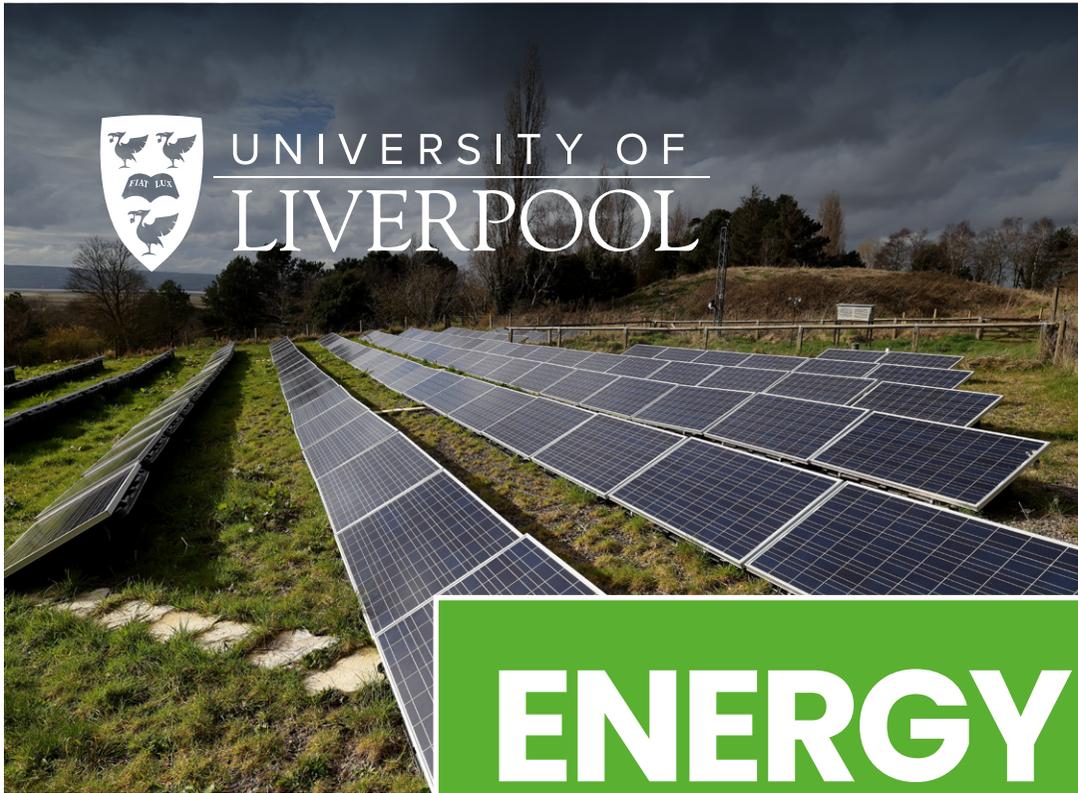




UNIVERSITY OF  
LIVERPOOL



# ENERGY STRATEGY 2031+



We are projects that make headlines,  
and people that make history  
**WE ARE THE ORIGINAL REDBRICK**



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# Foreword

**At the University of Liverpool, sustainability is central to our values and our vision for the future. This Energy Strategy builds on that commitment by setting out how we will reduce our environmental impact, strengthen our resilience, and ensure that the energy systems supporting our research, teaching and campus life are fit for the future.**

Energy is fundamental to how we operate as a global institution: it powers our laboratories, supports groundbreaking discovery, keeps our campuses running, and underpins the wellbeing of our community. Yet we also face a rapidly changing landscape, shaped by climate pressures, volatile markets, technological shifts, and expanding regulatory expectations. This strategy responds confidently to that reality, setting out a framework that is ambitious, long-term in outlook, and grounded in practical, immediate action.

The University recognises that delivering this transition cannot be achieved in isolation. As a major energy user and long-term anchor institution, we have an important role to play in working in partnership to accelerate clean growth across the Liverpool City Region. Our district energy networks, long-standing assets of strategic value, will evolve to meet modern standards while supporting

the wider region's transition to low-carbon heat. This will be achieved through sustained partnership working, recognising that the scale and complexity of the energy transition requires coordinated action with public, private and industry partners beyond the University's boundaries.

Achieving our ambitions will also rely on the collective commitment of our staff, students and wider community, whose insights and actions are vital to meaningful change. Everyone has a responsibility in reducing consumption and contributing to the success of this strategy.

Delivering this strategy is a long-term endeavour, and I would like to thank everyone who has contributed to its development. I look forward to working together as we build an energy system that reduces our impact, enhances our resilience, and supports the University's mission now and into the future.



**Nicola Davies**  
Chief Financial Officer  
University of Liverpool



# Introduction

This strategy serves as a framework to guide future decisions on the development and management of the University of Liverpool's energy operations. It prioritises high-quality, secure, efficient, and clean energy while aligning energy initiatives with broader strategic aims including our environmental and Net Zero objectives. Additionally, it recognises the University's district heat networks as valuable strategic assets that can be fundamentally directed to address risks arising from energy and climate stressors.

## Vision

The University will operate **resilient infrastructure** and systems which are attuned to the needs of our core research and teaching activities, while driving innovation in how we **procure, generate and supply** clean and **affordable heat and power**. This approach will **buffer the University against growing external pressures and support us to more keenly manage risks** in relation to energy, resilience and carbon emissions.



# Strategic Drivers and Objectives

This strategy is written to encourage a medium- to long-term perspective around energy, and both the risks and opportunities that our university will need to negotiate in the next 10+ years. Environmental, financial and statutory factors will drive transformation across infrastructure, operating policies and models of investment. Sustainable and future-proofed solutions will take time to deliver, while the pace of change is subject to a range of internal and external pressures, including financial constraints.



This strategy identifies five strategic drivers: maintaining a focus on these key drivers will enable us to better understand and manage our risk profile, and frame our challenges as strategic opportunities for growth and investment:



## Environmental Sustainability

We need to minimise our environmental impact by prioritising clean, renewable energy sources, reducing carbon emissions, and remaining agile in a challenging regulatory landscape.



## Infrastructure

We need to invest in future-proofing our infrastructure to ensure it is capable of supporting clean energy and modern technological systems and innovation.



## Resilience

We need to strengthen our ability to navigate global energy and carbon market volatility and to secure reliable energy supply that meets our customers' demands.



## Financial

We need to drive financial resilience by reducing waste, improving energy efficiency, and delivering cost-effective energy solutions that offer long-term value and support sustainable goals. This is in the context of a challenging financial environment with increasingly competing demands for investment.



## Strategic Partnerships

We need to leverage our position as a regional anchor institution to collaborate across sectors to establish financing framework strategies and funding models, share risk and expertise, and accelerate our strategic energy and carbon commitments to align with emerging clean growth opportunities.

## Strategic drivers and objectives

This strategy seeks to complement the long-term view with a focus on what is key to delivery in the next 5-10 years to accelerate change and to protect our ability to respond to dynamic pressures. To manage the University's energy risk profile, statutory requirements,

environmental drivers and service delivery, this strategy sets out **five key objectives**, detailed with underpinning activity in Appendix B. Each objective responds to a core driver and will be monitored through measurable and specific targets/indicators:

- 1 We will **drive down energy demand** by delivering high levels of energy efficiency across the estate.
- 2 We will **decarbonise** the estate (scopes 1 and 2) and its district networks, in line with local and national policy and University strategic commitments.
- 3 We will ensure security of clean and stable **energy supply** and at a cost-effective level.
- 4 We will ensure **resilience and capability** of energy infrastructure, to implement change and manage risk.
- 5 We will position the University to attract and secure **opportunity, investment, and partnership**.

To deliver these five objectives, we will take forward a set of coordinated actions, outlined in Appendix B. Progress in one area helps drive improvements in others, leading to more sustainable, cost-effective, and resilient outcomes. Improving energy efficiency and optimising how we use energy helps reduce demand and supports our decarbonisation goals.

At the same time, smarter energy purchasing, including renewable contracts, cuts emissions even further. Working with strategic partners enables investment in key infrastructure and heat networks, while a strong focus on energy conservation boosts our reputation, encourages collaboration, and strengthens access to funding opportunities.



# Objective 1

We will **drive down energy demand** by delivering high levels of energy efficiency across the estate.

This objective aligns closely with the Estates Strategy 2031, which sets investment priorities for District Networks and energy efficiency across the wider estate. Reducing energy consumption via efficiency and conservation measures also underpins other objectives: reducing emissions, improving resilience, and strengthening the University's position for partnerships and investment.

Although we are currently one of the higher absolute emitters in the sector (falling consistently in the top 10 of UK HEIs for scopes 1 and 2 carbon emissions), our carbon intensity per head is relatively favourable compared with the sector. This is largely because a significant proportion of our energy use comes from gas which, while still a fossil fuel, remains slightly less carbon intensive than grid electricity in some contexts. However, as other institutions increase their reliance on grid electricity, they will benefit more directly from the rapid decarbonisation of the UK power grid. Without a shift in our own energy mix, we risk becoming comparatively more carbon intensive, even if our overall consumption remains stable.

Future estate and operational changes add complexity. Hybrid working, asset investment, student growth, and aligning space with demand are reshaping operations. These factors create uncertainty in forecasting the estate's composition to 2030+ and its energy impact. This strategy recognises estate activity will likely increase, making user engagement central to energy performance.

Growth is also expected from research-driven AI activity, cloud storage, and wider digital infrastructure requirements, although the precise scale of demand on energy (and impact on emissions) is currently to be determined. While much of the associated carbon impact is likely to sit outside the University's direct operational emissions, increased use of digital and AI-enabled tools by staff and students will influence overall energy demand and wider supply-chain emissions.

We will work with digital stakeholders and suppliers to better understand these impacts and to support informed, responsible use of digital technologies in a way that minimises environmental impact, while supporting the benefits of AI-driven innovation, including where it can directly support decarbonisation and energy resilience.

Achieving high-performance energy efficiency will rely on delivering a comprehensive package of energy conservation measures, including:

- Prioritising early efficiency upgrades to building fabric and systems through targeted asset investment, to build resilience, reduce energy intensity, and deliver long-term cost savings.
- Designing major campus developments and construction projects to embed energy efficiency, resilience and maximise space utilisation from the outset, driving down energy demand and operational costs.
- Enhancing the metering network to provide streamlined data analytics to monitor and optimise energy use across the estate.
- Engaging staff, students, and visitors through behaviour change campaigns, early feedback loops, and involvement in issues as early as possible, ensuring that cultural change and shared responsibility are embedded alongside technical solutions.

There is significant opportunity within our direct control to reduce energy demand and associated carbon emissions through sustained action on energy conservation and efficiency. Based on our estate-wide energy audits, our data demonstrates that energy efficiency represents one of the most material and cost-effective levers for reducing operational emissions, improving system performance and reducing consumption costs.

To deliver this ambition, we will:

- Treat energy demand reduction as a strategic investment priority, embedding this objective within asset planning, capital governance and operational decision-making.
- Refine early evaluation of the energy audits to develop a comprehensive 15-year programme of energy efficiency works, complete with robust targets, which has been subject to technical and commercial modelling and approval. Delivery of the plan will be staged, prioritised and integrated with lifecycle and capital planning, with an early focus on lower-cost, higher-return measures. This approach will allow ambition and potential impact to be clearly articulated, while making explicit the dependency on funding and delivery capacity.
- Align operational energy reduction goals with an aim to materially reduce our liability in the UK Emissions Trading Scheme, unlocking opportunities to reinvest avoided ETS costs into operational efficiency and noncapital measures, and help offset potential increases in utility costs associated with electrification and system transition.
- Implement improvements through our planned lifecycle investment programme which is driving LED lighting replacements, glazing and fabric thermal improvements, and key infrastructure works across our energy operations and energy centres.
- Develop a dedicated energy reduction budget to enable acceleration of measures such as controls optimisation, building improvements and on-site renewable generation.

# Objective 2

We will **decarbonise** our estate (scopes 1 and 2) and its district networks, in line with local and national policy and University strategic commitments.

This objective supports the University's strategic decarbonisation commitments, as set out in the Estates Strategy, Sustainability Strategy and underpinning Climate Plan. Central to this is our commitment to achieve a transition to Net Zero for scope 1 and 2 emissions by 2035. This strategy covers energy consumption and onsite generation, and a special focus on the decarbonisation of our district heat networks.

The strategy recognises growing regulatory and policy pressures on the UK higher education sector, including decarbonisation of public buildings, rigorous Heat Network performance standards, and expanding environmental disclosure obligations. National targets, such as the UK Net Zero Strategy, require substantial emissions reductions in public sector buildings (75% by 2037), while regulated standards for the performance and reporting of Heat Networks are generating robust audit and disclosure of the University's energy operations. These pressures are driving us to move beyond compliance toward proactive decarbonisation of energy operations and infrastructure.

To deliver this objective, we will focus on coordinated activities, including:

- Diversifying and expanding onsite renewable generation.
- Developing and implementing a comprehensive Heat Decarbonisation Plan.
- Optimising existing energy infrastructure to improve efficiency and reduce carbon intensity of our onsite generating activity.
- Leveraging strategic partnerships and investment frameworks to accelerate deployment of low carbon technology.

This approach ensures we meet regulatory requirements while making tangible progress toward Net Zero, maintaining energy security, cost-effectiveness, and operational resilience.



# Objective 3 and 4

We will ensure security of **energy supply** and at a cost-effective level. We will ensure **resilience and capability** of energy infrastructure, to implement change and manage risk.

The University of Liverpool Energy Company (ULEC) is a wholly owned subsidiary of the University of Liverpool. It owns and manages the Heat Networks, provides heat and power across the estate, and acts as a key delivery vehicle for decarbonisation. Since 1985, ULEC has invested in energy resilience, commissioning Europe's first HE heat network in 1986, and more recently overseeing two Energy Centres on the main campus (2009, 2014), a third at Greenbank (2018), and major infrastructure upgrades.



Stronger regulation is driving ambitious requirements that must be addressed not only through direct energy operations but also via optimisation of the wider energy infrastructure. ULEC will accelerate affordable low-carbon solutions while ensuring reliable supply and infrastructure readiness by:

- Forward procurement planning, exploring viable Power Purchase Agreements (PPAs), diversifying supply, managing carbon costs, and optimising Heat Network performance
- Equipping infrastructure to implement change, adapt to regulatory and technological shifts, and manage risk effectively.

The growth of decarbonisation, digitisation, and heat electrification presents an opportunity for ULEC to transition to an "Energy as a Service" model. This would mean managing our energy operations with a growing focus on delivering performance, value, and customer service excellence.

As a trusted energy partner, ULEC will support delivery of the University's environmental commitments, energy efficiency, and financial resilience, while guiding us through a complex regulatory, financial, and technological landscape. Key activities include:

- Deliver a customer-focused energy service which places building users – staff, students and visitors – at the heart of its performance standards.
- Implement proactive lifecycle management of Heat Networks and infrastructure, reducing operational burden while creating value through performance-based supplier agreements.
- Accelerate adoption of renewable technologies into our energy mix, using service frameworks and strategic partnerships to secure capital investment and make low-carbon solutions more affordable to the University.
- Utilise sophisticated energy analytics to generate insight, inform long-term decision-making, and provide greater predictability in operational costs.
- Deepen ULEC's capabilities as a knowledgeable service provider, strengthening our ability to navigate the complex energy and carbon landscape while safeguarding financial and environmental risks.
- Ensure our technical capability and specialist expertise evolve to sustain high-quality service and navigate the rising complexity of our infrastructure and regulatory environment.



# Objective 5

We will position the University to attract and secure **opportunity, investment, and partnership.**

The introduction of **Heat Network Zoning** in Liverpool as part of national strategies to accelerate heat decarbonisation provides fundamental opportunities to build strategic partnerships with Local Authorities and neighbouring partners. Leveraging these relationships and ensuring the University is capable of responding to decarbonisation requirements mandated through Zoning (including new developments being stipulated to connect to low-carbon heat sources) will be a critical area of activity in this strategy. It will also help position us as a key collaborator with Liverpool City Council and Liverpool City Region Combined Authority in meeting their 2030 and 2035 Net Zero targets.

Working in this way will directly support Liverpool's ambitions as a **City of Innovation**, align with the **Liverpool City Region Growth Plan's** focus on clean, inclusive economic growth, and contribute to the delivery of the **clean growth priorities set out in the UK Industrial Strategy**. This supports our wider strategic ambitions to support the development of the city region's investment zone and deliver long term jobs and innovation.

It also provides a platform to strengthen and showcase the University's academic and research expertise in relevant fields, including heat decarbonisation, energy systems, sustainable infrastructure, and climate resilience.

Proactive engagement in joint partnerships will be fundamental to support compliance, open up new opportunities for innovation-led collaboration, and position the University as a key strategic partner to Liverpool City Council and the Liverpool City Region Combined Authority in achieving their 2030 and 2035 Net Zero targets.

This strategy will enhance our external reputation through positive improvements in the **Times Higher Education Impact Rankings** and **QS World Sustainability Ranking**, supporting our key ambition to reach the world top 100 and in turn helping to secure new investment opportunities and partnerships. By maximising opportunities to engage industry partners and research collaborations through initiatives such as the **Living Labs sustainability programme** and sandpit projects, we will further demonstrate innovation and applied impact.

In strengthening the University's reputational performance in globally-recognised sustainability frameworks, this strategy will boost ability to attract high-value partnerships and research collaborations, unlocking new opportunities for energy efficiency, decarbonisation, and additional funding.

We will further accelerate the adoption of renewable technologies by leveraging energy service frameworks and **forging partnerships** with local authorities, government, developers, and other investors in district heating and low-carbon infrastructure. Collaboration across the **Knowledge Quarter** will further maximise value for money, amplify impact, and position the University as a leading player in driving regional energy and decarbonisation solutions.

## Regional opportunities and delivery models

Emerging regional decarbonisation initiatives may offer future opportunities through wider development of low carbon heat and power networks. While such schemes are often capitalfunded by third parties, they frequently involve longterm consumptionbased charging structures.

Any participation in regional solutions will therefore be subject to full option appraisal, assessing both environmental performance and longterm commercial implications – as well as the impact of national Zoning Policy and full regulation of Heat Networks by Ofgem – before being treated as a core planning assumption.

The University is currently engaged as a stakeholder in development of a Liverpool Knowledge Quarter Heat Network currently being developed under Liverpool's Advanced Zoning Programme and being led by Liverpool City Council.

In addition to direct capital investment, the University will continue to explore alternative delivery models including Energy as a Service, concession arrangements and strategic partnerships as potential mechanisms for accelerating efficiency and decarbonisation at scale. Recognising these options at this stage ensures the strategy remains flexible and keeps open future routes to investment.



# Investment Planning

The level of investment required to manage the University's energy requirements and major district networks, while also being mindful to critical environmental drivers including emissions reductions, brings a range of challenges for the organisation. The Energy Strategy will support us to take an agile approach to seeking, accepting, and applying investment across its energy portfolio.

The objectives provide a map of activity that will identify where and what level of strategic investment will be necessary, both for business-as-usual operations and specific change initiatives. Individual activities and projects outlined underneath each objective will supply detailed cost and investment assessments. Cumulatively, these individualised costs will form a more complete picture of our long-term energy investment profile and budget models.

**This approach enables us to enhance our capacity to navigate emerging risks, capitalise on new opportunities, and maintain a flexible and responsive approach to allocation of funds.**

Key investment will be routed through:

- existing funding streams and operational budgets,
- realignment of current work programmes,
- new or supplementary investment, potentially sourced internally or through public and private external funding mechanisms, such as: government and innovation grant funding, green finance schemes, public-private joint venture partnerships, and ESCO (energy service company) or long-term stewardship arrangements.

In relation to leveraging new sources of investment, activity under the Partnership objective directly targets the development of new financial models which can be surfaced through ULEC's operating a clearer energy service model. ULEC's ability to negotiate this environment and act as a whole energy service provider will support us to unlock requisite capital investment while de-risking more complex operational performance.



# Governance

The University of Liverpool Energy Company (ULEC) is accountable for implementation of the Energy Strategy.

Progress of the overall Energy Strategy will be monitored and reported by Property and Campus Services via the Energy Strategy Steering Group.

Progress of core sustainability objectives within the strategy will be monitored via the Sustainable Campus and Operations Implementation Group and reported up to Sustainability Committee.

Progress of core estates objectives within the strategy will be monitored by and reported through Property and Campus Services.

Where appropriate, time-limited groups and project delivery groups will be convened to deliver aspects of the activity targeted underneath the objectives.



# Success Measures

Seven success measures will be tracked to ensure the Energy Strategy is on track for implementation and meeting the key objectives outlined in this document.



**Reduce the carbon intensity of our district network and energy provision: targets defined using the energy audit and broader decarbonisation projections.**



**Increase the share of clean and renewable energy in our energy mix and through supplier contracts.**



**Launch a Heat Decarbonisation Implementation Plan by 2031.**



**Generate revenue from surplus energy, including via sales to the grid or other innovative commercial models.**



**Establish at least one heat network partnership with local or regional operators, or participate in one regional pilot scheme.**



**Develop and capture student- and staff-led energy project opportunities by 2027.**



**Commit to a long-term energy reduction and conservation programme, with investment levels aligned to capital investment programme.**



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Individual triumphs  
and world firsts.

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Flashes of inspiration and  
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