

SHAPING SUSTAINABLE UNIVERSITIES

EXAMINING THE ROLE OF CIVIC
UNIVERSITIES IN CONTRIBUTING TO A
JUST TRANSITION TO NET ZERO

DESK-BASED EVIDENCE REVIEW
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EXECUTIVE SUMMARY

The urgent challenge of mitigating climate change and achieving net zero carbon emissions demands participation across all sectors. Although universities have the potential to play a key role in this transition, the nature and scope is complex and evolving.

This evidence review outlines priority areas in the climate agenda where universities can have the greatest impact: reducing direct and indirect emissions, sharing knowledge and skills for a greener future, and supporting and shaping the transition to net zero locally. It finds an important gap in the effectiveness of different approaches to climate education, particularly for those not in full-time education.



INTRODUCTION

Avoiding further climate catastrophe necessitates a global reduction in CO₂ emissions and an increase in CO₂ absorption if we are to achieve 'net zero' carbon emissions. Achieving these ambitions will not be possible if we only focus on carbon emission targets; a wider range of human impacts must be considered, including our impact on earth systems, how systemic changes interact with each other and how best to adjust behaviours. This leads to questions of fairness, as research has found that personal carbon footprints tend to increase in line with income. It is crucial to consider who should be most impacted. A 'just' transition framework answers this question, saying these changes should not widen existing economic and social inequalities but instead lessen them.

Like the private sector, universities require governments to provide direction and certainty if they are to invest time and finances. To date, the UK Government's white papers on net zero, such as 'Powering Up Britain', do not clearly define a role for universities. However, the papers do reference examples of university best practice in innovation, research, and education, pointing to the role they could play in the transition. Going forward, it will be crucial for the UK Government to be more explicit in the role they would like universities to play in the transition, through university-focused policies and initiatives. Four potential areas to consider are the UK's global responsibility; justice and fairness; universities' individual transitions; and the role of universities in supporting regional partners and stakeholders on their transition journey. For example, despite universities producing cutting-edge research that has led global action on climate change, this intellectual leadership has had limited impact within higher education institutions (HEIs) themselves. This will be crucial, as HEIs are large regional employers, with substantial real estate and carbon footprints.

Regarding barriers, universities compete with other organisations (such as private research organisations, think tanks, etc) to be thought leaders and deliver climate and low-carbon research, innovation, and education. This is reflected in the current policy environment, which is extremely crowded and currently dominated by lobbyists and vested interests, making it difficult for universities to advocate for their research-led evidence. Regionally, the challenge is translating universities' evidence into local policy and practice, as without a clearly defined national role, regional partners must find the time and finances to work with their local universities to recognise their role in delivering a resilient net zero transition for their communities.

This task is further compounded by more than a decade of reduced budgets for local government, creating capacity issues in climate change departments. This makes it difficult for them to advocate both internally and externally for provision to deliver beyond their direct responsibilities, and to find the resource to embed

universities' research, innovation, and education. Therefore, understanding universities' civic role in delivering a fair and just net zero transition will help them define their wider net zero roles and ambitions. This should include developing, testing, and delivering the systems changes required if the UK is to meet its net zero targets in a fair and just way.

Universities must also move beyond an over-focus on reducing carbon emissions and instead work to meet national, regional, and global targets to achieve 'net zero emissions'. At the same time, universities should participate in 'placemaking', which in this evidence review refers to the capacity to transform local systems and environments for a more sustainable future.

This evidence review therefore also highlights ways in which universities can shape their hyperlocal environments, promoting climate resilience and addressing climate catastrophe, as well as empowering local people and communities to address climate challenges in their local place.

OVERVIEW OF EXISTING EVIDENCE

The UK's Department for Education (DfE) laid out a vision and plan in 2022 for England to become the 'world-leading education sector in sustainability and climate change by 2030' (DfE, 2022). Larger institutions in particular have a key role here, including as employers and carbon emitters, which is why universities across the UK have committed to reducing their carbon footprint and participating in the transition to net zero emissions in a range of ways. In addition, the UK Universities Climate Network has called for universities to also support net zero transition through research and innovation, education, and knowledge exchange.

Universities' environmental impact and their contribution to decarbonisation plays out at several interconnected levels, from within a university estate to the local community and beyond. However, the exact role and activities of universities in the transition to a sustainable future are still developing. Different university strategies have conceptualised and prioritised them in various ways, demonstrating the complexity of the challenge.

This review considers priorities laid out in three key documents (below) in the university sustainability movement. These aim to capture the most common and pressing challenges across the higher education sector.

Key Documents	'Beyond business as usual: Higher education in the era of climate change' Facer (2020)	'Sustainability and climate change strategy' Department for Education (2022)	'The role of HEIs in the climate action agenda' Institute for Community Studies (2022)
Areas of challenge or strategic aims	<ol style="list-style-type: none"> 1. Redesigning day-to-day operations of the campus to reduce emissions. 2. Reinvigorating the civic role of universities to contribute to building ecological and social resilience in their local communities. 3. Reshaping knowledge structures to address climate change from an interdisciplinary perspective. 4. Refocusing the educational mission to support students in developing the capacities needed to live well in the era of climate change (2020). 	<ol style="list-style-type: none"> 1. Excellence in education and skills for a changing world: including climate education and training for green skills. 2. Net zero: reducing direct and indirect emissions from education estates and buildings, digital infrastructure, and supply chains. This also includes driving innovation to reduce carbon emissions. 3. Increasing resilience to climate changes by adapting buildings. 4 A better environment for future generations: participating in the conservation and enhancement of local biodiversity, improving air quality, and increasing access to nature. 	<ol style="list-style-type: none"> 1. Adaptation of housing and building infrastructure within university estates. 2. Readyng local industries and economies. 3. The need to adapt the skills and employability of the local workforce. 4. The need for locally-engaged innovation.

	'Beyond business as usual: Higher education in the era of climate change' Facer (2020)	'Sustainability and climate change strategy' Department for Education (2022)	'The role of HEIs in the climate action agenda' Institute for Community Studies (2022)
Additional notes	Facer identified potential mechanisms for change towards ecologically sustainable local economies, including endowments, strategic investment, and procurement decisions, strengthening partnerships, and providing educational opportunities tailored to older adults transitioning to low carbon work.	The DfE's strategy lays out a vision and plan for England to become the 'world-leading education sector in sustainability and climate change by 2030' (DfE, 2022).	Additional place-specific priorities emerged for different clusters of universities, including addressing food and fuel poverty and deprivation in urban settings, business and industrial resilience in the North of England and Midlands, and preservation of biodiversity and local environment in coastal and rural settings (ICS, 2022).

The research shows key emerging areas that require emphasis in the higher education sustainability agenda. Reflecting on these, this evidence review focuses on the following strategic aims:

1. Reducing direct and indirect emissions from the university estate
2. Knowledge and skills for a greener future
 - a. Climate education: skills and knowledge that enable current students to take part in climate action and be prepared for the future
 - b. Providing training and reskilling opportunities for adult learners
3. Supporting and shaping the local transition
 - a. Championing the just transition
 - b. Partnering for innovation

The following sections give an overview of the current evidence that underpins the need for action, practice guidance and strategic plans to drive this, and evidence of the progress that universities have (or have not) achieved.

1. Reducing direct and indirect emissions

To address the climate crisis, some key goals must be achieved:

- Reducing carbon emissions
- Avoiding biodiversity loss
- Reversing nature depletion
- Reducing other types of emissions.

As a summary of existing literature, this paper reflects existing evidence on university climate impact, which primarily discusses carbon emissions. It is crucial to state that an over-focus on reducing emissions could prevent universities addressing the structures and systems that actively protect and promote climate-destroying industries and practices (Deivanayagam and Osborne, 2023). Currently, there is clear gap in the evidence around the wider contributions universities can make to addressing the climate crisis, in both reducing non-carbon emission climate impacts and participating in the systems change necessary to avoid climate catastrophe.

UK universities are responsible for emitting 18m tonnes of carbon dioxide equivalent (CO₂e) in 2020/21 (The Royal Anniversary Trust, 2023). About 80% of these emissions were found to come from the built environment, staff and student travel, and in the supply chains used to procure goods and services (Royal Anniversary Trust, 2023). These findings identify the areas that will have the greatest impact in reducing the carbon emissions of the university estate, although as university estates differ in their physical build and operations, there will be

variation.

The highest percentage of the total carbon footprint of universities – 36.3% - is in the procurement of goods and services (Royal Anniversary Trust, 2023). This highlights the interconnectivity between universities and other systems, such as the transport, manufacturing, and service industries. The Department for Business, Energy, and Industrial Strategy (BEIS) sees an opportunity for universities to invest in energy-efficient products and services as a way of reducing energy costs and emissions, but also to boost the UK's growing low carbon and environmental sector, supporting innovation in new technologies, and jobs in new industries (BEIS, 2023).

Hoolohan et al. (2021) analysed 66 UK university sustainability strategies to investigate practices around air travel and catering. Due to the lack of public information on university practices and emissions, the analysis is based on sustainability policies, particularly universities' planning and action in these areas (Hoolohan et al., 2021). They found that although there is recognition of this issue, few universities have 'specific reduction targets or action plans that would rapidly and substantially reduce emissions in these areas' (Hoolohan et al., 2021). They posit the need for greater cohesion across the sector in reporting and target-setting, and the need to raise the ambition of targets and actions, acknowledging the unique opportunity that universities have to 'disrupt and reshape' professional practices in these areas (Hoolohan et al., 2021).

More generally, there is evidence that universities are failing to achieve significant progress in reducing direct and indirect emissions from their estates. In 2010, the Higher Education Funding Council for England (Hefce) set a goal for universities to reduce 43% of carbon emissions between 2005/6 and 2020/21. However, data published by the Higher Education Statistics Agency (HESA) in 2020/21 reveals that just 62 higher education institutions (HEIs) who provided information managed to achieve the target, with 59% of institutions who provided information failing to meet the target (Ruane, 2023).

It is important to state that even though these targets have been missed, universities are reducing their emissions. The People and Planet University League publishes an annual ranking of 153 UK universities based on 14 weighted criteria, including environmental policy and performance in areas such as carbon emissions reduction, education for sustainable development, and waste and water recycling. According to the most recent ranking, Ulster University, Cardiff Metropolitan University, Edinburgh Napier University, and the University of Bedfordshire are leading the way for their respective nations (People and Planet, 2022). Cardiff Metropolitan University has achieved the greatest progress overall, with a 65% decrease in carbon emissions between 2005/6 and 2020/21, and a pioneering divestment policy. Post-1992 universities are leading the way overall, with 59% of

these institutions achieving 'first class' on the scorecard, which means they reached a combined score over 70% across the 14 criteria (People and Planet, 2022).

The Royal Anniversary Trust identified financed carbon emissions (ie, indirect emissions from financial investments) as a major source of emissions, generating up to 39.2m tonnes of carbon a year (2023). This includes finance from endowments, pension funds, and other investments. In an attempt to reduce these emissions, People and Planet are supporting a student campaign titled Fossil Free, urging universities to divest from fossil fuel companies and reconsider partnerships with them. In 2022, 100 institutions made a declaration to divest from fossil fuels, representing 65% of the UK sector and endowments worth at least £17.6bn (People and Planet, 2022). However, this commitment is only written into the institutional policies of one third of universities, and there is no published evidence of the divestment actually taking place. Additionally, there are questions about where the money has then been divested to. People and Planet point out the opportunity of reinvesting in renewable energy projects, for instance, which to date only 7% of universities have done.

A considerable number of UK universities have engaged with The Alliance for Sustainability Leadership in Education's (EUAC) Climate Commission for UK Higher and Further Education. These universities will undergo reviews to measure and compare their carbon emissions, using their Sustainability Leadership Scorecard mapped directly against UN Sustainable Development Goals. To date these scorecards have not been published consistently, with the last annual report of aggregate data shared in 2020. At that time, the scorecard identified an increase in participation and a rise in overall scores, with staff engagement having the greatest impact on reaching targets (AUDE, et al., 2020). However, the report highlights that climate adaptation and risk assessment is still low, and links between sustainability and the teaching curriculum still need improvement (AUDE, et al., 2020).

These scores are limited in what they capture. A key critique to this scoring methods is the competition it generates between universities, which drives a focus on the 'low-hanging fruit', or replicating best practice, rather than driving innovation. Additionally, the scores fail to represent the entirety of a university's activities, and rely on self-reporting, which may not always be accurate. Nevertheless, they do present an incentive for universities to take climate action by making progress public. The Sustainability Leadership Scorecard, for instance, sees returning participants performing better, demonstrating that the tool can help create change and action (AUDE, et al., 2020).

SPOTLIGHT ON PEOPLE

STUDENTS ADVOCATING FOR SUSTAINABILITY IN THEIR UNIVERSITIES

Students are advocating for greater sustainability in universities and wider society through several student movements and channels. Students Organising for Sustainability UK has led several successful initiatives including mapping university curriculum against the UN Sustainable Development Goals, a framework and accreditation for embedding sustainability in learning, and Green Impact - a UNESCO award-winning change and engagement programme for workplaces.

Another key initiative is the 'Plant-Based Universities' campaign. It calls for a radical shift towards plant-based food on campus, limiting emissions and helping 'shift public opinion in favour of a plant-based food system' (Plant Based Universities, 2022). So far, there has been a modest response from universities around the UK, with the University of Stirling leading the way, having committed to 100% plant-based food by 2025. The campaign hopes that student activism will influence universities towards offering plant-based food, and this in turn will influence society's ethical views and sustainable practices (Plant Based Universities, 2022).

2. Knowledge and skills for a greener future

Beyond the direct impacts of universities activities on the environment, universities can also equip individuals with the skills and knowledge to navigate the transition to net zero through the job market, climate advocacy and adaptation.

2a. Climate education

A key potential role for universities in the climate emergency is to support the acquisition of relevant knowledge and skills. This is a dual but inter-connected challenge: on one hand, providing 'climate education' to equip students to navigate the transition to net zero; on the other, providing learning pathways and delivering skills for the changing job market.

What constitutes climate education is debated, as the climate crisis is a broad topic that touches on issues of environmental sciences and social justice, amongst others. Further, given that the transition to a sustainable future - or the potential advent of climate breakdown - holds many unknowns, there are questions in who should decide what is taught as part of a climate education.

Part of 'climate education' is building carbon literacy, or 'awareness of the carbon dioxide costs and impacts of everyday activities' accompanied by the ability and motivation to reduce emissions (The Carbon Literacy Trust, 2023). The Carbon Literacy Project has achieved considerable progress in establishing what carbon literacy education should look like and then working with organisations including universities to enact it. The project offers universities and other educational institutions guidance in carbon literacy curriculum design and accreditation, with 602 accredited Carbon Literacy courses to date. Through this and other parallel efforts, the Carbon Literacy Project (2023) estimates they will achieve 5 to 15% carbon emission reduction per person, though levels of actual emission reductions have not been reported.

Another element of 'climate education' is building awareness of climate change, the drivers behind it, and its consequences. Climate Fresk is a collaborative workshop methodology that aims to build awareness of the science of climate change, empower individuals to take action, and make space for organisation-wide conversations about climate solutions. The methodology has seen uptake by one million participants in 130 countries, with many universities adopting it as an approach to climate change education (Climate Fresk, 2023). Universities are hosting Climate Fresk workshops to engage their students and wider communities on the topic of climate change (Climate Fresk, 2023). To date, there is no published evidence of the impact of the method. However, there is plenty of participant feedback; Imperial College London reported an average rating of 8.5/10 of this method as a climate education tool (Climate Fresk, 2023).

The DfE's 2022 strategy for the education sector promotes opportunities for children and young people to participate in climate action, increasing 'climate resilience, reduc[ing] carbon impact and enhanc[ing] biodiversity'. Additionally, the DfE suggests that schools and universities should inspire students to choose career paths that support the transition to net zero, the restoration of biodiversity, and building a sustainable future (DfE, 2022). DfE points towards STEM subjects as key in combatting the climate emergency (2022). A crucial component of this work will be ending recruitment relationships and talent pipelines with the fossil fuel industry, with People and Planet (2022) pointing out that only 3% of the sector has done this.

UNESCO's (2020) 'Education for Sustainable Development (ESD) for 2030' strategy posits the need for education to support sustainable development goals, in alignment with goal 4.7, which is about giving all learners the skills to promote sustainable development. The ESD strategy places particular emphasis on competencies related to empathy, solidarity and action. It posits three dimensions to sustainable development education: cognitive learning (understanding sustainability challenges), behavioural learning (taking practical action), and social and emotional learning (building core values and attitudes for sustainability)

(UNESCO, 2020).

In 2021, the University of Reading, in partnership with the Office for Climate Education, Royal Meteorological Society, Met Office, EAUC and Ashden, held an online Climate Education Summit, bringing together young people, scientists, teachers, policymakers and campaigners to create a national action plan for climate education. The subsequent National Climate Education Action Plan aims to empower young people and future generations with knowledge, skills and understanding to tackle the climate and ecological crises (University of Reading, 2021). It focuses on building capacity within schools to deliver climate education by providing training, support, encouragement, and empowerment for teachers.

One crucial question that remains is how and where adults who are not in education can receive climate education. The United Nations Framework for Climate Change (UNFCCC) calls for Action for Climate Empowerment (ACE) spanning all age groups. This includes not only public awareness and education on climate change, but also opportunities for participation in 'addressing climate change and its effects, and developing adequate responses' (UNFCCC, n.d.). ACE is backed by articles in the Climate Change Convention and the Paris Agreement, making it a commitment for all signatories (including the UK). There is an opportunity to consider the role universities might play in raising public awareness and empowering people of all ages to take climate action.

SPOTLIGHT ON PLACE

UNIVERSITY ESTATES AS A SITE FOR CONNECTION WITH NATURE

University estates are potential places for individuals to connect with nature, reaping wellbeing benefits and learning about conservation. Education institutions, including universities, often benefit from green spaces on their estates, which can be repurposed towards climate change mitigation, biodiversity conservation and connecting with nature. Internationally, green and blue spaces at universities have also been earmarked as opportunities for 'restorative' spaces that support mental health recovery and reduction in anxiety (Du et al., 2022 and Kanelli et al., 2024). The combined surface area of education institutions across the country is large, with about 24,000 schools in England alone, covering an area over twice the size of Birmingham (Department for Education and Zahawi, 2021).

The 'National Education Nature Park' initiative encourages schools and universities to use parts of their estate to improve biodiversity and engage students in nature-based activities. The programme supports education institutions to use their estates as education nature parks, providing expertise and guidance. An accompanying award scheme promotes the involvement of children and young people in biodiversity and sustainability, recognising efforts towards climate action. This invites a shift in perspective from estates as a source of carbon emissions towards estates as a space for direct climate action, with the potential to become an asset in the transition to a sustainable future.



2b. Training and reskilling

Another key role for universities is supporting the transition of their local workforce towards 'green' jobs through training and skills, or in some cases re-skilling. The challenge in staying up-to-date with the changing skills demand of the workplace was reflected in the Green Jobs Taskforce call for government to 'develop a comprehensive and holistic view of the green jobs and skills challenge' (Green Jobs Taskforce 2021). The DfE urges universities to transmit 'green skills' to students that will allow them to build careers and participate in the 'Green Industrial Revolution' (DfE, 2022). However, what constitutes 'green skills' is complex and evolving.

The transition to net zero will transform some industries in fundamental ways, leading to the creation of new jobs and potential disappearance or transformation of current jobs. It has been estimated that one in five workers (6.3m jobs in total) will be affected by the transition to a net zero carbon economy, with around three million workers requiring upskilling and around three million jobs seeing increased demand for work (Sudmant et al., 2021).

Universities are well placed to play a role in upskilling adults already in the workforce through adult education or partnerships with employers. Many top universities for social mobility are also civic universities (HEPI Social Mobility Index, 2023). Higher education institutions can develop and deliver interconnected skills packages through their civic agreements, which deepen connections with further education and online training providers. This approach mirrors the UK government's aim for a more interconnected skills and training system, through Skills England, and their ambition to generate 650,000 new high-quality jobs by making Britain a clean energy superpower (Labour Party, 2024).

Despite the opportunity for universities to play a role in reskilling workers, there is evidence of adult learning declining over the last years - though this is not specific to green skills (UPP Foundation, 2019). This is due to a range of factors, including the Adult Education Budget (AEB), halving in real terms between 2011/12 and 2019/20 (Learning and Work Institute 2021). Additionally, adult learners may face obstacles to participation in education, including prohibitive costs and the strain of lost wages.

In 2020, Students Organising for Sustainability UK and the University and College Union (UCU) in the UK wrote a joint letter to the Minister for Apprenticeships and Skills and the Chancellor of the Exchequer, urging them to commit to major new investment in higher education to close the skills gap that was rapidly widening across the low carbon sectors. This sentiment was echoed by the emergency plan on green jobs for young people, published by Friends of the Earth, which calls for a

'bold expansion of green skills provision' (2021). Furthermore, Friends of the Earth called for further education (FE) colleges to establish 'Green Traineeships', while acknowledging they might lack the skills to deliver them (2021). This presented an opportunity for universities to support FE providers through curricula development and teaching-staff training. The results of these advocacy efforts are yet to be seen.

3. Supporting and shaping the local transition

While activity towards sustainability is happening, changes in national policy and the civic university movement have encouraged universities to look at the role they can play as anchor institutions in their places. The Civic University Commission's final report (UUP, 2019) emphasises the importance of applying a place-based lens in all civic engagement, highlighting that the move towards devolution in government creates more space for place-based approaches. This aligned with the former government's local and regional view of the transition to net zero emissions, as laid out in the Levelling Up White Paper (DLUHC, 2022). Though there is still greater detail to come from the new Labour government, to date their plans incorporate universities' potential role in shaping their places. This includes ten-year research and development budgets, working with universities to support spinout companies, and universities supporting local leaders to develop Local Growth Plans.

The Royal Anniversary Trust places universities at the heart of the UK's transition to net zero, emphasising the sector's 'strength in connecting knowledge and scaling new solutions through partnership and collaboration' (2023). This highlights several potential roles for universities in their places, from innovation and production of knowledge, to collaborating with local partners. The Royal Anniversary Trust highlights the importance of a systems approach to reducing emissions and building climate resilience, which requires working in partnership with actors in the local ecosystem and putting people at the centre of the transition (2023). This vision is a stark contrast to the current approach taken by many universities, which is an independent institutional commitment and action. The UK Universities Climate Network also urges universities to develop relationships to 'work together across sectors, geographies, organisations, and communities' to 'deliver a just, equitable and resilient net zero transition' (Shona and Biglia, 2022).

The Institute for Community Studies (ICS) at The Young Foundation investigated the relationship between universities and their local community as part of university sustainability strategies. Most saw this relationship as a key part of the climate action agenda. However, many acknowledged uncertainties in how to approach community engagement in this context (ICS and Civic University Network, 2021). The ICS found that universities took varying degrees of leadership within their own

places, from responding to local transition challenges, to actively participating in existing partnerships and initiatives, to focusing more on global rather than local challenges (2022). There was strong recognition of the need to align the degree of leadership, the distinctiveness of the local challenge, and the university's potential to be a unique contributor in their local place, even if the strategic coordination to achieve this or specific activities were not yet in place (ICS and Civic University Network, 2022). Furthermore, the ICS identified a wealth of activity recognising a place's socio-historic identity and industry (2021). For example, coastal universities discussed a focus on reducing biodiversity loss, and universities in post-industrial places discussed working with local industries that might be left behind in a transition to net zero (ICS and Civic University Network, 2022).

3a. Championing the just transition

Universities are well placed to leverage their resources and strengths in research and knowledge exchange to support local and national decision-making in the transition to net zero. This will require both independent thought leadership and collaborative capacity to maximise the potential impact of both environmental and societal outcomes.

Some universities are choosing to adopt or champion the 'just transition' framework, which centres fairness alongside the reduction of carbon emissions. Other universities are choosing to champion the just transition through their university action plans or through collaborative action. The University of Leeds, for instance has put just transition at the heart of its Climate Plan, recognising potential impacts on staff, students, and the wider community. Although the university acknowledges the difficulty of incorporating justice in their short- and long-term sustainability goals, they hope to be 'an example to other institutions both nationally and globally' (University of Leeds, 2023). Other universities are choosing to put just transition principles in action beyond their campus. The University of Bristol, for instance, is supporting the city's 'One City Climate Strategy,' which calls for a 'fair and collaborative approach based upon a just transition' (Dietzel and Venn, 2020).

Other universities are contributing to the just transition through dedicated hubs or labs, which produce research, teaching, and scholarships on justice issues related to a transition to lower carbon emissions. These include the University of Dundee's Just Transition Hub, the University of Aberdeen's Just Transition Lab, and Glasgow Caledonian University's Centre for Climate Justice. These centres are contributing to understanding of justice issues in the transition to net zero, as well as advocating for fairness and improved outcomes for marginalised communities.

One crucial challenge that has yet to be tested is how the just transition framing is enacted in practice. Dietzel and Venn (2021) analysed the case of Bristol's 'One

City Climate Strategy', finding a lack of ownership of the commitments, which may compromise the delivery of the strategy over time. Although universities' involvement in framing just transition is a cause for optimism, little evidence yet exists on its impact on fairness outcomes.

Universities are far from the only actors that have a key role to play in championing and enacting a just transition across locations and sectors. At a national level, charities, research institutes, community and voluntary organisations are conceptualising and advocating for equity and fairness in the transition to net zero (Themimulle et al., 2023; Baxter, 2021; Bell et al., 2021). At a local level, grassroots organisations are supporting households and communities to participate. A 2021 report by Changeworks found that grassroots organisations are playing a key role in motivating and enabling individuals to take part in the transition to net zero in Scotland. However, barriers remain, impacting smaller organisations, such as restrictions to funding and siloed resource and knowledge bases (Changeworks, 2021).

Universities have the potential to partner with organisations of all sizes, working at a national or local level to accelerate progress towards a just transition. However, configurations and aims of partnerships, and their comparative effectiveness, are still developing. Further research is needed to understand what works best when it comes to universities partnering to support the just transition.

3b. Partnering for innovation

Universities can play a potential role as partners in generating and scaling research and innovation to reduce carbon emissions. Universities are viewed as a particular strength of the UK, seen as 'research powerhouses' that develop and diffuse new technologies and create clusters of economic activity and innovation (DLUHC, 2022). They have the potential to partner with a range of actors in their places, providing support in kind, such as knowledge and staff time, and access to patent licences and growth funding. The OECD has identified place-responsive universities as potential leaders of their local Entrepreneurial Ecosystems (EE), providing leadership and a safe environment to coordinate policies and agree on cooperative action towards innovation, regional development, employment, and skills (OECD, 2021).

The new Labour government is looking to build upon the previous government's 'Build Back Greener' strategy, which proposed collaborative work between universities, the private, and public sectors to create innovative solutions to reduce the carbon footprint of specific sectors (DESNZ and BEIS, 2021). Support is being offered through the development of a ten-year research and development plan, the establishment of Great British Energy and a 25% capital uplift for the Department for Energy Security and Net Zero, aimed at bringing in further investment for

renewable energy projects. An example of the projects we could see in the future include, the BEACON, a collaboration led by Aberystwyth University, working with Bangor and Swansea Universities and the University of South Wales to support Welsh businesses researching and developing biotechnologies, such as bio plastics and low carbon building materials (DESNZ and BEIS, 2021).

An example of partnership work in action is the UKRI-pledged investment of £53m in six research hubs and centres (2023) that will lead innovation in the energy sector. Each hub is led by, or partners with, one or more universities who will produce and mobilise knowledge to develop sustainable energy systems alongside stakeholders from academia, industry, and the wider society. Although this and similar programmes are reasons for hope, the recent timing means there is little evidence of how effective they are in accelerating innovation to support the transition to net zero. Furthermore, there is little evidence of where the impact of these partnerships will be felt, and whether a dimension of the impact will play out at a local level.

SPOTLIGHT ON PURPOSE

CLIMATE EMERGENCY DECLARATIONS

The past years have seen increased awareness around climate change and the understanding that it constitutes an emergency (Latter, 2021). A manifestation of this is through the declaration of a climate emergency, spearheaded by national governments and followed by local governments and a range of organisations in different sectors, including universities (Latter, 2021).

As early as 2019, UK universities have declared a climate emergency, with the University of Bristol the first to do so, and 36 other universities following suit over the consequent year (Latter and Capstick, 2021). Climate emergency declarations can be seen as a positive step, amplifying a collective voice on climate change, and committing to action (Latter and Capstick, 2021).

However, critical discourse analysis reveals the function of these statements as promotional, due to an excessive focus on previous or ongoing work and accomplishments over future plans (Latter and Capstick, 2021). Latter and Capstick (2021) highlight the importance of accompanying climate emergency declarations with commitments and action if they are to deliver the intentions they have publicly made. Although climate emergency declarations by universities have decreased since 2019, they are a powerful example of how declarations or public plans on sustainability 'should provide a basis for taking further action, rather than being a goal in and of themselves' (Latter and Capstick, 2021).

The Place-Based Climate Action Network (PCAN) conducted similar analysis on the climate emergency declarations by local government, finding many similarities between them (2021). A much higher percentage of local governments across the UK have declared climate emergencies than universities - almost 75% of local governments as compared to 25% of universities (Latter, 2021). This suggests a difference in how the actors perceive their role and responsibility in climate change. PCAN reports that local governments have taken further action in updating or creating climate action plans, as compared to universities (Howarth et al., 2021). However, PCAN warns that climate emergency declarations or the absence thereof are not necessarily predictive of further action (Howarth et al., 2021).

CONCLUSION

A major challenge in reviewing the evidence base for universities in the green transition is the evolving and urgent nature of the climate crisis. Evidence needs are therefore in flux, as the roles universities could play in the climate crisis are also constantly changing. However, action is needed now to reduce irreversible damage to the environment. The sector must therefore learn as it acts, identifying opportunities to advocate for the transition, as well as empower others to make the necessary changes to prevent catastrophe.

Existing evidence points to a role for universities in reducing their impact on the environment, using their role as educators to share necessary skills and knowledge, and as advocates and partners for innovation to accelerate the climate transition. The existing evidence remains highly focused on universities' direct and indirect carbon emissions, with some examples of good practice and proposed frameworks.

However, focusing on universities' direct and indirect carbon emissions risks creating unproductive dynamics between different institutions, by framing them in 'competition' to reduce their climate impact. Rather, this evidence review suggests a new focus on evidence to show what is effective at enabling wider systems change through a 'just transition' that includes all members of society. For example, through activities related to climate education. Climate education cannot, however, be limited to university students already in full-time study, but must reach outwards to all potential learners to ensure the climate transition is truly inclusive.

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