2023/2024

University of East Anglia

SUSTAINABLE WAYS

Environmental Management System Report

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Contents

Introduction and Scope

This report reviews the environmental performance at the University of East Anglia between August 2023 and July 2024.

The University of East Anglia (UEA) is accredited to the internationally recognised Environmental Management System (EMS) standard ISO14001:2015. The scope covering all UEA's physical estates and operations (NR4 7TJ).

The intended outcomes of an EMS include protecting and enhancing our environmental performance, fulfilment of compliance obligations, achieving financial/operational benefits and communicating performance to build long-term success.

The ownership of the EMS sits with the **Estates and Facilities Directorate**. It is a requirement of the standard that senior management shall review our EMS at planned intervals (annually) to ensure its suitability, adequacy, and effectiveness.

This report provides an annual management review, considering all the aspects outlined in the ISO14001 standard requirements, it will be made externally available via our sustainability website.

Figure 1 UEA Campus Map

EMS Management

Environmental Policy

The Environmental Sustainability Policy is reviewed annually as part of the Management Review and the Sustainability Committee meeting, in conjunction with the review of progress of environmental objectives. The latest review / update of the policy happened in June / July 2024. The policy reflected the new scope and alignment with the UEA 2030 Sustainability Strategy and 2045 Net-Zero Goals.

To access our latest version go to Strategy, Policy and Compliance - Sustainability - About (uea.ac.uk).

EMS Management Structure

The EMS Management Structure has been changed and approved last UEA Sustainability Committee Meeting last January 2024. Estates and Facilities has full control of the EMS, this allows to control and improve our environmental performance across physical estates and operations at UEA.

The reporting structure for implementing the Environmental Management System (EMS) shown in the Figure below highlights how Estates and Facilities Directorate interact both internally and externally with interested parties and how information regarding the EMS is integrated across the 3 relevant functions, i.e. Estates and Facilities Leadership Team, Estates and Facilities Management Team and Relevant Estates Staff.

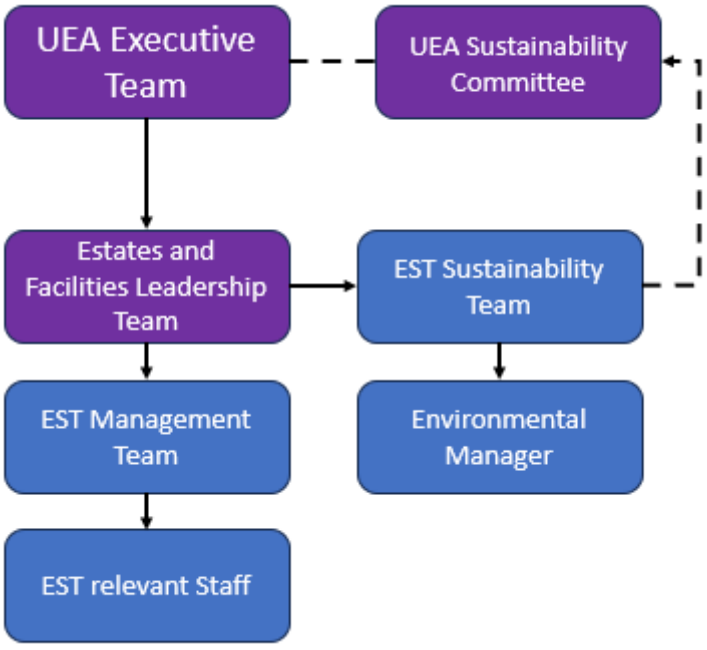


Figure 2 EMS Management Structure

Management Review

With the new scope, the Management Review is now responsibility of the Estates Leadership Team. The first session was held on June 2024 and the Estates Leadership Team reviewed proposed targets and environmental performance.

Legislation Updates

From the 2023-2024 period we have identified the most relevant legislation updates that could impact UEA's environmental performance. These legislations are:

Biodiversity Net Gain (BNG)	Biodiversity net gain (BNG) was mandatory from 12 February 2024. BNG is an approach to development, and / or land management, that aims to leave the natural environment in a measurably better state than it was beforehand. The UEA must deliver a BNG of 10%. This means an estates development / project will result in more or better-quality natural habitat than there was before development.
UK ETS	The UK ETS Authority are seeking views on integrating greenhouse gas removals in the UK Emissions Trading Scheme (UK ETS) under the Greenhouse Gas Emissions Trading Scheme Order SI 2020/1265. The UK ETS Authority are seeking views on the implementation of the expansion of the UK Emissions Trading Scheme, under the Greenhouse Gas Emissions Trading Scheme Order SI 2020/1265, to include energy from waste and waste incineration.
Environmental Protection Act	The Environmental Protection Act 1990 was amended by the Environment Act 2021 to introduce provisions that require the separate collection of recyclable household waste in England. This requirement applies to domestic and non-domestic premises, as well as commercial and industrial waste of a household nature.
UK Transport Adaptation Strategy	The Department for Transport is seeking views on the transport adaptation strategy, which includes actions and policies to enhance climate adaptation planning and action across the transport sector.

Audit Results and Non-conformances

External Audit

We are on a 3-year recertification cycle with annual surveillance audits. Our external auditor is Interface NRM (About Us - Interface NRM - UKAS Accredited Certification (interface-nrm.co.uk), is a UKAS Accredited Certification body, providing ISO 9001, ISO 14001, ISO 45001, FSC® and PEFC Certification.

A recertification audit was completed in April 2024. Overall, the audit findings clearly demonstrate extensive progress, and the auditor has recommended UEA for certification to the ISO 14001 standard. With ongoing commitment and improvement efforts, UEA is well-positioned to maintain its environmental management standard.

No major non-conformances were raised for the third year running. There were only **2 'minor non-conformances'** and **4 'opportunities for improvement' (OFI).** Minor non-conformances and OFIs were raised in the following areas:

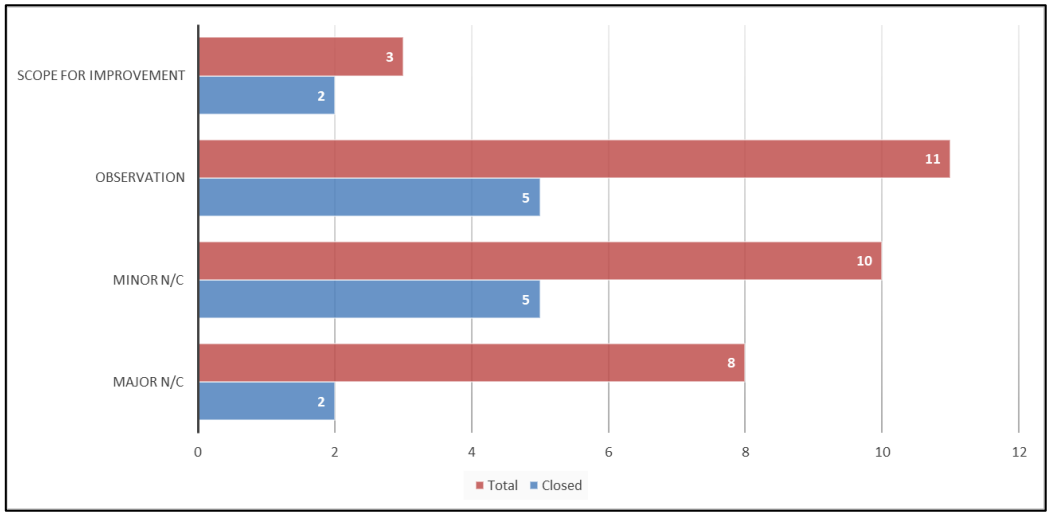
Type	Description	Status
Opportunity for Improvement (OFI)	The UEA would benefit from a review of the scoring for non-significant environmental aspects. Commuting and fleet transport currently have a score of 2 for likelihood but after discussions with staff at least a 3 and likely a 4 would be more appropriate.	**Closed.** The UEA review the aspects register and scoring collaboratively with other stakeholders and aim to seek consensus on scoring.
Minor Non-conformance	Some key pieces of legislation relevant to UEA were missing from the compliance obligations register. These were the Plant Protection Products (sustainable use) regulations 2012, Town & Country Planning Act (Tree preservation) regulations 2012 and Persistent Organic Pollutants Regulations 2007. Compliance with these regulations was checked during the site visit and confirmed by documentation / interviews. However, the information was missing from the register.	**Closed.** The UEA liaised with Barbour EHS (who produced the current legal register) to understand why these regulations were missed. In addition to the team will also make use of additional resources to prevent future re-occurrence.
Opportunity for Improvement (OFI)	The institution could benefit from an additional column in the monitoring log which directly links each objective to the relevant implementation plan. The implementation plans are where the specific actions necessary to achieve the objectives are detailed.	**Closed**. The column has been added into the monitoring log

Opportunity for Improvement (OFI)	The internal audits could benefit from referencing the specific clause against which findings are raised. This could either be the EcoCampus clause, the ISO 14001 clause or both.	**Closed**. A column referencing ISO clause has been added into the audit report and monitoring log. For future internal audits, this information will be recorded in the audit reports.
Minor Non-conformance	Within the corrective action log there is currently no root cause analysis (RCA) information documented. After the most recent internal audit, a corrective action record form was sent to relevant individuals with a section on root cause analysis to be completed by said individual. However, these had not been completed and thus the RCA was missing.	**Closed.** UEA is reviewing the current process for RCA and ensure that the information is documented within the non-conformity log either by the relevant individual, Sustainability team or in conjunction.
Opportunity for Improvement (OFI)	The non-conformity log could benefit by referencing the evidence observed to close out each of the findings. Specifically, where a record of this evidence can be found. The evidence is currently stored sporadically across emails and various records.	**Closed**. The EST Sustainability Team has linked the Non-conformance Log to UEA Microsoft System to link evidence from non-conformances.

Internal Audits

The EST Sustainability Team with support of Estates and Facilities staff completed annual EMS internal audits across campus, this normally commences at the start at the end of summer. The new Environmental Manger was recruited in June 2023, therefore the audit programme commenced in August 2023. All internal audits will be completed prior the External Audit.

In the 2023-2024 period, we have audited Energy & Carbon, Water, Waste, Transport and Biodiversity aspects. We identified 8 major non-conformities, 10 minor non-conformities, 11 observations and 3 Scope for Improvement of which we have closed 14 items (2 major NCs, 5 minor NCs, 5 observations and 2 OFIs).



Note that the UEA did not have an EMS manager (Environmental Manager) since the beginning of 2022 so the maintenance of the EMS was limited during 2022-2023 period.

The new internal audit calendar (2024-2025) has been communicated with the relevant parties and it will commence in August 2024. These are the following dates:

- **Energy and Carbon** – 12th to 14th August 2024
- **Waste and Nuisance** – 07th to 09th October 2024
- **Water and Biodiversity** – 02nd to 03rd December 2024
- **General Environment** – 10th to 12th February 2025

Note that the dates could slightly change if auditees or auditor availability become limited by an emergency.

Environmental Performance

All data shown in this section is aligned with the latest HESA report (HESA - Experts in higher education data and analysis). The data references the period from 2022-2023.

Carbon Emissions

For Scope 1 and 2 emissions we are considering UEA's diesel and petrol vehicles and energy consumption this last one includes sources like natural gas, gas oil and grid electricity. For Scope 3 emissions we are considering emissions from waste and water supply. In the tables below, we have used data that has been officially submitted to HESA.

Emissions source	2022-23 (kg CO2e)	Historical Data (kg CO2e)				Instant reduction (22-23 vs 21-22)	Historic reduction (22-23 vs 16-17)
		2021-22	2020-21	2019-20	2016-17		
Grid electricity	1,184,641	1,483,460	1,817,951	3,382,303	1,483,460	20.1%	20.1%
Gas oil	1,028	-	5,705	11,236	256		-300.9%
Natural gas	16,276,234	17,487,816	16,131,460	13,149,041	18,475,753	6.9%	11.9%
Vehicles diesel	38,553	39,017	26,379	40,179	49,133	1.2%	21.5%
Vehicles petrol	9,814	16,225	9,871	21,880	7,634	39.5%	-28.6%
Total	**17,510,270**	**19,026,518**	**17,991,366**	**16,604,639**	**20,016,236**	**8.0%**	**12.5%**

Table 1 Scope 2 and 2 Emissions - UEA

Note that 75% of total emissions goes to Combined Heat and Power (CHP) plant and 25% boilers for District Heating (DH).

Emissions source	2022-23 (tCO2e)	Historical Data - Emissions (tCOEe)				Instant reduction (22-23 vs 21-22)	Historic reduction (22-23 vs 15-16)
		2021-22	2020-21	2019-20	2015-16		
Waste	41	79	756	47	2,000	48.0%	97.9%
Wastewater treatment	35	58	55	145	216	40.5%	84.0%
Water supply	38	32	30	78	115	-19.6%	67.0%
Total*	**114**	**169**	**841**	**270**	**2,331**	**32.7%**	**95.1%**

Table 2 Scope 3 Emissions - UEA

Note that not including all scope 3 emissions are included. The UEA is focusing efforts to identify and measure all scope 3 emissions including staff and students travel.

The EST Sustainability Team has developed and proposed a **Decarbonisation Strategy Plan** to achieve the 80% reduction in scope 1 and 2 emissions committed to in 2019. The plan includes 2 main phases:

- ***Phase 1 – Large Scale Centralised Projects***
  - 3MW^3 Solar Farm
  - Centralised, open loop Ground source Heat pumps (GSHP)
- ***Phase 2 – Consumption Efficiency Projects***
  - Fabric Improvements
  - Kit upgrades / optimisation / additions

The plan has been presented in the UEA Sustainability Committee Meeting last June 2024 and now the Decarbonisation Strategy Plan has been taken forward to the UEA senior team for budget analysis and implementation plan to understand if is doable the development of the main projects in the Decarbonisation Strategy Plan.

Energy Consumption

The UEA is compliant against the UK ETS. We operate under a greenhouse gas emissions permit, which covers our district heating and CHPs. This is coordinated by the EST Sustainability Team.

The main sources of energy consumption are directly from the electricity generated from our CHPs mixed with the electricity consumption from the grid. The UEA counts with a few solar panels in the New Science Building, Julian Study Centre, ZICER, The Enterprise Centre, Crome Court Building and INTO. The UEA utilise just less than 1% of total energy consumption from photovoltaic cells.

Energy consumption source	2022-23 (kWh)	Historical Data - Emissions (kWh)		
		2021-22	2020-21	2019-20
Grid electricity	5,720,969	7,671,217	8,561,912	14,507,604
Gas oil	4,008	-	22,216	43,766
Natural gas excluding that used as input for a CHP unit	27,417,987	7,877,422	8,554,169	7,415,611
Heat consumed from onsite CHP	16,232,000	39,787,774	33,857,390	34,295,362
Electricity consumed from onsite CHP	23,600,000	23,752,657	21,490,890	16,069,436
Onsite photovoltaic	324,927	228,537	141,276	162,958
Total	73,299,891	79,317,607	72,627,853	72,494,737

Table 3 Energy Consumption (MWh)

Our highest energy consumption building is the Bio-Medical Research Centre (BMRC) with an annual consumption of 6.03M kWh, this counts for the 9.37% of total energy consumption on site. The other buildings below the BMRC are the Teaching Wall (Sciences) and the Sainsbury Centre.

No.	Building	Annual Energy (kWh)	Percentage of site
1	**Bio-Medical Research Centre**	6,035,163	9.37%
2	**Teaching Wall (Sciences)**	5,836,171	9.06%
3	**Sainsbury's Centre**	4,741,231	7.36%
4	**Sports Park**	4,328,539	6.72%
5	**Teaching Wall (Biology)**	3,836,655	5.96%
6	**Teaching Wall (Chemistry and Pharmacy)**	3,519,670	5.47%
7	**UEA Village**	3,072,149	4.77%
8	**Norfolk Terrace**	2,582,942	4.01%
9	**Library**	2,546,087	3.95%
10	**Teaching Wall (Arts I &II)**	1,964,914	3.05%

Table 4 Top 10 - Most Energy Intense Buildings

The Energy Implementation Plan is currently updating to reflect goals from the Decarbonisation Strategy Plan.

The EST Sustainability Team is working on multiple projects:

- **Digitalisation of Energy Data. –** A project to access metering data (energy consumption) easiest and fastest accelerating the data processing and take strategic decisions.
- **Thomas Paine Solar. –** Installation of solar panels in Thomas Paine Study Centre this will support the transition to net zero goals.
- **Sportspark LEDs. –** Undertaking LED Lighting upgrades with intelligent controls.

Water Consumption

UEA is situated in one of the driest areas of the UK with the same annual rainfall as Addis Ababa; water is therefore an important local resource. Foul water pollution risks are managed via a series of discharge consents across the site. Interceptors and sluice gates protect our surface waters, which include the River Yare and UEA Broad (a County Wildlife Site). Our incident reporting system and emergency plan ensure that we can respond effectively to incidents.

Anglian Water monitors the main water supply meters (Plain and Village, Edith Cavell, Dev Farm and Bob Champion Building) and internal meters are monitored via the University's Building Management System (BMS). This data is used to back-charge schools and departments and identify areas for improvement.

Around 90% of the site is metered. Estimated data is used for unmetered areas, e.g. banks and CRU and where loss of data occurs (e.g. due to BMS recording errors).

Water Consumption	2022-23 (m3)	Historical Data - Water Consumption		
		2021-22	2020-21	2019-20
Non-residential water consumption	124,225	121,413	72,641	145,235
Residential water consumption	90,666	92,087	128,131	81,691
Total water consumption	**214,891**	**213,500**	**200,772**	**226,926**

Table 5 Water Consumption - UEA

The main sources at UEA of water use are the following:

1. Residences
2. Research and Teaching
3. Office use
4. Swimming Pool
5. Catering
6. Grounds
7. UUEAS
8. Contractors
9. Tenants – INTO, etc.

	2008/09 (baseline)	2013/14	2022/23
Total Consumption	**382,987 m3**	**319,081 m3**	**214,891 m3**
Reduction %	**N/A**	**16.68%**	**43.89%**

Table 6 Water Consumption against 2008 baseline

We have already realised a 43.89% reduction in water consumption since 2008/9 baseline. This has been achieved by repairing leaks in our supply system and implementing a range of small-scale efficiency measures e.g. staff kitchens now use water boilers instead of kettles, IR sensors on taps, reduced-flow showers, and low-flush toilets.

The EST Sustainability Team is currently updating the Water Management Plan. Another important area of opportunity is the use of grey/rainwater as part of UEA operational activities, currently we do not have any project focused in that area.

Biodiversity

In 2023, the University of East Anglia has been awarded the prestigious Green Flag Award (Award Winners - Green Flag Award) for the seventh consecutive year, a testament to its well-managed green spaces.

This achievement is due to the efforts of a dedicated EST Grounds and Maintenance Team responsible for the university's 145 hectares of campus, with 50 hectares included in the higher-level stewardship scheme. Located on the outskirts of Norwich, the campus features extensive woodlands that support over 5,700 species of wildlife.

Figure 3 UEA Campus Boundaries

Estates and Facilities and the Grounds and Maintenance Team have developed a new **Green Infrastructure Strategy (GIS)**, this was approved by the UEA Sustainability Committee in late 2023. The primary function for the GIS is to provide an integrated and sustainable approach to land use management at the University of East Anglia. The document is strategic in its vision but is also a practical, working report which will be used by the EST Grounds and Maintenance Team and various consultants to guide and focus land.

The EST Grounds and Maintenance Team collaborated with external stakeholders and academics in the following relevant projects:

- **River Yare Project. –** Norfolk Rivers Trust has been commissioned to develop a Yare River restoration project led by the EA, working together with Norwich City Council ("NCC") with the objective of improving the morphology of the River Yare and associated species and habitats whilst improving recreational access to the watercourse.
- **iTree Project. –** An assessment of tree canopy cover and ecosystem services for future comparison, evaluation of flood risks, and recommendations of woodland management strategies to enhance tree biodiversity and resilience against climate change. The report will contribute valuable insights and actionable recommendations that support the UEA's ongoing efforts in biodiversity conservation, climate change adaption and sustainable campus management.

Waste

Recycling Bins: During this period, the Cleaning Services team has implemented 2 projects to increase the level of recycling waste on campus. In November 2023, a new wheelie bin housing style bins were installed around the Broad which has introduced a recycling option (Previous bins were all general waste). Also, in academic buildings we have installed centralised bins in an effort to increase recycling rates. Desk side bins have been removed.

Waste streams disposal	2022-23 (t)	Historical Data		
		2021-22	2020-21	2019-20
Recycled	674.30	601.00	333.11	448.77
Incineration	-	-	-	-
Composting	-	-	-	-
Anaerobic digestion	108.69	75.00	71.11	114.48
Landfill	12.74	7.00	-	7.30
Used to create energy	924.59	683.00	505.56	699.33
Total waste mass	1,720.320	1,366.000	909.779	1,269.880

Table 7 UEA Waste Disposal

The EST Cleaning Services Team is working on multiple projects:

- **Green Waste Skip. –** A Green waste skip has been introduced so that we can responsibly dispose of our green waste while we construct our compost area. (Green waste was being piled up at Colney).
- **Biomass Waste Segregation. –** Waste segregation operations have been increased in the biomass waste yard. We deconstruct waste items, when possible, to strip out any recyclable materials. We also separate POPs waste from plastics.
- **Waste awareness. –** We are rolling out waste related posters in public areas to encourage better recycling.

Transport

The Park & Ride service operates year-round, from early morning until evening, providing convenient transportation for those attending late lectures. This service, originally designed to support student travel, has now been expanded to accommodate staff as well. We anticipate increased usage of this service across both the University campus and the Norfolk and Norwich University Hospital (NNUH).

While UEA Estates and Facilities does not manage the bike scheme, we continue to offer the Cycle to Work scheme. Additionally, the Sportspark team runs a short-term cycle hire program for students, which they plan to expand over the summer.

Over the past year, the transport team has been engaged in several projects, resulting in key improvements and quick wins:

- **Introduction of Electric Buses. –** First Bus has introduced electric buses, enhancing our sustainable transport options.
- **Night Bus Service. –** Starting in September 2024, a night bus service will be available for an initial one-year period.

- **EV Charger Installation. –** Additional EV chargers have been installed, with the remaining chargers standardised to Rotec units.
- **Draft Transport Strategy. –** The draft transport strategy is on track for review by mid-August.
- **Team Restructuring. –** The reporting structure of the Transport Team has been revised, transitioning from a combined senior transport/security manager role to a direct report to myself.
- **Dr. Bike Contract Review. –** We have reviewed the Dr. Bike contract, resulting in a new cabin and improved contractual arrangements that link subsidies to performance and campus bike usage.

Conclusion

Between 2022 and 2023, the positions of Environmental Manager and Head of Sustainability were vacant at UEA, leading to a temporary gap in leadership over the Environmental Management System (EMS).

However, in mid-2023, both roles were successfully filled, restoring control of the EMS to the Estates and Facilities Directorate. This change marked a significant turning point, prompting a comprehensive review of the EMS.

Following this review, the Sustainability Committee approved an expansion of the EMS's scope, to encompass the entire physical estate and operations of the university. The full authority over the EMS was then officially assigned to the Estates and Facilities Directorate.

This strategic move allows for more effective oversight, enabling quicker and more efficient improvements in environmental management across the university's estate and operations. The UEA also committed to a gradual expansion of the EMS's scope, with plans to eventually include all university operations.

This expansion will occur as the current scope is solidified, ensuring that major controls are established, and organic improvements are made.

At the beginning of 2024, UEA successfully achieved recertification for ISO 14001:2015, a key milestone reflecting the institution's renewed commitment to environmental excellence.
The Estates and Facilities Sustainability Team played a crucial role in this achievement, having identified numerous opportunities for improvement during the review process. With the support of the Estates Leadership Team, the EMS is now poised for significant enhancements.

These improvements will focus on strengthening controls, setting more ambitious environmental goals, and generating more comprehensive environmental performance data.
This data will be shared more effectively, ensuring transparency, and fostering continuous improvement in UEA's environmental stewardship.

Documentation Control

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