



Sustainable Labs Steering Group
11:00 – 13:00, Monday 28 January 2019
Room 2.01, Geography (Old Infirmary)

AGENDA

- 1 Welcome, Introductions, Purpose and Aims of Meeting**
The Director of SRS will outline the programme for the session
- 2 Minute** **A**
To approve the minute of the previous meeting on 9 October 2018
- 3 Matters Arising**
To raise any matters arising not covered on the agenda or in post-meeting notes

SUBSTANTIVE ITEMS

- 4 Sustainability Awards: Labs** **B**
To receive a paper and presentation from PhD student Alistair Souter
- 5 Hugh Robson Energy Engagement and Monitoring Project** **C**
To receive and discuss a paper from the SRS Project Coordinator
- 6 Sustainable Campus Fund update**
To receive an update from the SRS Engagement Manager
- 7 Programme Plan update** **D**
To receive and discuss a paper from the SRS Project Coordinator

VERBAL UPDATES

- 8 Roslin Freezer Farm and SCF potential**
To receive an update from the SRS Engagement Manager
- 9 Ventilation and Cold Storage policies**
To receive an update from the SRS Engagement Manager
- 10 Technician Commitment event update**
To receive an update from Laboratory Technician
- 11 Any Other Business**
To consider any other matters from Group members.

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MINUTE OF A MEETING *of the Sustainable Laboratories Steering Group held in Room 3.04, Charteris Land on 9 October 2018.*

- Members:** Gorman Dave, (Convener), Director of Social Responsibility and Sustainability
Michelle Brown, Head of SRS Programmes
Chris Litwiniuk, Engagement Manager
Andrew Arnott, SRS Projects Coordinator - Labs
Lee Murphy, Genetics Core Manager
David Gray, Head of the School of Biological Sciences
David Jack, Energy Manager
Robert MacGregor, Energy Engineer, Estates
Stewart McKay, Technical Services Manager, IGMM
Candice Schmid, Occupational Hygiene and Projects Manager
Valerie Gordon, Laboratory Technician
Sharon Hannah, Bioquarter Campus Operations Manager
Rachael Barton, Engagement Co-ordinator, Labs & Awards
Janet Philip, Joint Unions Liaison Committee
Matthew Sharp, Operations Manager CBS
Kate Fitzpatrick, Waste & Recycling Manager
Guy Lloyd-Jones, Forbes Chair of Organic Chemistry
Yuner Huang, Early Stage Researcher
- Guests:** David Jack, for Dean Drobot; Derek Rennie for Matthew Sharp; Jon Kelly for Valerie Gordon.
- Apologies:** David Gray; Stewart McKay; Chris Litwiniuk; Simon Garcia Santamaria; Kate Fitzpatrick; Angela Ingram; Valerie Gordon

1 Minute

The Convener welcomed attendees to the latest meeting of the group. The minute of the meeting held on 21 May 2018 was approved as a correct record. There were no matters arising not covered on the agenda or in post-meeting notes.

A

2 SLSG Programme Progress Update

The group received an update from the SRS Project Coordinator and progress was noted. The programme was on track, accept for an amber status for the BMS control sense checks programme. This was due to start in the summer, however due to time constraints, did not start. There was potential to look at additional buildings in the following year.

B

The Chair was pleased with the progress, however wanted to flag that there was a 100% labs target for participation in lab awards to achieve in 2 years. So while there has been welcoming progress of 40%, the group should remind themselves that there is still 60% required to achieve target and indeed keep under review the target itself.

Utilities waste and carbon – CS reported that her department was going to start a programme of works which could impact on the set up and figures of the BEMS. This is being contracted out externally for a comprehensive review and make recommendations for adjustments.

The group discussed whether the labs group had reduced their energy by 10% as most of the projects were from labs. The Chair queried whether a lab specific reduction should be in place.

Action: RB/CL to explore the option and check whether feasible to complete an assessment to evaluate if labs have saved 10% energy

The Living labs project for hazardous chemicals reduction/substitution had been paused.

Technical staff – principal has sent an email about this. Good progress, VG would be in post until the end of the year and discussions were taking place for next steps.

3 Freezer internship Summary and Report

C

The group received an update on the freezer internship report. The feedback from the intern had been distributed to internal and external lab networks. The group were asked for feedback and whether another similar project the following summer would be welcomed. It was possible that the funds for an intern could be increased to allow for a longer project with more impact.

The SLSG agreed with the 3 recommendations that came out of the report, particularly those around Health and Safety. The group welcomed the opportunity to have another internship offered for the following summer.

The group discussed whether a project centred around having freezer inventories would be useful with an objective to reduce the number of samples that were forgotten about and therefore reduced space availability for new samples. The group accepted lab users were interested and willing, but felt they needed guidance on how to do this, so a project around this area might be beneficial. A standard culture size was proposed as needed, due to lab users having different sizes of cultures, rather than a standardised size meant that items would not fit in the multiuse freezers uniformly.

The group heard that mailings would be sent out every 6 months to remind people formally that it was time to defrost their freezers to improve performance. This would act as a programme of works. The group discussed the suitability of various software that would track when freezers needed defrosting and would even report on internal temperatures.

5 LEAF Tool Summary and Pilot Proposal

D

An introduction to the LEAF tool was received, with a proposal to pilot the tool and provide feedback to aid improvements. The pilot would take place in the School of Chemistry. Baseline measurements would be taken and analysis sent back to the SRS Co-ordinator. Following, a decision would be made between using LEAD or continue with the existing green lab scheme.

Key differences to look out for would be the assessment of research quality, which is not currently looked at in the current scheme, as well as potential benefits of the LEAF tool to highlights energy savings.

SLSG agreed the results would be interesting and agreed to hear back the results.

Action: RB to share the excel sheet with the group.

6 Sustainable Campus Fund Update

E

The Chair updated the group on the success of the SCF to date- both in terms of governance and procedures a being in place, and projects being completed with the fund. The process is a bottom-up set up where projects are proposed by staff and students identifying areas of improvement in the buildings/campus they are based in.

The Chair asked for feedback on how a general labs allocation over 2 years might work for the group. A suggestion to look at older buildings that have had various refurbishments completed over the decades and a helpful solution may be to look at rebalancing them. Estates had begun including SRS in building project lists so that funds might be able to ring-fenced in order to reduce value engineering, which often results in energy saving technologies being designed out of a project.

The SLSG all agreed that a case should be made for a longer term and more strategic spend for Lab related projects.

Action: DG to explore further

7 Feedback from the Bristol S-Labs Conference

The group discussed the paper and heard that ventilation was a key conversation at the conference and it was argued that good sensors and controls were key to make significant energy savings. A University in California had achieved a 50% savings in their university labs.

Group members agreed that the university had many labs that were less under their control than they would prefer and this was where the energy usage changes.

Bristol University had used a bottom-up approach to ask technical staff to provide ideas.

VERBAL UPDATES

8 Hugh Robson Building Energy Engagement and Monitoring update

Data had been acquired for an energy intervention with posters and stickers used as engagement tools. The date and engagement feedback would be presented back to SLSG in January 2019.

9 Labs Awards update

SLSG heard that the online submission deadline for the Labs awards was approaching, however most teams had come back to confirm their audit date. Seventeen buildings in total were partaking in audits, which was 40% of all lab buildings.

SRS confirmed that a PhD intern is currently researching the effectiveness of the awards and will produce some suggestions following the end of the research, which may bring on new ideas to increase interest in the awards. In the meantime, feedback on the awards would be gratefully received by RB, the SRS Project Coordinator of what is proposed by group members for future awards.

10 **Wind responsive ventilation project - Joseph Black building Update**

The group heard that there are no plans for Joseph Black to be upgraded for the next 7 years. Therefore, the ventilation project was confirmed as a project that could go ahead. The project costs would be split into £300k clusters with considerations such as 'teaching use' as an impact. Four labs in the building were identified and the proposal is that those labs would be used as a test, followed by roll out to others.

This would be brought to the UWG in due course.

Action: VM/DG to add this to the UWG agenda when assessments completed

The group welcomed the survey being done as some of the designs were questioned by some academics that wanted the designed in an alternative way. Surveys would help identify the best working design.

Action: BM/RM to meet for discussions around energy use and Constant Volume.

11 **TSSG update**

The group heard that the University had signed the Technician's Commitment. An event to celebrate this would be launched by The Principal, Professor Peter Mathieson on 5 December in McEwen Hall, 12:00-15:30, which would give the role of technicians more recognition.

There is aspiration to relaunch the Technicians Network (Tech Net) which would be a University wide technicians networking event.

For more information or, to book a place, visit

<https://www.ed.ac.uk/technicians/techcom-launch-event>

The Chair suggested the possibility to sponsor a prize for best sustainable ideas from technicians.



Sustainable Labs Steering Group

Monday 28 January 2019

Sustainability Awards: Labs

Description of the paper

This paper provides a summary of key findings from the Sustainability Awards programme review focussing on those points relevant for laboratories.

Action requested

The group is asked to discuss the paper and note the Recommendations for Change

Background

In 2019, the Department for Social Responsibility has been undertaking a review of the Sustainability Awards with a focus on the office, lab and residence awards. A phd internship was created in order to undertake research to support the review.

This paper is a brief summary of key findings in relation to the sustainable lab awards.

Discussion

Relevance:

- Most find the awards to be relevant to the University's goals to be net carbon neutral by 2040 and into a wider environmental framework. Although this is more pronounced amongst heads of labs than technicians.
- Widespread belief that awards are relevant to science and their role
- Criteria of the awards does appear to fit within the work done in labs
 - Although some believe sustainability at odds with science
- Technicians were heavily split on whether they wanted to participate or not
- Obstacles to participation were identified
 - Older facilities
 - Lack of time
 - Sustainability not prioritised, research output is higher
 - Lack of knowledge and awareness of the awards
 - Scientific equipment and materials used unsustainable
 - Facility management wasting water and energy
- Ways to improve
 - Make awards and benefits of them more well known
 - One way is to suggest how this work could have direct impact on research output, or improve its efficiency/effectiveness

Effectiveness:

- Auditing process and use of other labs seen as very effective. Allows sharing of sustainable practice between labs.
- Online materials generally seen as sufficient and effective
 - Case studies of criteria would help

- Yearly planners, and posters that promote nudge culture
- Seen to recognise work put in by people towards sustainability
 - Although some belief that technicians who put in the work can be overlooked.
- Criteria can be ineffective at capturing smaller things done for sustainability, and doesn't necessarily cater to all lab types
- High turn-over of staff identified as an issue as constant re-training of sustainability is needed
- People also seen to get entrenched in their ways, with people being unwilling to change practices to be more sustainable or get rid of unsustainable equipment
- Sustainable campus fund is seen as very effective for labs to get new equipment that is sustainable

Efficiency:

- Submission process seen as very efficient and easy amongst heads of labs
- Some initial difficulty with starting on the system though
- Technicians very split on whether it is efficient.
 - High dropout rate by continuing teams as have to re-submit same evidence
 - Some see it as very time consuming
- Workshops and programmes seen as efficient use of resources, with getting feedback, engagement, and generating ideas by heads of labs
- Most technicians unsure whether they are efficient use of resources

Impact:

- Whether awards just recognise existing practice or incentivised sustainability was mixed from recognise, both, incentivise.
- Awards do appear to have an impact on labs and work conducted there
- Sustainable campus funding allowed purchasing of new equipment that was out of budget initially, and found heads of departments happy to provide some funding towards this
- Makes people aware of sustainability in their work, and how to work more sustainably
- Small changes including formalising or creating better record keeping of existing practices (e.g., freezer audits)
- Changes seen to be sensible
- Although some felt they were stalled in changes they could make without major overhauls of existing practice
- Heads of labs widely report that awards had a positive impact on themselves, providing job opportunities and development in role related work (e.g., facility management)
- Technicians not feeling this impact on their job satisfaction or development

Legacy

- Most would continue participating as seen as important programme and saving energy is always good.
- Building constraints seen as a potential future limitation as well as focus on freezers
- Structure of awards seen to have continuing value amongst head of labs, but less certain for technicians

- Support for some form of recognition for continuing service, including priority to extra budgets
- Most believed awards encouraged sustainability going forward, although uncertainty whether students are impacted or encouraged to be sustainable
- Sustainable campus fund seen as a good way to bring in labs
- Said that focus should be on heads of labs and technicians who drive work in labs
- Technicians suggested that there should be a greater focus on university wide issues, suppliers, monitoring of waste.

Recommendations for change

- Greater focus on technicians at all levels. Informing them of awards, why to participate, benefits of participating, and involving technicians more in process. Recognising that technicians are important in the running of labs.
- A continued promotion of the sustainable campus fund and the benefits it provides to labs in terms of equipment
- Creating a shared space for the communication of best sustainable practice between labs
- The awards accounting for labs with older facilities that are out of their hands
- Address areas of major waste, one lab reported losing 4 tonnes of water a day every day
- A focus on improving sustainable communication with students

Next Steps

Will be integrated as part of SRS department and programme planning.
A copy of the full report will be available in due course.

Consultation

This is a preliminary draft of outcomes to share with Sustainable Labs Steering Group members. Due to the students being on summer holiday when the data collection was completed, the Lab Awards Staff only were consulted as part of the research.

Further information

Author

Alistair Souter, PhD Intern for SRS Department

Freedom of Information

This is an open paper.



Sustainable Labs Steering Group

28th January 2019

HRB Energy Monitoring Project Report

Description of paper

This paper provides the results of an energy monitoring project in the Hugh Robson Building (HRB) at the University of Edinburgh.

Action requested

SLSG is asked to note the findings of this paper and consider approving further monitoring projects.

Recommendation

It is recommended that further energy monitoring project be carried out in labs which have yet to have received in depth engagement activities and advice, with the aim of achieving energy savings in labs.

Executive Summary

The SRS department delivers a range of energy projects which help increase energy efficiency through behaviour change and infrastructure improvements. As lab areas are typically more energy intensive than office spaces, engaging labs in energy efficiency is particularly important and significant energy savings can be achieved.

An energy monitoring project was previously carried out in the IGMM Centre Building from July to September 2017, reporting a drop in energy consumption (daily energy cost per person) of 12-24% over the monitoring period. It was determined that further energy engagement projects should be carried out with the aim of achieving long term energy reduction in labs. The first floor of the Hugh Robson Building (HRB) was selected for 2018 with a three phase project being undertaken, including a period of baseline data collection, a phase of poster engagement and a final phase involving face to face engagement.

The monitoring carried out from the 17th September to 21st November did not see a drop in total energy consumption, but rather an increase of 11.3%. There are a number of factors which may have influenced this increase, including increased use of electric heaters as the temperatures decreased, increased use of lighting with decreasing daylight and increased work intensity (unable to be measured). The energy consumption per person however decreased by 8.5% over the duration of the monitoring period. This would imply that equipment may have been used more efficiently following engagement periods.

Although the total energy consumption did not decrease, the project attracted 17 attendees to the face to face workshop demonstrating the interest of lab staff in the topic of lab sustainability. The audience was engaged and follow up enquiries have been made indicating that the project had other qualitative impacts. Not all workshop

attendees worked on the first floor and some high energy consuming pieces of equipment were located elsewhere. This could mean that the energy savings may not have been as high as if more first floor staff attended and that energy savings may still have occurred but not have been within the monitoring.

It is recommended that future projects have a more tightly controlled monitoring scopes, to ensure that only lab energy usage is being monitored. Carrying out the project during a time of year that does not feature major fluctuations in work intensity is also important to accurately measure the engagement impact in isolation.

Background and context

The SRS department delivers a range of energy projects which help increase energy efficiency through behaviour change and infrastructure improvements. Projects include the Big Summer Chillout and Winter Shutdown campaigns, the Energy Coordinator Network, the Lab Awards and the Sustainable Labs programme. As lab areas are typically more energy intensive than office spaces, engaging labs in energy efficiency is particularly important and significant energy savings can be achieved.

The aim of the project was to deliver a staff engagement activity focused on reducing energy use in the lab. This involved energy monitoring to measure and verify any potential energy savings. The project also aimed to help ascertain whether the existing SRS energy behaviour-change practices of 1) distribution of posters and stickers, and 2) face to face induction presentations have a measurable impact on the energy consumption of a facility.

A similar energy monitoring project was previously carried out in the IGMM Centre Building from July to September 2017. This project reported a drop in energy consumption (daily energy cost per person) of 12-24% over the monitoring period. In summer of 2016, energy monitoring was carried out at the Horsfall Lab (Roger Land Building, KB), however, this project was incomplete due to faulty monitoring equipment. Better monitoring equipment was purchased by estates and installed for the 2017 project at IGMM.

At the Sustainable Laboratories Steering Group meeting on 21st May 2018, it was recommended that further energy engagement projects should be undertaken at new volunteer labs, to determine if the successes can be replicated.

It was anticipated that two over-riding variables would affect the energy consumption of the facility:

1. Number of people in the space each day
2. Type of research activity each person is doing during the measurement period

Discussion

Approach and Methodology

Monitoring was planned for 11 weeks from 17th September 2018, to be carried out on the 1st floor of the Hugh Robson Building. However, due to scheduling and the capacity of monitoring equipment, monitoring was carried out from Friday 14th September to Wednesday 21st November 2018 (10 weeks). Data was initially collected at the end of each phase, but the monitoring equipment had reached capacity before the end of the final phase, cutting the recording period short.

Two 3-phase electricity monitors were installed in the HRB first floor distribution boards to monitor two electrical distribution boards (DBs) which (roughly) cover the first floor offices and labs. The circuits being monitored cover the plug-load 'small power' energy consumption and our energy data does not include the energy consumed by the AHU/chillers. As the meters covered two separate distribution boards, the energy usage recorded by each was combined to reflect the total energy use by the first floor.

Entry into the main laboratory space is via swipe card access, and the number of lab users accessing the labs each day was requested and provided by Axxess (ITI Communications Infrastructure Section). This quantitative data shall be used to identify whether a major change in the population of the space is influencing the energy data, and to correct for any such influence.

The project was carried out in three phases:

Phase 1 – Baseline data collection: Energy monitoring was carried out to measure the baseline energy consumption prior to any engagement. Length, 3 weeks.

Phase 2 – Poster engagement: Posters with energy saving messages were put along the corridors of the first floor and in the labs on Mon 8th Oct, with continued energy monitoring. Length, 3 weeks.

Phase 3 – Workshop engagement: A face to face workshop with presentation was held on Fri 2nd Nov highlighting ways to save energy in the lab, with continued energy monitoring. Length 4 weeks.

The workshop was open to all staff working in the HRB, and was not limited to those working on the first floor. 17 members of staff attended the workshop and a lunch was provided to encourage attendance. This included staff who work during the week and at weekends.

Data collection and Manipulation

The energy meters were installed on Thursday 13th September and removed on Monday 3rd December. However as only part of the first day was recorded that has been excluded from analysis. When the meters were removed, it was found that data collection capacity had been reached on the 22nd November and so the last full day included in the results is the 21st November.

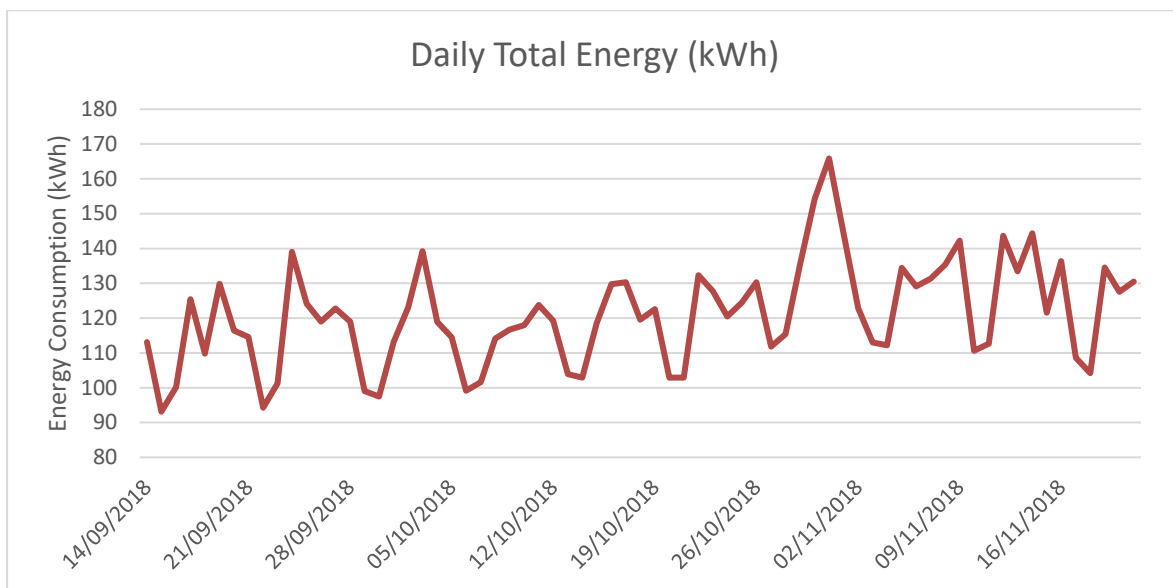
As the project took place from September to December as the day length was shortening and temperatures were dropping, these factors have been included with the analysis. Historical temperature and day length records were used for the monitoring period (1, 2). Anecdotal reports of excessively low room temperatures were sought, with staff members confirming that electric oil-filled space heaters were used in offices on cold days. The energy data does not include the energy consumed by the AHU/chillers however, and so temperature variations would not impact energy use by normal heating systems, only additional plug in devices.

Swipe card data provided by Axxess was provided for the four cad access points into the lab areas on the first floor. The unique number of swipes at each was provided, omitting any duplicated swipes from the same staff member. To determine the number of personnel present each day, the highest number recorded at any of the access points for each was used. This may be a conservative number as it is possible that multiple people could enter during one swipe.

Energy Consumption Results

Daily Energy Consumption

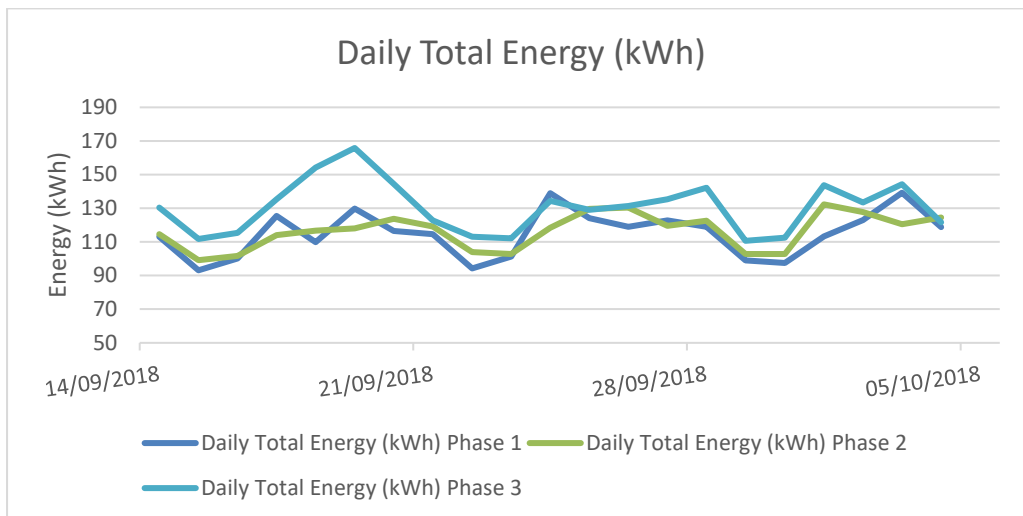
The graph below shows how the daily energy consumption for the first floor offices and labs, with weekends included.



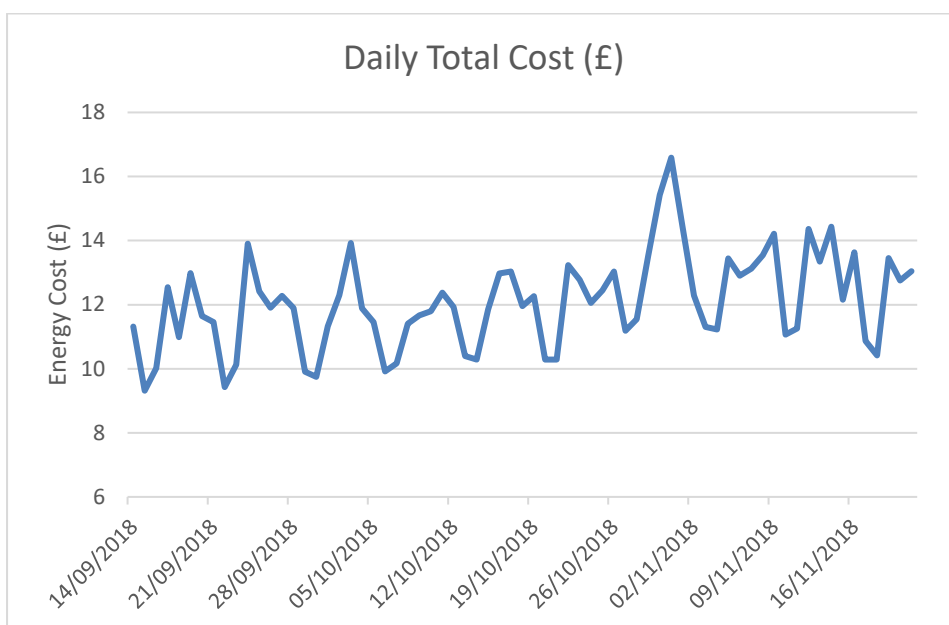
The energy usage over the project did not decrease in terms of total consumption, but rather the trend was increasing consumption. The total daily energy consumption of the first 15 days was 1722kWh (average of 115kWh), the total for the last 15 days was 1917kWh (average of 128kWh), an increase of 11.3%.

There is a clear spike in energy usage in the week between the 27th Oct and the 4th Nov, peaking on the 31st Oct.

In addition to increased energy usage during the weeks as the monitoring continues, there is also an increasing trend towards higher energy use at the weekends.

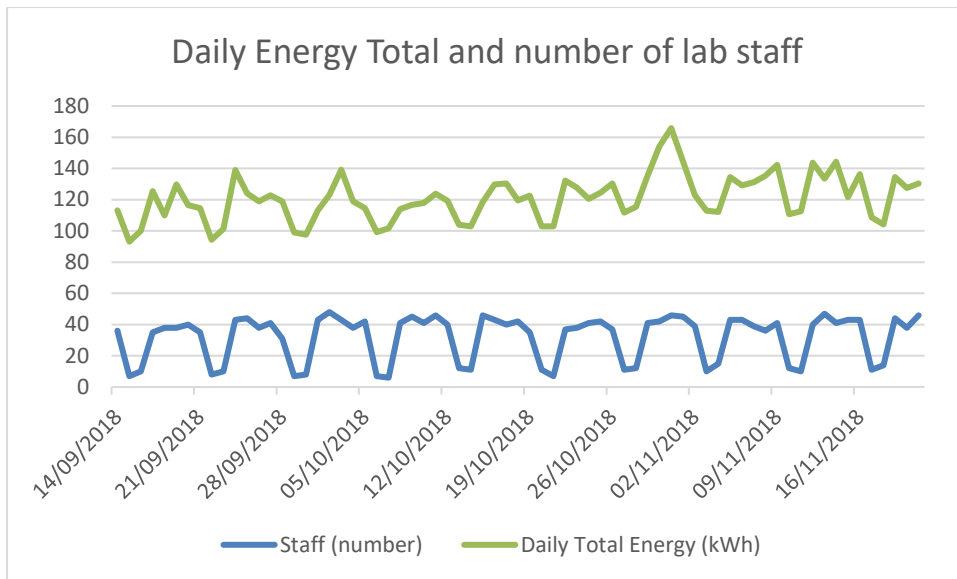


In terms of energy cost, the total daily energy cost for the first 15 days was £172.20 (average of £11.48), the total for the last 15 days was £191.68 (average of £12.79), an increase of 11.3%.



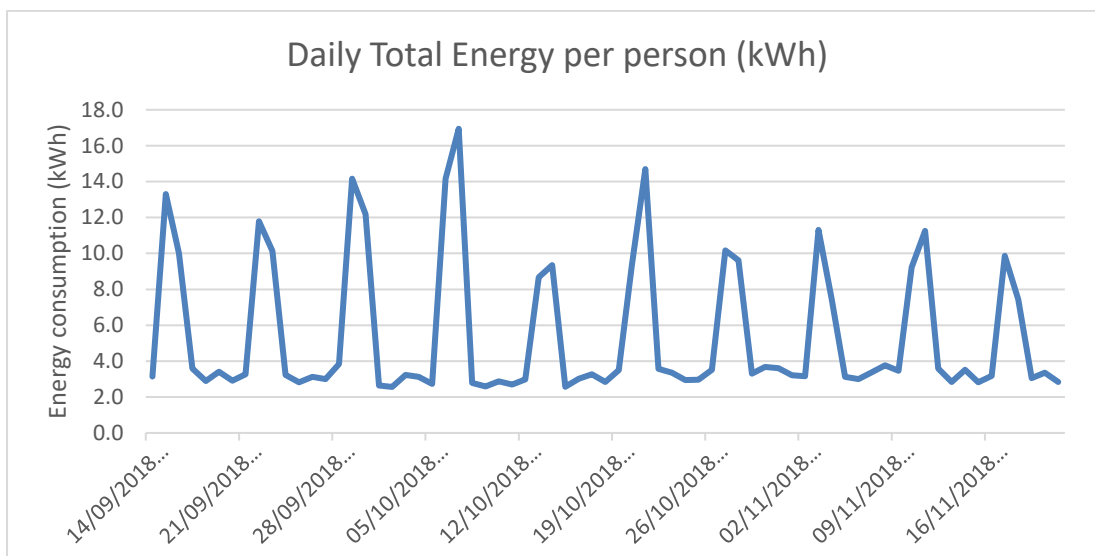
Energy consumption per person results

Total energy consumed can be related to the number of people using the area. To determine if increasing numbers of staff using the labs and offices was responsible for the increased energy usage, the number of staff present each day was compared to total daily energy used:



As a general trend, energy usage is higher during the week when there are more staff present, than at the weekend, when both reduce. The peak in energy consumption on the 31st Oct does not appear to be explained by an increase in staff numbers.

When taking into account the variation in staff numbers per day, the energy usage per person is higher for weekend days than week days.



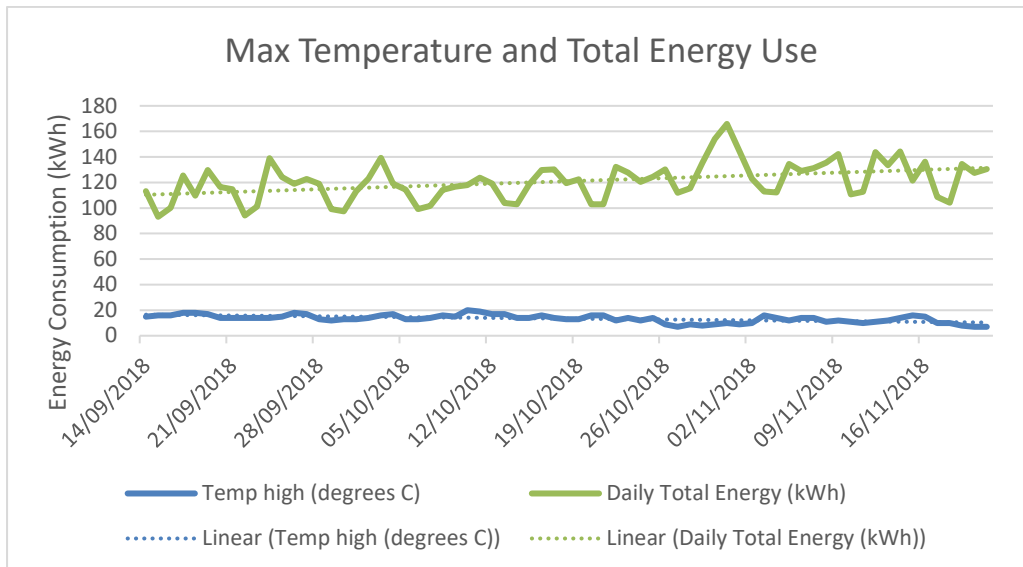
In contrast to the absolute total energy consumption over the project, the energy usage per person showed a gradual decrease. The total daily energy consumption per person from the first 15 days was 80kWh (average of 5.3kWh), the total for the last 15 days was 73kWh (average of 4.9kWh), a decrease of 8.5%.

In terms of energy cost per person, the total for the first 15 days was £8.05 (average of £0.54) and for the final 15 days was £7.36 (average of £0.49), a decrease of 8.5%.

Temperature and Energy Consumption Results

Although the energy meters did not record energy used by AHUs or chillers, anecdotal reports were received indicating that on cold days, electric plug in heaters were used in the offices.

The recorded daily high temperature was compared to daily energy use, to determine if changes in temperature had an effect on energy consumption.

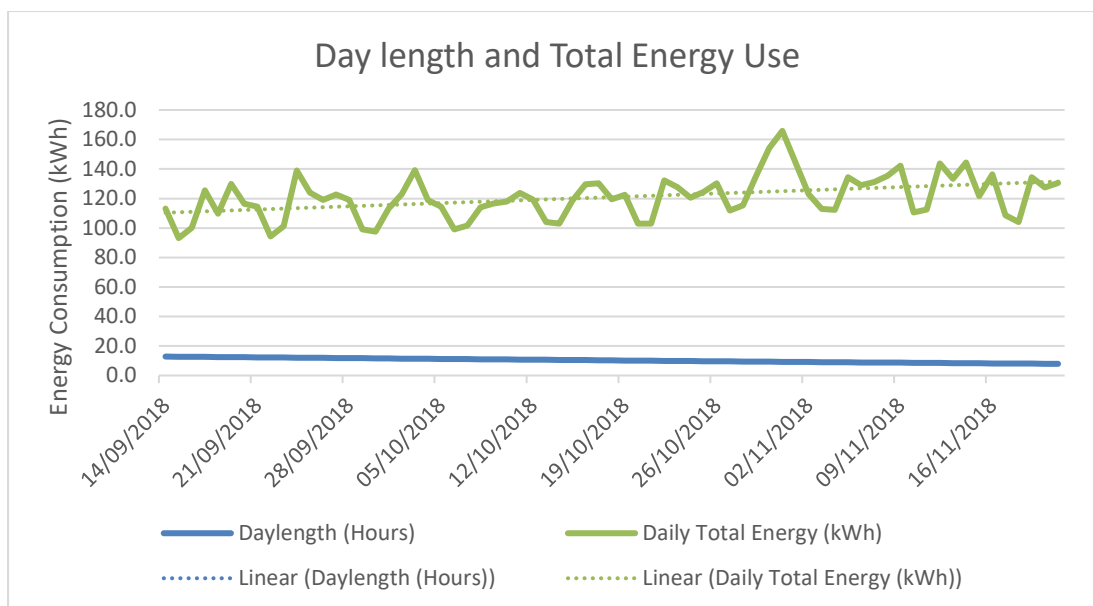


There is a general trend that as the temperature decreased, the energy consumption increased.

Day length and Energy Consumption Results

It was also noted, that with decreasing day light hours and the October clock change (Sunday 28th October), staff may be using lights in labs and offices for longer or using additional lighting sources.

To determine any likely impact of day length on the energy usage, the recorded hours of daylight were compared to total daily energy usage.



As with the relationship to temperature, there is a general trend that as the number of daylight hours decreases, the energy consumption increases.

Discussion

Daily Energy Consumption

Over the course of the project, the energy usage increased rather than decreased, with an 11.3% rise from 1722kWh for the first 15 days compared to 1917kWh for the final 15 days.

As the project was run over the first semester, from September to December, it is likely that factors which could not be accounted for have impacted the data. These could include change in research/work intensity, changing work patterns or purchases of new equipment.

No building works were carried out during this time which would have explained the sudden peak on the 31st Oct. It was reported that no significant changes in work patterns occurred during the monitoring period (e.g. no increased intake of staff/student after the start of the project).

Energy consumption per person

When looking at the energy usage on a per person basis however, there is a clear 8.5% reduction in consumption over the project (total of 80kWh for the first 15 days to 73kWh for the final 15 days).

By accounting for variations in the number of staff present, this would indicate that the engagement activities made an impact. Unfortunately, as the energy meters covered distribution boards recording energy usage in both office and lab spaces, it is unclear where the energy savings have occurred.

The cause of such a reduction in energy consumption per person may be associated with improved efficiency of practices – for example switching off more items of equipment when not in use, especially over nights (weekend consumption seems to have varied less). Of course, on weekends when there are fewer people working, the energy usage per person is high than during the week. This increased weekday population will mean that the energy consumed by communal equipment which must remain 'on' permanently or for long periods of time will be shared among more individuals, and thus the energy intensity of any one individual is reduced. It is promising that the energy per person decreased over the project while the weekday/weekend population remained consistent, indicating energy efficiency changes.

For future monitoring projects, it will be vital to ensure that only lab spaces are being recorded to ensure that lab impacts are being identified.

Temperature and Energy Consumption

There is a general trend that as temperatures dropped during the project, the energy consumption increased. As staff reported during the engagement workshop that when it is cold many people use electric plug in heaters in their offices, this use of heaters could explain some of the increase in total energy. It was estimated that there are 12 office heaters, although the exact energy consumption of these was not recorded separately.

Day length and Energy Consumption

There is a general trend that as hours of daylight decreased during the project, the energy consumption increased. Some of the increase in energy consumption could therefore be explained by increased use of lighting or use of additional lighting sources. Lighting is not on an automated schedule – users will turn on lights when they arrive for work and turn them off when leaving, meaning the use of lighting varies.

Impacts and Recommendations

Equipment and Monitoring area

Due to the issue with data not being recorded until the end of the planned monitoring period (3rd Dec), it is recommended that data is collected every month to avoid researching storage capacity. A check on the battery/charge of the device should also be carried out.

Due to the nature of the distribution boards, both office and lab areas were monitored for the project. This has meant that any increase in energy consumption or decrease in per person usage cannot be attributed to changes within the lab with accuracy. It is vital that future host labs are able to be monitored more precisely with only lab areas being metered.

Other considerations

The number of people using the first floor spaces was typically 30-35 people during the week, and 6-10 people on weekend days. As the engagement workshop was attended by staff from across the HRB (not just the first floor) and there were in total 17 attendees, not every staff member working the first floor labs will have received in depth advice. It is recommended that for future project, higher attendance is sought from those working in the target area.

Much of the advice in the engagement workshop focused on saving energy from highly energy consuming equipment such as Ultra Low Temperature Freezers, fume hood and autoclaves. It should be noted that the first floor labs did not contain many of these pieces of equipment, and wash up facilities were on another floor. If high energy equipment was not present in the monitoring area and many workshop attendees did not work on the first floor, this could partly explain why there was not a decrease in total energy use.

References

1. <https://www.accuweather.com/en/gb/edinburgh/eh1-3/november-weather/327336?monyr=11/1/2018>
2. <https://www.timeanddate.com/sun/uk/edinburgh?month=11&year=2018>

Resource implications

There are no further resource implications for this project. Should similar projects be undertaken, it would be reasonable to expect them to have similar resource requirements.

Risk Management

Future monitoring projects should take into account the recommendations highlighted in the Impacts and Recommendations section to ensure quality data is collect, and accurate impacts measured.

Equality & Diversity

No foreseen impacts.

Next steps/implications

SRS Projects Coordinator to complete a period of follow up monitoring and analysis to assess long term behaviour change impacts.

Additionally, to identify further lab(s) to undertake engagement and monitoring projects with.

Consultation

This document has been reviewed by:

Dave Gorman, Director of SRS

Michelle Brown, SRS Head of Programmes

Chris Litwiniuk, SRS Engagement Manager

Further informationAuthor and Presenter

Rachael Barton SRS Projects Coordinator
Department for Social Responsibility and Sustainability
January 2019

Freedom of Information

This is an open paper.



Sustainable Labs Steering Group

28th January 2019

SLSG Programme Plan update (October 2018 – January 2019)

Description of paper

This document is intended to give an update on progress against the objectives of the 2017-20 Sustainable Laboratories Steering Group Programme, which was drawn up to provide a structured approach to improving sustainability within laboratories at the University of Edinburgh over that time period, with a view to achieving wider University goals such as the Zero by 2040 target within the Climate Strategy. A Gantt Chart using a traffic-light colouring system (Red/Amber/Green) has been used to communicate quickly and clearly the progress which has been or is being made. In general this is taken to mean: green = on track, amber = delayed or problematic, red = objective is in danger of not being met, and grey = action scheduled for future work. Further details on the progress against each individual action is included within a table. This document will be updated prior to each meeting of the Sustainable Laboratories Steering Group.

The purpose of this report is to report against progress in relation to activities with further thought on monitoring of outputs and outcomes to be considered. The outcome objectives of the 3 year plan are noted below:

Action requested

SLSG is asked to note the progress described in this paper and provide any advice or guidance for further improvement.

Background and context

At the October 2017 meeting of the SLSG this 2017-2020 programme plan was presented and approved. This report notes the progress against this 3-year plan.

Outcome objectives:

1. 10% reduction in energy consumption.
2. Lab equipment reuse and sharing increased
3. Reduced consumption of materials, especially hazardous materials.
4. Enable culture of sustainable working through provision of support and training for lab technicians.
5. Adoption and use of sustainable building design guidelines (incorporating labs) and Soft Landings or similar approach.
6. 100% of labs covered by Edinburgh Sustainability Awards teams
7. By 2020 every building with labs will have an energy coordinator who is lab-based.

RAG Progress Reporting



Communications and Engagement

Activity	Associated Outcome	Colleagues supporting	Comments	RAG
Promote use of the Sustainable Campus Fund	<ol style="list-style-type: none"> 10% reduction in energy consumption 3. Reduced consumption of materials, especially hazardous materials 	<ul style="list-style-type: none"> Robert MacGregor Energy Office Estates Small Works Team 	<ul style="list-style-type: none"> Emails sent promoting the fund Verbal communications with colleagues, including via Sustainability Awards teams Over 41% of all SCF projects are lab projects 	
Develop further sustainability communications materials for use by non-SRS staff including persuasive body of evidence to influence academics and lab users, as well as lists of recommended items of lab equipment (based on verified sustainability credentials)	<ol style="list-style-type: none"> 10% reduction in energy consumption. Lab equipment reuse and sharing increased Reduced consumption of materials, especially hazardous materials. 6. 100% of labs covered by Edinburgh Sustainability Awards teams 7. By 2020 every building with labs will have an energy coordinator who is lab-based. 	<ul style="list-style-type: none"> Lab Users 	<ul style="list-style-type: none"> Approved best practice guidance around ventilation and cold storage is currently being developed into published communications materials, which will be published in Jan 2019 Research (living labs) into effective communication methods (e.g. energy monitoring) will feed into this Work to develop processes for equipment re-sale/re-use will also feed into this 	
Work with lab users/building managers to make use of improved energy data (when available) – e.g.	<ol style="list-style-type: none"> 10% reduction in energy consumption 	<ul style="list-style-type: none"> Energy Office Lab Users 	<ul style="list-style-type: none"> Improved data has not yet been made available, but this is not yet considered to be delayed Where short term localised energy monitoring projects have been undertaken (e.g. HRB, IGMM and Roger Land) the energy data has 	

Activity	Associated Outcome	Colleagues supporting	Comments	RAG
communicating the data, setting targets			been a useful communication and engagement tool	
Recognition of good practice via awards and/or other communications.	<ol style="list-style-type: none"> 1. 10% reduction in energy consumption. 2. Lab equipment reuse and sharing increased 3. Reduced consumption of materials, especially hazardous materials. 6. 100% of labs covered by Edinburgh Sustainability Awards teams 	<ul style="list-style-type: none"> • Lab Users 	<ul style="list-style-type: none"> • Nine teams actively took part in the Lab Awards in 2018-2019, with four teams taking a break year and remaining accredited from last year • 21 Buildings have lab awards teams (although not all teams cover a whole building) equating to around 45% of lab buildings participating or partially participating in the lab awards • Preparations are in progress for the Sustainability Awards ceremony at the end of March • Pilot of LEAF tool planned to begin in January 2019, in the School of Chemistry 	
Regular communications between SRS and SLSG/lab users (e.g. newsletter or emails)			<ul style="list-style-type: none"> • Established communications via Technicians' Group • Regular communications via contacts lists, e.g. lab and/or building managers • All SLSG are encouraged to sign up to SRS newsletter for departmental news and events 	
SLSG meetings (strategic direction, project support and progress reporting)		<ul style="list-style-type: none"> • SLSG members 	<ul style="list-style-type: none"> • Suitable scheduling of meetings is taking place • Attendance is good 	
Share good management processes – e.g. equipment sharing	<ol style="list-style-type: none"> 2. Lab equipment reuse and sharing increased 	<ul style="list-style-type: none"> • Lab Users • SRS Comms • Waste Dept 	<ul style="list-style-type: none"> • No specific promotion of this has taken place yet • However, the final report from the Cold Storage internship was circulated with internal and external networks. The report made 	

Activity	Associated Outcome	Colleagues supporting	Comments	RAG
Peer learning of sustainable labs best practices (via awards, workshops, campus meetings) – including recruitment of awards teams and energy coordinators.	<ol style="list-style-type: none"> 1. 10% reduction in energy consumption. 2. Lab equipment reuse and sharing increased 3. Reduced consumption of materials, especially hazardous materials. 6. 100% of labs covered by Edinburgh Sustainability Awards teams 7. By 2020 every building with labs will have an energy coordinator who is lab-based. 	<ul style="list-style-type: none"> • Procurement Dept. • Lab Users 	<ul style="list-style-type: none"> • recommendations including consolidation of ULT freezers • Future promotion will incorporate the guidance on ventilation and cold storage good practice and (hopefully) lab waste clarification and equipment re-sale/re-use • A summer 2018 workshop was held for Lab and Office Awards teams in July 2018, with representatives from six labs attending • SRS continue to offer support and encouragement to confirmed and prospective teams through 2018-2019 • Award Audits were carried out in November 2018. Peer auditing allowed teams to share experience and learnings with other labs. • Some awards teams are recruiting additional teams • C.60% of lab buildings have an energy coordinator based on recent analysis, however it is currently unknown if these energy coordinators are lab based 	<div style="background-color: #00b050; width: 100%; height: 100%;"></div>
Encourage and support organisation of a prestigious conference over video conferencing, potentially with support from The Wellcome Trust		<ul style="list-style-type: none"> • Lab Users • Academics • Funders 	<ul style="list-style-type: none"> • No specific action has been taken on this yet • Potential to harmonise/merge with work on Business Travel pilots being conducted by SRS • Proposed for 2019-20 academic year 	<div style="background-color: #cccccc; width: 100%; height: 100%;"></div>

Utilities, Waste and Carbon



Activity	Associated Outcome	Colleagues supporting	Comments	RAG
Support implementation of ventilation improvements in labs	1. 10% reduction in energy consumption.	<ul style="list-style-type: none"> • Health and Safety • Energy Office • Estates small works team 	<ul style="list-style-type: none"> • Some potential concern around the fume cupboard upgrade project at Joseph Black (already approved by for SCF funding) as heat monitoring data indicates lower savings possible (extending payback period to c.8 years) • Potential major refurbishment at Chemistry building planned in 3-5 years, so currently uncertain what activities might take place beforehand • Feasibility work assessed Wind Responsive Ventilation – reported in March 2018. Proposal is £1m cost and 8 year payback. Current proposal is to split into phases to reduce disruption and incorporate into the above noted major refurb at Chemistry • Further clarification was expected following the Estates Committee meeting in September 2018, however the project was not included on the agenda. A potential schedule of work and breakdown of finances is being prepared for presentation at the October Utilities Working Group meeting, to allow progression • Still, many practical projects are in development/implementation phases (e.g. Demand Based Ventilation, fume cupboard upgrades, ensuring efficient new fume 	

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			<ul style="list-style-type: none"> cupboards in new labs, chemical store upgrades) Policy Statement was approved at May 2018 SLSG, and will be escalated to other committees for formal adoption by UoE. Guidance notes were approved by May 2018 SLSG meeting and will be published in Q2 2018-19 	Green
Develop targets of kWh/m2 for various space use categories	5. Adoption and use of sustainable building design guidelines (incorporating labs) and Soft Landings or similar approach.	<ul style="list-style-type: none"> Estates Development Estates Operations Contractors (Cundalls and Henry Gun-Why) 	<ul style="list-style-type: none"> Due for action 2019-20 	Grey
BMS/HVAC control sense checks programme extended to further lab spaces (incorporating checks of biohazard category activities)	1. 10% reduction in energy consumption.	<ul style="list-style-type: none"> Energy Office (controls) Lab Users 	<ul style="list-style-type: none"> Scheduled for action each summer 2018, 2019 and 2020. No action taken yet – SLSG to suggest best building(s) to investigate 2 buildings will be considered for 2019, as 1 was unable to be completed in 2018 	Yellow
Engage with lab users on development and publication of	5. Adoption and use of sustainable building design guidelines (incorporating labs) and Soft Landings or similar approach.	<ul style="list-style-type: none"> Lab Users 	<ul style="list-style-type: none"> A draft of the Edinburgh Standard was trialled on the Easter Bush Centre Building in September 2018. The trial allowed the Estates group to develop an alternative design and model the impacts 	Green

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labs design guidelines			<ul style="list-style-type: none"> The new design standard (currently working name t46) will be discussed (and hopefully approved) at the Estates Management Group meeting 	

Living Labs projects


Activity	Associated Outcome	Colleagues supporting	Comments	RAG
Recruitment and implementation of student (paid) interns for freezer inventories and/or other laborious semi-skilled work.	<ol style="list-style-type: none"> 10% reduction in energy consumption. Lab equipment reuse and sharing increased Reduced consumption of materials, especially hazardous materials. 	<ul style="list-style-type: none"> Lab Users 	<ul style="list-style-type: none"> A Cold Storage Internship was carried out in June-July 2019 By the internship's conclusion, there had been very little agreement to dispose of any samples Lots of recommendation for each lab – almost always including better sample labelling and cataloguing Defrosting and filter cleaning has been comprehensively done on 11 ULT freezers, saving £1,700 - £2,400 annually in total A final report was produced outlining the intern's recommendations and minor revisions made to the existing Cold Storage guidance taking these into account A further internship is being considered for summer 2019 	

Activity	Associated Outcome	Colleagues supporting	Comments	RAG
Support lab-based 'living lab' sustainability projects (DNA, lighting, freezers)	1. 10% reduction in energy consumption. 2. Lab equipment reuse and sharing increased 3. Reduced consumption of materials, especially hazardous materials.	<ul style="list-style-type: none"> • Lab Users • Estates 	<ul style="list-style-type: none"> • Scheduled for action each summer 2018, 2019 and 2020 • Discussions have started around DNA storage • Long-term cold storage project (-60, -70 and -80) is ongoing (expected publication 2020) • Energy efficient equipment replacements (SCF) are being monitored for actual energy performance • An intern was in place June-July 2018, to support improvements in freezer and sample management • Case Studies in Sustainable Development students investigated and reported on glass vs plasticware in labs (whole life costing) and comparison of the various sustainable product accreditation schemes available for construction projects 	
Hazardous chemical substitution opportunities identification.	3. Reduced consumption of materials, especially hazardous materials.	<ul style="list-style-type: none"> • Lab Users 	<ul style="list-style-type: none"> • Now scheduled for action commencing in Q2 2018-2019 	

Technical Staff

Activity	Associated Outcome	Colleagues supporting	Comments	RAG
Work with Technicians' Support Steering Group to improve CPD, career development and community cohesion of technical staff.	4. Enable culture of sustainable working through provision of support and training for lab technicians.	<ul style="list-style-type: none"> • Technical Staff • Technical Managers • IAD • HR • Academics 	<ul style="list-style-type: none"> • University of Edinburgh has signed up to the Technician Commitment • The TSSG is working with Val Gordon (seconded to work on Technician Commitment for 10h/wk) to develop and implement an Action Plan incorporating a website, events, CPD, Professional Registration, newsletters, emails • TSSG met with the Principal on 29th August 2018 • Technician Commitment event at McEwan Hall successfully hosted on the 5th Dec 2018 (including a speech by the Principal). Over 300 technicians signed up and attended the event. • Future Technet events have been organised, with the next on 7th Feb 2019 	

Funders

Activity	Associated Outcome	Colleagues supporting	Comments	RAG
Work with funding bodies to influence their approach to sustainability.	<ol style="list-style-type: none"> 1. 10% reduction in energy consumption. 2. Lab equipment reuse and sharing increased 3. Reduced consumption of materials, especially hazardous materials. 4. Enable culture of sustainable working through provision of support and training for lab technicians. 5. Adoption and use of sustainable building design guidelines (incorporating labs) and Soft Landings or similar approach. 	<ul style="list-style-type: none"> • Lab Users 	<ul style="list-style-type: none"> • SRS department personnel are involved in discussions with Wellcome Trust on a bilateral and multilateral (via the UK-wide Lab Efficiency Action Network) basis 	

Resource implications

No resource implications are related to reporting on progress against this plan. Implementation of the plan will have wider resource implications, which have been detailed elsewhere.

Risk Management

No risks associated with reporting on progress against this plan. No items on the plan are currently at risk of failure (red graded).

Equality & Diversity

No foreseen impacts.

Next steps/implications

A further progress report will be provided at the next SLSG meeting by the SRS Project Coordinator – Labs (or appropriate substitute). During that time further actions will be taken towards the outcome objectives of the plan.

Consultation

This document has been reviewed by:

Director – SRS

Head of Programmes – SRS

Engagement Manager – SRS

Further information**Author and Presenter**

Rachael Barton SRS Projects Coordinator

Department for Social Responsibility and Sustainability

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Freedom of Information

This is an open paper.