Sustainability Committee Meeting

Date: 7 May 2021 Time: 10:00 Hours to 11:30 Hours

AGENDA

SN	Items	Paper	Lead	Overview
1.	Apologies	NA	Chair	• Information
2.	Draft Minutes	NA	Chair	• Approval
3.	Action Log & Matters Arising	NA		• Discussion • Approval
4.	Meeting Overview: • Teaching and Research • ESAP: Recent EcoCampus Audit and scheduled audit • Environmental Management System • Energy Procurement	Verbal	P. Tamuno / P. Lloyd / I. McManus	• Information • Discussion
5.	**Teaching and Research**			
5a.	€2 Million Grant to Develop More Efficient Solar Technology	Presentation	J. Briscoe	• Information • Discussion
5b.	Embedding Environmental Sustainability in the Medical School Curriculum	SC.21/22	F. Wedmore and A. Moore	• Information • Discussion
6.	**Environmental Sustainability Performance (ESAP)**			
6a.	ESAP: Environmental Management System Update	SC.21/23	P. Tamuno / P. Lloyd / I. McManus	• Information • Discussion • Assurance
6b.	Environmental Management System (EcoCampus Phase 3)	SC.21/24	P. Tamuno	• Discussion • Approval
7.	**Environmental Management System (Procedures)**			
7a.	Discharges to Water Management	SC.21/25	S. Borthwick & C. Marchant	• Discussion • Approval
7b.	Emergency Spill Response	SC.21/26	S. Borthwick & C. Marchant	• Discussion • Approval
7c.	Emissions to Air Management Procedure	SC.21/27	G. Pritchard	• Discussion • Approval
7d.	Contractor Control and Management	SC.21/28	G. Pritchard	• Discussion • Approval
7e.	Emergency Preparedness and Response	SC.21/29	P. Guy	• Discussion • Approval

SN	Items	Paper	Lead	Overview
7f.	Energy Monitoring and Management	SC.21/30	P. Tamuno	• Discussion • Approval
8.	**Energy Management and Procurement Strategy**			
8a.	Energy Procurement Strategy 2021-23	SC.21/31	P. Tamuno	• Discussion • Approval
9.	**Other Business**			
9a.	Any Other Business	NA	Chair	• Information • Discussion • Actions
Date of Next Meeting: Monday 26 July 2021 (14:00 Hours to 16:00 Hours)				

Embedding Sustainability in the Medical School Curriculum

Outcome requested:	• The members of the committee should support the conclusions of this report • A working group should be set up to explore how sustainability teaching can be further embedded into and across the medical school curriculum • The committee should advise on what funding might be available to support the authors of this report to take this project forward. Ideally, this funding could be used to support an education fellow to undertake this work full time.
Executive Summary:	The importance of sustainability in healthcare has been highlighted by the recent NHS net zero report which commits the health service to net zero carbon emissions by 2040. There is an urgent need to integrate education for sustainable healthcare into the undergraduate medicine curriculum as a whole because: Climate breakdown is already causing significant harm to human health, in the UK as well as globally Healthcare is a significant contributor to climate breakdown and air/other environmental pollution With its emphasis on prevention, patient empowerment and streamlined care, sustainable healthcare is good healthcare Sustainable healthcare education gives students opportunities to develop skills in critical and systems thinking, both vital for the roles they will play in 21st century healthcare services QMUL currently includes some teaching on sustainability, although it is non-compulsory and is not integrated across the curriculum. There is therefore a huge opportunity to improve sustainable healthcare teaching - several opportunities to do so have already been identified, and more details are included in this report.

	We ask the sustainability committee to support our suggestions, and to use its voice to ask senior faculty members to do the same. We believe that an important component of developing doctors for the 21st century is to embed sustainability throughout the curriculum. Teaching on this could also be enhanced if there were a dedicated teaching fellow to provide this support, with a dedicated funding stream to be identified.
Alignment with: ● **QMUL Strategy** ● **Internal Policies/Regulations** ● **External Statutory Requirements**	• Queen Mary Environmental Sustainability Policy 2020 • Queen Mary's Environmental Sustainability Action Plan (2020-23)
Consideration of Strategic Risks:	Not applicable
Subject to Prior and Onward Approval by:	Not Applicable
Confidentiality and Distribution:	Not Restricted
Equality Impact Assessment:	Not applicable
Author(s) :	Dr Florence Wedmore (Undergraduate Education Fellow & Geriatrics Clinical Fellow) Dr Anna Moore (Undergraduate Education Fellow & Respiratory Registrar)
Date:	12 April 2021

Embedding Sustainability in the Medical School Curriculum

Executive Summary

The importance of sustainability in healthcare has been highlighted by the recent NHS net zero report, which commits the health service to net zero carbon emissions by 2040.

There is an urgent need to integrate education for sustainable healthcare into the undergraduate medicine curriculum as a whole because:

- Climate breakdown is already causing significant harm to human health, in the UK as well as globally
- Healthcare is a significant contributor to climate change, air and environmental pollution
- With its emphasis on prevention, patient empowerment and streamlined care, sustainable healthcare is good healthcare
- Sustainable healthcare education gives students opportunities to develop skills in critical and systems thinking, both vital for the roles they will play in 21st century healthcare services

QMUL currently includes some teaching on sustainability, although it is non-compulsory and is not integrated across the curriculum. There is therefore a huge opportunity to improve sustainable healthcare teaching - several opportunities to do so have already been identified, and more details are included in this report.

We ask the sustainability committee to support our suggestions, and to use its voice to ask senior faculty members to do the same. We believe that an important component of developing doctors for the 21st century is to embed sustainability throughout the curriculum. Teaching on this could also be enhanced if there were a dedicated teaching fellow to provide this support, with a dedicated funding stream identified.

Recommendations of this report:

- The members of the committee should support the conclusions of this report

- A working group should be set up to explore how sustainability teaching can be further embedded into the medical school curriculum
- The committee should advise on what funding might be available to take this project forward

Why do we need to embed sustainability into the medical school curriculum?

Climate change is the greatest threat to human health this century. Healthcare is also a large polluter, contributing to almost 5% of the UK's carbon footprint. Furthermore, there are many social and commercial determinants that as well as having a direct negative impact on health will also be indirectly harming health through their contribution to air pollution and climate breakdown. The multiple links between health and the planet are shown in figure 1.

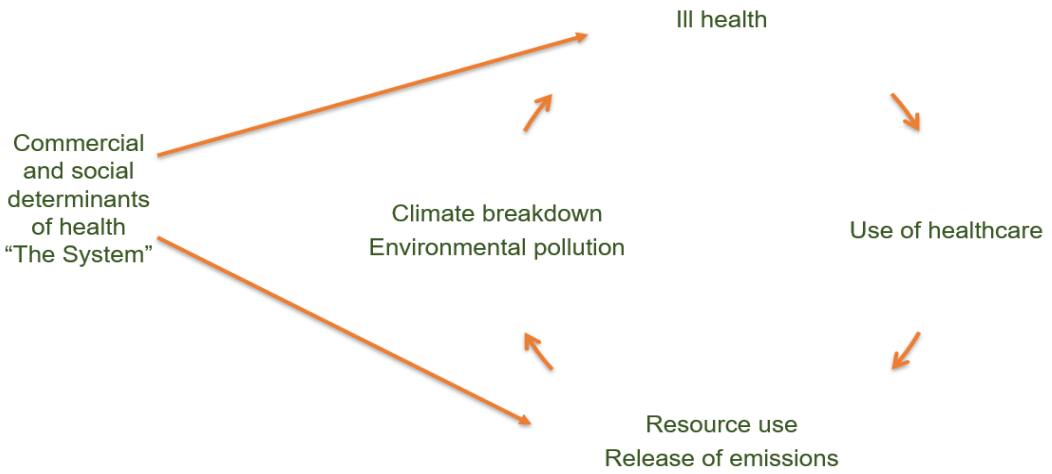


Figure 1: The multiple links between human health and the environment

However, this can be viewed as both a threat and an opportunity - either a vicious circle or a virtuous one. With the provision of sustainable healthcare (see below for principles of sustainable healthcare) patient outcomes are improved while resource use and consequent pollution and emissions are reduced, in turn reducing the harm to human health caused by climate and ecological breakdown.

Given the multitude of links between the environment and health it is therefore important that doctors of the future are fully educated on their role in tackling climate breakdown and ecological collapse, and indeed this is included in the GMC outcomes for graduates 2018, as below.

"Newly qualified doctors must be able to apply the principles, methods and knowledge of population health and the improvement of health and sustainable healthcare to medical practice."
From GMC Outcomes for Graduates 2018

Sustainable healthcare as good healthcare

The Centre for Sustainable Healthcare has set out the four principles of sustainable healthcare. The first three are aligned with current accepted understanding of good healthcare: a focus on prevention, patient empowerment and efficient, streamlined care.

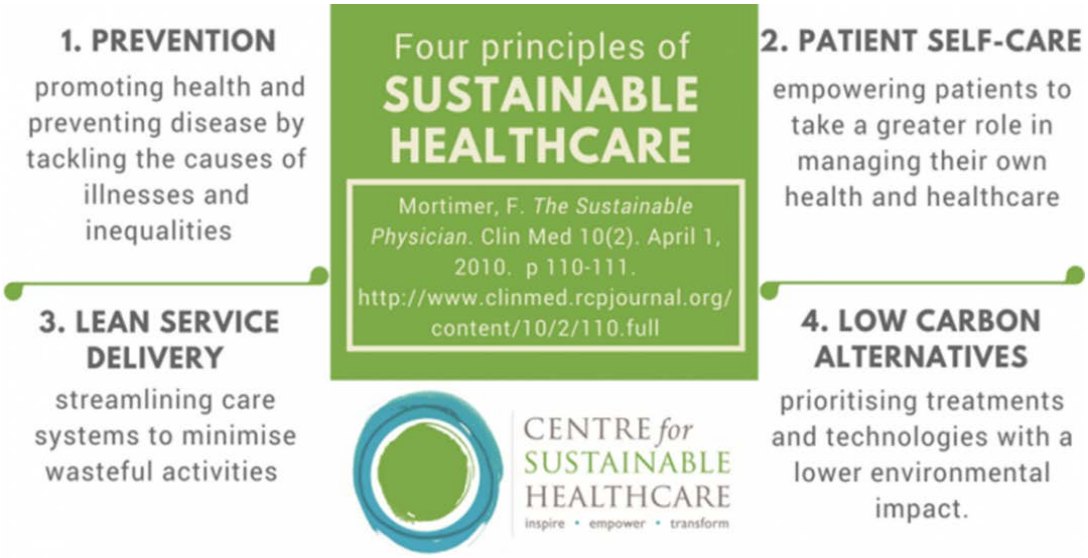


Figure 2: The Principles of Sustainable Healthcare- developed by Frances Mortimer at the Centre for Sustainable Healthcare

Critical thinking and understanding systems

Education for sustainable healthcare also teaches systems thinking. Modern healthcare is increasingly complex and health professionals are required to understand and care for not just single organ diseases but the needs of people living with complex multimorbidities, navigating complex health systems in the context of their often complex lives. The determinants of health must be recognised and understood as being wider than just the "health service" in which doctors and other health professionals work.

Understanding the interdependence of human health, social determinants and the environment is a key part of education for Sustainable Healthcare, thus it can equip students with the skills to understand and navigate the complex systems in which both we as health professionals and our patients exist. Inclusion of teaching on sustainable quality improvement can help students to understand how positive change can be brought about inside a complex system. See SusQI with Curricula | Centre for Sustainable Healthcare for more information.

Sustainability in healthcare therefore should not be seen as a separate subject to be covered perhaps once in the global health course in a 5-year medical degree. Instead, it should be embedded into multiple different strands of the curriculum and in multiple different modalities of teaching, in order to prepare doctors for working in the 21st century.

What would inclusion of sustainability in the medical school curriculum look like?

The Association for Medical Education in Europe recently published a consensus statement entitled: Planetary Health and Sustainable Healthcare Education, which can be read in full here. The below graphic is included as a summary of this statement.

*Indigenous Peoples have incorporated this knowledge & these values for centuries; these points are informed by Indigenous perspectives, which can guide our understanding & our practice
SDG 4.7 – Ensure that all learners acquire the knowledge and skills to promote sustainable development, including through education for sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.
SDG 12.8 - Ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.
SDG 13.3 - Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

Faculty Development

One barrier to integration of sustainable healthcare education across medical school curricula can be staff confidence in teaching on planetary health and sustainable healthcare. Faculty working outside of global health courses may not feel they have adequate knowledge to cover sustainable healthcare themes in their teaching and development of educational materials.

We feel that while there may be a perceived knowledge gap, more often it is a reframing of current best practice that is needed. This was recognised in a recently published paper by Tun et al, shown below. An example of this reframing would be when teaching on type 2 diabetes, focusing on this as a condition caused by behaviours which are in themselves damaging to our environment eg inactivity, and diet (see the social and commercial determinants of health in figure 1); making the implicit links between behaviours, health and the environment explicit.

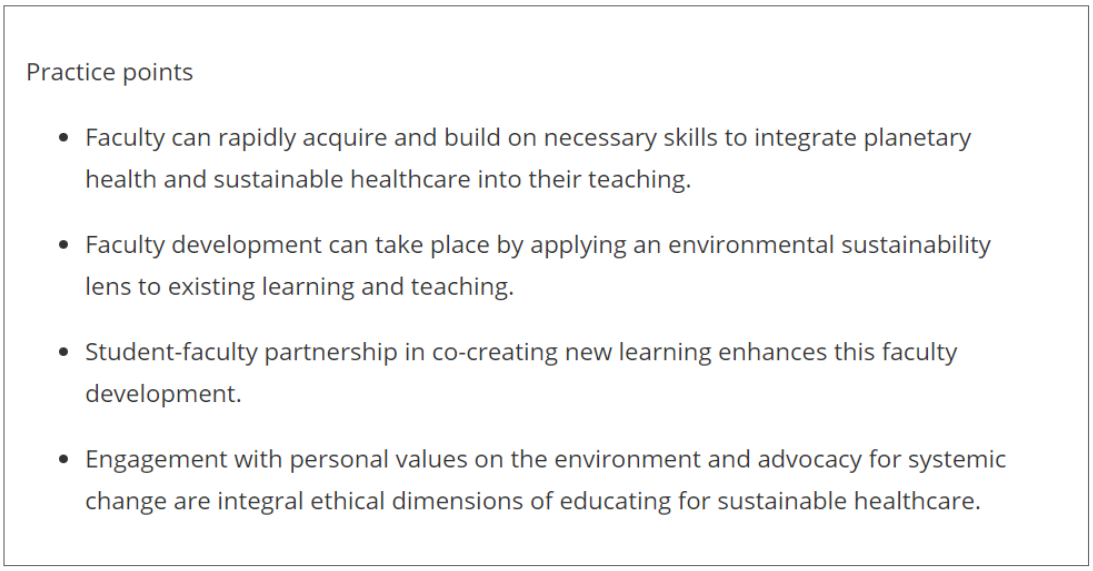


Figure 4: Practice points recommended in "Med Teach. 2020 Oct;42(10):1112-1118. doi: 10.1080/0142159X.2020.1796950. Epub 2020 Aug 7. Faculty development and partnership with students to integrate sustainable healthcare into health professions education"

For those who wish to participate, faculty development courses also exist and we feel that 'teaching the teachers' would empower them with increased knowledge and skills. External courses are available from the Centre for Sustainable Healthcare. The authors of this report would also be willing and happy to contribute to faculty development if support were available.

There are initiatives where medical schools have included planetary health and sustainable healthcare teaching throughout their curriculum. The most notable example is in Lancaster,

where sustainability teaching has been included in existing modules in the early years and new sustainable healthcare modules have been developed for senior students. More can be read about that in this paper. A key factor in Lancaster being able to facilitate this change was an understanding of its importance from senior faculty members. Other smaller examples of a gradual inclusion of more education for sustainable healthcare are described in this paper.

What is already happening at QMUL?

There are already some instances of good practice in teaching on sustainability at QMUL. For instance, in the global health masters and in the 4th year global health week. However, these instances are limited and often siloed. While students may learn about climate change as a global health issue, there is not enough emphasis on how this relates to their role as a health professional working in the UK - awareness of which will be of increasing importance given the NHS's commitment to being net zero by 2040.

Planetary Health Scorecard

The planetary health scorecard is a student led project where medical schools across the UK and US are graded on five relevant areas:

- Curriculum
- Interdisciplinary Research
- Community Outreach and Advocacy
- Support for Student-Led Initiatives
- Sustainability

2021 was the first year that students from QMUL took part in the project. The overall score received by QMUL was a C, so there is clear room for improvement. One key finding relevant to this report was that planetary health and education for sustainable healthcare were not well integrated into the overall medical school curriculum, as shown in an extract from the report below. The full report can be read here.

19. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the core curriculum?	
6	Planetary health/ESH topics are well integrated into the core medical school curriculum.
4	Some planetary health/ESH topics are appropriately integrated into the core medical student curriculum.

19. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the core curriculum?	
2	Planetary health/ESH is not integrated and is primarily addressed in (a) standalone lecture(s).
0	There is minimal/no education for sustainable healthcare.
Note: While some medical schools may have one standalone lecture that discusses planetary health concepts, given the diverse organ systems impacted by the environment and the emotional toll of listening to a lecture concentrating all of the doom and gloom of climate change, a more effective approach is to integrate these topics throughout the medical school curriculum. This metric is designed to reward schools who have structured their ESH curriculum longitudinally, even if they cover the same topics. Given the importance of this metric in measuring the delivery of effective curriculum, we are weighting this metric 2x relative to the other curriculum metrics.	
Score explanation: Insert explanation here. **Topics for sustainable healthcare topics are covered briefly in standalone lectures in the Year 4 "Global Health and Ethics" module. There is a need for it to be discussed in seminars, workshops, and beyond.**	

Students are requesting teaching on sustainable healthcare

The authors of this report have some experience of delivering teaching on the links between the environment and health, as part of the 4th year global health week and as a 2-week SSC to 10 second year students on sustainable quality improvement. The feedback was overwhelmingly positive with students finding the content engaging and relevant. However, one consistent finding from this feedback was that students felt this teaching should be compulsory. This short video clip shows the 2nd year students who had taken part in the SSC reflecting on their experience. Some quotes from the fourth-year students after their global health teaching also highlight this:

"Have teaching on this in earlier years of medical school!! As Anna mentioned, healthcare and sustainability is part of GMC outcomes but tends to be taught in small amounts and forgotten - having teaching on this in each year of medical school would be an excellent way to reinforce this knowledge"

"Really enjoyed this session!!! So glad to have some teaching on the climate crisis"

“make it mandatory! looks like roughly 33%-50% turnout and i imagine many will have an underlying interest already. to perpetuate change and increase [education], please make this mandatory so that people respect the importance as much as other lectures”

“I did not know healthcare was such a contributor of carbon. You can see every day that plastic is bad. But wow. My future employer emits as much as a small country. This needs to change. Reliever inhalers! Wow. Interesting how at first glance my reaction to this is "we can’t deprive patients of care, the pollution is a necessary evil" but then to go on and learn how actually so much can be changed.”

“More of my fellow student actually care about this than I thought. I like the idea of "hunting in packs”. The balance of not being blamey or accusatory. HOPE –> ACTION –> HOPE –> ACTION. Incentivising business models! - This is cool, I want to hear more about that... I get sad that nothing happens for climate and I just get stuck in medical books - it was really encouraging to see that this is actually starting to take hold in a big way. Thank you for showing us that. Hope.”

The planetary health scorecard was a project developed by students who wish to use this opportunity to ask the medical school for more teaching on planetary health subjects.

Embedding sustainability education into the curriculum will empower the students to take action on climate breakdown and the role that healthcare systems play. Many students already recognise and understand the scale of the climate crisis but they need to be able to link it with their role as healthcare professionals in training in order to see where they can have a positive impact.

<u>What opportunities have we identified?</u>

Some discussions with faculty members at the medical school have already been initiated. For instance the new Institute for Population Health is currently consulting on its strategy, and we have been asked to feed into this key elements of planetary health and education for sustainable healthcare.

We have identified other opportunities where existing teaching would be augmented by using a sustainable healthcare lens. An example of this is reducing health inequalities, which can reduce downstream use of healthcare and keep people active for longer therefore reducing both morbidity and healthcare associated resource use and emissions. We recently contacted

and discussed opportunities to integrate sustainable healthcare education with members of the CBME faculty and have been asked to contribute to the year 4 CBME health equity teaching days.

We have also discussed with Prof Graham Easton the potential for including a sustainable healthcare themed session in the third-year motivational interviewing teaching, and potentially extending this to other sessions in the future. This suggestion was welcomed and we look forward to working with the communication skills faculty further on this.

Overall, with a small amount of work we have identified numerous opportunities to embed sustainability into existing curriculum. With senior faculty input, faculty development and a dedicated working group and/or education fellow, many more opportunities to enhance existing teaching could be identified and acted upon.

Conclusion and Recommendations

In this report we hope to have demonstrated that education on planetary health and sustainable healthcare is vital for educating the doctors of tomorrow. Although currently QMUL includes some teaching on this it is not fully embedded into the curriculum but there are numerous opportunities to do so, as has been shown by our limited work so far. In addition, the development of the consensus statement on a planetary health curriculum and case studies of medical schools who have successfully undertaken this process give clear direction for how this can be done. Furthermore, there is strong support among the student body for education on sustainable healthcare, and clear interest from some members of the QMUL faculty in developing this work; indeed some opportunities for integration have already been identified and action is underway.

We anticipate that challenges will include the need for buy-in from key stakeholders such as senior faculty members, hence why the support of this committee is so important. Faculty development will also be a key part of this process, though as discussed only a small amount of training, if any, would be needed to enable educators to be able to apply a sustainability lens to their existing teaching - the main requirement being a shift in framing, rather than significant increase in knowledge.

The overall recommendations of this report:

- The members of the committee should support the conclusions of this report
- A working group should be set up to explore how sustainability teaching can be further embedded into and across the medical school curriculum

- The committee should advise on what funding might be available to support the authors of this report to take this project forward. Ideally, this funding could be used to support an education fellow to undertake this work full time.

Key References

- Net zero NHS report: https://www.england.nhs.uk/greenernhs/wp-content/uploads/sites/51/2020/10/delivering-a-net-zero-national-health-service.pdf
- Lancet countdown: The 2019 report of The *Lancet* Countdown on health and climate change: ensuring that the health of a child born today is not defined by a changing climate. Watts, Nick et al. The Lancet, Volume 394, Issue 10211, 1836 – 1878
- The Sustainable Physician: Mortimer F. The sustainable physician. Clin. Med. J. R. Coll. Physicians London. 2010; 10: 110–111. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4952075/
- AMEE Consensus Statement: Shaw E, Walpole S, McLean M, Alvarez-Nieto C, Barna S, Bazin K et al. AMEE Consensus Statement: Planetary health and education for sustainable healthcare. Med Teach 2020; 43. doi:10.1080/0142159X.2020.1860207
- Faculty development: Tun SYM, Wellbery C, Teherani A. Faculty development and partnership with students to integrate sustainable healthcare into health professions education. *Med Teach* 2020; 42: 1112–1118. https://www.tandfonline.com/doi/10.1080/0142159X.2020.1796950
- SusQI within Curricula: https://www.susqi.org/susqi-with-curricula
- Planetary Health scorecard: https://drive.google.com/file/d/1Qgi_m2l-toWnCeaqRghh-Ull6vlcOW-u/view?usp=sharing

Environmental Sustainability Action Plan (ESAP): Environmental Management System

Outcome requested:	That the Sustainability Committee should: • Take assurance of this report • Approve the recommendation that all open non-conformance from our recent EcoCampus Silver certification audit are closed-out by 31 May 2021 • Endorse our schedule EcoCampus Gold certification audit. This audit has been scheduled to take place on 8 July 2021
Executive Summary:	We are proud to announce that Queen Mary has successfully achieved the EcoCampus Environmental Management System (EMS) Silver Certification Award after a full-day external environmental audit conducted on 1 April 2021. Attaining this EMS award is consistent with our commitments to continue to improve our environmental performance and embed good environmental practices across all areas of our operation. This full-day external environmental audit covered the following areas: • Environmental Compliance Obligations • Environmental Aspects and Impacts • Environmental Policy and Strategy • Environmental Actions in the areas of: o Hazardous waste management o Non-hazardous waste management o Heating, Ventilation and Air Condition (HVAC), F-Gas Regulations and emissions to air o Energy, water and carbon emissions monitoring, management and reporting This audit was conducted remotely due to restrictions associated with COVID-19 pandemic. The external Auditor met with various individuals across our University as well as some of our Environmental Associates.

Alignment with: • **QMUL Strategy** • **Internal Policies/Regulations** • **External Statutory Requirements**	• The Environmental Protection Act 1990 • The Environment Act 1995 • Clean Air Act 1993 • The Climate Change Act 2008 • Environmental Permitting Regulation (England and Wales) 2016 • Queen Mary's Environmental Sustainability Policy 2020 • Queen Mary's Environmental sustainability Action Plan (ESAP) 2020-2023
Consideration of Strategic Risks:	• *Compliance with relevant regulations* • *Reputation*
Subject to Prior and Onward Consideration by:	*Not Applicable*
Confidentiality and Distribution:	*Non-restricted*
Equality Impact Assessment:	*Not applicable*
Author(s) :	Philip Tamuno, Head of Sustainability
Executive Lead(s):	Ian McManus, Director of Estates and Facilities Philippa Lloyd, Vice Principal Strategic Partnership
Date:	*7 May 2021*

Environmental Sustainability Action Plan (ESAP): Environmental Management System Update

Overview

We are proud to announce that Queen Mary has successfully achieved the EcoCampus Environmental Management System (EMS) Silver Certification Award after a full-day external environmental audit conducted on 1 April 2021.

Attaining this EMS award is consistent with our commitments to continue to improve our environmental performance and embed good environmental practices across all areas of our operation.

This full-day external environmental audit covered the following areas:

- Environmental Compliance Obligations
- Environmental Aspects and Impacts
- Environmental Policy and Strategy
- Environmental Actions in the areas of:
  - Hazardous waste management
  - Non-hazardous waste management
  - Heating, Ventilation and Air Condition (HVAC), F-Gas Regulations and emissions to air
  - Energy, water and carbon emissions monitoring, management and reporting

This audit was conducted remotely due to restrictions associated with COVID-19 pandemic. The external Auditor met with various individuals across our University as well as some of our Environmental Associates.

EcoCampus Silver Certification Audit: Outcome

The Auditor commended Queen Mary for the progress made within such a relatively short time and recommended that we proceed to the EcoCampus Gold Phase. However, 1 minor

non-conformance and 2 opportunities for improvement (OFIs) were identified during this external audit.

The minor non-conformance was regarding compliance with Waste (England and Wales) Regulations 2011 regarding our non-hazardous waste management processes (still open).

The 2 OFIs were in the areas of:

- Environmental Compliance Register:
  - Our environmental permits for radioactive substances was not included in our environmental compliance register (now closed)
  - Non-inclusion of our F-Gas certificate in our environmental compliance register (now closed)
- Environmental Policy. The specified ISO 14001:2015 EMS' clauses below were not included in our current environmental policy:
  - The protection of the environment, including prevention of pollution
  - Fulfil its compliance obligations
  - Continual improvement of the environmental management system to enhance environmental performance

Our Gold EcoCampus Certification audit has been scheduled to take place on 8 July 2021 and we expect all relevant individuals or their deputies to be available for this audit

The Gold Phase Certification audit would cover the areas below:

- Institutional Roles and Responsibilities
- Competence and Awareness
- Communication
- Documented Information
- Operational Planning and Control
  - Construction, Refurbishment, Conversion and Fit-Out Procedure
  - Grounds Management Procedure
  - Hazardous Waste Management Procedure
  - Non-Hazardous Waste Management Procedure
  - Discharges to Water Management Procedure
  - Emergency Spill Response Procedure
  - Emissions to Air Management Procedure
  - Contractor Control and Management Procedure
  - Energy Monitoring and Management Procedure
- Emergency Preparedness and Response

Recommendations

That the Sustainability Committee should:

- Take assurance of this report
- Approve the recommendation that all open non-conformance from our recent EcoCampus Silver certification audit are closed-out by 31 May 2021
- Endorse our schedule EcoCampus Gold certification audit. This audit has been scheduled to take place on 8 July 2021

Environmental Management System: EcoCampus Phase 3

Outcome requested:	That the Sustainability Committee should: • Take assurance of this report • Consider issues that should be escalated • Endorse our EMS • Approve the presentation of this EMS to the Estate Strategy Board (ESB)
Executive Summary:	Queen Mary, University of London (Queen Mary) is a Russel Group University and one of UK's leading research-focused higher education institutions. We offer our students a stimulating, supporting and high-quality learning experience and we are committed to supporting world-leading education and research. This Environmental Management System (EMS) was developed based on the EcoCampus phased approach to implementing ISO 14001:2015 Environmental Management System (EMS). Attaining ISO 14001:2015 certification is one of our priorities to embed good environmental practices across all areas of our operations.
Alignment with: • **QMUL Strategy** • **Internal Policies/Regulations** • **External Statutory Requirements**	• Environmental Protection Act 1990 • Environment Act (1995) • Environmental Permitting Regulation (England and Wales) 2016 • Queen Mary Environmental Sustainability Policy 2020 • Queen Mary Environmental Sustainability Action Plan (ESAP) 2020-2023
Consideration of Strategic Risks:	• Regulatory compliance • Reputation
Subject to Prior and Onward Consideration by:	*Not Applicable*
Confidentiality and Distribution:	*Non-restricted*

Equality Impact Assessment:	*Not Applicable*
Author(s):	Philip Tamuno, Head of Sustainability
Executive Lead(s):	Ian McManus, Director of Estates and Facilities Philippa Lloyd, Vice Principal Strategic Partnership
Date:	*7 May 2021*

Environmental Management System

Overview

Queen Mary, University of London (Queen Mary) is a Russel Group University and one of UK's leading research-focused higher education institutions. We offer our students a stimulating, supporting and high-quality learning experience and we are committed to supporting world-leading education and research.

This Environmental Management System (EMS) was developed based on the EcoCampus phased approach to implementing ISO 14001:2015 Environmental Management System (EMS). Attaining ISO 14001:2015 certification is one of our priorities to embed good environmental practices across all areas of our operations.

This EMS is being used as a flexible and adaptive framework to support the delivery of our objective to:

- Comply with all relevant regulations
- Fulfil our compliance obligations
- Continue to improve our environmental performance
- Environmental protection, including pollution prevention
- Continually improve our EMS for the purpose of enhancing our environmental performance

The procedures below have been developed to support the implementation of our EMS:

- Non-Hazardous Management Procedure
- Hazardous Waste Management Procedure
- Grounds Management Procedure
- Construction, Refurbishment, Conversion and Fit-Out Procedure
- Discharges to Water Management Procedure
- Discharges to Air Management Procedure
- Emergency Spill Management Procedure
- Contractor Control and Management Procedure
- Energy Monitoring and Management Procedure
- Emergency Preparedness and Response Procedure

Related Documents and Tools

This EMS is linked to:

- Queen Mary's Environmental Sustainability Policy (2020)
- Queen Mary's Environmental Sustainability Action Plan (2020-23)
- Environmental Compliance (Toolkit)
- EMS Competence and Training (Toolkit)
- EMS Roles, Responsibilities and Training Schedule (Toolkit)
- Environmental Scope and Context (Toolkit)
- PESTLE (Political, Economic, Sociological, Technological, Legal and Environmental) Analysis (Toolkit)
- Log of Interested Parties (Toolkit)

Scope and Context

Currently all functions, processes and operations delivered from our UK campuses are included in the scope of our EMS.

The environmental aspects and compliance requirements that are associated with the activities are integrated into our EMS:

- Emissions to air
- Transport and travel (Fleet and business travel)
- Use and storage of chemical and oils
- Energy use
- Water use
- Construction, refurbishment and demolition
- Waste (hazardous and non-hazardous)
- Grounds and gardens
- Procurement and commissioning

Definitions and Terminologies

The definitions below were adapted from ISO 14001:2015 EMS Standard. These definitions gives insight into the terminologies associated with implementing an EMS.

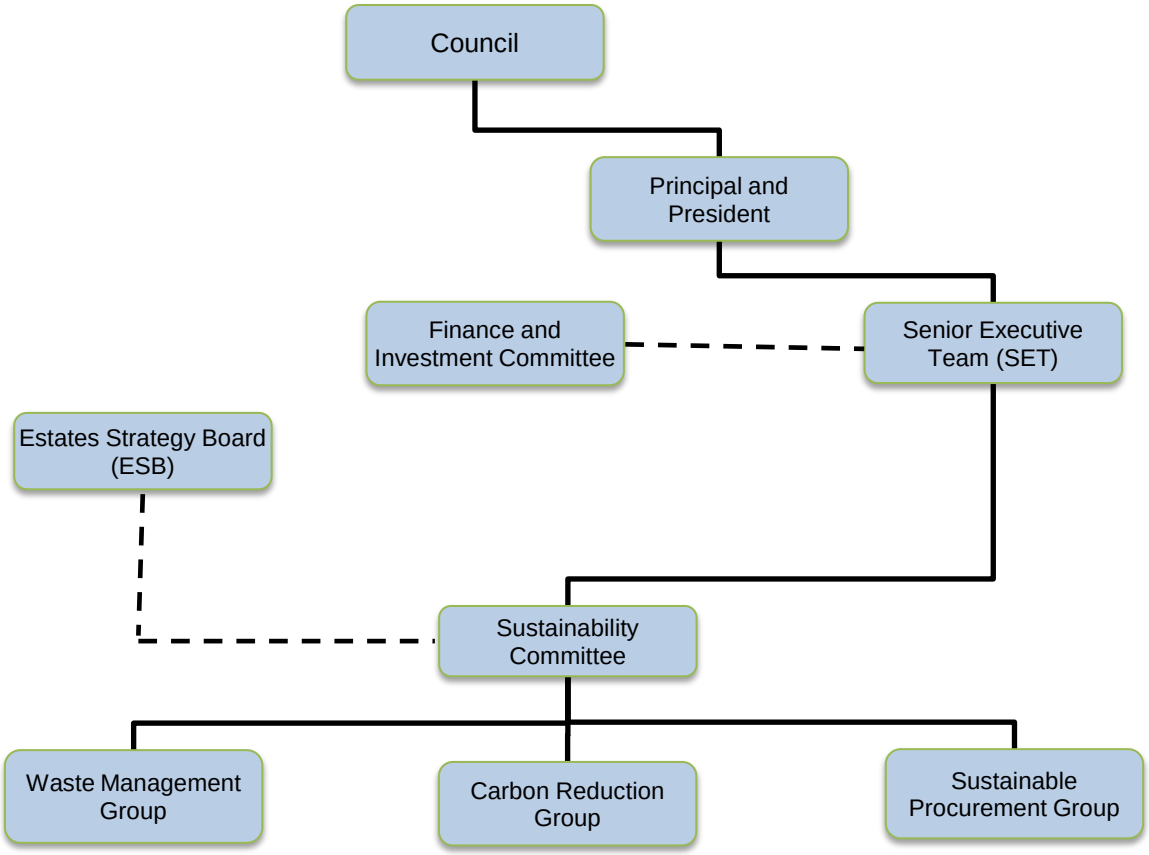
- Audit: systematic, independent and documented process of obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled.
- Compliance Obligations: legal requirements that an organisation has to comply with and other requirements that an organisation has to or chooses to comply with.
- Corrective Action: action to eliminate the cause of a nonconformity and to prevent recurrence.
- Documented Information: information required to be controlled and maintained by an organisation and the medium on which it is contained.
- Effectiveness: extent to which planned activities are realised and planned results achieved.
- Environmental Aspect: element of an organisation's activities, products or services that interacts or can interact with the environment.
- Environmental Impact: change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.
- Environmental Indicator: measurable representation of the condition or status of operations, management or conditions.
- Environmental Information Act (EIR): legislation governing the release of public sector information relating to the environment. Environmental information includes information about air, water, soil, land, flora and fauna, energy, noise, waste and emissions. Environmental Information also includes information about decisions, policies and activities that affect the environment.
- Environmental Objective: result to be achieved, set by the organisation, consistent with its environmental policy
- Environmental Performance: performance related to the management of environmental aspects.
- Environmental Policy: intentions and direction of an organisation related to environmental performance, as formally expressed by its top management
- Freedom of Information Act (FOI): legislation governing the release of public sector information.
- Indicator: measurable representation of the condition or status of operations, management or conditions

- Interested Party: person or organisation that can affect, be affected by, or perceive itself to be affected by a decision or activity
- Life Cycle: consecutive and interlinked stages of a product (or service) system, from raw material acquisition or generation from natural resources to final disposal.
- Measurement: Process to determine a value
- Monitoring: determining the status of a system, a process or an activity
- Out-source: make an arrangement where an external organisation performs part of an organisation's function or process
- Process and procedure: Set of interrelated or interactive activities, which transforms inputs into outputs.
- Non-conformity: non-fulfilment of a requirement of the Standard (need or expectation) that is stated, generally implied or obligatory.
- Risks and Opportunities: potential adverse effects (threats) and potential beneficial effects (opportunities).
- Top management: person or group of people who directs and controls an organisation at the highest level. Queen Mary's Senior Executive Team (SET) is its Top Management Group

Leadership, Scope and Context

Our Principal and President is the Chair of the Senior Executive Team (SET) and is the duty holder accountable for the delivery of Queen Mary's environmental sustainability commitments. The Figure 1 show an overview of our environmental governance structure:

Figure 1: Queen Mary's Environmental Governance Structure



Our SET:

- Maintain strategic overview of our performance in the aspect of climate change adaptation and embedding good environmental practices into the way we deliver teaching, learning and associated activities
- Ensure that resources are available across our University to enhance our resilience to extreme weather conditions as well as current and emerging environmental challenges
- Oversight and ownership of our environmental performance and compliance with all relevant regulations.

Queen Mary's Sustainability Committee (SC) is responsible for the assurance of our environmental sustainability performance and regulatory compliance. This committee meets at least four times every academic year. The SC reports to SET and to the Estates Strategy Board (ESB) when required.

The Vice Principal Policy and Strategic Partnerships (a member of our SET) provides oversight of our environmental sustainability delivery approach and Chairs the SC. The Vice Chair of our SC is our Director of Estates, Facilities and Capital Development.

The membership of our SC is drawn from leaders and senior managers across our University. The membership of our SC is aligned with our commitment to embed good environmental practices across all areas of our operation. Currently, our SC have members from:

- Academic Faculties
- Human Resources
- Student Services
- Student Representative
- Staff Unions
- Finance
- Procurement
- Information Technology Services
- Marketing and Communications
- Health and Safety
- All Service Areas within the Estates and Facility Directorate
- Sustainability

Roles, Responsibilities and Competence

Internal and external assignment and allocation of responsibilities are fundamental to the implementation of our EMS. Therefore, the membership of our SC will continue to reflect our significant environmental aspects.

The Head of Sustainability in conjunction with the Chair, Vice Chair and members of the SC are responsible for:

- Determining individuals, whose responsibilities have the potential to affect its environmental performance and fulfilment of its compliance obligations, are competent on the basis of appropriate education, training or experience,
- Identifying training needs required to support the delivery of its environmental objectives
- Raising awareness about the benefits of good environmental practices
- Establishing, implementing and maintaining the EMS in accordance with the requirements of ISO 14001:2015 standard
- Identifying individuals (both internal and external) whose roles have, or could have, a significant impact on the environment and communicating the description of these roles and responsibilities within the EMS
- Coordinating the implementation of initiatives that support the delivery of Queen Mary's commitments to continually improve its environmental performance and comply with all relevant environmental regulations and compliance obligations.

Communication, Information and Record Management

Our environmental communication, information and record management process will continually be reviewed to ensure that it robustly meet the demands associated with:

- Incoming enquiries and complaints
- Requests for information
- Information on its intranet and extranet sites

Process

Communication Channels

Queen Mary's directory https://dir.qmul.ac.uk is available to members of the public to access details of individual and departments and https://www.qmul.ac.uk/about/sustainability for specific information about its environmental sustainability performances and activities.

Below are other channels of communication with Queen Mary:

- **Email**: sustainability@qmul.ac.uk
- **Twitter**: @QMULSustain
- **Instagram**: @QMULSustain
- **Facebook**: @QMULSustainability
- **Phone**: 020 7882 5555

In addition, the sustainability website can be used to access the most up to date information about Queen Mary's EMS

Enquiries and Complaints

Enquiries and complaints can be made using any of the above channels or directly to the Sustainability Team. Whenever a formal record is required, these enquiries and responses are maintained by the Sustainability Team.

Requests for environmental information

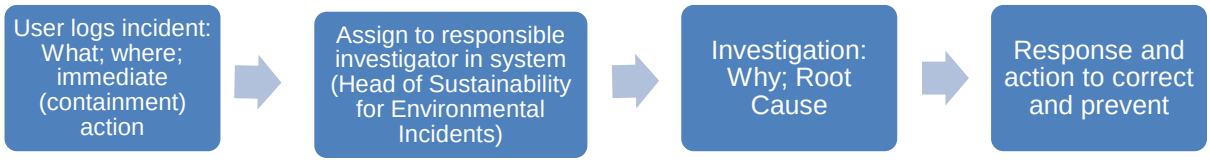
Public requests for environmental information are handled in accordance with the Environmental Information Regulations (EIR), a regulatory function of the Freedom of Information Act (FOI).

Such requests can be made directly to the Sustainability Team via foi-enquiries@qmul.ac.uk

Incidents

All environmental incidents must be recorded on the **Environmental Incident Report Form** and this completed form return to Head of Sustainability via sustainability@qmul.ac.uk this form can be found at Environmental Management System Procedure or requested by emailing sustainability@qmul.ac.uk

This process flow explains the process



Further information about reporting environmental incident can be found within the **Emergency Preparedness and Response Procedure**.

Document Control and Management

As part of our commitment to attain and maintain ISO 14001:2015 certification, we will continue to ensure that all EMS document, records, reports, toolkit and templates contain adequate and up to date information, suitable for use, protected from loss or damage, easily accessible and distributed as well as retained in usable formats.

All our EMS documents and associated reports are electronically stored and in a consistent version control format.

Below are expected standards of all our EMS documents:

- Documented information, where relevant, are stored electronically within the Sustainability SharePoint folder
- These electronic versions are stored in a version control system
- Relevant staff are informed of changes to documented information and provided with access to the most updated versions
- Documented information remains legible and readily identifiable and produced in the correct format
- Documented information is reviewed and revised (if necessary) as part of the internal audit process and Management Review
- Documents originating from outside Queen Mary, which are important for the planning and operation of the EMS, are identified and their distribution controlled.

Environmental Aspects and Impacts

Our environmental aspects and impacts register that accompany this report aligns with the ISO 14001:2015's Clause 6.1.2. This section:

- Determines the environmental aspects of all our activities within the scope of this EMS, which we can control and influence and associated environmental impacts
- Determines how compliance obligations apply to our environmental aspects
- Considers the life cycle perspective when assessing the significance of our aspects in terms of impacts on the environment under normal, abnormal and foreseeable emergency conditions
- Identifies risks (adverse impacts) and opportunities (beneficial impacts) resulting from significant aspects of our operations

Process: Significant Aspects Criteria

Queen Mary used the environmental criteria outlined in our **Environmental Aspects and Impacts Register**. This Register is used to monitor, manage and report our environmental performances. The assumptions used in developing this register are explained in the succeeding sub-sections.

Operating Conditions

Environmental aspects and its associated impacts are entered, together with type of activity and activity area. Scores are then assessed against normal and abnormal scenarios, as well as foreseeable emergency situations.

Type of Environmental Impact

The aspects are categorised on their potential impacts: positive (beneficial) or a negative (adverse) environmental impact, or not applicable as appropriate, under the different operating conditions.

Impacts Scores (Severity)

The severity of the environmental aspects are scored using a five-point scale depending of the severity of the environmental impact. The score of used for least impact and five representing the highest impact.

Scoring of Likelihood / Frequency of Impact

The likelihood or frequency of impacts are categorised based on the probability of the occurrence of the impacts or the frequency of the occurrence of the impacts.

Compliance Risk

A “Yes” or “No” can be selected in the ‘Compliance Risk’ column, to highlight whether the aspect is governed by legal or other requirements. Aspects with an associated compliance risk are automatically deemed as significant and the cell automatically turns red.

The aspects register calculates the significance of each aspect. The scores for ‘Severity’ and ‘Likelihood / Frequency of Impact’ are multiplied to give rise to significance ratings of between 1 and 25. These scores are used to ranked significance.

The cell colour within the ‘Significance’ column of the register indicates the level of significance. The Table 1 below summarise our significance-scoring guide.

Table 1: Environmental Aspects Significance Guide

Score	Level of Significance	Risk	Action
1 to 3	Very Low	Acceptable Risk	Continue to monitor and review
4 to 9	Low	No Immediate Risk	Continue to monitor and operational control may be required
10 to 19	Medium	Immediate	Concern, continue to monitor and operational control must be put in place
20 to 25	High	High Risk	Urgent action required as well as monitoring and operational control must be put in place

Environmental Objectives, Targets and KPIs

Our environmental objectives, targets and key performance indicators (KPIs) action planner aligns with the ISO 14001:2015's Clauses 6.2.1 and 6.2.2. This section:

- Establishes environmental objectives at relevant functions and levels, ensuring compatibility with strategic direction and consistency with commitments made in the environmental policy, including the commitment to continual improvement
- Takes into account Queen Mary's significant environmental aspects and compliance obligations
- Considers risks and opportunities
- Ensures environmental objectives are measurable (where practicable) and monitored via establishment environmental indicators

Our Environmental Sustainability Action Plan (ESAP 2020-23), contain an overview of all relevant KPIs used to monitor our environmental performances.

Objective Setting

The Head of Sustainability in conjunction with relevant stakeholders and interested parties prepared the **Aspects and Impacts Register, Compliance Register and Interested Parties Log**. The above reference documents underpinned our ESAP 2020-2023 as well as our current environmental objectives, targets and KPIs.

Operational Planning and Control Procedure

Our planning and control procedure aligns with the ISO 14001:2015's Clause 8.1. This section set out how we:

- Establish, implement, control and maintain the processes associated with identified significant environmental aspects, compliance obligations and risks and opportunities associated with Queen Mary's operations
- Identify the type and extent to which outsourced processes can be controlled or influenced

Process

The Head of Sustainability in conjunction with the Chair, Vice Chair and members of the SC ensures that:

- Relevant departments and personnel contribute to developing appropriate management and control procedures. This includes collaboration with external providers regarding outsourced services
- Actions are implemented to achieve the Queen Mary's environmental objectives, address current and emerging risks and optimise all relevant opportunities
- Control of the procedures so that deviations from operating criteria are prevented
- Relevant processes and operating requirements are communicated to those involved, including suppliers and contractors
- Documented information, such as operating criteria and communications with internal staff and external providers is stored electronically in the Environmental Management System sub-folder and via the Sustainability web site
- Operational procedures and associated criteria are appropriately reviewed and revised as part of the Internal Audit and annual Management Review processes

Monitoring, Measuring, Analysis and Evaluation

Queen Mary's monitoring, measuring, analysis and evaluation procedure aligns with the ISO 14001:2015's 9.1.1. This procedure is also used to demonstrate how we:

- Monitors, measures and evaluates its environmental performance and the effectiveness of the EMS
- Sets environmental performance criteria and indicators

Process

The Head of Sustainability in conjunction with the Chair, Vice Chair and members of the SC:

- Determines how significant aspects and impacts within operational controls are monitored and measured, as well as, compliance with relevant environmental legislation and regulations and conformance to Queen Mary's objectives and targets
- Ensures the method and timing of monitoring and measurement is co-ordinated through **Operation Control Documented Information**. This also outlines who is responsible for collating and analysing the results
- Ensures any monitoring and equipment involved are regularly calibrated and maintained and records generated and filed appropriately
- Sets relevant environmental performance indicators
- Conducts an annual evaluation, including the reporting of trends, via the SC

Environmental Compliance Obligations

Our environmental compliance checklist and register aligns with the ISO 14001:2015's Clauses 4.2 and 6.1.3 and captures all relevant regulations and compliances obligations that are applicable to activities across Queen Mary UK's campuses.

Related Documents

All compliance obligations are detailed within Queen Mary's **Environmental Compliance Checklist** and **Environmental Compliance Register**.

Environmental Compliance and Assurance Process

The two types of environmental compliance requirements that underpin our **Environmental Compliance Register** are:

- Mandatory and
- Other requirements

Mandatory Legal Requirements

Queen Mary, currently subscribe to the Comprehensive European Directory of Regulation on the Environment with Commentary (CEDREC) and it is a current Corporate Partner of the Institute of Environmental Management Assessment (IEMA).

CEDREC provide monthly environmental legislation updates via email and a section of IEMA's monthly Transform Magazine contain review of environmental regulations.

In summary, Queen Mary uses CEDREC and IEMA to identify and review mandatory legal requirements related to its environmental aspects.

Other Compliance Requirements

Queen Mary maintains a log of all interested parties and stakeholders. This log is regularly reviewed to ensure that it is meeting all our environmental commitment and obligations.

Evaluation of Compliance

We will continue to use our evaluation of compliance procedure to demonstrate how we:

- Establish, implement and maintain the procedure for periodically evaluating compliance with applicable legal and other compliance obligations
- Record documented evidence of the periodic evaluation activities

Related Documents

The Compliance Obligation Register details all Queen Mary's current environmental compliance requirements. This register is stored in the EMS sub-folder within the Sustainability SharePoint Folder.

Process

The Head of Sustainability in conjunction with the Chair, Vice Chair and members of the SC:

- Maintains knowledge of compliance through appropriate compliance management processes
- Co-ordinates a team to periodically audit (Internal Audit Programme)areas where the legal and other compliance obligations apply to ensure that all those involved are complying with these requirements
- Ensures corrective actions following compliance audits are periodically reviewed, and appropriately revised.

The **Internal Audit Report Form** is used during compliance audits and previous audits reports can be viewed within the Internal Audit subfolder, within the EMS subfolder within the Sustainability SharePoint folder.

Internal Environmental Assurance Audit

Queen Mary's internal environmental assurance audit programme aligns with the ISO 14001:2015's Clauses 9.1.2 and 9.2.2. This programme is also used to demonstrate how it:

- Conduct internal audits of its Environmental Management System (EMS) at planned intervals to determine whether it conforms or meet the requirements of the ISO14001:2015 standard and compliance obligations
- Retains documented information of the audit programme and findings.

Related Documents

Internal Audit Report Forms and the **Internal Audit Programme and Checklist** can be accessed by emailing sustainability@qmul.ac.uk

Process

The Sustainability and Environment Manager, in collaboration with the Head of Sustainability:

- Determines the audit criteria, scope, frequency and the methods to be used. This information is recorded on the **Internal Audit Programme.** It is based on the relevant environmental issues and the results of previous audits
- Ensures that all internal Auditors are trained and competent to conduct internal environmental audits and are able to appropriately record and communicate audit findings
- Assign each Auditor specific clauses to audit within the audit programme, audit scope, with the expectation of timely documentation of audit findings, including details of any opportunities for improvement (OFIs) or non-conformances using the **Internal Audit Report Form** template

All the documented information associated with the internal audit programme are stored in the Internal Environmental Audit Folder in the Sustainability SharePoint folder.

Effects and Actions on Non Conformance

We are aware that failure to comply with relevant regulations, compliance obligations and our EMS and associated procedures may result in:

- Non-conformity with the requirements of the ISO 14001:2015 standard
- Civil and / or criminal prosecution

Therefore, the Sustainability and Environment Manager in conjunction with the Head of Sustainability will ensure that robust systems are in place to respond and manage all environmental non-conformances and regulatory breaches as well as avoid environmental harm via the non-conformity and corrective actions.

Non-Conformity and Corrective Action

This section aligns with the ISO 14001:2015's Clause 4.3. This section of our EMS is used to demonstrate how we define the responsibility and authority for investigating and addressing non-conformances. The purpose of this section are for the purpose of:

- Identifying the cause(s) of the non-conformance(s)
- Analysing of the cause(s) of the non-conformance(s) to avoid recurrence(s)
- Exploring and implementing corrective action(s)
- Assessing the effectiveness of the corrective action(s)

Related Documents

The **Non Conformity Log** is used to log all non-conformances and can be accessed via the Internal Audit sub-folder, within the EMS sub-folder within the Sustainability SharePoint folder.

Process

The Sustainability and Environment Manager is responsible for ensuring that:

- Details of any non-conformity identified, usually as a result of internal and external audits, are sent to sustainability@qmul.ac.uk and are recorded on the Nonconformity Log
- The corrective actions and the time-scales required for the implementation of these actions
- The actions taken are appropriate to the magnitude of the non-conformity and the resultant environmental impacts
- The analyses of the effectiveness of corrective actions and determines the root causes of the non-conformities and takes necessary action to prevent recurrences
- After an environmental incident, non-conformance information is provided in the **Environmental Incident Report Form**
- Completed forms are adequately documented and appropriate action to control, correct and deal with the consequences of non-conformities are implemented

Environmental Management Review

This section of our EMS aligns with the ISO 14001:2015's Clause 9.3 and it is used to demonstrate how we:

- Ensures the continuing suitability, adequacy and effectiveness of our EMS and associated procedures
- Reviews key elements of the EMS
- Identifies opportunities for environmental performance improvement

Process

The Head of Sustainability and the Chair and Vice Chair of the SC ensures:

- The Management Review is the main agenda of at least one SC meetings during each anaemic year usually following internal and external audits
- The Management Review takes into consideration the following:
    - The status of actions from previous management reviews
    - Changing circumstances regarding external and internal issues relevant to the EMS, such as the needs and expectations of interested parties, compliance obligations, significant environmental aspects as well as risks and opportunities
    - Evaluation of the performance of Queen Mary against its environmental sustainability objectives
    - Environmental performance information, such as the findings of recent internal audits and compliance evaluation
    - The status of nonconformities and corrective actions;
    - Relevant internal and external communications from interested parties.
- The Management Review addresses the continuing suitability, adequacy and effectiveness of the EMS and makes recommendations for improvement.
- Expected outputs from these meeting include decisions and actions related to improvements and change in the EMS and Environmental Objectives, as well as opportunities to integrate the EMS with other internal processes and in line with the strategic direction of Queen Mary.

Version Control

Date	Version	Lead	Due for Review:
7 May 2021	1.0	Head of Sustainability	6 May 2022

Environmental Management System: Discharges to Water Management Procedure

Outcome requested:	That the Sustainability Committee should: • Consider this procedure • Consider issues that should be escalated • Approve the Discharges to Water Management Procedure
Executive Summary:	This procedure details how discharges to water are managed across Queen Mary, University of London (Queen Mary) UK campuses in order to: • Define actions, controls and responsibilities regarding discharges to surface water and effluent drains • Appropriately identify the potential risks from discharges into surface water and effluent drains across Queen Mary campuses • Minimise discharges into surface water • Mitigate and control any discharges into surface water and effluent drains • Ensure compliance with the Queen Mary's effluent discharge consent • Ensure compliance with all relevant environmental regulations
Alignment with: • **QMUL Strategy** • **Internal Policies/Regulations** • **External Statutory Requirements**	• Environmental Protection Act 1990 • Environment Act 1995 • Water Industry Act 1991 • Queen Mary Environmental Sustainability Policy 2020 • Queen Mary Environmental Sustainability Action Plan (ESAP) 2020-2023
Consideration of Strategic Risks:	• *Regulatory compliance* • *Reputation*
Subject to Prior and Onward Approval by:	*Not Applicable*
Confidentiality and Distribution:	*Non-restricted*

Equality Impact Assessment:	*Not Applicable*
Owner(s) :	Stephen Borthwick, Estates and Facilities Operations Manager Claire Marchant, Estates and Facilities Operations Manager
Date:	*7 May 2021*

Environmental Management System: Discharges to Water Management Procedure

Lead(s):	Operations Manager, Estates and Facilities
Reviewed by:	Philip Tamuno
Approved by:	Sustainability Committee
Date Approved:	7 May 2021
Date due for Review:	7 May 2022
ISO 14001:2015 Clause:	8.1

Purpose

This procedure details how discharges to water are managed across Queen Mary, University of London (Queen Mary) UK campuses in order to:

- Define actions, controls and responsibilities regarding discharges to surface water and effluent drains
- Appropriately identify the potential risks from discharges into surface water and effluent drains across Queen Mary campuses
- Minimise discharges into surface water
- Mitigate and control any discharges into surface water and effluent drains
- Ensure compliance with the Queen Mary's effluent discharge consent
- Ensure compliance with all relevant environmental regulations

Scope

This procedure covers all discharges to surface water and effluent drains across Queen Mary's UK Campuses.

This procedure covers any individuals or organisations carrying out activities across Queen Mary's campuses that may result in discharges into surface water and effluent drains.

This procedure forms part of Queen Mary's Environmental Management System (EMS).

Definitions (ISO14001:2015)

Risks and Opportunities: potential adverse effects (threats) and potential beneficial effects (opportunities).

Procedure: Set of interrelated or interactive activities, which transforms inputs into outputs.

Responsibilities

Leads	Description
Operations Managers, EAF	Provide assurance that all drainage systems across Queen Mary's campuses are fit for purpose and custodian of information of the status of all surface water and effluent drains across Queen Mary's campuses.
Head of Sustainability	Responsibility for coordinating training and learning opportunities for all interested parties and relevant stakeholders on environmental compliance and risks associated with water pollution.
Sustainability and Environment Manager	Coordinates the auditing of all relevant operations across Queen Mary that could potentially result in discharges to water, as well as based on relevant regulations, standards and Queen Mary's environmental objectives.
Estates Operations / Maintenance Team	Responsible for maintaining and conducting minor repairs to surface water and effluent drain systems across Queen Mary's campuses. Report all incidents and emergencies associated with discharges into surface water and effluent drains.
Health and Safety Directorate	Responsible for providing health and safety advice and guidance on the most appropriate ways to store, dispose and respond to emergencies associated with chemicals, all hazardous and polluting substances across Queen Mary's campuses
Senior Lab Technician / Managers	Responsible for ensuring compliance with Queen Mary's trade effluent discharge consents and permits, safely and appropriately store and dispose of all chemicals and hazardous wastes. Report all incidents and emergencies associated with discharges into surface water and effluent drains within their areas of responsibilities.

Related Documents

This procedure is linked to Queen Mary's:

- Queen Mary's Environmental Sustainability Policy 2020
- Queen Mary's Environmental Sustainability Action Plan (2020-23)
- Queen Mary's Environmental Aspects and Impacts Register

- Queen Mary's EMS Emergency Spill Response Procedure
- Queen Mary's EMS Emergency Preparedness and Response Procedure
- Queen Mary's Health and Safety Spills Management Guidance

Procedure

This section details systems and procedures that must be complied with to prevent the discharge of harmful materials into surface drains across our campuses.

Drainage system:

1. The information about all surface water surface and effluent drainage systems across Queen Mary UK campuses are held by the Operations Managers, Estates and Facilities
2. The drainage system is maintained by the Operations and Maintenance team who conduct minor works / repairs as and when required
3. Prior to the commencement of construction works appropriate drainage surveys are conducted, in relevant areas, to determine the structural integrity of the drainage system. The outcome of these surveys are held by the Operations Managers, Estates and Facilities
4. The Operations Managers with the support of the Estates and Operations Team are responsible for managing all issues relating to the drainage system across Queen Mary's campuses

Waste Water and Trade Effluent:

The main types of wastewater generated across Queen Mary's campuses are:

- Normal wastewater from sinks, toilets, etc.
- Surface water runoff from rain falling on the ground and buildings (this is the reason why the management of spills is important)
- Trade effluent waste generated from certain operations, such as from educational research
- Laboratory wastes associated with publicly funded research and teaching.

Environmental Permit

Queen Mary has trade effluent permit and consent for its Mile End, Whitechapel and Charterhouse Square Campuses. These consents preclude Queen Mary or its agents from discharging anything other than rainwater into the surface water drains.

Queen Mary, also possess environmental permits for its Mile End, Whitechapel and Charterhouse Campuses concerned with the control of radioactive material and the receipt, transfer, accumulation and disposal of radioactive waste.

Vehicle washing is strictly prohibited across all Queen Mary's campuses.

What chemicals can be disposed of down the sink?

Aqueous chemical solutions can be disposed of via standard sinks provided that these:

- Chemicals are dilute and below relevant hazardous waste threshold level(s).
- They are not on the prescribed substances list of chemicals that should never be disposed via standard sink.
- They are not excluded on the permits / exemptions of the specific campus.

We are aware that some research laboratories generate small volumes (a few hundred millilitres) of relatively harmless chemical solutions that are not classified as hazardous following moderate dilution. As such, it is acceptable for solutions of small volumes (typically < 500 ml) of non-toxic water-soluble chemicals to be carefully washed down standard sinks with plenty of running water.

The assessment of what is a "small amount" relies on professional judgement; bearing in mind the concentration levels at which these substance(s) are toxic or otherwise harmful.

Larger quantities or highly concentrated chemical substances must not be disposed via any drain and the disposal of such substances must comply with Queen Mary's hazardous waste disposal procedures, guides, and chemical datasheet.

Examples of low hazard, water-soluble waste that can be disposed via standard sink include:

- Diluted acids, alkalis and alcohols
- Harmless inorganic salts (including drying agents such as $CaCl_2$, $MgSO_4$, Na_2SO_4, P_2O_5)
- Alcohols containing salts (e.g., from destroying sodium)
- All disinfectant solutions used to inactivate Hazard Groups 1 and 2 biological agents
- Hypochlorite solutions (e.g., from destroying cyanides, phosphines)

If any individual is in doubt whether a solution can be disposed via standard sink; they should contact the designated Faculty Health and Safety Manager/Adviser.

What chemicals must not be disposed of down the sink?

No waste substances should be disposed via standard sinks that could ultimately harm:

- The environment
- The sewerage system
- The health and safety of the public or have the potential to interact with other substances to cause such effects

However, it is acceptable for waste solutions from experiments containing trace / low levels of hazardous organic or water-soluble chemicals to be disposed of via standard sinks but these must be flushed with plenty of water.

Examples of wastes that should never be discharged into surface water or effluent drain via standard sinks across our campuses:

- Persistent chemicals such as heavy metals and various organic compounds
- None-soluble organic liquids such as petroleum hydrocarbons and chlorinated compounds
- Compounds which produce toxic vapours, such as cyanide, ammonia, formaldehyde and glutaraldehyde
- Strongly acidic or alkaline wastes (pH < 6 or pH > 11)
- Highly reactive chemicals or flammable wastes
- Prescribed substances as per Trade Effluent Regulations 1989

Trade Effluent Regulations 1989 (Prescribed Substances)

Mercury and its compounds	Dieldrin	Simazine
Cadmium and its compounds	Endrin	Tributyltin compounds
ɣ-Hexachlorocyclohexane	Carbon Tetrachloride	Triphenyltin compounds
DDT	Polychlorinated Biphenyls	Trifluralin
Pentachlorophenol	Diclorvos	Fenitrothion
Hexachlorobenzene	1,2-Dichloroethane	Azinphos-methyl
Hexachlorobutadiene	Trichlorobenzene	Malathion
Aldrin	Atrazine	Endosulfan

Whenever in doubt about the status of any solution; contact your Faculty Health and Safety Manager/Adviser

Emergency response:

1. Relevant spill kits are available wherever hazardous or potentially hazardous substances are stored across Queen Mary's campuses
2. Queen Mary's Environmental Emergency Preparedness and Response Procedure contain further details regarding how to manage effluent, chemicals or oil spillages.

Review:

This procedure will be reviewed at least once every year and it will be updated in the following circumstances (minimum):

- Following any significant incidents or adverse audit findings relating to discharges of water
- In the event of relevant changes to external or regulatory requirements
- When significant changes are made to the existing drains across Queen Mary's campuses

Effects and Actions on Non-Conformance

Failure to comply with this procedure may result in:

- Non-conformance with the requirements of ISO 14001:2015 standard.
- Civil and / or criminal prosecution as a result of spillage or accidental discharge of hazardous materials into surface water and effluent drains across Queen Mary campuses

Departure from this procedure is addressed within the **Non-Conformance, Corrective and Preventive Action Procedure** of Queen Mary's Environmental Management System

Version Control

Date	Version	Leads	Due for Review
7 May 2021	1.0	Operations Managers, Estates and Facilities	6 May 2022

Sustainability Committee: 7 May 2021

Paper SC21/26

Environmental Management System: Emergency Spill Response Procedure

Outcome requested:	That the Sustainability Committee should: • Consider this procedure • Consider issues that should be escalated • Approve the Emergency Spill Response Procedure
Executive Summary:	The purpose of this procedure is to: • Provide guidance to all staff on how to respond to a spillage of oils or chemicals • Provide an overview of the responsibilities and practices relating to spill control and management • Prevent or minimise the environmental impacts from pollution incidents • Ensure compliance with relevant environmental legislation
Alignment with: • **QMUL Strategy** • **Internal Policies/Regulations** • **External Statutory Requirements**	• Environmental Protection Act 1990 • Environment Act (1995) • Health and Safety Emergency Response / Spill Control • Queen Mary Environmental Sustainability Policy 2020 • Queen Mary Environmental Sustainability Action Plan (ESAP) 2020-2023
Consideration of Strategic Risks:	• *Regulatory compliance* • *Reputation*
Subject to Prior and Onward Approval by:	*Not Applicable*
Confidentiality and Distribution:	*Non-restricted*
Equality Impact Assessment:	*Not Applicable*
Author(s) :	Stephen Borthwick, Estates and Facilities Operations Manager Claire Marchant, Estates and Facilities Operations Manager

Date:	*7 May 2021*

Environmental Management System: Emergency Spill Response Procedure

Leads:	Operations Manager, Estates and Facilities
Reviewed by:	Head of Sustainability
Approved by:	Sustainability Committee
Date Approved:	7 May 2021
Date due for Review:	6 May 2022
ISO 14001:2015 Clause:	8.1

Purpose

The purpose of this procedure is to:

- Provide guidance to all staff on how to respond to a spillage of oils or chemicals
- Provide an overview of the responsibilities and practices relating to spill control and management
- Prevent or minimise the environmental impacts from pollution incidents
- Ensure compliance with relevant environmental legislation

Scope

This procedure covers all incidents associated with spills that occurs across Queen Mary, University of London (Queen Mary) UK campuses.

Definitions (ISO14001:2015)

Environmental Impact: change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.

Responsibilities

Leads	Description
Estates and Facilities Directorate	The Senior Management Team (SMT) of the Estates and Facilities (EAF) Directorate or representative(s) are responsible for ensuring that emergency response processes are carried out as planned as well as in the event of emergencies

Leads	Description
Operations Managers, Estates and Facilities	Responsible for identifying potential incidents, planning actions to prevent or mitigate environmental impacts and organising periodic testing of responses.
Head of Sustainability	Responsibility for coordinating training and learning opportunities for all interested parties and relevant stakeholders on environmental compliance and risks associated with chemical and oil spillages.
Sustainability and Environment Manager	Coordinates the auditing of spill response and management practices across Queen Mary, as well as based on relevant regulations, standards and Queen Mary's environmental objectives.
Head of Catering Services	Responsible for ensuring correct and secure storage of oil and supervision of deliveries.
Faculty / Professional Department	Responsible for ensuring correct and secure storage of oil and chemicals and supervision of deliveries.
Security	Responsible for out-of-hours emergency response.
Trained / Designated Staff	All staff who receive spill training are responsible for dealing with spillages in a safe manner and for disposing of contaminated materials.
Health and Safety Directorate	Responsible for providing specialised health and safety advice and guidance on safe and appropriate storage of chemical as well as responses whenever spillage of chemicals occur.

Related Documents

The documents, procedures, policies and templates below are related to this procedure:

- Queen Mary's Environmental Sustainability Policy 2020
- Queen Mary's Environmental Sustainability Action Plan (2020-23)
- Queen Mary's Environmental Management System
- Queen Mary's Environmental Aspects and Impact Register
- Queen Mary's Discharges to Water Procedure
- Queen Mary's Environmental Incident Report Form
- Queen Mary's EMS Emergency Preparedness and Response Procedure
- Queen Mary's Health and Safety Spills Management Guidance

Procedure

All incidents must be reported immediately to Operations and Maintenance Team of the Estates and Facilities Directorate via eaf-helpdesk@qmul.ac.uk or if out of normal working hours, the

Security Office should be informed. The Security Office are responsible for coordinating out-of-hour responses to such incidents.

No matter the situation:
SPILLAGE MUST NOT BE WASHED/HOSED DIRECTLY INTO SURFACE WATER DRAINAGE SYSTEMS

The 7 rule of thumb steps below have been proven to effectively manage routine spillages are:

- Assess the risk
- Select personal protective equipment (PPE)
- Confine the spill
- Stop the source
- Evaluate the incident and implement clean-up
- Decontaminate the site / area
- Complete all required reporting forms

In addition to the above 7 steps; in the event of a hazardous substance or oil spill occurring externally, the following specific actions should be taken (only staff trained in spill response should conduct the following). Otherwise, specialised emergency responders must be contacted.

1. Determine the material involved and seek material data sheet if necessary; refer to Control of Substances Hazardous to Health (COSHH) register
2. Seek assistance dependant on level of spill
3. If there is danger to individuals, or you are unsure, evacuate the area and contact the Security Department, Health and Safety Directorate, Estates Operations and Maintenance Team, Head of Sustainability and Relevant Manager or the out of hours contact and give the following information:
    a. Location of the spill
    b. Name of substance spilt
    c. Nature/source and volume of spillage
    d. Any injury or suspected injuries
4. If there is no immediate danger, and the material is still leaking, or spilling collect the appropriate spill kit necessary to contain the spill
5. Take appropriate action to stop the flow (close valve, plug leak etc). Personal Protective Equipment (PPE) must be worn
6. To prevent the spill entering a surface water drain or sewer it may be necessary to either cover or bund the relevant access point before containing the spill

7. Contain the spill to prevent further spread using appropriate absorbing materials such as absorbent booms, socks or sand
8. If some material has entered the surface water drain or a watercourse, contact the Head of Sustainability and out of hours emergency contact
9. Absorb and collect the resultant material
10. Place all contaminated clean-up materials in a hazardous waste bag, available within the spill kit. This must be stored and disposed as hazardous waste
11. Record the incident using the environmental incident report form (see Appendix 1) and send this to the Head of Sustainability via sustainability@qmul.ac.uk
12. The Head of Sustainability carries out a review of the incident identifying any preventative actions that may be required
13. Re-stock the spill kit and re-order any materials that have been used up
14. This procedure is reviewed annually and either a desktop or a real-life simulation created to test its effectiveness.

Spill Procedure Summary

- Close off the source of the spill
- Collect spill kit
- Contain the spill
- Collect the spilled material using appropriate absorbent material
- Communicate with internal personnel as appropriate and clear the spill away
- Record and report the incident

Effects and Actions on Non Conformance

Failure to comply with this procedure may result in:

- Non-conformance with the requirements of ISO 14001:2015 standard.
- Civil and / or criminal prosecution

Departure from this procedure is addressed within the **Non-Conformance, Corrective and Preventive Action Procedure** section of Queen Mary's Environmental Management System

Version Control

Date	Version	Leads	Due for Review
7 May 2021	1.0	Operations Managers, Estates and Facilities	6 May 2022

Appendix 1: Environmental Incident Report Form

PART 1: TO BE COMPLETED BY STAFF	
Name: Department: Date:	Location of Incident:
DETAILS OF THE INCIDENT OR NON-CONFORMANCE:	
CORRECTIVE ACTION TAKEN: *SIGNATURE:*	
E-MAIL THIS FORM TO: sustainability@qmul.ac.uk	
PART 2: TO BE COMPLETED BY EMS MANAGER	
ROOT CAUSE ANALYSIS:	
LONG TERM CORRECTIVE ACTION:	

Environmental Management System: Emissions to Air Management Procedure

Outcome requested:	That the Sustainability Committee should: • Consider this procedure • Consider issues that should be escalated • Approve the Emissions to Air Management Procedure
Executive Summary:	This procedure details how emissions from air-conditioning/refrigeration equipment, boilers and fume cupboards are managed across Queen Mary, University of London (Queen Mary) UK campuses in order to: • Address the risks associated with "Emissions to Air" • Minimise emissions to air • Minimise pollution risks by ensuring equipment are appropriately maintained • Ensure compliance with relevant environmental legislation
Alignment with: • **QMUL Strategy** • **Internal Policies/Regulations** • **External Statutory Requirements**	• The Environmental Protection Act 1990 • Environment Act 1995 • Town and Country Planning (England) Regulations 2012 • Wildlife and Countryside Act 1981 • Conservation and Habitats and Species Regulations 2010 • Queen Mary Environmental Sustainability Policy 2020 • Queen Mary Environmental Sustainability Action Plan (ESAP) 2020-2023
Consideration of Strategic Risks:	• *Regulatory compliance* • *Reputation*
Subject to Prior and Onward Approval by:	*Not Applicable*
Confidentiality and Distribution:	*Non-restricted*

Equality Impact Assessment:	*Not Applicable*
Author(s) :	Garry Pritchard, Assistant Director of Operations Estates and Facilities
Date:	*7 May 2021*

Environmental Management System: Emissions to Air Management Procedure

Lead:	Assistant Director Operations, Estates and Facilities
Reviewed by:	Head of Sustainability
Approved by:	Sustainability Committee
Date Approved:	7 May 2021
Date due for Review:	6 May 2022
ISO 14001:2015 Clause:	8.1

Purpose

This procedure details how emissions from air-conditioning/refrigeration equipment, boilers and fume cupboards are managed across Queen Mary, University of London (Queen Mary) UK campuses in order to:

- Address the risks associated with “Emissions to Air”
- Minimise emissions to air
- Minimise pollution risks by ensuring equipment are appropriately maintained
- Ensure compliance with relevant environmental legislation

Scope

This procedure covers all air-conditioning/refrigeration equipment, boilers and fume cupboards across Queen Mary UK campuses.

Definitions (ISO14001:2015)

Risks and Opportunities: potential adverse effects (threats) and potential beneficial effects (opportunities).

Procedure: Set of interrelated or interactive activities, which transforms inputs into outputs.

Responsibilities

Leads	Description
Assistant Director Operations, Estates and Facilities	Responsible for managing the air-conditioning and fire extinguisher maintenance contract and ensuring compliance with relevant F-Gas and environmental regulations. Custodian of the air-conditioning maintenance records.
Head of Sustainability	Coordinates training and learning opportunities for all interested parties and relevant stakeholders on environmental compliance and risks associated with air pollution.
Sustainability and Environment Manager	Coordinates the auditing of all relevant operations across Queen Mary that could potentially result in air pollution as well as based on relevant regulations, standards and Queen Mary's environmental objectives.
Operations Maintenance Team, EAF	Collating, documenting and reporting all faults
Appointed Air Conditioning Contractor	Responsible for maintaining the equipment asset registers and ensuring contractor control. Conduct air-conditioning/refrigeration maintenance including leak testing. Conduct general equipment maintenance and repairs.
Senior Laboratory Technicians / Managers	Responsible for coordinating the maintenance and repairs of fume cupboards.

Related Documents

This procedure is linked to:

- Queen Mary's Environmental Sustainability Policy 2020
- Queen Mary's Environmental Sustainability Action Plan (2020-23)
- Queen Mary's Environmental Management System (EMS)
- Queen Mary's Environmental Aspects and Impact Register
- Queen Mary's EMS Emergency Preparedness and Response Procedure

Procedure

Air-conditioning and refrigeration equipment:

1. Queen Mary uses equipment containing Fluorinated Greenhouse Gases (F-Gases) including air conditioning units, refrigeration units, and firefighting equipment

2. Queen Mary's appointed Air Conditioning Contractor is responsible for maintaining the air-conditioning and refrigeration equipment across Queen Mary UK campuses
3. An asset register which details all equipment containing F-Gases and the quantity of each type of gas is held by the Assistant Director of Operations, Estates and Facilities Directorate
4. All equipment is serviced and leak tested by Queen Mary's Air Conditioning contractor at frequencies dependent on the F-gas Regulations:
    a. at least every 12 months for equipment containing between 5 and 50 tonnes of CO_2 equivalent
    b. at least once every 24 months for equipment containing between 5 and 50 tonnes of CO_2 equivalent where a leakage detection system have been installed
    c. at least every 6 months for equipment containing between 50 and 500 tonnes of CO_2 equivalent,
    d. at least every 12 months for equipment containing between 50 and 500 tonnes of CO_2 equivalent where leak detection system have been installed
    e. at least every 3 months for equipment containing over 500 tonnes of CO_2 equivalent
    f. at least every 6 months for equipment containing over 500 tonnes of CO_2 equivalent where a leakage detection system is installed
5. Maintenance records including evidence of leak tests are stored by the Assistant Director Operations (Estates and Facilities Directorate).
6. The appointed Air Conditioning Contractor is certified to handle fluorinated greenhouse gases and a copy of their REFCOM F-GAS certificate is held by the Assistant Director Operations (Estates and Facilities) and stored in the Sustainability SharePoint Folder.
7. Only Engineers from the appointed Air Conditioning Contractor, with relevant qualifications are authorised to carry out work on equipment containing F-Gases:
    a. City and Guilds F GAS and ODS Regulations Certificate
    b. Construction Industry Training Board Refrigeration certificate
8. Contracts, maintenance and individual contractor training records are held by the Assistant Director Operations, Estates and Facilities

Boilers:

1. Queen Mary has a resister of all its boiler emission points.
2. Queen Mary does not have boilers over 20MW, or over 3MW that burn waste or waste oil, therefore is not required to have a Greenhouse Gas (GHG) emission Environmental Permit. However, all its boilers are maintained to prevent emissions of dark smoke and ensure compliance with the Clean Air Act 1993.

3. Queen Mary's appointed Boiler Maintenance Contractor is responsible for carrying out maintenance and emissions testing every six months
4. In case of emissions of dark smoke from its boilers, the Estates Operations team shut off such boiler(s) and notify the boiler maintenance contractor
5. Contracts, maintenance and training records are stored in the Record Management System (RMS) of the Estates and Facilities Directorate

Fume cupboards:

1. Queen Mary have a record of all its buildings with fume cupboard emission points
2. The Senior Laboratory Technicians or Managers for each department are responsible for ensuring that fume cupboards are serviced and maintained
3. All fume cupboards are scheduled to be tested by a competent Engineer at least every 14 months to ensure that they are performing as intended and to demonstrate that adequate control of exposure is achieved
4. Test reports are stored by the Senior Laboratory Technician or Manager and must be kept for a minimum period of 5 years
5. All Laboratory Technicians are trained in the use of fume cupboards.
6. Training records are stored by the Senior Laboratory Technicians or Managers.

Effects and Actions on Non Conformance

Failure to comply with this procedure may result in:

- Non-conformance with the requirements of 14001:2015 standard
- Civil and / or criminal prosecution

Departure from this procedure is addressed within the **Non Conformance, Corrective and Preventive Action Section** of Queen Mary's Environmental Management System

Version Control

Date	Version	Lead	Due for Review
7 May 2021	1.0	Assistant Director Operations, Estates and Facilities	6 May 2022

Environmental Management System: Contractor Control and Management Procedure

Outcome requested:	That the Sustainability Committee should: • Consider this procedure • Consider issues that should be escalated • Approve the Contractor Control and Management Procedure
Executive Summary:	This procedure details how contractor management and control is implemented across Queen Mary, University of London (Queen Mary) UK campuses for the purpose of: • Addressing the risks and opportunities associated with the environmental aspects related to contractor activities • Ensuring contractors are aware of the environmental risks associated with their activities and how to control these risks • Minimising negative environmental impacts resulting from contractor activities • Ensuring compliance with relevant environmental legislation.
Alignment with:	• The Environmental Protection Act 1990 • The Environment Act 1995 • Town and Country Planning (England and Wales) Regulation 2012 • Clean Neighbourhood and Environment Act 2005 • Noise and Statutory Nuisance Act 1993 • Building Regulations 2010 • Queen Mary's Environmental Sustainability Policy 2020 • Queen Mary's Environmental Sustainability Action Plan (ESAP) 2020-2023
Consideration of Strategic Risks:	• *Regulatory compliance* • *Reputation*
Subject to Prior and Onward Approval by:	*Not Applicable*

Confidentiality and Distribution:	*Non-restricted*
Equality Impact Assessment:	*Not Applicable*
Author(s) :	Garry Pritchard, Assistant Director Operations (Estates and Facilities)
Date:	*7 May 2021*

Environmental Management System: Contractor Control and Management Procedure

Owner:	Assistant Director Operations, Estates and Facilities
Reviewed by:	Head of Sustainability
Approved by:	Sustainability Committee
Date Approved:	7 May 2021
Date due for Review:	7 May 2022
ISO 14001:2015 Clause:	8.1

Purpose

This procedure details how contractor management and control is implemented across Queen Mary, University of London (Queen Mary) UK campuses for the purpose of:

- Addressing the risks and opportunities associated with the environmental aspects related to contractor activities
- Ensuring contractors are aware of the environmental risks associated with their activities and how to control these risks
- Minimising negative environmental impacts resulting from contractor activities
- Ensuring compliance with relevant environmental legislation.

Scope

This procedure covers all activities carried out by Contractors across Queen Mary's UK campuses. This excludes any works undertaken using a F10 procedure (Notification of Construction Project). Construction projects require active oversight by the Capital Project Team with support by the Queen Mary's Sustainability Team, to ensure that the relevant procedures are suitable and sufficient.

Definitions (ISO14001:2015)

Risks and Opportunities: potential adverse effects (threats) and potential beneficial effects (opportunities).

Procedure: Set of interrelated or interactive activities which transforms inputs into outputs.

Responsibilities

Owner	Description
Assistant Director Operations, Estates and Facilities	Overall responsibility for ensuring all activities of contractors (Estates and Facilities) are appropriately managed
Sustainability and Environment Manager	Coordinates the auditing of contractor control and management practices across Queen Mary against relevant regulations, standards and Queen Mary's environmental objectives.
Capital Projects Team	Responsible for co-ordinating contractors involved in construction, refurbishment, conversion and fit-out projects
Estates Operations and Maintenance Team	Responsible for co-ordinating engineering and maintenance contractors.
Facilities Manager	Responsible for co-ordinating grounds maintenance and facilities contractors.
• Grounds Management Team • Operations Maintenance Team	Responsible for issuing permits to work and supervising contractors whilst on site.
Contractors	Responsible for operating in accordance with Queen Mary's procedures and relevant legislations.

Related Documents

This procedure is linked to:

- Queen Mary's Environmental Sustainability Policy 2020
- Queen Mary's Environmental Sustainability Action Plan (2020-23)
- Queen Mary's Environmental Management System
- Queen Mary's Environmental Aspects and Impact Register
- Queen Mary's Environmental Incident Report Form
- Queen Mary's EMS Emergency Preparedness and Response Procedure
- Queen Mary's Permit to Work
- Queen Mary's EMAP 42

Procedure

Prior to commencing work on site, relevant manager reviews the following documents on Queen Mary's Risk Management System (RMS):

- Risk Assessments and Method Statements (RAMS)
- Qualifications or training records relevant to the work to be carried out
- Details of any hazardous substances to be used on site including material safety data sheets
- Details of the contractors' relevant environmental, permits and procedures (such as spill management and control procedures)

All contractors complete site induction (carried out online within the RMS system) once approved on the RMS, contractors then apply for a permit to work, before starting work at any Queen Mary's premises. These online site inductions are valid for a period of 12 months.

Site induction

The site induction covers the health, safety and environmental risks associated with schedule works.

The Environmental section of these inductions include:

1. Environmental hazardous materials, substances or risks relevant to the activities scheduled to be completed within any Queen Mary's premises
2. The use and storage of chemicals on site
3. Waste disposal processes
4. Emergency procedure and plan, such as spill or leak
5. Incident reporting process
6. Queen Mary's emergency contacts

All Contractors that have previous received induction, but have not worked at the site that they are scheduled to carry out work within the last 12 months, must completed site e-induction. All induction records are stored electronically in the Risk Management System (RMS).

E-Permit

The permit to work system has been developed to ensure that health and safety of contractors whilst working on site. However, environmental considerations have been integrated into this system to ensure that contractors are aware of the risks to the environment and how to avoid the occurrence of these risks.

Relevant Manager Issues permit to work after reviewing the documentation provided by appointed contractors. Any environmental considerations or hazard associated with the work they are scheduled to carry are detailed in the RAMS.

Contractors must keep a copy of the permit with them at all time whilst on site.

Effects and Actions on Non Conformance

Failure to comply with this procedure may result in:

- Non-conformance with the requirements the ISO 14001:2015 standard.
- Civil and or criminal prosecution

Departure from this procedure is addressed within **Non Conformance, Corrective and Preventive Action Section** of Queen Mary's Environmental Management System.

Version Control

Date	Version	Lead	Due for Review
7 May 2021	1.1	Assistant Director Operations, Estates and Facilities	6 May 2022

Environmental Management System: Emergency Preparedness and Response Procedure

Outcome requested:	That the Sustainability Committee should: • Consider this procedure • Consider issues that should be escalated • Approve the Emergency Preparedness and Response Procedure
Executive Summary:	This procedure details how Queen Mary, University of London (Queen Mary): • Identifies potential emergency situations that could have adverse environmental impacts • Plan and implement actions that could prevent and appropriately respond to accident and emergency situations • Periodically review and test emergency preparedness and response actions • Communicates relevant information and training regarding emergency preparedness and response to all relevant stakeholders and interested parties
Alignment with:	• The Environmental Protection Act 1990 • Environment Act 1995 • Queen Mary's Environmental Sustainability Policy 2020 • Queen Mary's Environmental Sustainability Action Plan (ESAP) 2020-2023
Consideration of Strategic Risks:	• *Reputation*
Subject to Prior and Onward Approval by:	*Not Applicable*
Confidentiality and Distribution:	*Non-restricted*
Equality Impact Assessment:	*Not Applicable*

Author(s) :	Mike Digby, Head of Security and Emergency Planning Peter Guy, Assistant Director Security and Business Continuity (Estates and Facilities)
Date:	*7 May 2021*

Environmental Management System: Emergency Preparedness and Response Procedure

Lead:	Assistant Director Security and Business Continuity, EAF
Reviewed by:	Head of Sustainability
Approved by:	Sustainability Committee
Date Approved:	7 May 2021
Date due for Review:	6 May 2022
ISO 14001:2015 Clause:	8.2

Purpose

This procedure details how Queen Mary, University of London (Queen Mary):

- Identifies potential emergency situations that could have adverse environmental impacts
- Plan and implement actions that could prevent and appropriately respond to accident and emergency situations
- Periodically review and test emergency preparedness and response actions
- Communicates relevant information and training regarding emergency preparedness and response to all relevant stakeholders and interested parties

Scope

This procedure covers all environmental emergency situations that may occur across Queen Mary, University of London (Queen Mary) campuses.

Queen Mary "Incident Management" is used interchangeably with response to emergencies.

Definitions (ISO14001:2015)

Environmental Impact: change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.

Interested Party: person or organisation that can affect, be affected by, or perceive itself to be affected by decision or activity.

Responsibilities

Leads	Description
Estates and Facilities Directorate	The Senior Management Team (SMT) of the Estates and Facilities (EAF) Directorate or representative(s) are responsible for ensuring that emergency response processes are carried out as planned (in the event of emergency situations). The Management Review Committee review actions annually.
Assistant Director Security and Business Continuity, Estates and Facilities	Responsible for the strategic overview and delivery of Queen Mary's emergency preparedness and control procedure.
Head of Security and Emergency Planning	The Head of Security and Emergency Planning is responsible for: • Planning actions to prevent and respond to accident and emergency situations. • Periodically reviewing and testing emergency preparedness and response actions.
Head of Sustainability	The Head of Sustainability is responsible for reviewing planning actions to ensure that these appropriately prevent or mitigate environmental impacts associated with our operations. In addition, coordinates training and learning opportunities for all interested parties and relevant stakeholders on environmental compliance, risks and opportunities.
Sustainability and Environment Manager	Coordinates the auditing of Queen Mary emergency preparedness response practices against current and emerging environmental risks.
Relevant Managers and Departments	All Managers are responsible for identifying potential emergency situations, planning actions to prevent or mitigate environmental impacts and organising periodic testing of responses.

Related Documents

This procedure is linked to:

- Queen Mary's Environmental Sustainability Policy 2020
- Queen Mary's Environmental Sustainability Action Plan (2020-23)
- Queen Mary's Environmental Management System (EMS)

- Queen Mary's Environmental Aspects and Impact Register
- Queen Mary's Environmental Incident Report Form
- Queen Mary's EMS Emergency Spill Response Procedure
- Queen Mary's EMS Discharges to Water Management Procedure
- Queen Mary's EMS Emissions to Air Management Procedure

Procedure

The Head of Security and Emergency Planning in conjunction with the Head of Sustainability and all interested parties across Queen Mary would ensures that:

1. Relevant emergency situations within the **Environmental Aspect and Impact Register** are reviewed and revised annually to identify all potential accident and emergency scenarios
2. Relevant departments and interested parties contribute to developing appropriate emergency preparedness and response actions as well as ensure that all interested parties are aware of their roles and responsibilities in supporting the delivery of this procedure. This may include liaison with external agencies and contractors
3. Emergency preparedness and response actions are periodically reviewed, and if necessary revised, particularly after accidents and emergencies have occurred or following testing
4. An Incident management Plan (IMP) is in place and provide guidance and direction on how to respond to emergency situations as well as contact details and outline responsibilities for all major incident scenarios. Incident covered within the IMP include potential environmental risks and emergencies, such as:
    a. 24-hour contact details of personnel, contractors, consultants, specialists and service providers with the responsibility for attending any of the following environmental incidents:
        i. Flood (Maintenance and Operations, Estates and Facilities Directorate)
        ii. Fire (All Departments and Service Areas)
        iii. Pollution/spillage hazard (Security provides initial response; while the Health and Safety Directorate provide specialist guidance)
        iv. Loss of coolant (Maintenance and Operations, Estates and Facilities Directorate)
        v. Gas leak or other emissions to air (Maintenance and Operations, Estates and Facilities Directorate)
        vi. Power loss (Maintenance and Operations, Estates and Facilities Directorate)
        vii. Building damage (Maintenance and Operations, Estates and Facilities Directorate)

viii. Asbestos exposure (Asbestos, Water Systems and Compliance Manager)

In the event of an environmental accident or emergency the Security Control Room (SCR) / Security Manager is contacted. The SCR / Security Manager co-ordinates all immediate response and escalates notification as required.

After an incident, the **Environmental Incident Report Form** (See Appendix 1) is used to document and record this incident. This form can also be accessed from the procedures and template section of the Sustainability website. Completed forms are sent to the Head of Sustainability via sustainability@qmul.ac.uk who liaise with relevant stakeholders or interested parties to investigate and agree appropriate measures that would avoid the occurrence of similar incidents in line with Queen Mary's environmental commitments.

Effects and Actions on Non Conformance

Failure to comply with this procedure may result in:

- Non-conformance with the requirements the ISO 14001:2015 standard.
- Civil and / or criminal prosecution

Departure from this procedure is addressed within **Non Conformance, Corrective and Preventive Action Section** of Queen Mary's Environmental Management System.

Version Control

Date	Version	Lead	Due for Review
7 May 2021	1.0	Assistant Director Security and Business Continuity, EAF	6 May 2022

Environmental Management System: Energy Monitoring and Management Procedure

Outcome requested:	That the Sustainability Committee should: • Consider this procedure • Consider issues that should be escalated • Approve the Energy Monitoring and Management Procedure
Executive Summary:	This procedure details how Queen Mary, University of London (Queen Mary) manages energy used across its UK campuses as well as: • Address the risks and opportunities associated with aspect 'energy consumption' • Monitor energy consumption • Minimise energy consumption • Embed good energy management practices across all its premises • Ensure compliance with relevant environmental legislation.
Alignment with:	• The Environmental Protection Act 1990 • The Environment Act 1995 • Climate Change Act 2008 • Queen Mary Environmental Sustainability Policy 2020 • Queen Mary Environmental Sustainability Action Plan (ESAP) 2020-2023
Consideration of Strategic Risks:	• *Reputation* • *Environmental regulatory compliance*
Subject to Prior and Onward Approval by:	*Not Applicable*
Confidentiality and Distribution:	*Non-restricted*
Equality Impact Assessment:	*Not Applicable*
Author(s) :	Philip Tamuno, Head of Sustainability

Date:	*7 May 2021*

Environmental Management System: Energy Monitoring and Management Procedure

Lead:	Head of Sustainability
Reviewed by:	Head of Sustainability
Approved by:	Sustainability Committee
Date Approved:	7 May 2021
Date due for Review:	6 May 2022
ISO 14001:2015 Clause:	8.1

Purpose

This procedure details how Queen Mary, University of London (Queen Mary) manages energy used across its UK campuses as well as:

- Address the risks and opportunities associated with aspect 'energy consumption'
- Monitor energy consumption
- Minimise energy consumption
- Embed good energy management practices across all its premises
- Ensure compliance with relevant environmental legislation.

Scope

This procedure covers all gas, electricity, gas and all fossil fuel used for heating across the premises of Queen Mary, University of London (Queen Mary).

Definitions (ISO14001:2015)

Risks and Opportunities: potential adverse effects (threats) and potential beneficial effects (opportunities).

Process: Set of interrelated or interactive activities which transforms inputs into outputs.

Responsibilities

Leads	Description
Sustainability Committee	Responsible for ensuring that there are adequate resources to support the delivery of Queen Mary's carbon reduction and

Leads	Description
	decarbonisation targets and objectives. Provide oversight of Queen Mary's energy efficiency and carbon reduction performance
Estates and Facilities Senior Management Team	Align Queen Mary's carbon reduction and energy efficiency objectives into all service areas across the Estates and Facilities Directorate.
Head of Sustainability	Overall responsibility for overseeing energy management across Queen Mary and ensuring compliance with all relevant energy regulations. Responsible for developing Queen Mary's carbon management plan.
Sustainability and Energy Manager	Responsible for monitoring energy / carbon performance and collating data to generate DECs and HESA reports. Responsible for collating technical energy efficiency opportunities and risks across Queen Mary's portfolio.
Sustainability and Environment Manger	Responsible for coordinating Queen Mary's environmental and auditing programme as well as exploring non-technical approaches to reducing energy wastage.
Relevant Managers and Departments	Proactively encourage good energy practices across their Departments, Schools, Faculties and Service Areas.
Building Management System Contractor	Deliver energy efficiency via optimisation of Building Management System (BMS)

Related Documents

This procedure is linked to:

- Queen Mary's Environmental Sustainability Policy 2020
- Queen Mary's Environmental Sustainability Action Plan (2020-23)
- Queen Mary's Environmental Management System
- Queen Mary's Environmental Aspects and Impact Register

Procedure

Building Management System

1. Queen Mary's appointed BMS Contractor is responsible for controlling heating, ventilation air-conditioning systems (HVAC) and hot water controls via building management system
2. The HVAC of most of Queen Mary's buildings can be controlled via the BMS; however, some of our buildings have complex control systems.

3. Majority of Queen Mary's buildings have manual controls, within individual rooms for air-conditioning, heating and lighting.
4. Some of Queen Mary's buildings are regulated automatically via the BMS, which controls the internal air temperature of either zones or individual rooms within the building according to seasonality, term times, temperature and occupancy.

HESA submissions:

1. The Head of Sustainability collates the annual electricity, fossil fuel (heating), water used, and business travel data across all Queen Mary's UK campuses. These data are part of Queen Mary's annual Estate Management Record (EMR) submissions.
2. These data are submitted to the Assistant Director Property and Space Management (Estates and Facilities) who is Queen Mary's primary contact for the HESA reporting.
3. The Head of Sustainability stores all email correspondence and HESA's reporting requirements in designated sub-folder. These evidences are available for assurance and audit purposes

Energy Performance of Buildings (England and Wales):

1. The Head of Sustainability is responsible for ensuring that all qualifying Queen Mary's buildings display valid Display Energy Certificates (DECs) and have the associated advisory reports.
2. The DECs and Advisory Reports are prepared by registered consultant, who conducts the annual review of each building during the process of generating these DECs
3. The DECs are displayed at the entrance/reception area of each building, and are publicly available via relevant section of Queen Mary's Sustainability web site.
4. Energy Performance Certificates (EPCs) of all recently acquired buildings are available via relevant section of Queen Mary's web site.
5. TM44 Air conditioning inspections are carried out, by an accredited air-conditioning inspector, in accordance with the Energy Performance of Buildings Regulations. These certificates held by the Assistant Director Operations (Estates and Facilities Directorate).

Monitoring and reporting:

1. Majority of Queen Mary's buildings have smart electric meters for accurately monitoring electricity, gas and water consumption.
2. The Head of Sustainability validates energy bills against fiscal meter data to ensure accuracy.
3. The Head of Sustainability present energy and carbon performance to the Sustainability Committee (SC) and the Finance and Investment Committee (FIC).

4. Scope 1 and 2 data are captured within Queen Mary's energy monitoring and management workbooks.

Carbon Management and Energy Efficiency Opportunities

1. Six-year 30% carbon reduction target against Queen Mary's 2018/19 baseline is one of the commitment with its Environmental Sustainability Action Plan (ESAP) 2020-23.
2. The Head of Sustainability in conjunction with all relevant stakeholders is responsible for identifying energy efficiency and carbon reduction opportunities and carrying out cost/benefit analysis to determine the feasibility of all identified energy efficiency and carbon reduction opportunities.
3. Queen Mary is currently exploring opportunities to encourage all building users to adopt good energy efficiency opportunities.
4. The Head of Sustainability present regularly reports to the Sustainability Community and the Finance and Investment Committee on Queen Mary's against its carbon reduction target.

Effects and Actions on Non Conformance

Failure to comply with this procedure may result in:

- Non-conformance with the requirements the ISO 14001:2015 standard
- Budgetary pressure from increased energy consumption / wastage
- Civil and / or criminal prosecution

Departure from this procedure is addressed within **Non Conformance, Corrective and Preventive Action Section** of Queen Mary's Environmental Management System.

Version Control

Date	Version	Lead	Due for Review:
7 May 2021	1.0	Head of Sustainability	6 May 2022

Energy Procurement Strategy (2021-23)

Outcome requested:	That the Sustainability Committee should: • Endorse this energy procurement strategy (2021-23) • Approve the presentation of this strategy for approval by the Senior Executive Team (SET)
Executive Summary:	Based on current market trend and the performances of our current fixed energy supply service contracts, we are proposing we run another energy procurement competition. However, unlike 2020, we are proposing that: • We opt for a contract duration of 24-months. A 24-months contract duration would reduce the time and resources associated with repeating this exercise every year as well as give us more time to focus on identifying, prioritising, quantifying and implementing energy efficiency and decarbonisation approaches across our UK campuses • We invite all major Third Party Intermediary (TPI) that operates across the public sector to participate in this mini energy procurement competition • We accept the lowest quote(s) we receive on a like for like basis and we use our 2018/19 energy consumption profile • Accept the lowest quotes if it is lower than the average electricity and gas unit rates that we paid during the 2019/20 academic year • We use the same evaluation team as last year: o Head of Sustainability (responsible for coordinating the process and evaluation of all quotes received) o Finance Partner Estates and Facilities o Procurement Category Manager Estates and Facilities o Operations Manager QMBioenterprises or a QMB representative • The performances of the outcomes of this mini competition will be monitored and reported to the Sustainability Committee (SC) and the Finance and Investment Committee (FIC)
Alignment with:	• *Queen Mary's cost efficiency and environmental sustainability priorities*

Consideration of Strategic Risks:	To secure energy (gas and electricity) supply services for all Queen Mary's UK premises between 1 October 2021 and 30 September 2023.
Subject to Prior and Onward Approval by:	• Senior Executive Team (SET)
Confidentiality and Distribution:	*Non-restricted*
Equality Impact Assessment:	*Not Applicable*
Author(s) :	Philip Tamuno, Head of Sustainability
Executive Sponsor(s) :	Ian McManus, Director of Estates and Facilities Philippa Lloyd, Vice Principal Strategic Partnership
Date:	*7 May 2021*

Energy Procurement Strategy (2021-23)

Overview

Our current 12-month fixed-term electricity and gas supply services (between 1 October 2020 to 30 September 2021) was put in place as result of the significantly higher than average market unit rates that was delivered by our previous contract between the periods of 1 October 2018 and 30 September 2020.

£302,001 and £740,806 were the projected respective gas and electricity savings that were expected to be delivered from our current fixed energy supply service contracts between October 2020 and September 2021 (assuming that our electricity and gas consumption will remain unchanged). In addition to these savings, all the non-half hourly electricity we use during the current contract would be based on green electricity tariff[1].

As seen in Tables 1 and 2, we have within the first six months of these current contracts realised 75% (electricity) and 54% (gas) of the projected savings. These results implies that we are in line to achieve and possibly out-perform the anticipated savings from these contracts. Appendices 1 to 6 show our energy unit rates, consumption and spend between August 2018 and March 2021.

Table 1: Performance of Current Electricity Supply Service Contracts

	Consumption (kWh)		Spend and Savings (£)			
2020/21	Budget	Actual	Budget	Actual	BAU[2]	Savings
August	2,822,412	2,515,049	£410,393	£329,781	£329,781	£0
September	2,912,983	2,546,550	£423,562	£339,118	£339,118	£0
October	2,916,242	2,642,182	£406,830	£357,369	£466,203	£108,834
November	2,935,135	2,643,161	£409,466	£378,625	£464,529	£85,904
December	3,176,749	2,529,851	£443,171	£363,329	£442,981	£79,652
January	3,488,456	2,684,095	£486,654	£383,285	£475,203	£91,919
February	2,698,674	2,518,501	£376,479	£360,411	£449,915	£89,505
March	2,991,072	2,823,132	£417,269	£401,412	£498,072	£96,660

[1] 5% of our electricity consumption
[2] Business as Usual (based on the unit rates that we paid during the 2019/20 academic year)

	Consumption (kWh)		Spend and Savings (£)			
2020/21	Budget	Actual	Budget	Actual	BAU[2]	Savings
Year till Date Savings (£)						£552,473

Table 2: Performance of Our Current Gas Supply Service Contract

	Consumption (kWh)		Spend and Savings (£)			
2020/21	Budget	Actual	Budget	Actual	BAU[2]	Savings
August	550,052	834,221	£16,759	£27,781	£27,781	£0
September	1,205,480	1,174,363	£36,684	£31,933	£31,933	£0
October	2,413,593	1,904,289	£61,584	£46,122	£57,206	£11,083
November	3,306,185	2,747,917	£84,345	£54,758	£75,286	£20,528
December	3,765,507	3,020,449	£96,057	£52,375	£82,740	£30,365
January	4,414,545	4,270,339	£112,608	£77,248	£114,045	£36,798
February	3,109,939	3,301,228	£79,354	£65,015	£88,935	£23,920
March	2,991,882	4,311,434	£76,343	£80,193	£119,929	£39,736
Year till Date Savings (£)						£162,430

Proposed Strategy

Based on current market trend and the performances of our current fixed energy supply service contracts, we are proposing we run another energy procurement competition. However, unlike 2020, we are proposing that:

- The electricity and gas competition should be based
    - Green electricity tariff for our Non-Half Hour (NHH) electricity supplies
    - Standard electricity tariff for our Half Hour (HH) electricity supplies
    - Standard gas tariff
- We opt for a contract duration of 24-months. A 24-months contract duration would reduce the time and resources associated with repeating this exercise every year as well give us more time to focus on identifying, prioritising, quantifying and implementing energy efficiency and decarbonisation approaches across our UK campuses
- We invite all major Third Party Intermediary (TPI) that operates across the public sector to participate in this mini energy procurement competition
- We accept the lowest quote(s) we receive on a like for like basis and we use our 2018/19 energy consumption profile[3]

[3] The most recent academic year that was not affected by restrictions and lock-downs associated with the COVID-19 pandemic

- Accept the lowest quotes if it is lower than the average electricity and gas unit rates that we paid during the 2019/20 academic year. There are currently no significant differences in the energy supply services delivered by major electricity and gas services providers
- We use the same evaluation team as last year:
    - Head of Sustainability (responsible for coordinating the process and evaluation of all quotes received)
    - Finance Partner Estates and Facilities
    - Procurement Category Manager Estates and Facilities
    - Operations Manager QMBioenterprises or a QMB representative
- The performances of the outcomes of this mini competition be monitored and reported to the Sustainability Committee (SC) and the Finance and Investment Committee (FIC)

Conclusion and Recommendations

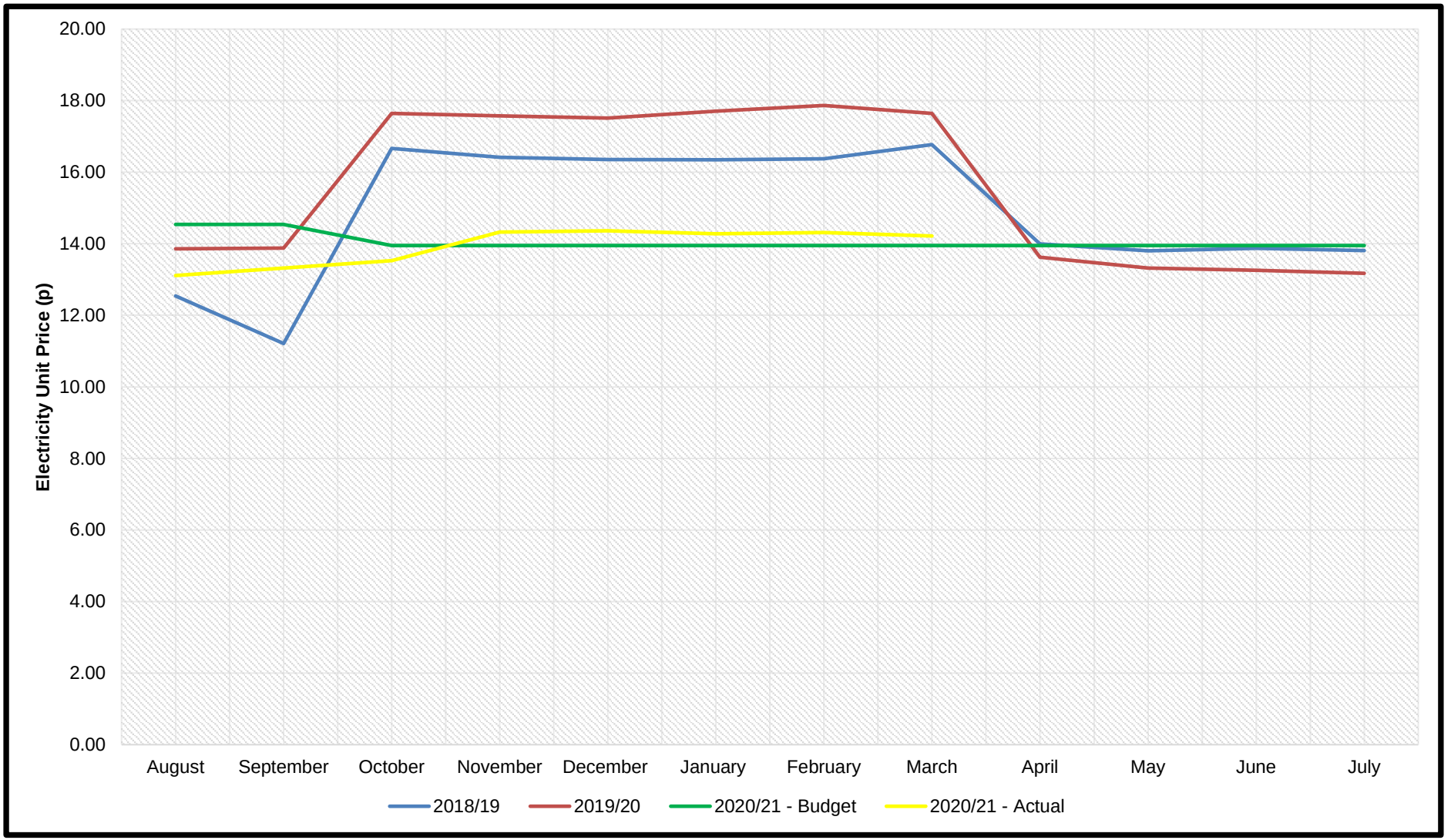
Based on the volatility of the energy market, it is standard practice that preferred quotes are accepted before 4pm on the day that these quotes are received. From experience last year, our inability to accept the lowest quotes that we received on 3 April 2020 resulted in repeating the energy mini completion exercise carried out on 4 and 5 of May 2020. The May 2020 quotes were £200,000 higher than the lowest energy quotes we received on 3 April 2020.

We are recommending that the Head of Sustainability be delegated (in conjunction with the evaluation team) to accept the lowest energy quotes we receive during these competition exercise. The same approach was used to secure our current energy contract.

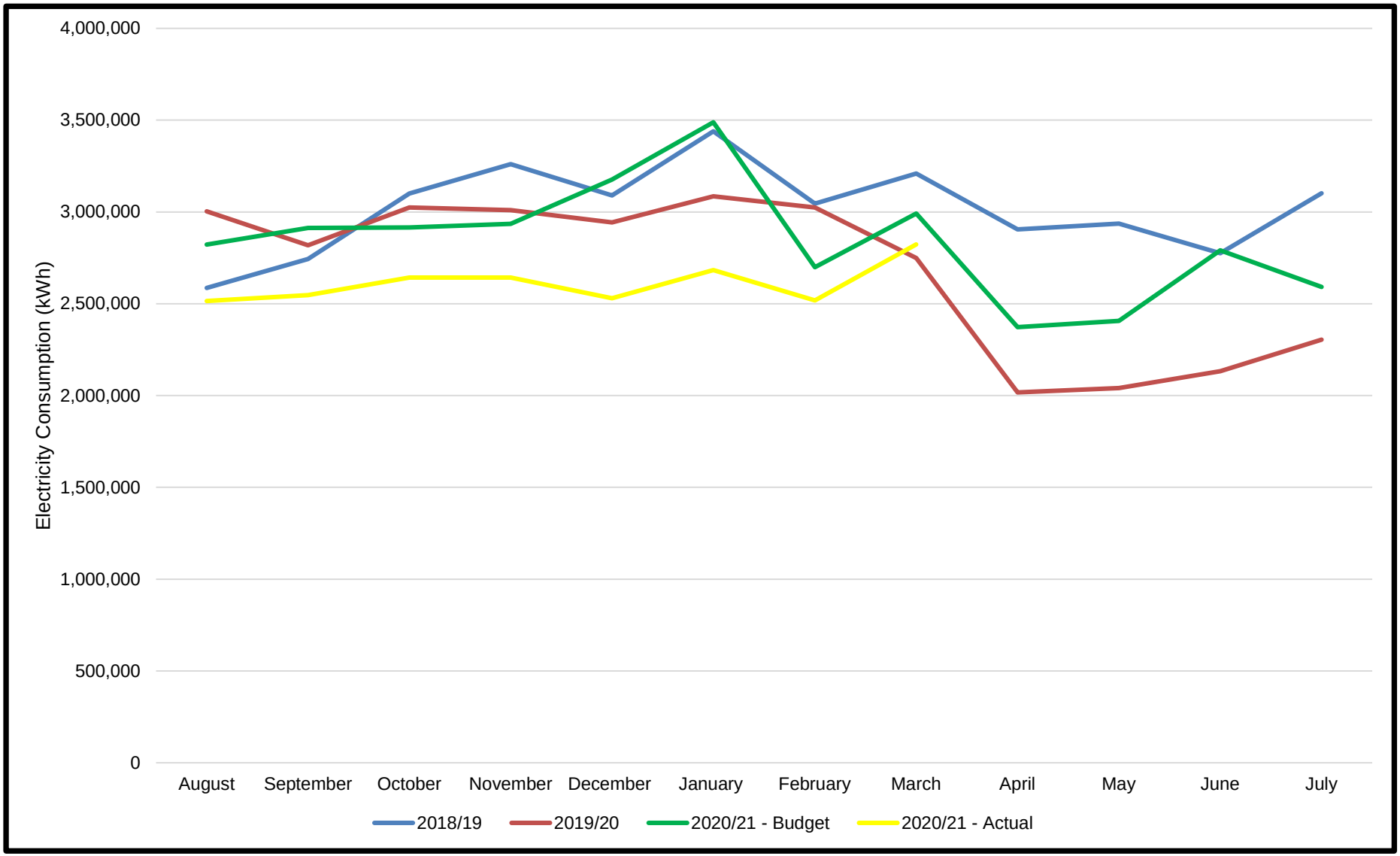
We are recommending that the Sustainability Committee should:

- Endorse this energy procurement strategy (2021-23)
- Approve the presentation of this strategy for approval by the Senior Executive Team (SET)

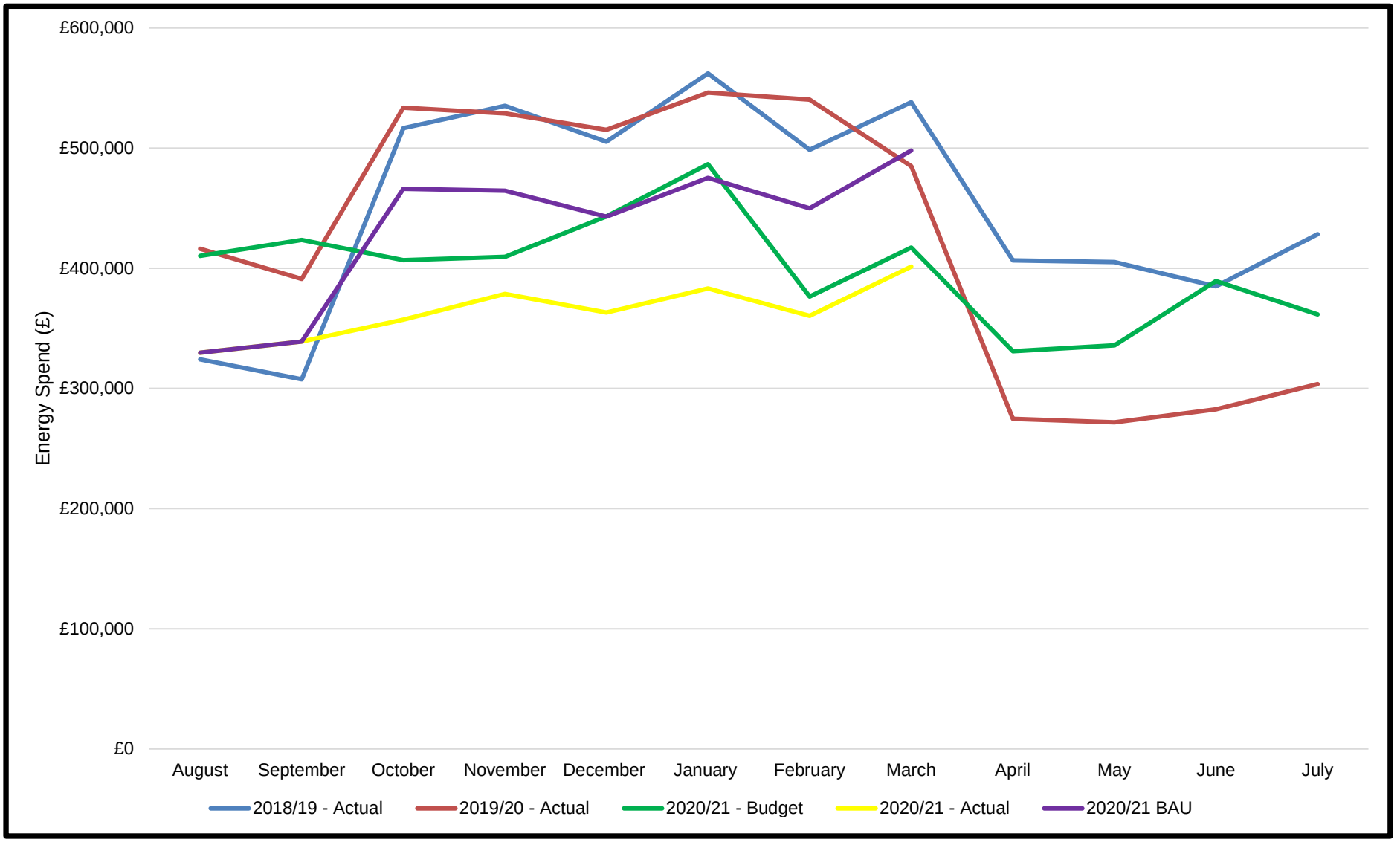
Appendix 1: Trend in Electricity Unit Rates (p)



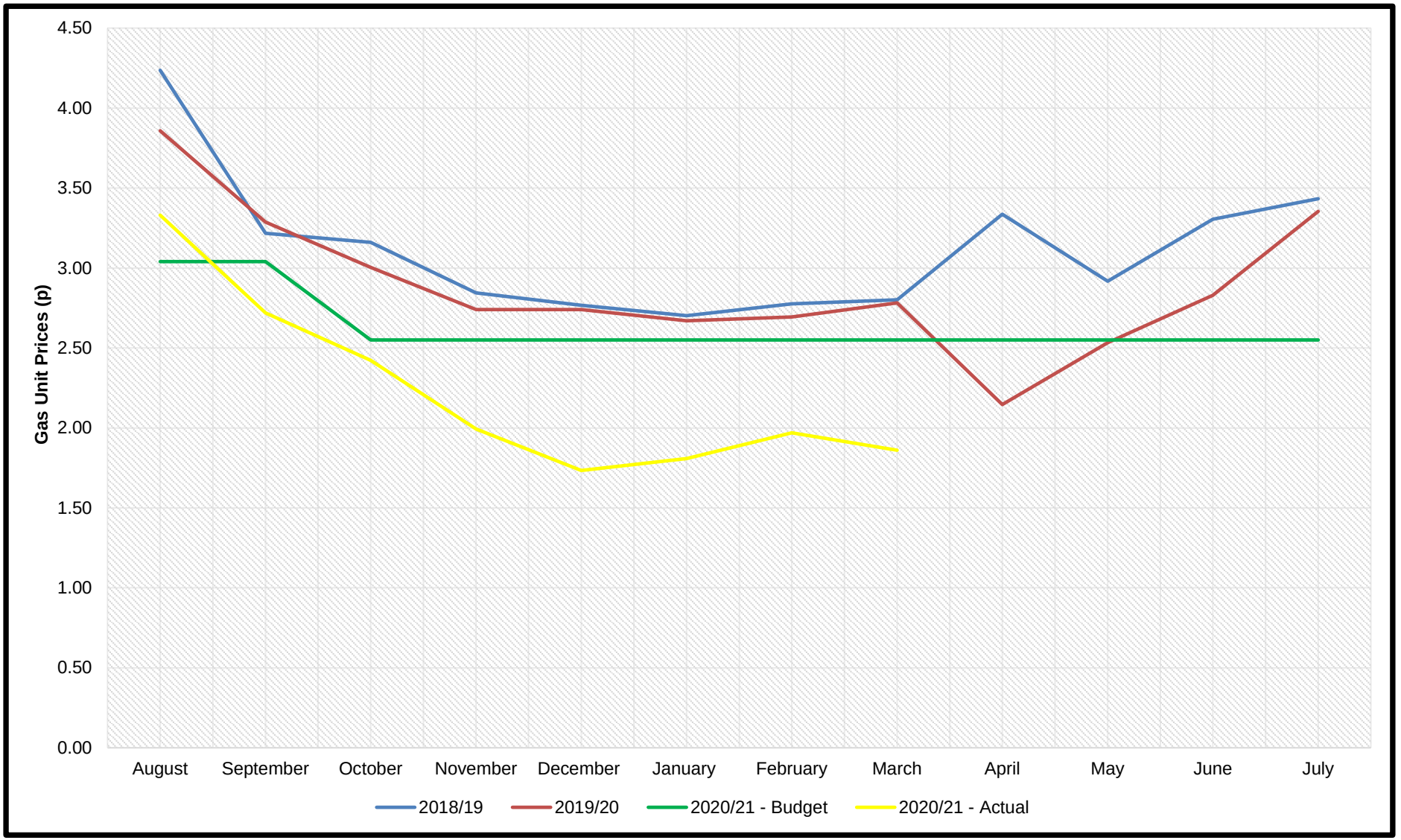
Appendix 2 Trend in Electricity Consumption (kWh)



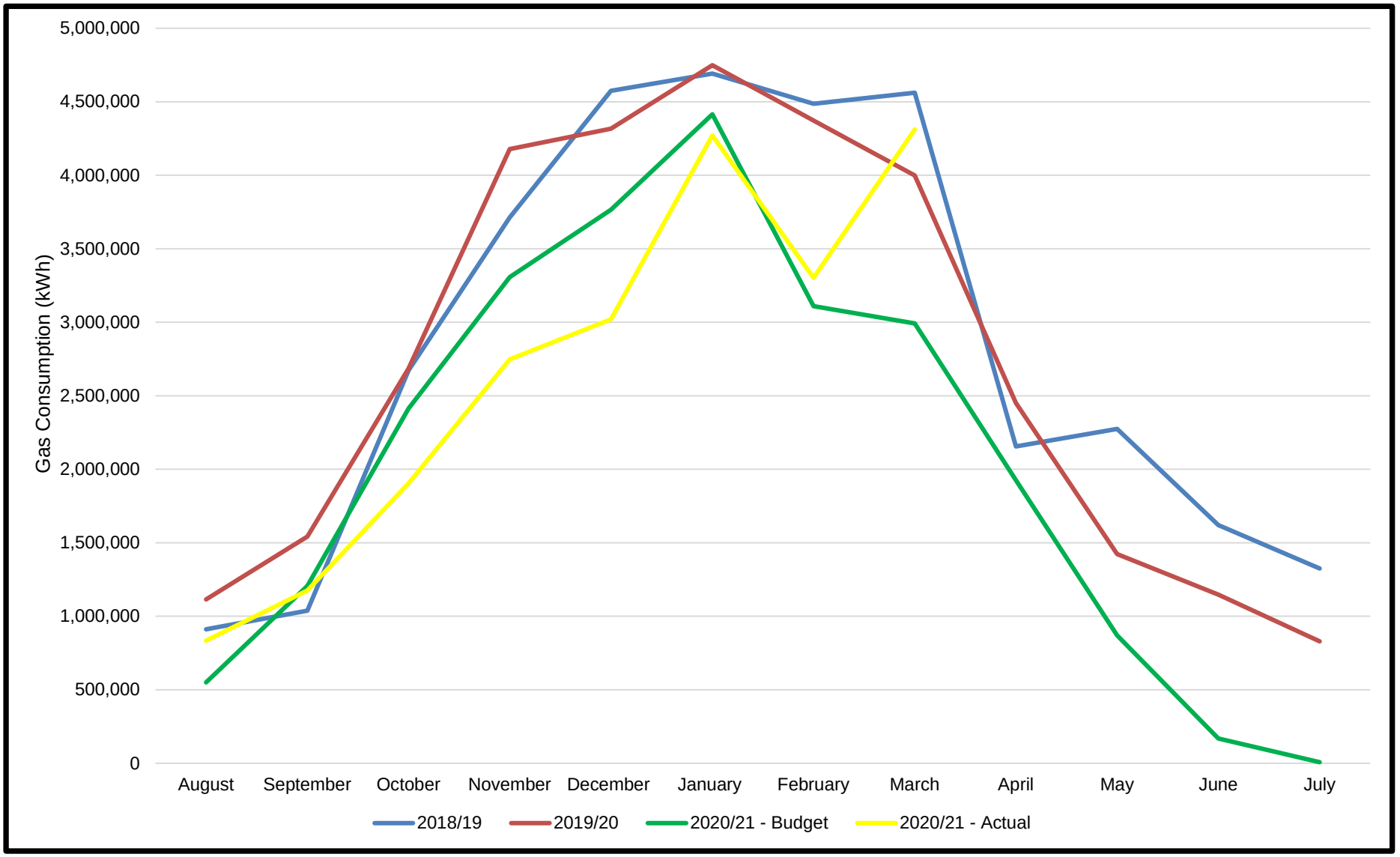
Appendix 3 Trend in Electricity Spend (Savings over Six Months £552,473 Compared to BAU)



Appendix 4: Trend in Gas Unit Rates (p)



Appendix 5: Trend in Gas Consumption (kWh)



Appendix 6: Trend in Gas Spend (Savings over Six Months compared to BAU £162,430)