underpinned its commitment to energy management through the creation and publication a Carbon Management Plan which outlines UAL’s Energy Policy. This covers all aspects of energy management as appropriate for the scale of UAL’s energy consumption. It has been made publically available by posting it on the UAL website where is can be read by all students, staff and members of the public. The Carbon Management Plan is time stamped and is reviewed regularly by the Associate Director (Sustainable Operations) and the Energy Projects Support Officer to ensure it remains relevant and compliant with ISO 50001. It is version controlled so that previous versions can be seen. It is owned by the Associate Director (Sustainable Operations) and is approved by the Director of Estates.
The Carbon Management Plan sets the framework for setting targets and reviewing them. UAL achieved its target of a reduction in carbon emissions by 43% by 2020 from the 2011/12 baseline – carbon emissions were reduced by 51%. UAL also achieved its interim target of 22% by July 2016 from the 2011/12 baseline, having reduced emissions by 25%. UAL has set a new target - for the emissions we control directly (our scope 1 & 2 emissions), to reach net zero no later than 2030, with an ambition to reach a 92% reduction by 2030 before carbon offsetting. The target for Scope 3 is to reach net zero by 2040, with an ambition to reach 54% reduction by 2040 before offsetting.

5.3 Organisation roles, responsibilities and authorities

The Associate Director (Sustainable Operations) is responsible for the successful implementation and improvement of UAL’s EnMS in accordance with ISO 50001. The Associate Director (Sustainable Operations) is supported by the Energy Projects Support Officer, whose job it is to maintain the EnMs including the monitoring, targeting and reporting of utility data whilst ensuring the verification of data is robust.

The performance of the EnMS is maintained by the sustainability team through the use of the UAL Carbon Dashboard for scope 1 and 2 emissions. The Carbon Dashboard is at the centre of the monitoring and targeting system – all monthly utility data is inputted in the dashboard and it is used to create targets and compare consumption with targets. Scope 3 emissions are measured annually so that data can be provided for the Estates Management Report. Section 6.1 describes how scope 3 emissions are measured. This allows the university’s progress to be tracked. To ensure that the EnMs is effective, the Associate Director (Sustainable Operations) reports to top management (the Director of Estates) on the energy performance and the performance of the EnMS as discussed in Section 4.2.1.

Within UAL there are a list of key representatives who support energy reduction. While core responsibility lies with the sustainability team the task of energy and carbon reduction cannot be achieved by them alone. The Associate Director (Sustainable Operations) and Energy Projects Support Officer are therefore responsible for communicating awareness and responsibility for energy management to all levels of the organisation, particularly utility use. This is achieved through direct communication, such as monthly emails to FMs. A broader outreach to students and staff is achieved with the assistance of the Internal Communications Team who communicate sustainability activities and information through social media and events, for example Green Week. The sustainability team has also engaged with the internal staff newsletter – The Big Picture and the intranet (Canvas) to publish articles. The C&EAG also have a wide outreach and communicate to a wider audience particularly for matters concerning scope 3 emissions and actions found in the Carbon Management Plan.

Furthermore, the Carbon Management Plan is publicly available on UAL’s website alongside other environment and sustainability related policies. The university also has the Climate Emergency Network which all students and staff are encouraged to join which is a forum for discussion with ideas passed to the (C&EAG).
Key persons with influence over energy performance and energy management at UAL who ensure that the running of the EnMS is effective are laid out in the table below.

<table>
<thead>
<tr>
<th>Role at UAL</th>
<th>Role in Energy Performance/Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate Director (Sustainable Operations)</td>
<td>Lead on implementation of Energy Policy, the EnMS and the Carbon Management Plan. Ensures the EnMS meets the requirements of the standard. Reports on the performance of the EnMS and energy performance to the Climate &amp; Environment Action Group.</td>
</tr>
<tr>
<td>Energy Project Support Officer</td>
<td>Maintains the EnMS and ensures its functioning correctly. Carries out the monitoring, targeting, verification and reporting of energy consumption and investigates causes for high consumption. Conducts internal audits. Maintains legal compliance.</td>
</tr>
<tr>
<td>Internal Communications Team</td>
<td>Communicates sustainability events, updates and information to the wider university population. For example, communicating to staff through the intranet – Canvas and Big Picture.</td>
</tr>
<tr>
<td>Director of Estates</td>
<td>As Head of Estates has prevue over all areas of current and future Estates planning and management. As such has large amount of influence in the correct implementation of Energy Management Systems. Management of Reviews are reported to the Director of Estates.</td>
</tr>
<tr>
<td>Associate Director Estates Management &amp; Development</td>
<td>As head of projects, has a big impact on the implementation of sustainability in new build and refurbishments including energy performance of new builds/equipment. Seeks to adhere wherever possible to Design Brief for Sustainability, with a focus on the use of SKA and BREEAM ratings.</td>
</tr>
<tr>
<td>Head of Campus Services</td>
<td>As head of FM, has oversight of day to day running of building including the correct implementation of Energy Management and correct procedures for energy conservation. Reports to Director of Estates.</td>
</tr>
<tr>
<td>Head of Hard FM</td>
<td>The Head of Hard FM ensures the buildings are running as they should be. In relation to sustainability this includes heating and cooling systems are running correctly. They have a close relationship with Total Facilities Management contractors who carry out maintenance and repairs on the heating and cooling systems.</td>
</tr>
<tr>
<td>Facilities Managers</td>
<td>The Facilities Managers are based on all UAL sites. They have direct influence on energy management through operational decisions and equipment replacement decisions.</td>
</tr>
</tbody>
</table>
6. Planning

6.1. Actions to address risks and opportunities

At UAL there are clear procedures for energy planning. The process is an extension of the monitoring, verification and reporting process (please refer to the ‘Procedure’ tab in the latest version of the Carbon Dashboard for scope 1 and 2).

Due to the Covid-19 pandemic, all of the university’s buildings closed on the 24th March 2020 and all staff and students began to work from home. The buildings gradually reopened over summer 2020 for essential activities. The start of the 2020/21 academic year was delayed by a month and began on 19th October 2020. Buildings were shut again in January 2021, opened in April 2021 but operated with lower occupancy. For the academic year 2022/23 there is far more in-person teaching, aiming to increase the amount of students on site throughout the year. Home working (referred to as dynamic working) is common for operational staff.

The below process diagram (Figure 1) summarises energy planning at UAL and includes the impact of Covid-19. The ‘Planning Inputs’ column shows the risks and opportunities that the university’s operation pose while the ‘Planning Outputs’ reflect actions to address the risks and opportunities. Also, please see section 6.3 for the ‘energy review’ which shows the planning process.

Due to the risks and opportunities listed in the diagram below, consumption has been more difficult to forecast during the pandemic – and beyond - than in previous years. However, UAL’s measuring, monitoring, verification and reporting procedure always took place. This is to ensure that consumption and costs run in line with expectations (considering the changed university functioning). For the new academic year 2022/23 new targets have been set; the overall target is to reach net zero no later than 2030, with an ambition to reach a 92% reduction by 2030 before carbon offsetting.
The Energy Projects Support Officer carries out site surveys twice a year to identify opportunities for reducing energy use from buildings. The findings are reported back to relevant staff and they are added to the ‘Objectives Register’ on the Legislation Update Service portal where they are assigned to the Facility Manager along with a deadline for completion (see Appendix 2 for an example). Once completed the job can be marked as ‘complete’ and in the meantime it is designated as either ‘pending’ (before the deadline) or ‘overdue’ (after the deadline). Where necessary, jobs are reported on the Estates Helpdesk and can be designed as an ‘S’ (sustainability) job to allow for tracking progress. The status of all jobs is reported on a regular basis through the ‘Monthly ISO Email’ which provides an update on energy consumption, targets and ISO related information (Appendix 3).

Additionally, through the monthly monitoring and targeting (see ‘Procedure’ tab of the Carbon Dashboard) any higher than expected consumption can be investigated. Performance against the target is included in the ‘Monthly ISO Email’ and provides a transparent picture of consumption across the university.

Some examples of actions to address the risks of high consumption and opportunities to reduce consumption, include matching the timings of Building Management Systems to occupancy, ensuring the implementation of the Heating and Cooling Policy and cleaning solar panels.
Scope 3 emissions are measured annually. How emissions are measured is described below;

**Travel**
In 2020/21 emissions from travel accounted for 32.4% of UAL’s total emissions. 31.8% of this is from student travel at the start of and end of term. The remaining is from commuting and staff business travel both of which were low due to the Covid-19 pandemic. Total emissions from term travel is estimated based on the number of home, EU and international students at each site. For travel from daily commuting to and from site there is a travel survey of students and staff every two years to calculate emissions from this source. Business travel emissions are calculated from data from UAL’s travel agent who provide distances travelled and by what mode of transport.

**Supply Chain**
Emissions from supply chain account for 47.4% of UAL’s total emissions. A new version of the Higher Education Purchasing Association’s Scope 3 reporting tool will be available to report 2021-22 emissions and the tool ensures 100% of UAL’s spend is reflected in each of described spend categories.

**Construction and Refurbishment**
Emissions from construction account for 14.6% of UAL’s total emissions. Currently emissions from construction are calculated by converting spend into carbon emissions.

**Waste**
Emissions from waste account for 0.01% of UAL’s total emissions. The amount of waste produced at each site is weighed by the waste contractor and then converted into carbon emissions based on Government conversion factors.

**Water**
Emissions from water account for 0.03% of UAL’s total emissions. The amount of water used at each site is measured (though metering) and converted into carbon emissions based on Government conversion factors.

Actions to address emissions from scope 3 emissions are in the [Carbon Management Plan v11](#).

**6.2. Objectives, energy targets and planning to achieve them**
Within the UAL EnMS there are targets for all fuel types and supply points for utilities. These targets are both short and long term. Short term targets encourage staff to make changes to operational systems, while long term targets help drive the strategic plan for energy management, including the installation of significant energy conservation measures. The targets for scope 3 emissions are long-term.
Short term utility consumption targets are set each month for each site and can be viewed on the Carbon Dashboard (along with past targets). UAL’s Carbon Management Plan sets the target to reach net zero by 2030, the action plan to reach this includes reducing emissions from the buildings through energy management practices such as adjustment to BMS or light schedules. Electricity targets have been set based on this target. Gas targets have used historical regression analysis using degree days to account for variations in weather. Each month targets and performance against targets are shared with FMs and other relevant staff. The monthly monitoring and reporting is an important process to reduce emissions – see section 6.1. Long-term targets for energy reduction for all scopes are laid out in the Carbon Management Plan which is made public on the website and communicated through the C&EAG.

The verification of performance against all utility targets is done through the Carbon Dashboard – performance is evaluated here, broken down by each site and for every month. This is evaluated as kWh difference and percentage difference. As stated in the UAL Action Plan energy reductions are also evaluated through the Estates Management Records submission and reporting for SERC which are reported in carbon emissions (using the latest DEFRA conversion factors). The overall target was for a 43% reduction in carbon emissions by July
2020 which was achieved – reduction was by 53%. The medium term target of 22% reduction by July 2016 was achieved – reduction was reduced by 25%. UAL has set new targets: to reach net zero no later than 2030, with an ambition to reach a 92% reduction by 2030 before carbon offsetting. As of July 2022, carbon emissions have been reduced by 57%.

Emissions from scope 3 are measured on an annual basis, reported in the Estates Management Records and reported to the C&EAG. Actions to reduce emissions are discussed in the C&EAG who oversee the strategy and significant actions required to reduce emissions are approved by the Executive Board. The target for Scope 3 is to reach net zero by 2040, with an ambition to reach 54% reduction by 2040 before offsetting. The pathway to net zero is shown in Figure 3. Appendix 4 shows the baseline, target, progress to date and future activities to reach the target for supply chain – one of the sources of scope 3 emissions. To see this for all scope 3 sources please see the Carbon Management Plan.
Figure 3: UAL’s pathway to net zero emissions by 2040.
Responsibility for achieving energy reduction targets lies with the Associate Director (Sustainable Operations) and the Climate & Environment Action Group (C&EAG), as laid out in Section 5.1. These targets and monitoring processes ensure that UAL is ahead of legal requirements to reduce and report carbon emissions. They also drive consideration of significant energy saving opportunities through measures outlined in Section 6.3.

The Energy Projects Support Officer is responsible for monthly monitoring of energy performance from utilities and annual monitoring of scope 3 emissions. Monitoring of consumption from utilities is undertaken by collecting and comparing weekly physical meter reads of all accessible meters with billed utility data. The full process is explained on the ‘Procedure’ tab of the Carbon Dashboard. Monitoring consumption means UAL is well placed to comply with reporting schemes including SERC, EMR and ESOS. Example screenshots of the carbon dashboard can be seen in Appendix 5.

The Carbon Management Plan provides an action plan to improve the University’s energy performance and outlines what will be done, resources required, who will be responsible and when it will be completed. Results are evaluated through the Carbon Dashboard and reporting to HESA.

6.3. Energy review

UAL’s carbon emission sources are shown in Figure 4 below, with utilities contributing to scope 1 and 2 emissions and all other sources contributing to scope 3 emissions. UAL’s Energy Performance Indicator (EnPI) is carbon emissions – this is a common measure for utilities and scope 3 emissions, unlike utilities, the different sources of emissions are not measured in a common indicator such as kWh, therefore each source’s indicator (such as km travelled, or amount spent) is converted into carbon emissions. The significant emissions sources are supply chain and student travel at the beginning and end of term. However, scope 1 and 2 emissions are also measured and targeted using kWh.
UAL’s review of energy is explained below and shown in the process diagram below:

![Diagram showing Sources of Carbon Emissions in 2020/21](image)

**Figure 4: Sources of carbon emissions at UAL in 2020/21. Emission levels were affected by the Covid-19 pandemic, for example this is the cause of Staff Business Travel producing zero emissions.**
Planning:

In order to properly review UAL’s utility energy use and consumption UAL created a bespoke energy monitoring system called the UAL Carbon Dashboard. The dashboard is kept on the OneDrive. It is password protected to ensure data is not accidentally altered. Information is made publicly available to all relevant staff through direct communication or websites. The dashboard has several key functions in relation to reviewing energy use and consumption.

The Carbon Dashboard has a meter asset register which is a fully up to date database of all current energy supply points. The register includes all meter serial numbers, MPAN’s, MPR’s, fuel types, supplier and annual consumption in kWh. This register is monitored and updated on a monthly basis. The meter asset register then allows UAL to have a central database of energy supply points for the purposes of the EnMS. The Carbon Dashboard identifies, monitors and targets all energy types in the scope of the EnMS. This include – electricity, gas, heat from decentralised networks and fuel oil.

The Carbon Dashboard’s main purpose is to act as a central electronic database for all of UAL past and present energy consumption. For each specific supply point, a record of monthly consumption is kept. Historical
consumption data is kept so that UAL is able to both analyse its usage and have the capability to target and forecast future consumption. Electricity and gas targets are updated every year and a target is set for each site and for each month. By operating a central database for energy management UAL is able to properly evaluate its consumption and monitor for significant energy increases.

The Estates Management Records are used to report the necessary emissions data as part of the university’s compliance. It records the different sources of scope 3 emissions and the emissions produced from each source on an annual basis. Past emissions are stored here and are used to compare against more recent emissions in order to understand where UAL’s emissions are coming from and any changes that have taken place. The method used to calculate scope 3 emissions is explained in section 6.1. Future carbon emissions from scope 3 emissions have been presented in figure 3 to show the pathway to reach net zero.

Planning Inputs

Part of UAL’s EnMS is for scope 1 and 2 emissions to identify facilities, equipment and systems which have a significant impact on energy use and consumption. Twice a year an energy audit of every site takes place which identifies, among other things, what equipment is installed, how well the equipment (such as heating systems) is working, building fabric, occupancy levels or if there are any extenuating circumstances which may affect energy consumption. The findings are reported back to relevant staff such as Facility Managers, the Associate Director (Sustainable Operations), Head of Campus Services, Head of Hard FM. Findings are added to the ‘Objectives Register’ on the Legislation Update Service portal where they are assigned to the Facility Manager along with a deadline for completion. Once completed the job can be marked as ‘complete’ and in the meantime it is designated as either ‘pending’ (before the deadline) or ‘overdue’ (after the deadline). Where necessary, jobs are reported on the Estates Helpdesk and can be designed as an ‘S’ (sustainability) job to allow for tracking progress. The status of all jobs is reported on a regular basis through the ‘Monthly ISO Email’ which provides an update on energy consumption, targets and ISO related information. The status of ISO 50001 and ISO 14001 findings can be seen below:

<table>
<thead>
<tr>
<th></th>
<th>Pending</th>
<th>Overdue</th>
<th>Completed (Cumulative total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct</td>
<td>14</td>
<td>68</td>
<td>Not available</td>
</tr>
<tr>
<td>Nov</td>
<td>42</td>
<td>57</td>
<td>Not available</td>
</tr>
<tr>
<td>Dec</td>
<td>26</td>
<td>50</td>
<td>184</td>
</tr>
<tr>
<td>Jan</td>
<td>23</td>
<td>47</td>
<td>213</td>
</tr>
</tbody>
</table>
Other planning inputs have included using the asset register for all UAL sites. The register identifies all significant equipment at each of the UAL sites and highlights energy intensive or energy inefficient equipment. This allows the UAL to prioritise the upgrade of inefficient equipment. Significant energy uses include heating, ventilation and lighting and some equipment use, with the former two being the main uses. Variables that affect these are outlined in the process chart in section 6.1. The current energy performance of these significant energy uses is through the monthly monitoring and measuring process on the Carbon Dashboard (as explained in section 9.1.1). Those that have influence over control of these SEUs are communicated with on a regular basis for through ‘Monthly ISO Emails’ and receive training if necessary (see section 7.2, 7.3, 7.4).

Significant energy has been evaluated by undertaking audits combined with Investment Grade Proposals (IGP) which relate specifically to the UAL Energy Performance Contract (EPC). An IGP has allowed UAL to evaluate and identify areas or significant energy consumption quickly and cost effectively by engaging a third party specialist. The IGP is a tool to evaluate equipment or systems which are currently energy inefficient, and proposes an investment strategy designed to upgrade those systems to allow for reductions in energy consumption. UAL has undertaken several IGP’s which have resulted in a varied range of energy conservation measures being installed through an EPC. The EPC identified projects which could be undertaken to significantly reduce energy consumption, and would also be fully paid for within a set payback period through reduced energy costs. The payback period and magnitude of energy savings were the major decision factors in choosing projects to be undertaken through the EPC. Examples of measures such install of energy efficient lighting at Millbank and upgrading to an energy efficient cooling system for the data centre at Elephant & Castle. A full list of the equipment identified as suitable for upgrade with the purpose of improving energy efficiency can be found in the IPG folder on the S drive \(S:\)\Estates Management\Overall Management\Environmental Stewardship\Statutory Compliance\EPC).

For recent projects that have taken place, please see Appendix 4 of the Carbon Management Plan or below. Mechanical and electrical improvement in 2021/22 were:
Other examples of projects that have taken place include:

- New boiler at London College of Communication
- New kitchen boilers at Merton Hall Road
- Replacement of windows at John Princes St to double glazed windows
- A new zoning strategy as part of the upgrades to the Tower Block at London College of Communication, allowing different parts of the building to be heated or not
- Installation of LED lighting in various rooms at London College of Communication
- Installation of LED lighting in Wimbledon kitchen
- Installation of LED lighting as part of upgrades to the Wilson Road café

As shown in the figure 5, there are variables that affect the SEUs:

1. Student Numbers
2. Term time
3. Changes to teaching and non-teaching requirements e.g. extended library opening hours, events or cleaners operating beyond normal opening hours
4. Seasonal changes
5. Performance of energy conservation measures

As explained in section 6.1 current energy performance is stored on the Carbon Dashboard and investigations to energy improvement opportunities are recorded on the ‘Objectives Register’ on the Legislation Update Service portal.
The sources of scope 3 emissions have been identified and each year scope 3 emissions are calculated and reported through the Estates Management Records which is a compliance obligation for the university. It also serves to show how much emissions are being produced and allows the significant sources to be identified. For UAL there are two main sources of scope 3 emissions – supply chain and student travel at the start and end of term. These account for 47.4% and 31.8% of scope 3 emissions, respectively, which is the vast majority of all scope 3 emissions. Figure 5 shows the planning inputs to manage these, many of which overlap with scope 1 and 2 emissions, particularly the SEU variables. The C&EAG address these emissions, recently the Carbon Management v11 has a list of actions to reduce emissions from scope 3 sources.

Planning Outputs

The Carbon Dashboard is the document that outlines the methods and criteria used to carry out the energy review for scope 1 and 2 emissions. This is version controlled and each version kept on the OneDrive. The outputs of the review can be found on the dashboard. This includes energy use and consumption trends, future energy use and consumption, the energy performance indicator, the energy baseline, targets and the energy data collection procedure is also outlined in this document.

There are other outputs elsewhere such as the Carbon Management Plan, which details the action plan for all emissions scopes and the ‘Objectives Register’ on the Legislation Update Service. Financial outputs are also available - the online portal Utilityx, provided through UAL’s membership with TEC, provides consumption and cost forecasts.

6.4. Energy performance indicators

In order to have a single, communicable metric, the university’s EnPI is carbon emissions. Utilities and the different scope 3 emissions sources are not measured in a common indicator – utilities are measure in kWh, and scope 3 sources use a range of metrics such as kms travelled, amount spend, water used and waste produced. Therefore these different indicators are converted into carbon emissions.

However, utility use is measured and targeted on a monthly basis using kWh. The Carbon Dashboard ‘Energy Tracking’ tab and ‘Energy Summary’ tabs show the use of kWh to track energy performance. The Carbon Dashboard section of the UAL website shows the latest monthly data on the performance of all sites against their energy targets.

The Associate Director (Sustainable Operations) is responsible for reporting energy use and resulting carbon footprint. Energy consumption in kWh is reported on a regular basis to those with an impact on the EnMS through meetings with the Carbon & Environment Action Group, Risk Management Meetings, Estates meetings and monthly ISO emails.
As mentioned in the Carbon Management Plan an associated Key Performance Indicator is the amount of carbon dioxide from utilities in relation to the 2030 net zero carbon target.

6.5. Energy baseline

UAL has set a baseline energy consumption from which we can monitor and understand long-term trends in our energy profile. This baseline informed the development of the Carbon Management Plan and the Energy Policy when they were originally created. It continues to be used in all work involved in energy management in line with ISO 50001. The baseline was calculated using the consumption data, within the scope of the EnMS, for 2011/12. Details of this baseline can be found in the Carbon Management Plan.

By using this baseline UAL can report accurately and consistently to regulators such as the Office for Students. It also means that energy conservation measures across the estate can be measured accurately against a predetermined baseline. The most up to date performance against the baseline for scope 1 and 2 emissions can be found in the ‘EMR’ tab of the Carbon Dashboard. As UAL expands its scope to include scope 3 emissions, a new baseline has been set which is 2018/19 emissions.

6.6. Planning for collection of energy data

Significant energy uses, including heating, ventilation, air conditioning and lighting are monitored through the utility consumption. These are the key characteristics of UAL’s operation that affect scope 1 and 2 energy performance. Consumption is recorded on the Carbon Dashboard and the ‘procedure’ tab explains the full process for collecting consumption data. This is collected, monitored, analysed and reported on a monthly basis for each utility supply point. Scope 3 data is recorded on an annual basis and is stored on the EMR documentation, the significant sources are supply chain and student travel at the start and end of term. The Energy Projects Support Officer is responsible for updating the Carbon Dashboard and EMR documentation. Key variables which may affect changes in energy consumption/SEUs at UAL include:

- Student Numbers – this data is available through the Estates Management Record data
- Term time – terms dates are available online
- Changes to teaching and non-teaching requirements e.g. extended library opening hours, events or cleaners operating beyond normal opening hours – information such as this is requested of FMs if their site has consumed more than predicted.
- Seasonal changes – heating and cooling degree days are recorded on the Carbon Dashboard
- Performance of energy conservation measures
UAL has developed several documents to ensure energy usage is managed during every day operation and maintenance activities. The review conducted through the EPC to produce the Investment Grade Proposals identified that the major energy use for the university is in heating and cooling. Therefore, the Heating and Cooling Policy which can be found on the UAL website is communicated to all site managers who have direct control over systems. All on site managers are required to keep equipment at optimum levels. The PPM (pre-planned maintenance) schedules are available at each site. New equipment handover follows the process described in Section 7.2.

7. Support

7.1. Resources

The University employs two full time sustainability professionals. Section 5.3 shows the roles and responsibilities of these staff. The Estates Department works with the university’s Communication Team to distribute information about the EnMS and energy use to the wider university. The scope of the EMS covers 18 buildings that each have an assigned Facilities Manager or Residential Manager who supports the EnMS through the day to day management of the site. They are able to report changes in variables (listed in section 6.1) which may affect energy performance for utilities. The university has a Total Facilities Management contract with an external provider who manages the maintenance of equipment which can improve energy performance. Funding is available through Estates budgets such as for training, events (e.g. Green Week) and improvement measures (e.g. BMS improvements).

Beyond energy performance from utilities, the C&EAG has been formed to ensure not only that there is top level organisational support for the Carbon Management Plan, but that the aspirations of the carbon management team are realistic. Its primary role thus far has been to develop the Carbon Management Plan – it has been updated to show our response to Scope 3 emissions. In addition to the formal meetings there is regular liaison between the Board and the wider University – an invaluable means of ensuring the smooth passage of the plans from inception to approval. The best way to achieve this is through a network of carbon ‘champions’ across the organisation. This process will be led through the Executive Board.

7.2. Competence

UAL monitors its energy performance as described above to implement measures and introduce operational changes to meet the Carbon Management Plan.

In order to make sure that the EnMS and associated processes are implemented in a professional and efficient manner, UAL seeks to train staff at differing levels in energy management and conservation. This is for those whose work is related to significant energy uses. A full breakdown of the training given is listed on the facilities management training matrix.
The central tool used in energy management training is the Low Energy Training programme ran by the Energy Manager Association. The aim is for all UAL facilities staff to undertake the training. The facilities staff were chosen due to the fact they have a large impact on the day to day running of buildings and equipment. The low energy training seeks to give them the skills to manage and conserve energy. The key skills learnt during the training are:

- What is meant by energy and carbon emissions
- Why monitoring energy consumption is important
- The link between energy consumption and usage of equipment
- The purpose and role of energy reporting
- How to save energy and reduce carbon emissions

In winter 2017-18 all Facilities Managers, Facilities Assistants and Senior Residence Managers undertook Energy Awareness Training from the third party Organisation GAIA.

Facilities Managers, the Estates Projects team and the Energy Projects Support Officer have undertaken CIBSE training in building services which trains them in the area of mechanical systems such as heating and ventilation. The Energy Projects Support Officer has also completed the Energy Institute’s Level 2 Energy Management course in 2020 and continued her professional development by attending webinars hosted by the Energy Managers Association and the Chartered Institute of Building Services Engineers regarding energy & water auditing, building controls, heat pumps and Local Exhaust Ventilation systems. As well as having training in general energy management UAL also undertakes training specific to new equipment which will have a significant impact on energy consumption. An example of this would be the training of staff with new equipment installed under the EPC. On top of this all commissioning processes are designed to involve an energy management handover. A document detailing the handover processes for new mechanical and electrical equipment is available to all on site staff and managers, as well as central Estates staff. The form is also reviewed with the contractor. See below the procedure for energy handover for new equipment:

**STAGE 1** - Equipment is installed. Installer is provided with the energy efficiency handover sheet.

**STAGE 2** - During commissioning the installer completes the form.

**STAGE 3** - At the end of commissioning the installer meets with a representative from University of the Arts London. They review each point on the form. If the representative from University of the Arts London is satisfied that the requirements have been met they will sign off the form and save it to the S Drive for future reference. If they want further information from the installer then they will hold off from signing the sheet until they are fully satisfied that the installer has met with the energy efficiency requirements of University of the Arts London.

UAL also delivers training through presentations by the Associate Director (Sustainable Operations) and Energy Projects Support Officer. These presentations and talks are given at Estates meetings, Facilities Management meetings college meetings and other conferences so as to grow awareness of the importance of energy management and conservation. These presentations are also designed to give advice to other staff whose work
is not related to significant energy uses and to students on how they can help UAL achieve the aims of the EnMS. Additionally, there is an array of information on UAL’s website about sustainability and energy reduction at the university. There is information on the importance of sustainability at UAL and how members of the university can help. Monthly emails are sent to the facilities managers which set monthly consumption targets for each site and report on the sites’ consumption for the latest month, set against its target. Further details of the consumption is provided to the facilities managers if their site has consumed significantly more than expected. This level of communication raises awareness of the facilities managers’ role and responsibilities in meeting the requirements of the EnMS and their role in reducing consumption. In the Facilities Managers’ job aims there is the goal to meet the monthly targets set by the EnMS. It is part of their job specification and their annual performance review.

In Spring 2021 Carbon Literacy training was rolled out to all university staff members. The training is split into 5 chapters, covering climate emergency – the facts, carbon positive, waste and circularity, buying with a conscious, and sustainable learning teaching and research. It’s important that we recognise the scale and diversity of the climate conversation, and this training is attempts to make sure staff, and eventually students, have a shared knowledge and appreciation of the task at hand. This training is particularly useful for scope 3 emissions which is where individuals or academics can have more of an impact – for example purchasing choices. Additionally, it’s important that we have an idea of our understanding to help us identify areas where we, collectively as an institution, need to increase awareness.

7.3. Awareness

See section 7. 2 and section 7. 4

7.4. Communication

The University communicates externally and internally about its Carbon Management Plan EnMs, energy performance, targets and achievements to UAL staff and students through a number of portals.

- Information about the EnMS is communicated at a senior level to The Director of Estates oversees the implementation of ISO 50001 – management reviews are reported to them.
- The Climate Emergency Network is a forum for any member of UAL (staff or student) to contribute their ideas and opinions about sustainability. Key messages regarding the EnMS can be communicated in this forum. Meetings occur quarterly.
- Information regarding the EnMS is communicated to the Facility Managers, the Head of Campus Services, the Head of Hard FM, the Associate Director of Estates, the Director of Estates and accommodation Residence Managers through the monthly ISO email for scope 1 and 2 emissions.
- Scope 3 emissions are reporting in the EMR each year and are communicated to C&EAG
- The Sustainability Team has also engaged with the internal staff newsletter (The Big Picture) and the intranet (Canvas) to publish articles and raise awareness.
• The Carbon Dashboard reports on environmental performance on energy, water and waste for each site and is available for all staff and students to view.

• In early 2020 the sustainability website was redesigned to improve readability and navigation so the user can more easily find information they are looking for.

• UAL’s sustainability website contains information on the climate emergency, Carbon Management Plan, Environmental Policy, sustainable learning, teaching and research, sustainability in action, staff and student engagement, our achievements, policies and sustainable documentation, contacts and how to get involved and the carbon dashboard.

• Information on sustainability at UAL is included on welcome guides which all new students have access to when they arrive at UAL.

• A paid internship programme was put in place in autumn 2019 to spring 2020 and seven interns took part who worked on sustainability projects such as a pledge board, sustainable events and a survey. Through their projects, they communicated about energy use and sustainability at the university. These projects were further communicated to the wider university population through canvas and the Big Picture.

• Carbon Literacy Training – to building a common understanding of carbon sources and management at UAL

• UAL’s Student and Staff Engagement Strategy

• Estates Meetings, Projects Meetings and FM meetings are useful to communicate energy performance, and related energy performance plans and achievements

The sustainability website provides the contact details of the Energy Projects Support Officer so that anyone in the organisation can comment or suggest improvements to the EnMS, for example if they have an energy saving idea or would like to report an inefficiency such as lights left on or taps left running.

7.5. Documented information

All documents relating to UAL EnMS are kept fully up to date and are time stamped with a review date, as per the instructions on the ‘procedure’ tab of the Carbon Dashboard. By using document control UAL is able to minimise any chance of errors as well as being able to analyse previous data more easily.

All energy related policies are located on the UAL website. All contract documents and utility invoices are held on OneDrive. Additionally, all utility invoices are kept via the finance portal. These documents cover all energy supply points within UAL.

The Director of Estates approves policy and strategy documents after drafting by the sustainability team such as the Carbon Management Plan. These are reviewed regularly, and updated if required. The date and version of the documents are clearly identified at the top of the documents. Only the Sustainability Team and the Digital Team have access to update these on the website. Monitoring and verification documents such as the Carbon Dashboard and EMR are kept on the OneDrive.
The Carbon Dashboard is version controlled as described on the ‘Procedure’ tab. Data input to the Carbon Dashboard is, where possible, a link to data directly taken from suppliers portals.

8. Operation

8.1. Operation planning and control

The energy planning process can be seen in Figure 7 below.

The weekly site meter readings and monthly monitoring of energy usage through the Carbon Dashboard allows the impact of operational activities on the energy performance of each site to be monitored. Therefore, major deviations from the predicted consumption can be investigated. The annual calculation of scope 3 carbon emissions also allows deviations from previous years’ emissions to be identified.

UAL has developed several documents for utilities to ensure energy usage is managed during every day operation and maintenance activities. The review conducted through the EPC to produce the Investment Grade Proposals identified that the major energy use for the university is in heating and cooling. Therefore, the Heating and Cooling Policy which can be found on the UAL website is communicated to all site managers who have direct

![Figure 7: Process diagram showing the strategic energy planning](image-url)
control over systems. However, during the Covid-19 pandemic the Heating and Cooling Policy is not followed as strictly because there is increased ventilation, both mechanical and through open windows, which means buildings are likely to be colder and require increased energy to bring buildings to usual temperatures.

All on site managers are required to keep equipment at optimum levels. Documentation including the PPM (pre-planned maintenance) schedules and compliance folders are available at each site. New equipment handover follows the process described in Section 7.2. Compliance records are kept on each site and monitored through site audits.

The weekly site meter readings and monthly monitoring of energy usage through the Carbon Dashboard allows the impact of operational activities on the energy performance of each site to be monitored. Therefore major deviations from the predicted consumption can be investigated, such as alterations to the BMS system.

The nature of scope 3 carbon emissions means that UAL does not have direct control over emissions from these sources but it can influence them. UAL’s net zero action plan outlines the processes planned in order to reduce carbon emissions from significant scope 3 sources such as travel and supply chain. UAL’s Travel Plan also outlines plans to reduce emission from this source. Actions to address scope 3 emissions are located in the Carbon Management Plan which is publicly available online.

8.2. Design

UAL’s EnMS includes policies which ensure designs for new buildings, new equipment, new processes and refurbishments are done in accordance with our energy goals. The key policies which relate to design and energy management at UAL are:

- **The UAL Design brief for Sustainability** – outlines how any new UAL builds or refurbishments should adhere to the latest environmental and energy standards, with a particular focus on limiting any significant additional kWh load on the UAL total.
- **SKA Sustainability Rating** – outlines guidance for the purchasing of new equipment and fittings. The SKA good practice rating is used most commonly in relation to major projects and renovations or upgrades of existing space within the university.
- **The UAL Mechanical, Electrical & Plumbing Design Particulars Document** – The purpose of this document is to provide design information regarding UAL for main Contractors and Sub-Contractors who are engaged by the Estates Department or associated Colleges. This document shall be read in conjunction with all relevant British Standards and Codes of Practice; it does not seek to replace industry-standard design guidance or practice. It is intended to provide UAL’s aspirations to ensure buildings services align with the University’s strategic ambitions and improve the student experience as much as possible.
- **The Washroom Design Guide** - The Contractor is to ensure new washroom fit out schemes adhere closely to this document and deviation is approved in writing from the UAL.
For small projects a project design sustainability checklist is used to record the sustainability and energy considerations for the project.

8.3. Procurement

Purchasing energy
The purchasing of gas and electricity (the two largest commodities UAL purchases) is facilitated through a flexible energy procurement contract via a Public Buying Organisation (The Energy Consortium). Copies of the Supply Agreements are available on the OneDrive. Risk Management Meetings are held quarterly with finance representatives and representatives from The Energy Consortium. These meetings are an opportunity to assess the procurement strategy, discuss the performance of the contract and examine any changes to strategy or utility prices. The minutes and supporting data for these provide regular updates on the performance of the contract. UAL has appointed external auditors (PWC) to review the procurement and management of utility supply contracts. The most recent audit was conducted in November 2017. No non-conformities or areas of improvement were identified at this time.

Purchasing equipment
When purchasing equipment at UAL there are two key documents which must be adhered to in relation to energy management and environmental sustainability. The first is the SKA rating guidance which gives a minimum standard for everything from hand dryers to light fittings. The SKA rating means that UAL is able to create a standard around energy efficient equipment and also allows UAL to bring a uniformity to its purchasing. Additionally, when purchasing equipment and products that have a significant impact on energy use the energy technology list can also be used.

Purchasing sustainably
The second part of the purchasing policy which has an effect on energy management is UAL use of the CIPS Sustainability Index. The Index makes it possible for UAL to appraise existing suppliers in terms of their economic, social and environmental sustainability. More information on what the CIPS Sustainability Index is can be found here. Use of the Index for procurement at UAL is mandated by the Sustainable Procurement Policy.

The largest source of scope 3 emissions at UAL is from procurement – whenever purchases are made this contributes to carbon emissions due to the production and delivery of the item or service. The net zero action plan addresses this and has plans to reduce emissions such as material swap shops and a procurement tool which allows a budget holder of physical goods to assess the carbon emissions of their procurement decision.

9. Performance evaluation

9.1. Monitoring, measurement, analysis and evaluation of energy performance the EnMS

9.1.1 General
As previously mentioned the monitoring, measurement and analysis of energy consumption is based around the central energy database of the UAL Carbon Dashboard for utilities. The dashboard provides a central location for all data relating to energy use and consumption. However, there are several ways in which the data is used in order to support UAL energy management systems.

UAL measures energy consumption on all sites to a meter supply level. This is an appropriate level of detail for UAL’s estate. The estate is spread across 18 sites with 106 electricity and heating meter points. Monitoring at the meter level allows a detailed analysis whilst maintaining a manageable size of data set. This will be reviewed with changes to the estate, particularly planned consolidation of sites, to ensure UAL records and analyses the most accurate and appropriate information. The meter resolution also allows an informed picture to be built regarding the consumption trends within each site. The Carbon Dashboard reports in kWh which is then converted to carbon emissions (UAL’s EnPI) using the most up to date and relevant conversion factors for analysis against the targets set in the Carbon Management Plan.

Data entered into the Carbon Dashboard is, by preference, the billing data issued by utilities. This is supplied monthly and is first checked against the weekly meter readings taken by Facilities Managers, which are logged in the ‘FM Meter Reading Records’, to ensure it is accurate. The core principle of monitoring energy usage at UAL is to properly understand levels of consumption, both past and present. Trends in consumption are closely monitored. UAL sets targets and profiles over a year in advance as a guide to meet our energy reduction targets. For heating, these targets include regression analysis to correlate heating consumption to weather. This allows the actual heating consumption to be fairly assessed against the targets. For both heating and electricity, significant deviations from expected consumption are investigated by considering potential usage or temperature causes.

Scope 3 emissions are measured annually and are reported to HESA and the C&EAG. Data for EMR is gathered in February and reported in one of the quarterly C&EAG meetings. Emissions compared to the previous year are assessed. The EnPI is carbon emissions, unlike for utilities where the different utility types all use the same indicator (kWh), scope 3 sources use different indicators meaning they need to be converted to carbon emissions so they all measured using the same metric.

9.1.2 Evaluation of compliance with legal requirements and other requirements

As explained in Section 4.2, UAL uses a third party legal update service to maintain the key legal and regulatory requirements which is listed on the ‘Procedure’ tab of the Carbon Dashboard. The document is updated on a monthly basis, meaning that any changes to legislation can be reflected in the most up to date version of the dashboard.

Additionally, the Legislation Update Service lists all relevant legal and regulatory requirements and alerts users to any changes in legislation through its monthly newsletters. These emails are saved on the OneDrive.
The sustainability team, in conjunction with other estates staff, are responsible for fulfilling these legal obligations. The Director of Estates is ultimately responsible for approving data to be released to the regulatory bodies.

9.2. Internal audit

In order that UAL’s EnMS is kept fully up to date and compliant with energy management standards and requirements, the EnMS undergoes internal audits and evaluation. The internal audit provides information on whether the EnMS:

- improves energy performance
- conforms to the university’s own requirements of the EnMS, the Energy Policy, objectives and energy targets and the requirements of the Standard
- Is effectively implemented and maintained

An internal audit schedule is available on the OneDrive, which sets out when future audits will take place and what will be audited. This audit schedule is maintained by the Energy Projects Support Officer. The Energy Projects Support Officer also undertakes the internal audits as they have a good understanding of the management system and they ensure they conduct audits with objectivity and impartiality.

The audit criteria and scope are outlined in each audit and they are carried out by reviewing documentation and making enquiries with any relevant persons. Internal audits are reviewed by the Associate Director (Sustainable Operations) who will address any comments or points raised in the internal audit and turn the audits into Management Reviews which are reviewed by the Director of Estates. All internal audits and management reviews are kept.

9.3. Management review

The Management Review of the EnMS is undertaken by the Associate Director (Sustainable Operations). This review is then presented to the Director of Estates for approval. This review will seek to evaluate the suitability, adequacy and effectiveness of UAL’s EnMS.

The inputs to the EnMS management review are as follows:

- Review of previous actions from EnMS management review and external audit of EnMS.
- Any changes in external and internal issues and associated risks and opportunities that are relevant to the EnMS
- Nonconformities and corrective actions
- Monitoring and measurement results (review of UAL energy performance against set targets such as those laid out on an annual and monthly basis, energy performance improvement based on monitoring and measurement results, status of action plans)
• Audit results
• Review of UAL’s Energy Policy, as laid out in 4.3.
• Evaluation of compliance with legal compliance and other requirements
• Opportunities for continual improvement

Outputs from UAL’s energy management review include decisions related to continual improvement opportunities and any need for changes to the EnMS, including

• opportunities to improve energy performance
• the Energy Policy
• EnPI or baselines
• objectives, energy targets, action plans or other elements of the EnMS and actions to be taken if they are not achieved;
• opportunities to improve integration with business processes
• the allocation of resources;
• the improvement of competence, awareness and communication.

Any changes listed above would be subject to approval by the Carbon & Environment Action Group, and would have to go to the University’s Financial Departments for approval regards any changes to funding. All actions from the management review are taken up by the sustainability department and then approved by appropriate level of management as laid out in section 5.1.

10. Improvement

10.1. Nonconformity and corrective action

As mentioned above, UAL will review the EnMS as per the audit schedule. The internal audit allows for non-conformities and potential nonconformities to be identified and their causes stated. Recommendations and non-conformities found through the internal audit process are addressed by the Associate Director (Sustainable Operations) and then the Director of Estates if necessary. Records of addressing non-conformities can be seen in the internal audit and management review documentation where the responses and actions taken are stated.

The outcomes identified by external auditors (such as surveillance and accreditation audits) also identify any opportunities for improvement and any non-conformities. If this occurs a Corrective Action Plan is required by the auditor within four weeks of the audit being issued to UAL. The causes, corrective action, owner of each action and monitoring intervals are explained in the Corrective Action Plan.

10.2. Continual improvement
UAL shall continually improve the suitability, adequacy and effectiveness of the EnMS and shall demonstrate continual energy performance improvement.
Appendix 1 – PESTLE Analysis

Version 3. Nov 22

### Political stakeholders
**Interested parties include**
- Planet’s Universities Green League
- European Committee for Standardisation
- Environmental Association of Universities & Colleges
- Social Purpose Lab

**Satisfying the needs and expectations of**
- UAL Climate Action Plan
- UAL’s Strategic Plan
- The UAL Climate Emergency Network

### Economic stakeholders
**Interested parties include**
- UAL’s Executive Board
- Estates SMT
- People & Planet’s Universities Green League
- European Committee for Standardisation
- Environmental Association of Universities & Colleges

**Satisfying the needs and expectations of**
- UAL Climate Action Plan
- UAL’s Strategic Plan
- The UAL Climate Emergency Network

### Social stakeholders
**Interested parties include**
- UAL’s Executive Board
- Estates SMT
- People & Planet’s Universities Green League
- Environmental Association of Universities & Colleges
- Climate Action Network
- Social Purpose Lab

**Satisfying the needs and expectations of**
- UAL Climate Action Plan
- UAL’s Strategic Plan
- The UAL Climate Emergency Network

### Technology stakeholders
**Interested parties include**
- UAL’s Executive Board
- Estates SMT
- UAL Staff and Students
- UAL on-line (once defined)

**Satisfying the needs and expectations of**
- UAL Climate Action Plan
- UAL’s Strategic Plan
- The UAL Climate Emergency Network

### Environmental stakeholders
**Interested parties include**
- UAL’s Executive Board
- Estates SMT
- People & Planet’s Universities Green League
- European Committee for Standardisation
- Environmental Association of Universities & Colleges
- Social Purpose Lab

**Satisfying the needs and expectations of**
- UAL Climate Action Plan
- UAL’s Strategic Plan
- The UAL Climate Emergency Network

### Legal stakeholders
**Interested parties include**
- UAL’s Executive Board
- Estates SMT
- People & Planet’s Universities Green League
- European Committee for Standardisation
- Higher Education Statistical Agency

**Satisfying the needs and expectations of**
- UAL Climate Action Plan
- UAL’s Strategic Plan
- The UAL Climate Emergency Network

### PESTLE ANALYSIS

- **Political**
  - Satisfying the needs and expectations of
  - UAL Climate Action Plan
  - UAL’s Strategic Plan
  - The UAL Climate Emergency Network

- **Economic**
  - Satisfying the needs and expectations of
  - UAL Climate Action Plan
  - UAL’s Strategic Plan
  - The UAL Climate Emergency Network

- **Social**
  - Satisfying the needs and expectations of
  - UAL Climate Action Plan
  - UAL’s Strategic Plan
  - The UAL Climate Emergency Network

- **Technology**
  - Satisfying the needs and expectations of
  - UAL Climate Action Plan
  - UAL’s Strategic Plan
  - The UAL Climate Emergency Network

- **Environmental**
  - Satisfying the needs and expectations of
  - UAL Climate Action Plan
  - UAL’s Strategic Plan
  - The UAL Climate Emergency Network

- **Legal**
  - Satisfying the needs and expectations of
  - UAL Climate Action Plan
  - UAL’s Strategic Plan
  - The UAL Climate Emergency Network
### Appendix 2 – Snapshot of the ‘Objectives Register’ from the Legislation Update Service

<table>
<thead>
<tr>
<th>Date</th>
<th>Date</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>31/08/2022</td>
<td>31/10/2022</td>
<td>Upma Matharu, Jose De Sousa, Daniel Bush</td>
<td>Data is not being reported back correctly from the FCUs - an engineer was coming out to look the day after the survey. 20/10/22 – Granary building sensors are being upgraded. £250k project, to be in the year 22/23, big project. Corrective Action: part of projects team upgrade works.</td>
</tr>
<tr>
<td>21/09/2022</td>
<td>31/10/2022</td>
<td>Rebecca Smart, Upma Matharu, Jose De Sousa, Daniel Bush</td>
<td>It is not clear if optimum start/stop is in place for the BMS - please ask CBRE to investigate this and implement it if possible. FM confirmed on 12/09/22 that they chased CBRE for an update. Corrective Action: 20/10/22 - MG confirmed this is in place.</td>
</tr>
<tr>
<td>21/09/2022</td>
<td>30/11/2022</td>
<td>Rebecca Smart, Upma Matharu, Jose De Sousa, Daniel Bush</td>
<td>On the roof, on the dry air coolers they look like they are building up with limescale. Please could you ask CBRE if these scheduled for a clean? See photos. Aug 22 - This is a very big job and will cost approx 200k x 4 to fix the dry air coolers - this is the root cause of the poor cooling (the blocked/corroded system means heat isn't being rejected). The adiabatic system on the coolers is also not working. Two of the three chillers were also not working (linked to the above issue) and the correct chill temps were not being met. FM confirmed on 12/09/22 that they chased CBRE for update on these works. Oct update: This is a capital project to replace the chillers and subsequently we will need to apply for funding. 20/10/22 – confirmation from Director of Estates that it needs doing and will come from the backlog maintenance budget.</td>
</tr>
<tr>
<td>31/08/2022</td>
<td>30/09/2022</td>
<td>Rebecca Smart, Upma Matharu, Jose De Sousa, Daniel Bush</td>
<td>There was some polystyrene in the recycling eurobin (but no other waste) which should be removed and there was some plastic waste (but not other waste) in a couple of the food bins which needs to be removed. Corrective Action: this has been rectified.</td>
</tr>
<tr>
<td>02/09/2022</td>
<td>30/09/2022</td>
<td>Rebecca Smart, Upma Matharu, Jose De Sousa, Daniel Bush</td>
<td>The new Display Energy Certificates need to be put up. Corrective Action: Certificate is displayed.</td>
</tr>
</tbody>
</table>
Appendix 3 – Example of a Monthly ISO email

Hi all,

With the ISO 50001 and ISO 14001 audit approaching (it will take place 13th – 16th March), I would like to focus on the Legislation Update Service. I have been carrying out ISO site visits and any findings will go on the Legislation Update Service. Jobs will show as either pending or overdue – they are pending if they are before the deadline and overdue if they are past it.

Below is a table of the jobs over the last three months, the number of pending jobs has fluctuated as I add them from my site visits and also as a lot have been completed – thank you very much for this. The number of overdue jobs has decreased but slowly. I would be very grateful if you could look at your site on the Legislation Update Service (under the Objectives Register tab) and see if you are able to progress any of the overdue jobs. I have made some changes to the accounts for FM, Errol, Camilla, Lukman, Michael G and Amanda so you can now ‘edit’ the job and add a comment about progress (it would be helpful if you could add the date when you make an edit). You should now be able to see an ‘edit’ box, click this to add text to the job - the below screenshot is an example.

<table>
<thead>
<tr>
<th></th>
<th>Pending</th>
<th>Overdue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct</td>
<td>14</td>
<td>68</td>
</tr>
<tr>
<td>Nov</td>
<td>42</td>
<td>57</td>
</tr>
<tr>
<td>Dec</td>
<td>26</td>
<td>50</td>
</tr>
</tbody>
</table>

There are 4 boilers not working – one being fixed on 3rd Nov. No others are waiting for PO to be raised - the heat exchangers have split. 25/10/22 update from MG – PO’s have been raised, I will chase CBRE on the repair schedule.

With the external ISO audits approaching please find attached crib sheets to share with your teams and to familiarise yourself with.

The graph and tables below show our progress against targets and gas and electricity continue to be under target which is great. As usual, let me know of any reasons why your site may be in red. With the Christmas break coming up please make sure you switch off/turn down heating and HVAC systems as much as possible. The building will be closed from Friday 23rd Dec and reopen on Tuesday 3rd Jan.
Energy Tracking Graph

Actual Consumption vs Targetted Consumption

Electricity Oct 22

<table>
<thead>
<tr>
<th>SITE</th>
<th>OCT-22</th>
<th>ELECTRICITY Usage (kWh)</th>
<th>DIFFERENCE</th>
<th>% DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TARGET</td>
<td>ACTUAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mare Street</td>
<td>28,099</td>
<td>32,587</td>
<td>-4,488</td>
<td>-16%</td>
</tr>
<tr>
<td>Archwood House</td>
<td>33,716</td>
<td>37,321</td>
<td>-3,605</td>
<td>-11%</td>
</tr>
<tr>
<td>Gardens House</td>
<td>30,651</td>
<td>33,559</td>
<td>-2,908</td>
<td>-9%</td>
</tr>
<tr>
<td>Golden Lane</td>
<td>13,183</td>
<td>14,205</td>
<td>-1,022</td>
<td>-8%</td>
</tr>
<tr>
<td>Portland House</td>
<td>27,068</td>
<td>26,926</td>
<td>-142</td>
<td>-1%</td>
</tr>
<tr>
<td>Kings Cross</td>
<td>598,575</td>
<td>587,798</td>
<td>-10,777</td>
<td>-2%</td>
</tr>
<tr>
<td>Wilson Road</td>
<td>13,937</td>
<td>13,642</td>
<td>-295</td>
<td>-2%</td>
</tr>
<tr>
<td>Elephant and Castle</td>
<td>245,651</td>
<td>239,851</td>
<td>-5,800</td>
<td>-2%</td>
</tr>
<tr>
<td>Greencoat</td>
<td>4,004</td>
<td>3,901</td>
<td>-103</td>
<td>-3%</td>
</tr>
<tr>
<td>Brookie Hall</td>
<td>10,434</td>
<td>9,625</td>
<td>-809</td>
<td>-8%</td>
</tr>
<tr>
<td>Lime Grove</td>
<td>61,223</td>
<td>55,506</td>
<td>-5,716</td>
<td>-9%</td>
</tr>
<tr>
<td>Byam Shaw</td>
<td>24,680</td>
<td>21,607</td>
<td>-3,073</td>
<td>-12%</td>
</tr>
<tr>
<td>MillBank</td>
<td>92,925</td>
<td>81,254</td>
<td>-11,671</td>
<td>-13%</td>
</tr>
<tr>
<td>IPS</td>
<td>66,570</td>
<td>57,991</td>
<td>-8,579</td>
<td>-13%</td>
</tr>
<tr>
<td>Neickham Road</td>
<td>92,472</td>
<td>76,753</td>
<td>-13,718</td>
<td>-15%</td>
</tr>
<tr>
<td>Merton Hall Road</td>
<td>49,368</td>
<td>34,398</td>
<td>-14,970</td>
<td>-30%</td>
</tr>
<tr>
<td>Curtain Rd</td>
<td>22,058</td>
<td>14,636</td>
<td>-7,422</td>
<td>-33%</td>
</tr>
<tr>
<td>High Holborn</td>
<td>96,680</td>
<td>63,830</td>
<td>-32,851</td>
<td>-34%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,511,205</td>
<td>1,407,412</td>
<td>-103,793</td>
<td>-7%</td>
</tr>
</tbody>
</table>
### Oct-22 HEAT USAGE (kWh)

<table>
<thead>
<tr>
<th>SITE</th>
<th>TARGET</th>
<th>ACTUAL</th>
<th>DIFFERENCE</th>
<th>% DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Byam Shaw</td>
<td>30,803</td>
<td>46,197</td>
<td>15,394</td>
<td>50%</td>
</tr>
<tr>
<td>Brooke Hall</td>
<td>48,572</td>
<td>59,138</td>
<td>10,566</td>
<td>22%</td>
</tr>
<tr>
<td>Lime Grove</td>
<td>91,680</td>
<td>109,136</td>
<td>17,456</td>
<td>19%</td>
</tr>
<tr>
<td>Merton Hill Road</td>
<td>60,056</td>
<td>61,565</td>
<td>1,509</td>
<td>3%</td>
</tr>
<tr>
<td>Peckham Road</td>
<td>192,380</td>
<td>183,510</td>
<td>-8,870</td>
<td>-5%</td>
</tr>
<tr>
<td>Archwood House</td>
<td>75,208</td>
<td>70,087</td>
<td>-5,121</td>
<td>-7%</td>
</tr>
<tr>
<td>Portland House</td>
<td>69,800</td>
<td>61,032</td>
<td>-8,768</td>
<td>-13%</td>
</tr>
<tr>
<td>Gardens House</td>
<td>68,371</td>
<td>56,502</td>
<td>-11,869</td>
<td>-17%</td>
</tr>
<tr>
<td>Golden Lane</td>
<td>11,786</td>
<td>9,649</td>
<td>-2,137</td>
<td>-18%</td>
</tr>
<tr>
<td>Curtain Rd</td>
<td>45,002</td>
<td>31,406</td>
<td>-14,496</td>
<td>-32%</td>
</tr>
<tr>
<td>Wilson Road</td>
<td>37,517</td>
<td>25,363</td>
<td>-12,154</td>
<td>-32%</td>
</tr>
<tr>
<td>Greenoast</td>
<td>21,320</td>
<td>14,380</td>
<td>-6,940</td>
<td>-33%</td>
</tr>
<tr>
<td>Elephant and Castle</td>
<td>196,648</td>
<td>199,093</td>
<td>-2,445</td>
<td>-1%</td>
</tr>
<tr>
<td>Kings Cross</td>
<td>308,618</td>
<td>191,000</td>
<td>-117,618</td>
<td>-38%</td>
</tr>
<tr>
<td>Mare Street</td>
<td>32,289</td>
<td>14,531</td>
<td>-17,758</td>
<td>-55%</td>
</tr>
<tr>
<td>Millbank</td>
<td>101,243</td>
<td>27,533</td>
<td>-73,710</td>
<td>-73%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1,446,290</td>
<td>1,128,856</td>
<td>-317,434</td>
<td>-22%</td>
</tr>
</tbody>
</table>

*Kings Cross is excluded from the totals*

### Water Oct-22

<table>
<thead>
<tr>
<th>SITE</th>
<th>TARGET</th>
<th>ACTUAL</th>
<th>DIFFERENCE</th>
<th>% DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archwood House</td>
<td>540</td>
<td>1,257</td>
<td>717</td>
<td>133%</td>
</tr>
<tr>
<td>Gardens House</td>
<td>401</td>
<td>1,061</td>
<td>660</td>
<td>166%</td>
</tr>
<tr>
<td>Brooke Hall</td>
<td>253</td>
<td>489</td>
<td>236</td>
<td>93%</td>
</tr>
<tr>
<td>Peckham Road</td>
<td>189</td>
<td>321</td>
<td>132</td>
<td>70%</td>
</tr>
<tr>
<td>Byam Shaw</td>
<td>95</td>
<td>156</td>
<td>61</td>
<td>64%</td>
</tr>
<tr>
<td>IPS</td>
<td>395</td>
<td>609</td>
<td>214</td>
<td>54%</td>
</tr>
<tr>
<td>High Holborn</td>
<td>1,141</td>
<td>1,693</td>
<td>552</td>
<td>48%</td>
</tr>
<tr>
<td>Portland House</td>
<td>280</td>
<td>396</td>
<td>116</td>
<td>41%</td>
</tr>
<tr>
<td>Merton Hill Road</td>
<td>336</td>
<td>414</td>
<td>88</td>
<td>27%</td>
</tr>
<tr>
<td>Millbank</td>
<td>516</td>
<td>644</td>
<td>128</td>
<td>25%</td>
</tr>
<tr>
<td>Lime Grove</td>
<td>430</td>
<td>488</td>
<td>58</td>
<td>13%</td>
</tr>
<tr>
<td>Mare Street</td>
<td>747</td>
<td>602</td>
<td>-145</td>
<td>-19%</td>
</tr>
<tr>
<td>Curtain Rd</td>
<td>137</td>
<td>74</td>
<td>-63</td>
<td>-46%</td>
</tr>
<tr>
<td>Golden Lane</td>
<td>158</td>
<td>75</td>
<td>-83</td>
<td>-52%</td>
</tr>
<tr>
<td>Elephant and Castle</td>
<td>983</td>
<td>248</td>
<td>-735</td>
<td>-75%</td>
</tr>
<tr>
<td>Greenoast</td>
<td>75</td>
<td>11</td>
<td>-64</td>
<td>-85%</td>
</tr>
<tr>
<td>Kings Cross</td>
<td>3,194</td>
<td>0</td>
<td>-3,194</td>
<td>-100%</td>
</tr>
<tr>
<td>Wilson Road</td>
<td>297</td>
<td>0</td>
<td>-297</td>
<td>-100%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>10,287</td>
<td>8,539</td>
<td>-1,748</td>
<td>-17%</td>
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*Kings Cross and Wilson Road show has zero consumption due to previous overestimated consumption*
# Targets Dec 22

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<thead>
<tr>
<th></th>
<th>ELECTRICITY (kWh)</th>
<th>HEAT (kWh)</th>
<th>WATER (m3)</th>
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<td>106,817</td>
<td>1,009</td>
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<td>Brooke Hall</td>
<td>11,757</td>
<td>82,324</td>
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<td>Byam Shaw</td>
<td>27,810</td>
<td>50,698</td>
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<td>Portland House</td>
<td>29,888</td>
<td>104,617</td>
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<td>Curtain Road</td>
<td>12,562</td>
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<td>Elephant and Castle</td>
<td>208,545</td>
<td>412,139</td>
<td>1,826</td>
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<td>Gardens House</td>
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<td>912</td>
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<td>Golden Lane</td>
<td>14,858</td>
<td>18,575</td>
<td>293</td>
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<tr>
<td>Greencoat</td>
<td>4,535</td>
<td>21,320</td>
<td>139</td>
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<tr>
<td>High Holborn</td>
<td>90,554</td>
<td>NO GAS</td>
<td>2,118</td>
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<tr>
<td>IPS</td>
<td>54,348</td>
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<td>733</td>
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<tr>
<td>Kings Cross</td>
<td>483,401</td>
<td>572,858</td>
<td>5,932</td>
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<td>Lime Grove</td>
<td>52,882</td>
<td>156,192</td>
<td>874</td>
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<td>Mare Street</td>
<td>29,209</td>
<td>70,203</td>
<td>1,588</td>
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<td>Merton Hall Road</td>
<td>48,773</td>
<td>104,362</td>
<td>605</td>
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<tr>
<td>Millbank</td>
<td>81,532</td>
<td>171,376</td>
<td>958</td>
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<tr>
<td>Peckham Road</td>
<td>81,261</td>
<td>298,017</td>
<td>351</td>
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<tr>
<td>Wilson Road</td>
<td>16,608</td>
<td>65,540</td>
<td>552</td>
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</table>

Kind regards,

Rebecca
Appendix 4 – Objectives, Targets and Plans for a source of scope 3 emissions, see the Carbon Management Plan for all sources

3.7 Supply chain

Baseline
In 2018/19 supply chain accounted for 58,388 tCO₂e (of which 11,158 comes from construction).

Supply chain accounted for 59% of the total scope 3 carbon emissions in the baseline year. The carbon emissions associated with supply chain include a number of categories such as business services, products, food and catering, ICT, waste and water.

Target
Our target is to reduce scope 3 carbon emissions associated with supply chain by 54% no later than 2040, from a 2018/19 baseline, which equates to reducing carbon emissions by 31,530 tCO₂e.

Progress to date
Carbon emissions associated with supply chain (excluding construction) have decreased from 2018/19 to 2020/21 by 0.1%.

Activity to reach 54% reduction target
UAL has expanded its ISO14001 certification to include activities from learning, teaching and research. Through this management tool we will monitor and reduce carbon emissions from academic related procurement, including emissions that arise from deliveries. The university has introduced a specific key performance indicator for supply chain emissions – (“carbon emissions that arise from academic related procurement, including emissions that arise from the delivery of products”). The university is also seeking to appoint a consolidated logistics provider to reduce the volumes and number of products associated with learning, teaching and research activities. UAL will develop a simple, digital appraisal tool that allows a budget holder of physical goods to assess the carbon emissions of their procurement decision.

Chart 13.3: Scope 3 carbon emissions associated with supply chain from 2013/14 to 2020/21
## Appendix 5 – Example screenshots of the Carbon Dashboard

**Peckham Road monitoring and targeting:**

### Gas

<table>
<thead>
<tr>
<th>Actual consumption</th>
<th>Month</th>
<th>Sep-22</th>
<th>Oct-22</th>
<th>Nov-22</th>
</tr>
</thead>
<tbody>
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<td>949</td>
<td>11</td>
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<td>-</td>
<td>-</td>
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<td>7883100209</td>
<td>45,368</td>
<td>160,281</td>
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<tr>
<td>Carbon Usage (t)</td>
<td>8.3</td>
<td>33.6</td>
<td>32.9</td>
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<tr>
<td>Actual Gas Consumption</td>
<td>45,300</td>
<td>183,510</td>
<td>179,866</td>
<td></td>
</tr>
<tr>
<td>Number of DD</td>
<td>49</td>
<td>89</td>
<td>154</td>
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<tr>
<td>Weather Corrected Gas Consumption</td>
<td>36,133.00</td>
<td>270,254.35</td>
<td>241,491.04</td>
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<td>Expected Gas Consumption</td>
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<td>183,510</td>
<td>179,866</td>
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<tr>
<td>Difference</td>
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<td>183,510</td>
<td>179,866</td>
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<td>Change On Last Year (kWh)</td>
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<td>44,233</td>
<td>188,963</td>
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<tr>
<td>Change On Last Year (%)</td>
<td>-37%</td>
<td>-7%</td>
<td>-38%</td>
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<tr>
<td>Average Number of DD</td>
<td>43</td>
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<td>Predicted gas consumption</td>
<td>104,265</td>
<td>192,380</td>
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<td>Difference</td>
<td>58,856</td>
<td>6,870</td>
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<tr>
<td>Difference from Predicted (%)</td>
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### Electricity

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<th>Nov-22</th>
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<td>Carbon Usage (t)</td>
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<td>Actual Electricity Consumption</td>
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<tr>
<td>Change On Last Year (%)</td>
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<td>0%</td>
<td>2%</td>
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<td>Average Number of Cooling Day</td>
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<td>Predicted Electricity Consumption</td>
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<td>Difference from Predicted</td>
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<tr>
<td>Difference from Predicted (%)</td>
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</table>
Key legal compliance from the ‘Procedure’ tab:

<table>
<thead>
<tr>
<th>Key Legal/Regulatory Requirements</th>
<th>Operated By</th>
<th>How it Affects UAL/Actions to take</th>
<th>Last Reviewed</th>
<th>Next Review Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Reduction Commitment (CRC)</td>
<td>Environment Agency</td>
<td>The CRC Energy Efficiency Scheme attempts to reduce energy consumption by imposing an annual payment for all carbon emitted. This dashboard collates all data required to calculate UAL’s payment liability. This is calculated from the energy consumption data using the latest conversion factors above. See CRC tab for more details.</td>
<td>01 June 2019</td>
<td>N/A CRC ended. Replaced by SECR</td>
</tr>
<tr>
<td>Streamlined Energy and Carbon Reporting (SECR)</td>
<td>UK Government</td>
<td>Large unquoted companies that have consumed (in the UK), more than 40,000 kilowatt-hours (kWh) of energy need to report energy and carbon information within their directors’ (trustees) report. Reports need to include its annual UK energy use (in kWh), and associated greenhouse gas emissions, an emissions intensity ratio, the methodologies used to calculate the required information, a narrative of measures taken to improve energy efficiency in the period of the report. If no measures have been taken, this should be stated, prior-year equivalent figures are also required to be disclosed for comparison. <a href="https://www.gov.uk/government/publications/academy-trust-financial-management-good-practice-guides/streamlined-energy-and-carbon-reporting-who-needs-to-report-and-where">https://www.gov.uk/government/publications/academy-trust-financial-management-good-practice-guides/streamlined-energy-and-carbon-reporting-who-needs-to-report-and-where</a> <a href="https://wwwBitteLondonsession/seo-compliance-the-basics/">https://wwwBitteLondonsession/seo-compliance-the-basics/</a></td>
<td>July 2022</td>
<td>July 2023</td>
</tr>
<tr>
<td>Estates Management Data</td>
<td>Higher Education Statistics Agency (HESA) on behalf of HECSA</td>
<td>The Estates Management Record Data collection aims to improve education by disseminating data on numerous categories, of which energy is one. This database already records the consumption data. See EMR tab for collection of data and calculation of carbon.</td>
<td>July 2022</td>
<td>February 2023</td>
</tr>
<tr>
<td>Display Energy Certificates (ERC/WRC)</td>
<td>UK Government</td>
<td>Display Energy Certificates (DEC) provide an easy comparison of building energy consumption. All public buildings must contain one so that energy efficiency is visible and prioritised. Copies of the certificates can be found here: <a href="https://wwwBitteLondon.ath%E6%9A%B4%E9%9B%A8.com/subject-Department/Epuy_VLOWDOn=EAPPeW2dq8vYEX4hM_9F">https://wwwBitteLondon.ath暴雨.com/subject-Department/Epuy_VLOWDOn=EAPPeW2dq8vYEX4hM_9F</a> 6t1kxMvP00S8w8/0/4/1. All sites should display these on reception</td>
<td>May 2022</td>
<td>May 2023</td>
</tr>
<tr>
<td>ISO 50001</td>
<td>ISO</td>
<td>UAL is exempt from ISO 50001 due to its compliance with ISO 50001. We submitted this evidence in November 2019.</td>
<td>01 November 2019</td>
<td>Compliance deadline is 5th Dec 2023</td>
</tr>
<tr>
<td>ISO 14001</td>
<td>ISO</td>
<td>UAL is compliant with ISO 14001. Utility and waste data and targets are available on the Carbon Dashboard.</td>
<td>March 2022</td>
<td>March 2023</td>
</tr>
</tbody>
</table>
Glossary

3.1 Terms related to organization

3.1.1 organization
person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives (3.4.13)

Note 1 to entry: The concept of organization includes, but is not limited to, sole-trader, company, corporation, firm, enterprise, authority, partnership, charity or institution, or part or combination thereof, whether incorporated or not, public or private.

3.1.2 top management
person or group of people who directs and controls an organization (3.1.1) at the highest level

Note 1 to entry: Top management is empowered to delegate authority and provide resources within the organization.

Note 2 to entry: If the scope of the management system (3.2.1) covers only part of an organization, then top management refers to those who direct and control that part of the organization.

Note 3 to entry: Top management controls the organization as defined within the EnMS scope (3.1.4) and boundaries (3.1.3) of the energy management system (3.2.2).

3.1.3 boundary
physical or organizational limits

EXAMPLE A process (3.5.4) a group of processes; a site: multiple sites under the control of an organization, or an entire organization (3.4.4).

Note 1 to entry: The organization defines the boundary(ies) of its EnMS.

3.1.4 energy management system scope
EnMS scope
set of activities, which an organization (3.1.1) addresses through an energy management system (3.2.2)

Note 1 to entry: The EnMS scope can include several boundaries (3.1.3) and can include transport operations.

3.1.5 interested party (preferred term)
stakeholder (admitted term)
person or organization (3.1.1) that can affect, be affected by, or perceive itself to be affected by a decision or activity

3.2 Terms related to management system

3.2.1 management system
set of interrelated or interacting elements of an organization (3.1.1) to establish policies (3.2.3) and objectives (3.4.13) and processes (3.5.6) to achieve those objectives

Note 1 to entry: A management system can address a single discipline or several disciplines.

Note 2 to entry: The system elements include the organization’s structure, roles and responsibilities, planning and operation.

Note 3 to entry: In some management systems, the scope of a management system can include the whole of the organization, specific and identified functions of the organization, specific and identified sections of the organization, or one or more functions across a group of organizations. The EnMS scope (3.1.4) includes all energy types within its boundaries (3.1.3).

3.2.2 energy management system
EnMS management system (3.2.1) to establish an energy policy (3.2.4), objectives (3.4.13), energy targets (3.4.13), action plans and process(es) (3.5.6) to achieve the objectives and energy targets

3.2.3 policy
intentions and direction of an organization (3.1.1), as formally expressed by its top management (3.1.2)
3.2.4 energy policy
statement by the organization (3.1.1) of its overall intention(s), direction(s), and commitment(s) related to its energy performance (3.4.3), as formally expressed by top management (3.1.2)

3.2.5 energy management team
person(s) with responsibility and authority for effective implementation of an energy management system (3.2.2) and for delivering energy performance improvement (3.4.6)

Note 1 to entry: The size and nature of an organization (3.1.1) and available resources are taken into account when determining the size of an energy management team. A single person can perform the role of the team.

3.3 Terms related to requirement

3.3.1 requirement
need or expectation that is stated, generally implied or obligatory

Note 1 to entry: “Generally implied” means that it is custom or common practice for the organization (3.1.1) and interested parties (3.1.5) that the need or expectation under consideration is implied.

Note 2 to entry: A specified requirement is one that is stated, for example in documented information (3.3.5).

3.3.2 conformity
fulfilment of a requirement (3.3.1)

3.3.3 nonconformity
non-fulfilment of a requirement (3.3.1)

3.3.4 corrective action
action to eliminate the cause of a nonconformity (3.3.3) and to prevent recurrence

3.3.5 documented information
information required to be controlled and maintained by an organization (3.1.1) and the medium on which it is contained

Note 1 to entry: Documented information can be in any format and media, and from any source.

Note 2 to entry: Documented information can refer to:
— the management system (3.2.1), including related processes (3.3.6);
— information created in order for the organization to operate (documentation);
— evidence of results achieved (records).

3.3.6 process
set of interrelated or interacting activities which transform inputs into outputs

Note 1 to entry: A process related to an organization's (3.1.1) activities can be
— physical (e.g. energy-using processes, such as combustion), or
— business or service (e.g. order fulfilment).
3.3.7 monitoring
determining the status of a system, a process (3.3.6) or an activity

Note 1 to entry: To determine the status, there can be a need to check, supervise or critically observe.

Note 2 to entry: In an energy management system (3.2.2), monitoring can be a review of energy data.

3.3.8 audit
systematic, independent and documented process (3.3.6) for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled

Note 1 to entry: An audit can be an internal audit (first party) or an external audit (second party or third party), and it can be a combined audit (combining two or more disciplines).

Note 2 to entry: An internal audit is conducted by the organization (3.1.1) itself, or by an external party on its behalf.

Note 3 to entry: “Audit evidence” and “audit criteria” are defined in ISO 19011.

Note 4 to entry: The term “audit” as defined here and as used in this document means the internal audit of an energy management system (3.2.2). This is different from an “energy audit”. In this definition, “audit evidence” means evidence from an internal audit of the energy management system, and not evidence from an energy audit.

3.3.9 outsource (verb)
make an arrangement where an external organization (3.1.1) performs part of an organization’s function or process (3.3.6)

Note 1 to entry: While an external organization is outside the scope of the management system (3.2.1), the outsourced function or process is within the scope.

3.4 Terms related to performance

3.4.1 measurement
process (3.3.6) to determine a value

Note 1 to entry: See ISO/IEC Guide 99 for additional information on measurement-related concepts.

3.4.2 performance
measurable result

Note 1 to entry: Performance can relate either to quantitative or qualitative findings.

Note 2 to entry: Performance can relate to the management of activities, processes (3.3.6), products (including services), systems or organizations (3.1.1).

3.4.3 energy performance
measurable result(s) related to energy efficiency (3.5.3), energy use (3.5.4) and energy consumption (3.5.2)

Note 1 to entry: Energy performance can be measured against the organization’s (3.1.1) objectives (3.4.13), energy targets (3.4.15) and other energy performance requirements.

Note 2 to entry: Energy performance is one component of the performance (3.4.2) of the energy management system (3.2.2).
3.4.4 energy performance indicator
EnPI
measure or unit of energy performance (3.4.3), as defined by the organization (3.1.1)

Note 1 to entry: EnPI(s) can be expressed by using a simple metric, ratio, or a model, depending on the nature of the activities being measured.

Note 2 to entry: See ISO 50006 for additional information on EnPI(s).

3.4.5 energy performance indicator value
EnPI value
quantification of the EnPI (3.4.4) at a point in or over a specified period of time

3.4.6 energy performance improvement
improvement in measurable results of energy efficiency (3.5.3), or energy consumption (3.5.2) related to energy use (3.5.4), compared to the energy baseline (3.4.7)

3.4.7 energy baseline
EnB
quantitative reference(s) providing a basis for comparison of energy performance (3.4.3)

Note 1 to entry: An energy baseline is based on data from a specified period of time and/or conditions, as defined by the organization (3.1.1).

Note 2 to entry: One or more energy baselines are used for determination of energy performance improvement (3.4.6), as a reference before and after, or with and without implementation of energy performance improvement actions.

Note 3 to entry: See ISO 50015 for additional information on measurement and verification of energy performance.

Note 4 to entry: See ISO 50006 for additional information on EnPIs and EnBs.

3.4.8 static factor
identified factor that significantly impacts energy performance (3.4.3) and does not routinely change

Note 1 to entry: Significance criteria are determined by the organization (3.1.1).

EXAMPLE Facility size; design of installed equipment; number of weekly shifts; range of products.

[SOURCE: ISO 50015:2014 3.22, modified — Note 1 to entry and EXAMPLE 1 have been modified and EXAMPLE 2 has been deleted.]

3.4.9 relevant variable
quantifiable factor that significantly impacts energy performance (3.4.3) and routinely changes

Note 1 to entry: Significance criteria are determined by the organization (3.1.1).

EXAMPLE Weather conditions, operating conditions (indoor temperature, light level), working hours, production output.

[SOURCE: ISO 50015:2014 3.18, modified — Note 1 to entry has been added and wording of examples has been modified.]

3.4.10 normalization
modification of data to account for changes to enable comparison of energy performance (3.4.3) under equivalent conditions
3.4.11 risk
effect of uncertainty

Note 1 to entry: An effect is a deviation from the expected – positive or negative.

Note 2 to entry: Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of, an event, its consequence, or likelihood.

Note 3 to entry: Risk is often characterized by reference to potential “events” (as defined in ISO Guide 73) and “consequences” (as defined in ISO Guide 73), or a combination of these.

Note 4 to entry: Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated “likelihood” (as defined in ISO Guide 73) of occurrence.

3.4.12 competence
ability to apply knowledge and skills to achieve intended results

3.4.13 objective
results to be achieved

Note 1 to entry: An objective can be strategic, tactical, or operational.

Note 2 to entry: Objectives can relate to different disciplines (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product and process (3.3.6)).

Note 3 to entry: An objective can be expressed in other ways, e.g. as an intended outcome, a purpose, an operational criterion, as an energy objective, or by the use of other words with similar meaning (e.g. aim, goal).

Note 4 to entry: In the context of energy management systems (3.2.2), objectives are set by the organization (3.1.1), consistent with the energy policy (3.2.4), to achieve specific results.

3.4.14 effectiveness
extent to which planned activities are realized and planned results achieved

3.4.15 energy target
quantifiable objective (3.4.13) of energy performance improvement (3.4.6)

Note 1 to entry: An energy target can be included within an objective.

3.4.16 continual improvement
recurring activity to enhance performance (3.4.2)

Note 1 to entry: The concept relates to the improvement of energy performance (3.4.3) and the energy management system (3.2.2).

3.5 Terms related to energy

3.5.1 energy
electricity, fuels, steam, heat, compressed air and other similar media

Note 1 to entry: For the purposes of this document, energy refers to the various types of energy, including renewable, which can be purchased, stored, treated, used in an equipment or in a process, or recovered.
SECR: Streamlined Energy and Carbon Reporting

ECR requires obligated companies to report on their energy consumption and associated greenhouse gas emissions within their financial reporting for Companies House. Organisations will also need to report on any energy efficiency measures and state emissions with reference to an intensity metric.

ESOS: Energy Saving Opportunity Scheme

ESOS) is a mandatory energy assessment scheme, introduced by the UK government to make sure large enterprises in the UK are energy efficient. Under the scheme, large organisations are required to assess their energy usage every 4 years and to find new ways to save energy.