The role of HEIs in the climate action agenda

Supporting place and communities in a just transition to net zero

Contents

Civic University Network - a national network maximising the impact of civic universities in their place

Sheffield Hallam University is proud to lead the Civic University Network. We are supported by a partner group of experts from across the higher education and community and public engagement sectors, and an Advisory Group of national stakeholders who bring strategic insight in support of the aims and activities of the Civic University Network and the wider civic agenda.

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Executive summary

This report has considered the role of higher education institutions in the climate action agenda.

Specifically, it has sought to understand the existing landscape of what HEIs are already doing in response to how the challenge of reducing carbon emissions (typically termed in UK government policy as 'reaching net zero') and protecting and preparing places and communities from climate impacts, can be met within a 'civic' approach that works in partnership with other local anchor institutions and with local communities.

The key findings of the report are as follows:

- There is significant and diverse activity, led by or involving HEIs, taking place in response to the climate action agenda. Of over sixty HEIs who took part in the programme, over two-thirds were involved in external projects or partnerships with other civic partners which were said to be strategic or led by civic and sustainability leads, rather than driven from research funding or led by individual academics.

- The focus of HEI-led activity with local communities fell into four main areas: supporting the transition of local economies to be resilient to net zero transition; supporting local industry and supply chains to innovate to comply with and meet the opportunities of a green economy; growing local biodiversity and green campus initiatives; and developing green education initiatives that connect schools, students and the public with the challenge to become a sustainable society. However there is a huge diversity of other initiatives – from adapting energy systems to building cycle-lanes into town planning systems – that HEIs are involved in.

- The main gaps where there is less activity were identified as: course development to predict and upskill the local workforce to changing labour markets in the green transition – from foundation to degree to lifelong learning; the need for approaches for how to involve communities in transition and 'bring all stakeholders on board' in setting the local vision for sustainable futures; and an absence of engagement with policy and practice in how to guard against greater poverty or protect the most vulnerable families in transition.

- Diverse activity led by HEIs towards supporting places and communities to transition to net zero was typically described as 'siloed' into individual projects or departments within institutions, with a lack of coordination internally, and a lack of joined up strategies being formed externally between local authorities, HEIs and other civic institutions key to the climate agenda

- Students were cited as a key driver of activity towards the climate action agenda but often an under-recognised resource in making the most of their engagement and desire to support the local area. Other major drivers for HEIs were the opportunity to build capacity in local innovation around the green agenda; the incentive of external standards and markers such as the EAUC Scorecard; and the 'moral imperative' raised frequently by research and professional staff that HEIs should be at the heart of ensuring local places are not left behind during transition.

- Over half of the HEIs who participated in the roundtables were using the EAUC Scorecard as an approach to manage and monitor their own progress towards institutional sustainability, and this was held up as best practice by those who were farther forward on the journey.

- The lack of cross-institutional coordination between HEIs on the climate action agenda was highlighted as an important gap where action was needed. This was both between HEIs within the same region, and between the HEI sector across the UK in sharing practice or coordinating efforts. Given that achieving net zero is a holistic interdisciplinary challenge, there was a particular opportunity for HEIs to 'cluster' their strengths by working cross-institution, in order to meet the demand for research, expertise, partnerships and innovation being asked of them by local authorities, businesses and civil society.

- Only four HEIs described that their action towards the climate action agenda was driven through the lens of achieving a 'just transition', where greater socio-economic equality is sought in how transition is organised by policies, institutions including higher education, access to resources and fairness of participation.

Foreword

## The role of universities in the climate action agenda

Universities play a leading role in mitigating and adapting to climate change, reversing biodiversity loss, educating students, and working with communities to build a sustainable future. Addressing climate change is central to all our civic obligations and responsibilities.

The Network's current project, developed in partnership with the Institute for Community Studies (ICS) and the UPP Foundation, aims to understand how universities can act as changemakers for places in the climate action agenda. Institutions based in places which share common challenges in net zero transition have been brought together to share good and innovative practice, to identify gaps where more action is needed, and to think about how we can work collaboratively to accelerate the progress needed to meet or exceed net zero targets.

Further workshops and collaborative forums will be held to build a collaborative and usable framework for how universities can support place transition to net zero. This will involve stakeholders from inside and outside the Higher Education Sector all seeking to tackle the net zero challenge.

We look forward to continuing this important work over the course of 2022.
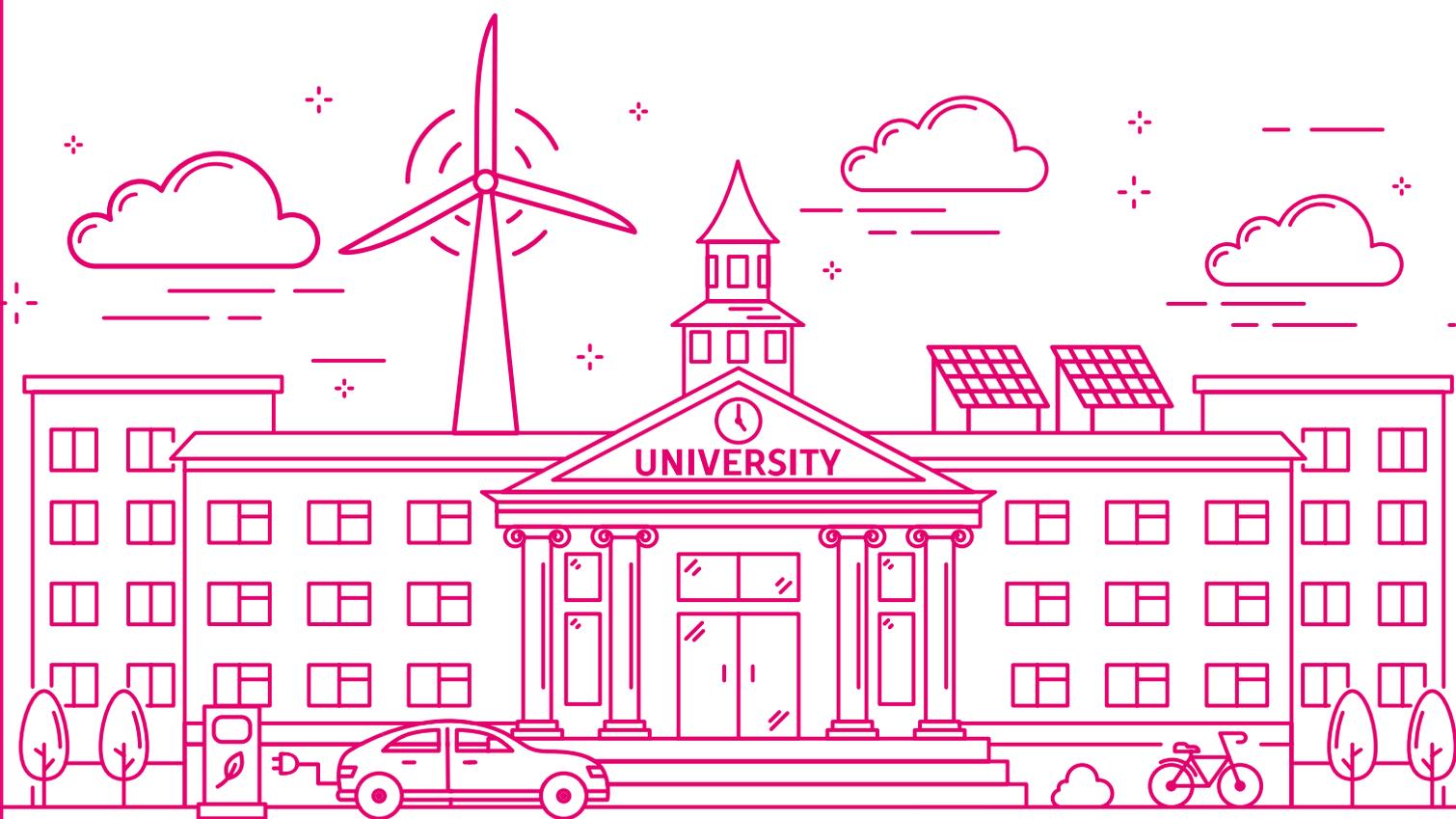
Introduction

" **Five years ago this conversation between sustainability and civic institution roles would not have taken place**

– Sustainability Lead, HEI in the northern and Midlands cluster "

More than ever, higher education institutions (HEIs) across the UK have committed to reducing their carbon footprint and making progress towards net zero. Much is already happening. A significant number of institutions have also engaged with The Alliance for Sustainability Leadership in Education's (EAUC) Climate Commission for UK Higher and Further Education, which is developing an Action Plan in response to the UK government's stated climate emergency and drawing together a strategic sector-wide approach to the government's Climate Framework.

Increasingly, governments across the UK and EU are shifting towards mission-based approaches to environmental, social and economic challenges, recognising the need for collaborative working, including between HEIs and policy and decision makers, and iteratively learning from successes and failures. While a plethora of good work is happening within the four walls of institutions, in how campuses, research, teaching, procurement and external facing activity and the commitment of staff, students and partners can reduce their carbon impacts, the twin directives of national policy and the civic movement of higher education mean institutions are recognising the need to look beyond this to the role they can play as anchor institutions within place.

The shift towards a whole-systems approach and place-based working highlights the greater opportunity for HEIs to consider themselves as part of local ecosystems supporting places and communities to realise a more just transition to net zero. Through a series of roundtables, this Civic University Network project has brought together institutions from across the UK situated in places and communities with common transition challenges. The aim was to identify effective roles for HEIs in contributing to or as leaders in their local area's journey to net zero; to recognise what is already being done, identify gaps and challenges, and share and scale practice where it could support others to take greater action. We are now far beyond the 'moon-shot' era where innovation and advancement on issues such as the climate agenda can be funded through research channels alone or through research-into-technological advancement.

This report summarises the discussions and findings from those roundtables, putting forward a typology and place-based framework to explore the role of HEIs in the climate action agenda.

Context: Scoping the civic challenge for HEIs in transition to net zero

In the context of the societal and policy challenge required to reduce carbon emissions, as well as strengthen societal resilience and our adaptive capacity to manage climate-induced impacts, there is a distinct need to support places and communities to transition effectively and equitably to net zero.

While recent academic and policy literature stresses the importance of local, place-based strategies, there is a lack of evidence exploring how uneven readiness for net zero will affect places across the UK given their differing contexts, capacities and challenges. There is even less evidence about what assemblage of actors, partnership working and civic approaches are needed at the local level between the ecosystem of policy, anchor institutions, business and communities to make the process of transition to a greener future, and to avoid leaving people and places behind.

In 2021, the UK Government presented a net zero strategy titled "Build Back Greener", which ties together the goal of net zero emissions, with recovery from Covid-19 and the current government's "Levelling Up" agenda. It follows and expands on the Prime Minister's "Ten Point Plan for a Green Industrial Revolution", published in 2020 (BEIS et. al.). Both documents describe the current government's proposed pathways to decarbonisation, presenting sector-specific policies and proposals, and cross-cutting action (BEIS, 2021, BEIS et. al. 2020). In this context, in 2022 the UK's Department for Education also published it's "Sustainability and Climate Change" strategy.

To varying extents, the HEI sector has a named role across these key strategies. The "Build Back Better" strategy emphasises the importance of taking a place-based approach, committing to working with local governments "to ensure that all local areas have the capability and capacity for net zero delivery" (BEIS, 2021). There is a strong focus on the opportunity to "level up the country" through a "green industrial revolution", bringing new "high skilled, high wage jobs" across all the UK (BEIS, 2021). A key part of this is to "reform the skills system", incentivising education and training providers, employers and learners to build the skills needed for the transition to net zero (BEIS, 2021), in which universities are expected to play a role.

The "Levelling Up Agenda" identifies the "net zero transition could create huge opportunities for many of the UK's left-behind places". It places a strong emphasis on building the skills of the UK workforce, naming "human capital" as one of the six key assets or "capitals" of the country (DLUHC, 2022). It also highlights the importance of "intangible capital", defined as "innovation, ideas and patents", and "institutional capital", or "local leadership, capacity and capability", both of which are present to a high degree in universities (DLUHC, 2022). One of the missions of the agenda is to "spread opportunity and improve public services", with education and skills building as focus areas (DLUHC, 2022).

Universities are also seen as potential partners to scale research and innovation, accelerating the production of decarbonisation technology. "Build Back Greener" provides examples of collaborative work between universities, private and public sector to create innovative solutions that reduce the carbon footprint of specific sectors (BEIS, 2021). For instance, it describes the work of 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 bioplastics and low carbon building materials (BEIS, 2021).

Universities are viewed as a particular strength of the UK, as "research powerhouses" that develop

and diffuse new technologies and create clusters of economic activity and innovation (DLUHC, 2022). They are also seen as an essential partner for government, as anchor institutions that are central to achieving growth across the country and tackling a range of complex issues locally. The Levelling Up agenda also sets the ambition for the UK to become a "global hub of innovation" and "science superpower" (DLUHC, 2022). Universities are central to this ambition, as places for science, research and innovation, as set out in the R&D Roadmap and Innovation Strategy (BEIS, 2020, BEIS, 2021). Universities might also play an important role in articulating and responding to the causal relationships between the different systems within a place framing.

Recognising HEIs are often the largest institutions, employers and footprint makers within a local ecosystem, this Civic University Network project aims to understand how HEIs can act as changemakers for places in the climate action agenda. Facer (for HEPI, 2020) has identified four areas of change that universities can address in response to climate change:

- **Redesigning day-to-day operations of the campus to reduce emissions;**
- **Reinvigorating the civic role of universities to contribute to building ecological and social resilience in their local communities;**
- **Reshaping knowledge structures to address climate change from an interdisciplinary perspective;**
- **Refocusing the educational mission to support students in developing the capacities needed to live well in the era of climate change (2020).**

Facer's approach recognises universities' multifaceted role, as place-based institutions and often physical estates, uniquely placed to shape the future by educating as society's "critical learning infrastructure" (2020). She sees the potential for universities to "support the creation of ecologically sustainable local economies" through endowments, investment and procurement, stronger partnerships and

educational offerings for older adults transitioning to low carbon work (2020). Although Facer recognises the transition to net zero as more than a technical challenge with important political, economic, and social dimensions, there is an opportunity to think even more expansively and collaboratively about the scope of the transition for places which will face distinctive – and some common – challenges in transition to net zero, and the role universities might play in supporting this.

Research has shown that reaching net zero will lead to inevitable trade-offs between social, economic and environmental objectives, with evidence suggesting that these are difficult to meet concurrently (Robinson and Shine 2018; Hasegawa et al. 2018; Hussein, Hertel, and Golub 2013; Gillard, Snell, and Bevan 2017). It is therefore important to consider the likely justice issues that might arise from the transition to net zero, and the role that universities as sites of knowledge production, education, civic engagement and social impact can also play in mitigating these issues. These justice issues are already surfacing in the form of increased energy prices and heightened food shortages, proximately caused by geopolitical events but intimately connected to the climate emergency.

There is an opportunity to set a more ambitious challenge that goes beyond net zero carbon emissions or sustainable economies and toward a "just transition", where the road to environmental sustainability in the UK contributes to "the goals of decent work for all, social inclusion and the eradication of poverty" (ILO 2015). A just transition to net zero will need to not only avoid deepening the already stark differences between households, communities and places in the country, but could even play a role in levelling up communities if the risks are managed well and opportunities capitalised upon. Universities have the opportunity to think beyond sustainable economies and reskilling, to their potential role in creating fairer futures for everyone.

How will places be affected in transition to net zero and what could a civic approach include?

What areas of activity, local engagement and partnership fall within a civic approach to supporting place transition to net zero, is a developing picture. The 'civic approach' will be shaped by the specific challenge that places or regions have, due to particular characteristics that make them more or less equipped – or vulnerable – in being able to reach net zero. However, there are certain common factors faced by every area, to varying degrees.

The Institute for Community Studies with the universities of York, Leeds and Trinity College Dublin have developed a framework of the domains of place that will be affected by – and will need to be managed in – transition to net zero. Figure 1, below, visualises six core domains of 'place' that will necessarily need to adopt policy change to reach net zero, including:

- Readiness and resilience of infrastructure;
- Transport and proximity;
- Service access, health and wellbeing;
- Skill diversification and leadership capacity;
- Resilient, inclusive local economies;
- Supporting agency and inclusive governance.

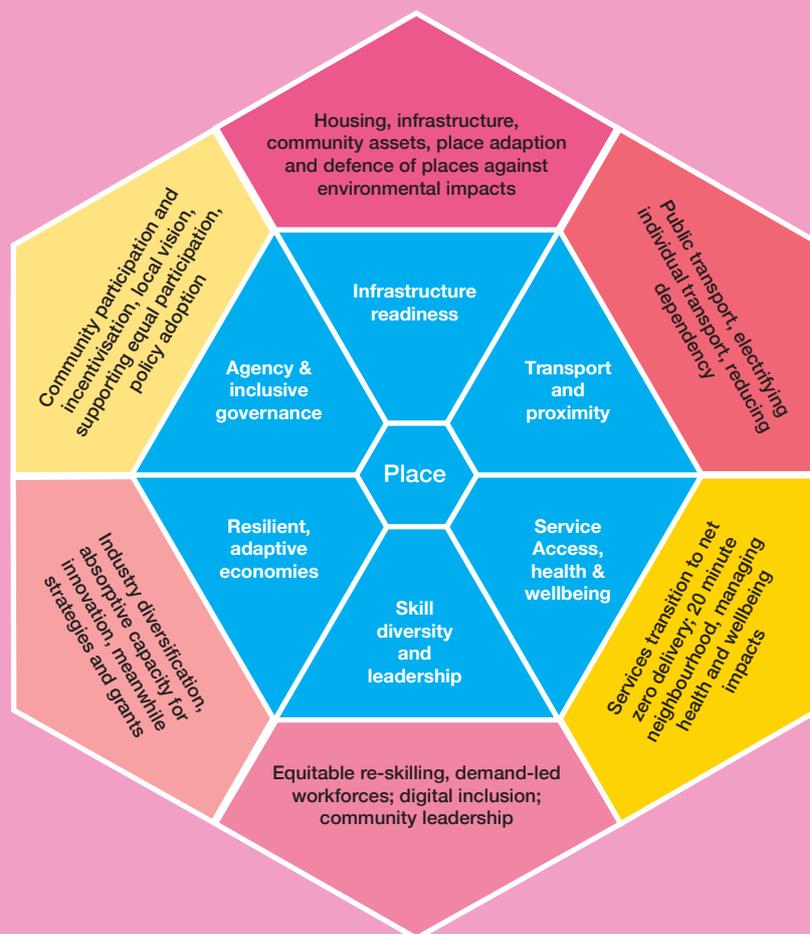(Source: Morrison, Snell, Middlemiss et al, 2022)

Figure 1: Domains of place that will be affected by net zero transition in the UK. Source: Morrison, Snell, Middlemiss et al, for the Institute for Community Studies, 2022.

It is important to identify alignments and overlaps between the domains of place affected by net zero transition and other existing metrics and measures that universities have adopted or are subject to. The well-known EAUC Sustainability Leadership Scorecard – a jointly-owned resource by The Alliance for Sustainability Leadership in Education and The Association of University Directors of Estates, which maps directly onto UN Sustainable Development Goals – is valuable in supporting HEIs to manage and measure their own progress as institutions towards sustainability, has domains of transport, adaptation and management (which could connect with wider local governance) which align with three of the six domains above. From another perspective, the Civic Impact Framework (Civic University Network, 2020) identifies common and valuable domains by which HEIs' can organise and measure their potential contribution to place; these broadly include economic, wellbeing, cultural, social and leadership domains of action.

Whilst the activity to be measured under each of these does not specifically and consistently cohere to the challenge of supporting place transition to net zero, it is useful to consider how and whether existing domains of activity, and existing metrics, could be adapted to guide and track progress of universities' internal and external contributions to net zero; or whether a new framework with greater specificity is needed. Which measures a HEI prioritises within any framework, would of course also need to be sensitive to and aligned with those defined and led from local government or the governing forces behind the net zero strategy for the local area and could even inform the selection of place goals.

What the transition scenarios look like and what strategies for adaptation are needed under each of these domains will vary for each place. There are also existing disparities and considerations in terms of how the governance of transition to net zero is organised across the structures of multi-

layered governance in the UK. Not all net zero targets and strategies are aligned or organised similarly at the level of place, with regions, cities, combined and local authorities often setting different net zero targets. Even now in 2022, the Local Government Association finds only around 300 of the 428 UK Councils have declared a climate emergency (LGA, March 2022). How we conceptualise the spatial level at which policies and strategies for net zero should be designed and organised is often a contentious subject, and necessarily relates to – and possibly presents a challenge to – how HEIs conceptualise the spatial boundaries of their civic impact or civic agreement.

There is great momentum in the sector but the question of what specific policies, strategies and practice looks like that HEIs are adopting and can adopt, and what ways of working are emerging in partnership with local places, remains a question which lacks a comprehensive view:

- How can a place's capacity be enhanced to adopt green innovations in infrastructure, service-delivery, technology or policies?

- How can a place's economy and industries adapt or transform to be carbon neutral, without compromising heritage, legacy and identity?

- What is the approach to re-skilling the local workforce to participate in a green local economy?

- How can communities be engaged in developing the new vision for the local area and what partnership and collaboration is needed between anchor institutions to reach this vision?

Our approach

This Civic University Network project responds to this need for a comprehensive, non-exhaustive view of what HEIs are and could be doing towards this agenda, and the following sections present the initial findings of engagement with the sector. The objectives are to understand the potential for what HEIs can do as change makers in the climate action agenda in their local areas; and to gain, aggregate and share practice, knowledge and known solutions on how to build strategies and coordinated activity to address the complexity of the sustainability challenge for local places.

As the first stage of this project, on behalf of the Civic University Network, the Institute for Community Studies brought together HEIs from across the UK across a three-week period in March 2022 to take part in a series of evidence-based roundtables to discuss the civic role of HEIs in local place transition to net zero. Rather than grouping based on proximity, the project team took a place-based approach to clustering the member institutions of the Civic University Network. HEIs were grouped into four place groups that face common, local place conditions and challenges in the face of net zero transition. HEIs were grouped as such regardless of their size and scale, recognising the strong need for local strategies and that the civic role of universities in this agenda starts – but is not limited to – local collaborative action.

The following considerations were made in establishing the four place groups:

- Climate change impacts on places and how this will be distributed according to their infrastructure, assets, connectivity, scale and capacity for innovation; and the accessibility for local areas to adopt climate change targets, policy measures and innovation (Climate Change Committee, 2020; 2021).

- Spatial conditions and social inequalities in how places will move to net zero depend on labour market and business sector change, neighbourhood conditions and adaptability of housing stock, social deprivation of local population composition, and inequality/commonality in spending levels on public services. This leaves welfare systems, infrastructure and households 'further back' from capability to transition to net zero. These conditions have particularly hit English north, Midlands; rural and northern Wales and southern coastal towns (Marmot et al, 2020; NESTA 2018).

- Distribution of research and development spending and innovation strength and capacity varies across the UK, in particular between North/South and urban/rural research infrastructure (BEIS Place Strategy 2020).

The resulting clusters were identified as follows:

Roundtable 1: Northern powerhouse and the post-industrial/new industrial cities of the north and Midlands.

Roundtable 2: Coastal economies with strong reliance on tourism and small city or small-town economies; often but not always with high inequality and deprivation.

Roundtable 3: London mega-city region and the south-east home counties commuter belt.
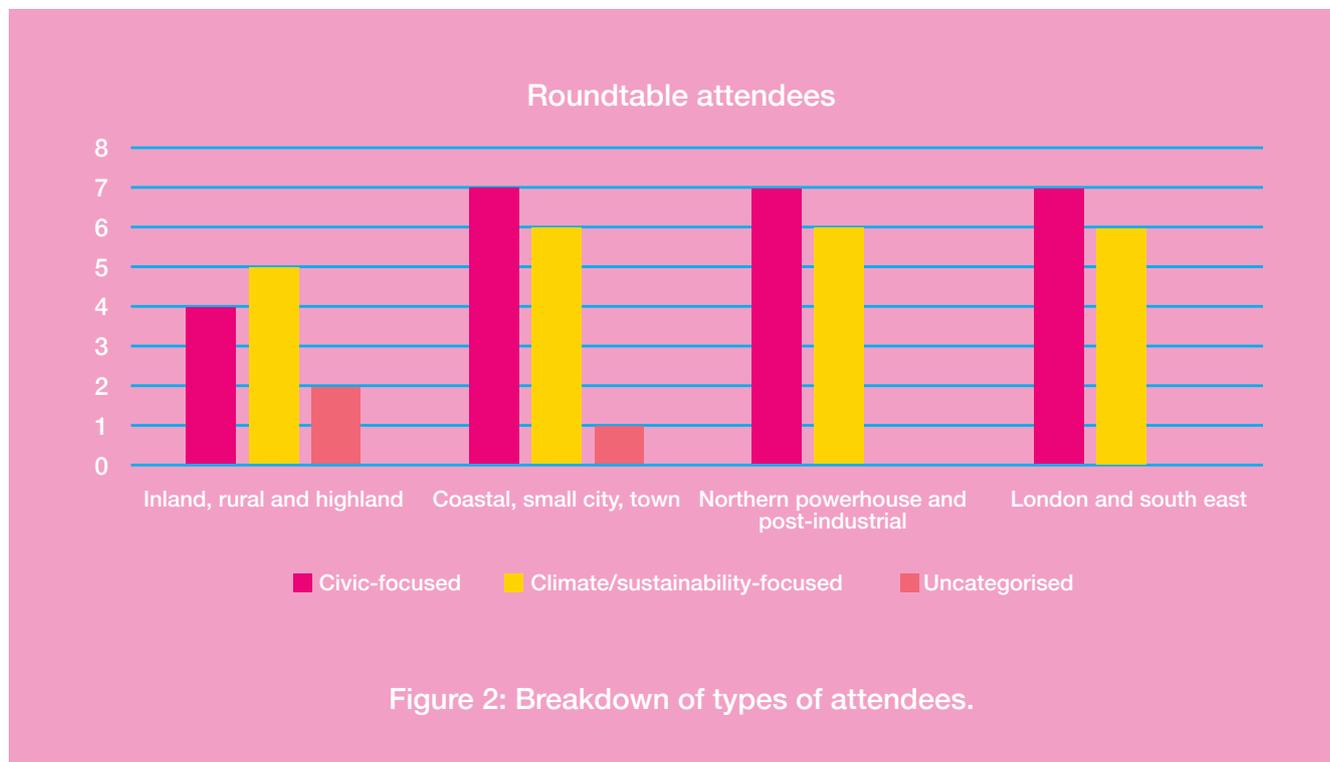
Roundtable 4: In-land, rural and highland economies with largely second cities and market town economies, primarily in the central belts of England and Scotland and the south west of England.

Each roundtable focused on understanding the following questions in discussion with HEIs:

- How universities, in partnership or not with place, have *defined* the challenge of reaching net zero for their area; what are the key domains of challenge for their place?

- What is driving and motivating the university's work and practice towards place transition to net zero?

- What is the scope of activity that HEIs are already doing with and for the local area? What gaps are universities aware exist but where practice is limited?

- What partnerships or working structures already exist to organise the leaders, institutions and communities of local places around transition to net zero?

- What could be the scope of a framework of how HEIs can support place transition to net zero?

Appendix 2 provides the agenda and design of the roundtable discussions in greater depth. Both civic leads and sustainability leads – where both roles existed – from each university were invited to the roundtable, and a breakdown of attendees is provided in Figure 2. Across the four groups there were also staff who were representing or seen as 'leading' the drive towards engaging with the local area around the agenda of net zero transition – but who did not have a formally acknowledged title or role. This is captured in the table of attendees as 'uncategorised'.

Roundtable attendees

Region	Civic-focused	Climate/sustainability-focused	Uncategorised
Inland, rural and highland	4	5	2
Coastal, small city, town	7	6	1
Northern powerhouse and post-industrial	7	6	
London and south east	7	6	

Figure 2: Breakdown of types of attendees.

Role of HEIs in the Climate Action Agenda

This section presents our analysis of the results of the roundtable discussions, summarising the findings against the different areas of discussion.

How are HEIs defining local transition challenges?

Civic and sustainability leads commonly defined the challenge of net zero transition for their local area as one or more of three framings. Firstly, as a challenge which had at its heart the regeneration of neighbourhoods, economies or whole places which were struggling, within which they were often the largest, proximate anchor institution. Alternatively, as a challenge of rapid innovation, which was capitalising on and stretching the university's creative, innovative and civic mission in partnership with local stakeholders. And finally, as a challenge of legacy: both in how the socio-historic identity and relationships of the university and the legacy of place identity were shaping transition pathways and strategies, but also a stark awareness that the role a university plays within transition will be a fundamental part of its legacy to the next generation of students and local communities.

Just two groups, one which contained the majority of institutions from Scotland, and one where it was raised by the institution from Wales, referenced the framing of a 'just transition' as driving their work; with a focus on how transition could build greater equality of opportunity for the more deprived, unemployed or 'left behind' communities in close proximity to the town or city they were based within. The need for a 'just transition' was raised particularly out of experience of previous de-industrialisation and re-industrialisation processes, where the university had witnessed communities in their local area being left-behind.

Across all four place clusters, there were several common local transition challenges that HEIs recognised and were working towards, including adaptation of housing and building infrastructure, the readying of local industries and economies; the need to adapt the skills and employability of the local workforce; and the need for locally-engaged innovation. However, a number of place-specific priorities emerged for different clusters of HEIs on account of how the net zero challenge for their type of area had been defined. These included addressing food and fuel poverty and the risk of further deprivation in urban settings; prioritising the development of business and industrial resilience in the northern and Midlands settings; and concerns around how to preserve and strengthen biodiversity and the local environment dominating within coastal and rural settings.

Specific to the internal university setting, all HEIs discussed the challenge of procurement and sustainable local supply chains; the need to adapt policies and procedures to mitigating emissions from international travel, and the decarbonisation of estates and facilities; usually within the context of an internal sustainability strategy. Table 1 shows the dominant priorities raised by HEIs in each cluster.

Local transition challenges across the four place types

Northern and post-industrial cities

- Working with industrial and commercial supply chains that are typically global in nature, to understand how local industries are changing.
- Recognised need for existing industries such as the manufacturing industry or the textile industry to adapt; building industrial resilience and embedding green technology and procedures.
- Recognised need for supporting the local workforce to reskill, which is inclusive of many workers employed by mono-employers and industrial employers who will be affected by net zero.
- Tensions due to procurement and supply chains, with local suppliers at risk of being alienated if they cannot adapt to green regulations, and/or disproportionately affected by increased or shifting demand and pressures.
- Gaps in climate education and sustainability across all curriculums in FEIs and HEIs; lack of 'green skills' training opportunities.
- Adopting a whole institutional approach to transition so that climate action is not just limited to HEIs' campuses but is embedded across all sectors of the institute and leadership; the need to create a homogenous framework for all the different strategies occurring locally as they all have the same goal.

Coastal economies and small towns

- Lack of sustainable public and household transport options. In particular, the need to improve and adapt pre-existing transport infrastructure so that peripheral and isolated communities did not become more isolated as reliance on individual transport (i.e. cars) has to change in transition.
- The transition and adaptation of local energy systems – often reliant on oil – through collaboration with local energy companies.
- The natural environment (with a focus on biodiversity) and how HEIs can be a centre for renewable energy on campus and lead innovative models using land, natural assets and technology within the local area.
- Recognised need for place-driven local innovation incentives, capacity and partnerships to harness potential of natural environment and protect coastal areas against climate impacts during transition.
- Net zero transition as an opportunity for greater equity of opportunity and quality of life for communities, through the lens of the 'just transition'.
- Gaps in a structured approach to knowledge exchange, replication and synthesis between HEIs, communities and other anchoring institutions.
- Challenges around how procedures for international academic research will be impacted, i.e. limiting overseas travel and shifting to more localised research.
- Modification of modelled targets around science-based initiatives and their carbon footprint specifically; however, these have recently been modified which means HEIs must also remodel their targets.

London and south-east home counties

- Lack of a well-defined understanding of the net zero challenge for London, given it scale, and the need to collaboratively define it.
- Recognised need for innovation in housing stock, building and office stock, and transport due to carbon reducing measures; recognised need to reduce the risks of air pollution and find solutions to this and other health inequalities.
- Lack of green space and biodiversity on campus and the need to introduce it innovatively, due to space constraints.
- Recognised need to address risk of poverty due to communities being left behind in net zero transition. Need for engagement of communities that are more at a disadvantage in transition through creative and grass-root methods.
- Gaps in climate education and sustainability across all curriculums in FEIs and HEIs; lack of 'green skills' training opportunities and recognised need to create networks within HEIs to allow cross-curriculum collaboration to build the workforce for the future.
- Challenges around engaging students as there are pockets of strong engagement but is not a priority for the majority, particularly transient and international students.
- Engagement with local primary and secondary schools and embedding student focused practice orientated education, in order to drive social mobility into skills and degree education through engagement around the net zero challenge.
- The risk of net zero becoming a competitive, rather than a collaborative, challenge; need to acknowledge strengths and weaknesses of different HEIs in London and to facilitate partnership initiatives towards place transition so the needs of the place come first; risk of over-engagement with residents by multiple HEIs.

Rural, in-land and highland economies

- Geographical isolation and lack of sustainable transport options as a challenge for HEIs, local businesses within the supply chain and the local community.
- The transition and adaptation of local energy systems, particularly where there is unrealised potential for renewable energy within a rural setting.
- Recognised need to support local economies to transition to greener economic models, including how to support oil and gas, marine and agricultural economies; the risk to communities in these types of place economy who have already been left behind by de-industrialisation and re-industrialisation processes.
- Recognised need to support development of a local workforce with equivocal skills to serve the new industries, whilst avoiding risk of brain drain of graduates to urban areas.
- Challenges of climate literacy and accessibility of household and small business adaptation and livelihood adaptation measures for communities.
- Recognised need to go beyond economic and industrial transition challenges, to consider how to support flourishing of local nature, local ecology and biodiversity.
- Significant range of scales of transition need to be addressed, from large regions to parishes to households within a rural area.
- Recognised need to develop net zero strategies that account for multiple spatial layers of place – to avoid homogenisation of local transition strategies which may be only relevant to larger towns within a region, when in reality the population is dispersed. Local authorities that cover a large geographical area might not focus on smaller, rural places, especially if those places are seen to be affluent.
- Related to the above two points – need for stronger, localised research and data informing decision making about a policies and strategies in transition. Rise of local observatory, 'living lab' and experimental 'deep dive' models.

Table 1: Local transition challenges identified in each place grouping

HEIs took varying degrees of leadership within their own places, from leading roles in responding to local transition challenges, to actively participating in existing partnerships and initiatives, to focusing more on global rather than local challenges. There was strong recognition of the need for alignment between the degree of leadership, the distinctiveness of the local challenge and the potential for the HEI to be a unique contributor in its local place, even if the strategic coordination to achieve this or specific activities were not yet always in place.

> *Institutionally there is a huge amount going on but we don't have [the challenge] well defined in terms of our engagement with communities, so we haven't translated that across… Part of that is working within a metropolitan environment, and [the HEI] is struggling with defining what civic means in its context – HEI from the London and South East place group.*

Place-based factors played out strongly in how in how the activity of HEIs towards the climate agenda of the local area had developed; most often relating to recognising a place's socio-historic identity and past industrial activity. For example, the coastally located HEIs discussed a focus on reducing biodiversity loss, and HEIs based in post-industrial places discussed working with local industries that might be left behind in a transition to net zero. Where there was an intersection of place-based identities, for example where the University of Aberdeen and the University of Swansea are both coastal and post-industrial, the post-industrial identity seemed to more strongly drive how they defined and set the scope of their climate action response.

The majority of HEIs saw their relationship to, and engagement with, the local community and residents as a key part of their climate action agenda – but many acknowledged they felt unsure how to approach community engagement in this context. Where there was an intersection of place-based identities, for example where

the University of Aberdeen and the University of Swansea are both coastal and post-industrial, the post-industrial identity seemed to more strongly drive how they defined and set the scope of their climate action response.

A second dominant factor was the capacity and strengths of the individual HEI and how far this was translatable or visible to stakeholders and other anchor institution's place in support of a local net zero strategy. Given their size and complexity, those external to HEIs often struggle to engage with and understand how to work with HEIs. Evident from the range of roles in attendance of the roundtables, from civic leads, to sustainability leads, to estate leads, to academic leads, HEIs across and even within one local area might frame their approach and motivations differently, and whether climate response sits centrally or as a 'third mission' within a HEI's strategic priorities.

Interestingly, urban universities more commonly defined net zero and transition challenges from a more limited perspective of what could be achieved, exploring how to decarbonise buildings, support net zero travel options and work with local businesses or local industries to ready them for a transition to net zero. Conversely, coastal and rural areas often went beyond this and many referenced seeking to exceed the goal of net zero as set by the UK government. This typically involved seeing net zero activities and objectives as part of a broader picture of how to reduce a local area's carbon emissions and dependency on carbon processes as just one goal alongside reducing biodiversity loss, revitalising the local environment – or even reaching a goal of the area becoming net positive rather than solely net zero.

> *[The HEI] has very much adopted an environment and climate emergency response, acknowledging we face an environmental crisis with multiple components. We are really keen to ensure that biodiversity and the natural environment aren't forgotten in this race to net zero. – HEI from the coastal and small towns place group.*

While all HEIs were coordinating an internal effort in very different ways, levels of coordination vary significantly. While some universities were coordinating led from estates-related teams to decarbonise their institutional footprint as the primary, others were forming cross-university coalitions for defining and responding to the global or local challenges related to climate action and net zero. Where university leads felt they were working in a limited, performative or disconnected way from other anchor institutions or from each, there was often self-awareness and in some cases frustration.

Across all the four clusters, there were considerable, strong work strands of activity, but all acknowledged that they did not feel their HEI was addressing the challenge of their local area's transition to net zero 'in the round'. Many referenced that they were led from and looking at immediate or proximate concerns; or being led from the position of limited data and evidence about what the challenge was; rather than starting from a holistic picture of how the whole area and its communities would transition.

What are the drivers and motivations for HEIs to support place transition to net zero?

The drive to contribute to how local places reach net zero was described principally as a policy-led, student-led and as a moral imperative; and most frequently aligned to the development of the university's civic strategy; a separate and new sustainability strategy; or distributed as individual lines of activity and goals within research, teaching and external engagement. There was an absence of reference to the concept of a 'just' transition as the framing of institution and local partnership activity except by the Scottish and Welsh institutions present.

There was frequent reference to policy or sector drivers including the EAUC Scorecard championing HEI's own sustainability; and to the increasing 'place-relevant' or 'place-sensitive' role of HEIs referenced in the R&D Place Strategy and more recently, the levelling up agenda, as they intersect with the challenge of net zero. Some universities are also using the Education for Sustainable Development Framework to drive and frame their institutional strategies and teaching frameworks. Secondly, the driver from external local working groups or emerging local net zero strategies played out as a strong driver; in the majority of cases, HEIs were heavily influenced by how other key local players such as the local council were defining the challenge and were acting in response to this.

A final driver was how the focus on reaching net zero within the agendas of research funders, including multiple councils within UKRI, was driving academic staff and post-graduate students in the university to work on this area. This was acknowledged as extremely positive but also difficult to coordinate and as such, it was hard for HEIs to track the overall efforts and impact they were having in this area as it was often led by individual academic-stakeholder relationships or individual small projects.

Student demand was mentioned by multiple HEIs as a strong motivation for progressing with climate action and net zero responses. One HEI noted that in the near future, they expected a HEI's climate response to be considered by students as criteria for selecting where they chose to study. There was an acknowledged need to develop curriculums that engaged with the green challenge; a demand for service-learning and volunteering opportunities for students; for universities to deliver employability skills in the green workforce; and for doctoral scholarships and placements in this space, all led from student demand. One HEI who discussed a relative apathy amongst students – both in terms of engaging with climate-related issues, or with offers made by the university as part of their climate response – highlighted the need for better working between schools/FEIs and HEIs in supporting students to better engage in what it means to transition to net zero.

A small number of HEIs mentioned that their activity was equally driven from an acknowledged moral and ethical imperative, held by staff but also by students, for HEIs to support local areas to transition towards net zero. This moral imperative was driven from acknowledging the position universities had to create and curate trusted, reliable knowledge about societal challenges and how to solve them, of which net zero was the challenge of our time. Around a quarter of universities involved in the project spoke about the need for the university to lead community engagement in disseminating information and knowledge about net zero, and in facilitating informed dialogue between public and policymakers. It was also driven from recognising universities as privileged in being sites of innovation capacity, education and reskilling, and the drivers of future-facing discovery research and practice.

Sustainability leads taking part in the roundtables often raised the challenge of achieving 'buy in' across the university by staff, students and partners, not only in terms of participating in 'green focused' research, teaching, service or community facing activities, but also holistic buy in by the university's own community to green behaviours around transport, recycling, space use, procurement, conserving energy in

the use of facilities including halls of residence and 'thinking green' when it came to designing research fieldwork, teaching or union-led activities to ensure they were carbon neutral. On a positive note, several sustainability leads also referenced a generous role played by estates and sustainability leads in supporting other large anchor institutions to transform their estate carbon footprint or energy policies founded on their own progress towards being carbon neutral or carbon positive.

Only a handful of HEIs described the importance – or an experience – of engagement with local communities as part of the early stage of the process to help define the local challenge and their activity towards it, for example via community listening campaigns or working with local organisations to identify priority areas or define key performance indicators. In the small number of cases where this had been or was being done, it was often included as part of a wider process of developing civic university agreements. There were a few exceptions to this – such as Glasgow's Citizens Assembly on Climate Change which the university supported the facilitation of – which are included as case studies below.

Ways of working in place: HEI practice towards climate action

A focus of the roundtables was to explore how HEIs are working externally – with local partners, stakeholders and the local community. Within and across the four place types, different types of external working in the local and regional area were discussed, ranging from strategic partnerships to knowledge exchange, working with one partner or within a multi-stakeholder partnership. How HEIs worked externally varied in maturity, progress, and resource, highlighting different levels of role and contribution within the different types of external working.

Just a handful of HEIs (under five) referenced that they were at a very nascent stage in responding to the sustainability agenda, with very limited activity internally or externally and no or little participation in external partnerships, projects or initiatives towards place

sustainability. Several HEIs – though also in a minority – highlighted having a Net Zero Action Plan shared between local authority, university and other anchor institutions and dominant business partners. Where HEIs were working externally, the most common partnerships were research based or innovation-focused; addressing local transition challenges in business and/or sector readiness for net zero transition, innovation within energy systems, transport alternatives, housing (particularly adapting green social housing); and where applicable, research about and innovation in strengthening the local ecology and environment.

Research partnerships and innovation in food systems and health and wellbeing initiatives were also frequently shared; alongside many knowledge transfer projects focused on adapting community assets or public space, ranging from pedestrianising local town centres; developing community gardens; or adapting homes – although these were not all explicitly in the context of relevance to that HEI's local community but often drew on case studies or practice from further afield. A less dominant but still frequent area of external working was how academic staff and public engagement staff were engaged in awareness raising through research communication and participatory projects with local communities about green behaviours, green jobs or climate impact mitigation.

Strategies

The challenge of reaching net zero transition for local places has, like other large scale societal or policy dilemmas, demanded the development of new forms of multi-layered governance and decision-making structures. HEIs were engaged at diverse levels of governance, from the co-development of shared local strategies and action plans, to more informal or specific working groups, to grassroots movements and initiatives.

In a small number of cases, the HEI had been at the heart of setting a new local vision and

strategic plan for the local area's transition to net zero. The University of Lancaster shared its experience of when the climate emergency was declared, setting up partnerships with the local authority and establishing targets for carbon neutrality in partnership. The university and local authority held a citizens' jury which focused on setting a strategic plan for the region; including goals for the localisation of supply chains; an anchor-based partnership with the local NHS providers around sustainability; and a cross-institution partnership with other education providers focused on future skills.

Other universities had their own strategic, individual plans governing both externally facing and internally facing activity towards sustainability. The University of Sussex shared the publication of its Sustainability Strategy which has four strands: being ethical educators, being environmental champions; decarbonising the economy with a focus on meeting net zero scope 1, 2 and 3 for 2035; and being civic leaders and partners.[1] Sussex has furthermore worked with the National Coordinating Centre for Public Engagement to audit and evaluate their existing external activity, in order to identify where they needed to strengthen their contribution and activity to meet these four goals for the community.
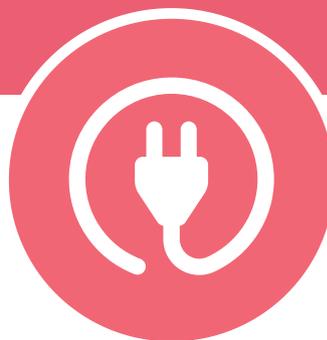
Working groups

HEIs discussed many newly formed external partnerships and the initiating of new projects within long-standing institutional relationships, formed in response to the local challenge of net zero transition. Many HEIs were engaged in working groups focused on planning and decision-making towards net zero transition at regional, combined authority and local authority level. One example is the participation of universities of Bradford, Liverpool and others within the Yorkshire and the Humber working group, creating cross-institutional engagement that is driven from the context of geography and their anchor institution roles.

[1] Scope 1, 2 and 3 is a way of categorising the different kinds of carbon emissions an institution or company creates in its own operations, and in its wider value chain. Scope 1 and 2 are emissions owned and controlled by an institution or company, while Scope 3 emissions are a consequence of their activities, but occur from sources not owned or controlled by them. Scope 3 typically constitutes an institution or company's largest emissions souce.

Scope 1: emissions that HEIs make directly, for example while running its facilities

Scope 2: emissions that HEIs make indirectly, for example when the energy it uses is produced

Scope 3: emissions that HEIs are indirectly responsible for through its value chain, for example through international travel and purchased goods and services

City-level working groups were also cited, including the Net Zero City 2035 working group for the city of Bristol, which both University of the West of England, University of Gloucester and University of Bristol were members of. This city-level group coordinated strategic activity to meet the city's 2030 target, including focusing on the development of community climate action plans, and policies for how to support the six most deprived areas of Bristol. A further example was shared by the University of East Anglia, working with a city-level Commission where ten commissioners had been appointed to lead and analyse what Norwich should be advocating for in terms of net zero, and what adaptation was needed at city level.

At the other end of the scale but no less energised and meaningful, certain universities were working proactively to coordinate conversations with different communities and in cross-community settings at the grassroots level. University of East London referenced how student teaching and service-learning models were supporting students to hold dialogues with local communities about the climate action and the challenge of net zero, often held off campus to build trust and awareness of net zero in the local community..

It was noted in each group that innovation and coordination was still needed in multi-stakeholder governance around different place's transition to net zero. Most critically, HEIs noted the lack of cross-sector engagement within the university sector about the challenge; and the disconnect between working group and decision-making structures at local authority, city and regional level. This was seen as a considerable opportunity for HEI representation and vital to the sharing of information, practice, data and coordinated of shared effort to make sure no place or community is left behind in transition to net zero.

Different areas of practice

In this section, we introduce specific areas of practice that HEIs are commonly taking in response to supporting place transition to net zero. Specific case studies of distinctive practice are also provided in Appendix B.

An emerging typology of the types of ways of working between universities and local places around the challenge of transition to net zero, is presented in Figure 3; this identifies dominant areas of practice; different modes of participation (ranging from passive information sharing or networking, to actively leading and designing place-based initiatives); and start to identify the dominant partners within a place. This will be further developed and nuanced in the context of the next stages of engagement with HEIs within this project.
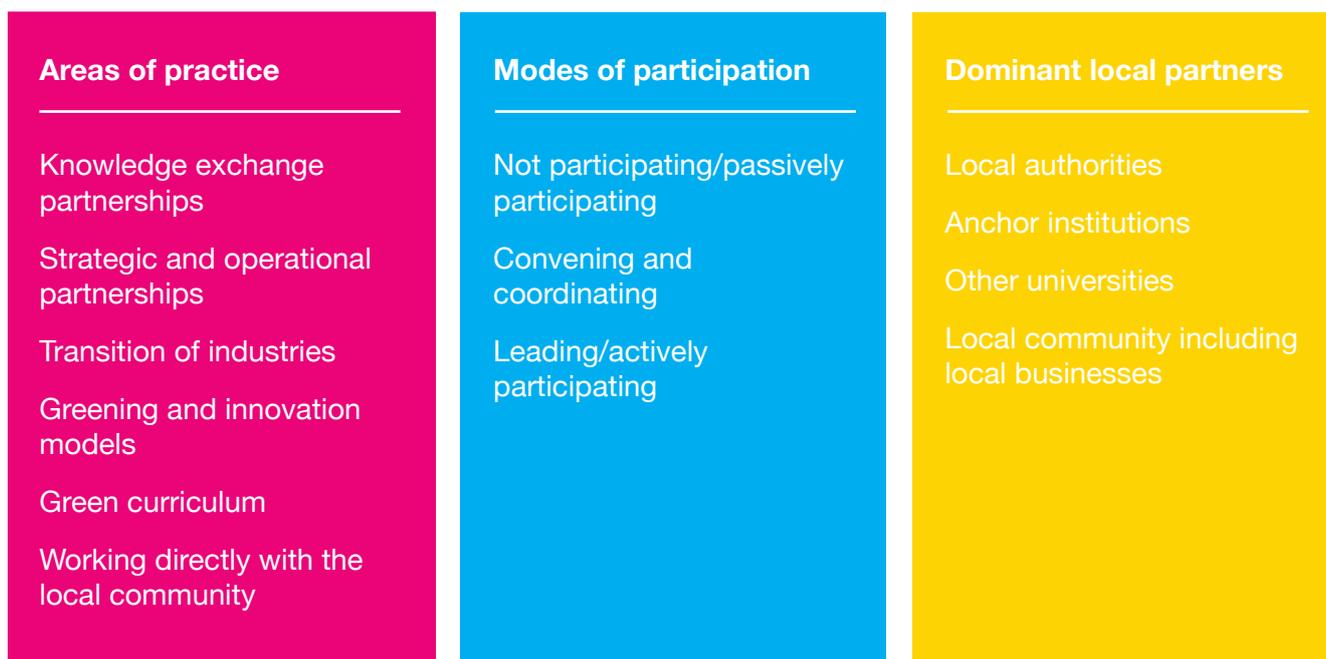
Areas of practice	Modes of participation	Dominant local partners
Knowledge exchange partnerships	Not participating/passively participating	Local authorities
Strategic and operational partnerships	Convening and coordinating	Anchor institutions
Transition of industries	Leading/actively participating	Other universities
Greening and innovation models		Local community including local businesses
Green curriculum		
Working directly with the local community		

Figure 3: Typology of practice

The most common typologies of practice were between individual academics leading research projects with local stakeholders – particularly businesses and industry representatives; and secondly between HEIs and local anchor institutions around strategic and operational partnerships (such as a working group on how to transform the local health system, or the whole town centre, to a green operating strategy). The least common typology of practice referenced was between HEIs working with other universities, either in convening and coordinating, information sharing, or in active leadership of part of the net zero transition agenda.

Knowledge exchange partnerships

HEIs discussed working externally to address local transition challenges via knowledge exchange partnerships. These partnerships were typically organised around place proximity, rather than thematically (i.e. within a town, city-region or city to rural area), and comprised different configurations of stakeholders, most frequently within a network model.

Multi-stakeholder knowledge exchange partnerships were discussed across all four place groups, and were described as including a range of actors including local authorities, anchor institutions, and other key local actors. Again, these were often formed around a place. Examples of HEIs convening such partnerships were shared from University of Exeter, who have convened the Green Futures Network, as well as from University of Sussex which have convened the Sussex Innovation Forum.

Examples of university-to-university partnerships were shared by University of Manchester, within the Tyndall Centre for Climate Change, and University of Huddersfield, working within the Yorkshire Universities coalition. Examples of HEIs participating in knowledge exchange partnerships convened by other anchor institutions and innovation leaders were also shared, such as UCL actively participating in the Knowledge Quarter partnership which had a priority to address the climate challenge.

Only a small number of HEIs discussed taking part in larger knowledge exchange networks such as the EAUC and the UK Universities Climate Network, although these are not focused on local transition challenges. This highlights a potential gap for knowledge exchange activity between HEIs across different types of city, region and local setting in the UK on the issue of knowledge and innovation within climate action agenda as it supports place transition to net zero.

Strategic and operational partnerships

Of the HEIs doing work externally, almost all of them discussed a form of working with relevant local authorities at a strategic level to set or contribute towards local policy and operational plans towards net zero. Most of the examples shared focused on supporting local authorities with objectives that they wanted to achieve, such as Kings College London participating as an advisory board member for Lambeth's Citizens' Assembly on the Climate Crisis, or the University of Exeter supporting the local council to develop Exeter's Net Zero 2030 plan via the Exeter City Futures CIC.

Across the four place groups, HEIs also discussed participating in multi-stakeholder strategic and operational partnerships. These partnerships were often organised around specific local commitments on one or more goals to reduce carbon emissions, such as a commitment to be a carbon neutral place made by the Tower Hamlets Net Zero Partnership attended by Queen Mary's University of London. Others were organised around addressing specific local but large-scale challenges, such as the Canterbury Climate Action Board's interest in developing low carbon local heating systems across the city, supported by University of Kent.

There were some examples shared of HEIs forming direct partnerships with other local anchor institutions. For example, Queen Mary's University of London discussed working with the NHS and Transport for London, to optimise a network of local assets to build

a greener, integrated health and social care system. King's College London noted its partnership working between its Estates Department and the local hospital, which have shared sites or sites next to each other; with the university supporting the Trust to reduce carbon emissions across the hospital and health care sites. The University of Manchester also discussed a partnership along a common 'corridor' with Manchester Metropolitan University, local NHS bodies and local developers, to collectively 'green' their infrastructure, operations, supply chains and estates' use.

Transition of industries and sector readiness

Supporting the transition and adaptation of local industries through researcher-business partnerships or innovation partnerships was mentioned across all four clusters, though particularly prominent in the northern and Midlands cluster, with West Yorkshire particularly aware of having a large manufacturing base of automotive industries, chemical industries and textiles, all of which are high carbon creating industries which require adaptation to go green.

The specific activity within partnerships referenced across the roundtables, ranged from joint purchasing of land sites to host green energy production that could in turn strengthen locally-owned power supply to the local area; to university-led development of new technologies and green industry through science and engineering partnerships which were often part or wholly privately funded. One example is the University of Birmingham, who is working with an independent, private company to create models by which hydrogen can power transport to serve the city-region. This was described as a co-development between local government, the university and private industry; and was typical of many models of co-innovation shared to support industrial transition.

HEIs engagement with industry around net zero was almost equally split between supporting the survival and adaptation of existing industries

and identifying and incubating new ones that could ensure future prosperity for that place. The importance of universities in attracting in new, green industries to local areas was well-recognised but there were not many coordinated strategies, as opposed to individual partnerships or 'one-off' successful funding proposals.

There were a few notable models which had taken a 'whole place' approach to how transition to net zero could transform the ecosystem of opportunity, economy, productivity, and pride in place for a region. Combining macro to micro knowledge and learning about transformation of the local economy, the University of Exeter is working with local businesses through the Arca project to co-design workshops and training programmes for individuals, microbusinesses and SMEs to build knowledge of the circular economy and skills to embed the principles in business practices.

Lancaster University discussed the multi-stakeholder process of securing the Eden Project North, which looks at sustainability and carbon neutrality for the north-west. As the university is in an area with many neighbourhoods of multiple deprivation, the university's partnership towards Eden Project North also focuses on the transition of welfare systems and provision to greener structures; regenerating the wider economy including small-medium enterprises and local businesses in areas of deprivation; and rejuvenating the tourist economy.

The role of universities to understand and inform the challenge faced by business and industry in each area was a high priority in all clusters, if less so in London. The types of practice ranged from modelling of the local economy and different scenarios of emissions reduction, or employment needs, through economics and mathematics departments, to examples of business schools advising business and industry leaders in how to navigate new regulatory structures around green transition for their UK and overseas operations.

Although limited in number, several HEIs discussed the tensions inherent in negotiating the transition of town and city centres towards net

zero. In one example, it was referenced that the new clean air zone within Bradford had raised concerns amongst retail departments and sole traders about negative impacts on footfall and custom. These were often stakeholders who had also been heavily impacted by the pandemic over the last two years and were concerned about forecasting of future negative impacts. The university role in this space was often to provide facilitation or trusted information within the debate.

A similar example was raised in the responsibility of universities to be platforms for dialogue and debate in potential 'culture wars' around net zero transition; for example, in how to counter narratives and negative perceptions that net zero is increasing living costs. A limited number of universities raised that universities have the responsibility as thought leaders to try and correct misinformation and to make visible accessible, locally relevant information about the benefits and advantages of net zero.

'Greening' and innovation models

It is notable that despite the scale of the challenge, HEIs saw the net zero challenge as an important opportunity for innovation in their site, estate and activities, for both internal and external benefit. A tension was equally raised between the drivers for competitive growth of university activity and of the sector and the drivers of reducing emissions and reshaping activity to respond to net zero. Different HEIs had different ideas of what development or growth of the university's activity could look like in the context of this tension.

In denser, space-poor places like London, it was posed that growth looked more at adaptive or creative approaches to use existing sites or form collaborative relationships between institutions to work together, as opposed to expansion of the university's remit or geographic footprint. In places with more available land and space, there were examples of HEI purchasing or repurposing surplus land towards an expanded portfolio of climate-facing activities, either to meet their own carbon reduction targets or indeed – to support new approaches to research teaching, student experience and public engagement. .

"We are in a semi-rural setting…we own quite attractive land around the university…We have wind turbines on campus and the income generated is put into a community fund…We've just got planning permission for a solar farm…It is possibly easier for a university that has that rural capability and we've been able to buy the land around use it to offset the carbon emissions that we can't ultimately reduce." – HEI from the rural, inland and highland place group.

A limited number of rural and coastally located HEIs referenced the opportunity of eco-tourism for the town and community as part of the framing of their area's net zero challenge.

Externally, HEIs raised diverse approaches to actively embedding themselves at the heart of community or stakeholder-facing activity about the local challenge of net zero. Around a third of HEIs who took part were using engagement mechanisms such as living labs, student challenge cups and social action projects with young people (just three examples) to encourage staff and students to respond to the local challenge.

For example, Queen Mary University of London invested in a £300,000 fund for student-led pilot initiatives to engage the community in sustainability. Approaches such as these were in turn agreed by roundtable members to be diversifying the HEI's approaches to civic engagement and the university's profile within the local community, and the expansion of community-student-university engagement models in support of the net zero challenge was described as a possible 'triple benefit' for university, net zero and community.

Green curriculums

An area of rich activity referenced by HEIs was the development of green curriculums for university teaching and school outreach. SDGs and the Education for Sustainable Development Framework were once again used as tools to frame green curriculum design. Notable examples included the Morecambe Bay Curriculum in partnership with Eden Project, where the university was in partnership developing a primary and secondary school outreach programme within the region, working towards school-age students understanding environment and how they can better their environment.

Further innovative examples shared of green curricula for university teaching included Liverpool John Moore's development of a 'Natural Curriculum' and the University of

Southampton's focus on 'green humanities', looking at how the arts and humanities can contribute to net zero, alongside subjects with more obvious relevance such as the work of Southampton's Marine Institute. Smaller universities were sometimes able to be more agile in developing green curriculums; Goldsmiths is adapting towards 'Curriculum 2033' which will engage students across all subjects in questions of climate change..

Given the significant majority of universities mentioned that their student body was a driving force behind strengthening their net zero focused activity, it is valuable to consider how local challenges of supporting place transition to net zero could be a mobilising force across the student journey; from schools' engagement and widening participation, to aspects of student experience, education, employability and civic engagement.

Working with local communities

HEIs discussed working directly with local communities, including local businesses, local organisations and local residents. However, it was the least commonly discussed type of external working, and examples shared by HEIs demonstrated a large range of scale and ambition. Notably, where HEIs were working at a larger scale or ambition, it was harder to identify exactly what type of activities were being carried out with local communities or what the intention of community engagement was within the scope of their net zero facing activities. .

Though not exclusively, universities based in urban contexts (non-campus universities) had more often formed community engagement networks or projects focused on a broader framing of knowledge dissemination, information and building community participation in net zero transition, as opposed to specific social action or partnership projects. Universities such as St Andrews highlighted the recognition that their estate is based in and amongst the local community and the fact their students make up half the term-time population of St Andrews, as a driver for building their Local Net Zero Network to enable university representatives to come together with representatives of the local community in support of the challenge.

The network includes representatives of the military base, larger local hotels, resident groups and charities alongside other anchor institutions and collectively mapped out five priority areas for the city in transition to net zero, including changing of behaviours within the local population, green waste management, green transportation, shifting the green energy models and the local secretion of carbon – issues which all stakeholders and representatives were grappling with. This informed the funding of a selection of research and innovation projects by academic staff and students at the university to contribute to addressing these five priorities, with knowledge going back into informing solutions adopted by the local stakeholders, demonstrating a strategic approach to the university's role in driving transition.

In contrast, there were a number of examples of universities working at the hyperlocal level with community groups, smaller businesses and community organisations operating in the local area. University of Kent described working with local food growing businesses to transition to net zero, while the University of Manchester shared its practise of working with local recycling companies to find innovative approaches to plastics recycling.

Some HEIs shared examples of working directly with local residents living in the local area, often through smaller scale initiatives and activities framed around education, both at school and at continuous professional education or skill development level. For example, the University of Middlesex has been delivering hands-on workshops with the local community through community beehives kept on campus, meanwhile University of Kent in partnership with the charity Kent Mind runs a community garden delivering educational activities and helping to create a localised food supply change.

Examples of HEIs creating and organising community funds were discussed. For example, as chair of the Knowledge Quarter, UCL is working with other partners to develop a carbon offset fund for the local community, and University of Lancaster is reinvesting profits from its renewable energy production into a community fund. Other HEIs described funds in benefit of communities, but not necessarily accessible by community organisations, only for staff and students to design projects, which placed an emphasis on the need for collaborative prioritisation of issues and co-design of solutions with communities.

A handful of examples of research or participatory research being done with local communities were shared, although it was acknowledged by many HEIs that it was difficult to have a grasp of all the relevant work that was happening within universities as much was led by individual academics. Swansea University is working with 16 local households to pilot new home adaptation technologies in social housing, to ensure technologies and how they

are implemented better meet the needs of those living in social housing locally.

University of Exeter is working with the Tidelines project to develop research and action with communities in response to the changing marine and estuary environment, collecting and joining up different forms of knowledge including citizen science, arts, history, geography and marine biology. In certain cases, particularly for the London-based universities, it was acknowledged that the university's work locally towards net zero was being led more from grassroots community engagement by future-conscious academic, professional staff and students – rather than being a more explicit or strategic goal for the university.
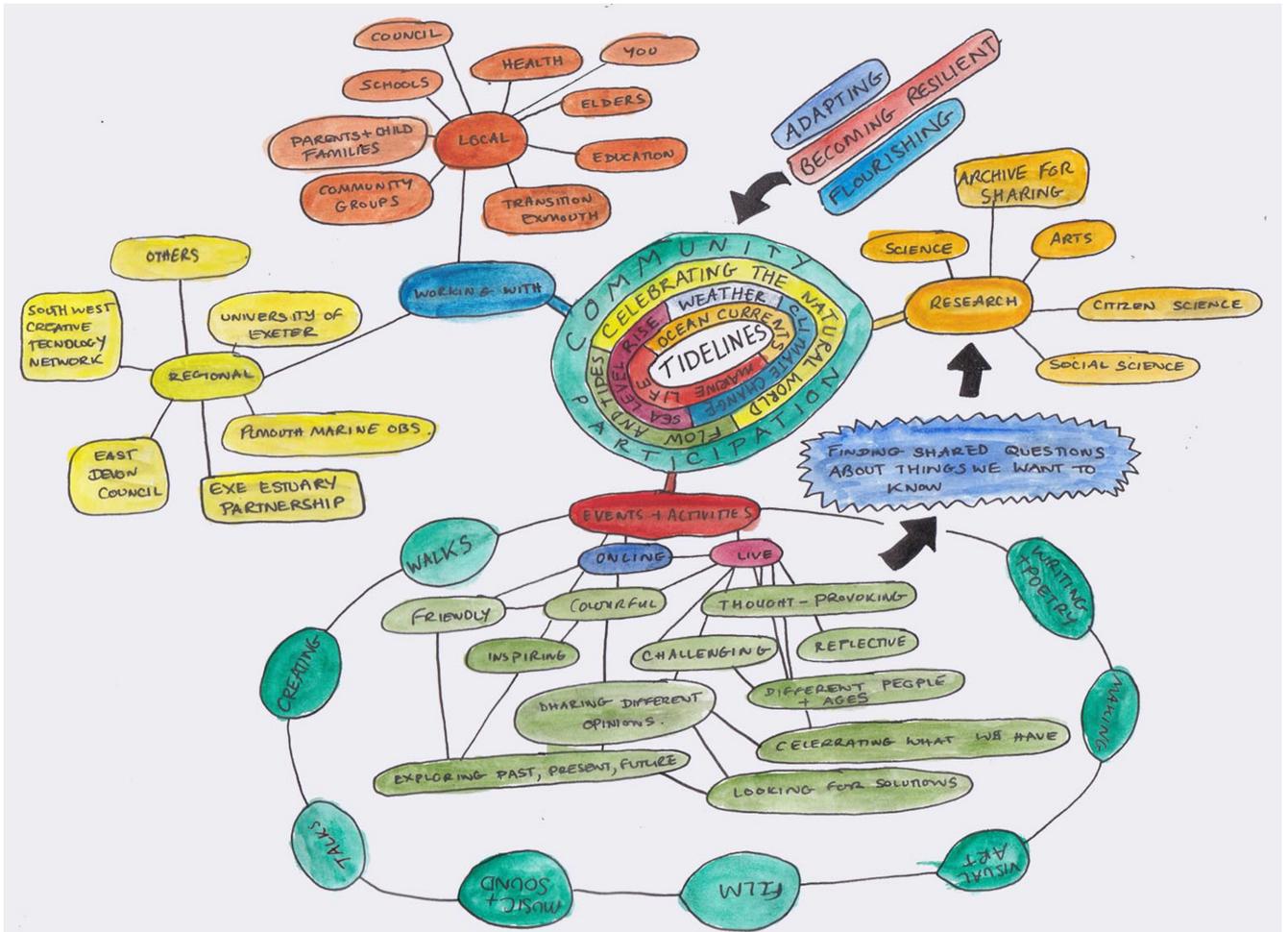

Figure 4: A diagram of the workstreams undertaken by "Tidelines", a project working in partnership with the University of Exeter. Source: tidelines.uk/about-tidelines/

Gaps and challenges in existing ways of working

A particular gap identified was that of knowledge and practice sharing between HEIs. It was noted that whereas HEIs are often expected to produce new knowledge and innovate, approaching the civic challenge of supporting place and community readiness should not require HEIs to reinvent the wheel. Rather HEIs should be looking to adapt approaches and initiatives that work well to their local context. There was broad agreement that opportunities to convene and share are valuable, and the approach taken by these roundtables to bring together HEIs with common local transition challenges was welcomed.

> *There is no bigger institute or coordinating model in our locality for universities to come together and share experiences, whether it's around forming Net Zero strategies or procurement. - Civic Lead, northern and Midlands industrial powerhouses roundtable*

Many HEIs raised the challenge of coordinating otherwise isolated initiatives that are taking place across the institution, led by staff and students. This seemed to be the primary frustration for HEIs who were in more nascent stages of their response. It was noted that a more whole-of-institution or strategic approach, and tools such as a strategic framework – which not all HEIs had – would be useful in coordinating and aligning different initiatives and activities taking place within the HEI. As well as helping to understand a HEIs response as more than just the sum of its parts, this would also help to support better monitoring and evaluation, and identify gaps in a HEI's response.

> *The city council has really been pushing ahead with some of their strategic developments and there's some really good collaborations and the partnerships are developing. But what we need to do as a university… is drill down what we are going to prioritise so that it fits with our other strategic agendas. – HEI from northern powerhouse and post-industrial place group.*

> *I struggle to keep track of what is going on within my own university, so how do we even begin to communicate it to the public? – HEI from coastal and small towns place group.*

This sentiment was shared explicitly with regards to external partnerships. HEIs flagged the need to clarify roles and responsibilities within partnerships, and to clearly define the objectives and outcomes that all partners are working towards. It was notable that when discussing external partnerships during the roundtables, some HEIs did struggle to articulate how they are working with partners, beyond naming an initiative. This was particularly true when discussing initiatives more focused on the local community.

While some HEIs seemed to have formed effective working partnerships with local authorities and other local anchor institutions, it was flagged by some that creating those shared spaces can be difficult in the first instance due to different conceptualisations or timescales around which the challenge of reaching net zero had been framed. This can act as a barrier for more strategic and joined up working in benefit of the local area. It was raised that in certain regions, the university and other institutions were having to negotiate up to three different 'goals' set by local authority, combined authority and national government towards net zero (2030; 2035 and

2040 for example). A small number of HEIs also noted the challenge of communicating between different groups of stakeholders when there is no common language, in particular with local authorities where turnover of staff and expertise can be high.

> *A gap is there is not one interconnected forum that aligns local commitments with regional ones. There is an urgent need for an interconnected network as everyone is working to a different regional/ national goal with the lack of common framework or roadmap. Scope 3 can not be achieved if regional stakeholders do not work together. – northern and Midlands HEI*

A selection of HEIs discussed the role of civic university agreements in enabling conversations around roles, responsibilities and accountability, as well as helping to initiate shared spaces for local stakeholders to come together. Even where HEIs were at the start of the process, the discussed benefits such as joining up conversations happening around the local area, and enabling a more structured space for community engagement and listening.

> *We set up the civic agreement which has environment and sustainability as part of that. It's been instrumental in joining up those conversations. – HEI from northern powerhouse and post-industrial place group.*

HEIs working with local authorities noted specific challenges. Where HEIs had dispersed campuses that required interaction with more than one local authority, it could be difficult in aligning those relationships where local authorities were at different levels of maturity and progress in terms of addressing local challenges. One London-based HEI noted the challenge of navigating complex and multi-layered governance structures within the city.

Community Engagement

There were seemingly varying interpretations of who counts as being part of the local community from the perspective of HEIs, which explicitly links to the need to better define the civic challenge for HEIs. When prompted to discuss local communities, some HEIs struggled to move away from discussing staff and students. While there was discussion of working with local businesses and organisations, far fewer discussed working directly with local residents. Only one HEI expressed concerns about only reaching the 'usual suspects' within the local community.

Only a limited number of HEIs shared practical examples of how they are working directly with local communities. HEIs seemed more comfortable discussing working externally with local businesses around a clearly defined goal, as opposed to directly with local residents due to the challenge of gauging and appropriately responding to their level of awareness of the local (and global) transition challenge. One HEI recognised they often underestimate local sentiment and arts, sports and cultures should be explored as a way to reach different parts of the local community.

Measurement

Monitoring and evaluating individual initiatives and HEIs response more broadly was consistently shared as a challenge across all place groups. A few HEIs pointed towards common approaches to monitoring and evaluating such as the EAUC Scorecard; and all sustainability leads were conversant with the Scopes within the UK government's net zero targets but all acknowledged the targets were not sensitive to working expansively in place, or specific to types of institution. One HEI raised that the particular challenge of finding appropriate measurement approaches has presented a roadblock for progressing with partnership working.

There was broad agreement that a lack of approach and concerted effort to monitor and

evaluate existing initiatives will certainly leave HEIs unsure of what works well and could limit their ability to share across and outside of the university, to make their efforts towards net zero visible and for other HEIs to adopt and adapt.

> *It's hard to get consistency on what you should measure and how you should measure it. 1000 flowers may bloom, but how do you measure and evaluate that? – HEI from London and south east place group*

HEIs raised the challenge that developing external initiatives was dependent on accessing funding in a challenging resourcing environment, with lack of funding said to be leading to inconsistent and intermittent external working on the challenge of sustainability. Linked to this, some HEIs shared that it can be challenging to demonstrate the value of internal and external efforts, which creates difficulties in justifying the resources needed to accomplish effective external working. This is especially true when working with local communities, which HEIs sharing this particular challenge noted as necessarily resource intensive.

In every roundtable, a considerable proportion of institutions referenced that they were drawing on and using the Sustainable Development Goals (SDGs) as ways of organising and seeking to measure their contribution to net zero outside the institution's own carbon-reducing activity. The value of the SDGs, though not frequently referenced or employed in relation to national policy around net zero, was described to be in offering a pathway to understand the interdependency of how net zero transition encompassed different social, economic, environmental and structural factors, and to offer a framing connecting the challenge of sustainability to complex social issues the university might already hold as civic or as research priorities.

> *Poverty related health underpins much inequality that needs to be addressed as a prelude to sustainability. UEL starts with social engagement around social drivers in order to establish what sustainability looks like, how SDG's can be understood and their implementation supported. – London and south east HEI*

The application of the SDGs as a way to identify and organise activity by HEIs towards net zero appeared to be a way to keep the social, educational and justice dimensions of net zero transition in scope in place of the 'just transition' concept which whilst widely understood within energy policy research, has only permeated the policy discourse within Scotland's response to climate change.
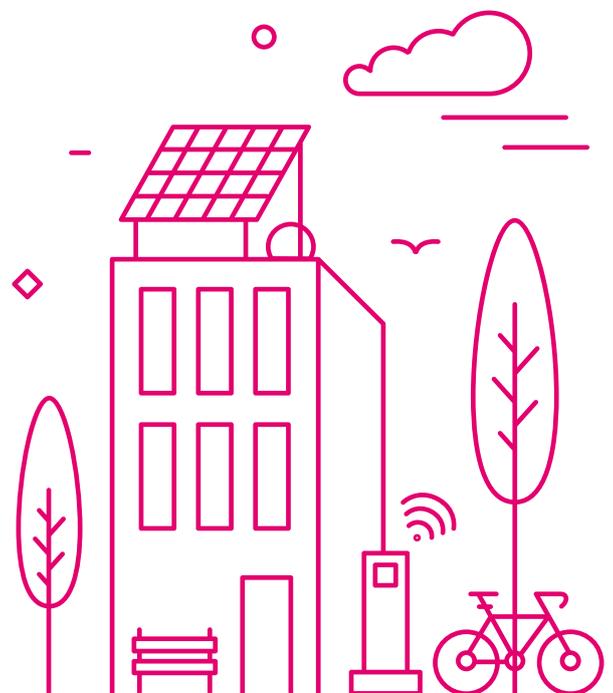
Key findings

There is considerable innovation, creativity and commitment in the higher education sector towards the challenge of supporting local places and communities to transition to net zero. The scale of the challenge is a daunting one, but the first stage of this project exploring the role of HEIs in the climate action agenda found that much is already being done that can be learned from. This project seeks to curate and analyse key opportunities that can support the HEI sector to frame the civic nature of the challenge of sustainability. Findings from this project offer strategic pathways to coordinate and navigate activity towards the place-based climate action agenda. With that in mind, three cross-cutting opportunities for the role of HEIs in supporting place transition to net zero were identified through our analysis:

1. The framing of student journeys as shaping HEI contribution to net zero

- The climate action agenda is an agenda that galvanises student engagement and mobilises student action and commitment, from school-level outreach to post-graduate study, to student volunteering and service. The opportunity to consider how all aspects of what has been called the 'student-journey' can be more engaged with and transformed by the climate action agenda is a significant one with potential benefit for learners and students, widening participation and social mobility agendas, the student experience, and diversification of education, teaching and service offers.

- This would require a shift towards a 'system change' perspective, to map and consider student entry points, transitions and transformations at each point from school level to graduate and alumni engagement. This would enable HEIs to identify and innovate in how the climate

action agenda becomes a vehicle for young people to connect more closely with universities local to them and through their student journey, have raised awareness, skills and agency in how to work towards a more sustainable future – including for the local community of which they are part.

- Many strong models of best practice in school outreach and student recruitment, green curriculums and service models and local doctoral partnerships and student research challenges currently exist in the sector for different parts of this student journey, and there is an opportunity to consider a 'whole journey' approach in response to student demand for universities to respond to this challenge.

- There is an existing challenge of retaining graduates to serve the new local job markets; with an acknowledged need to understand how net zero could positively become a vehicle to keep skills and knowledge within the local area and reverse aspects of so-called 'brain drain'. This was particularly a challenge for universities in rural and coastal areas; but is relevant across the sector, and would require closer connectivity between course provision and employer demand as well as scenario planning between local education bodies and universities.

" *"A framework would help us remind people that the domains of how place affects net zero are interconnected; reskilling is dependent on job infrastructure choices as a very simple example" – Coastal HEI* "

2. The opportunity of green curriculums to local graduate retainment and impact

- The higher education sector can work more closely and strategically with local businesses, industries and employers to plan for how skills needs and workforce patterns will be affected in net zero scenarios for that local area. Despite a strong focus on business and sector readiness within university-local partnerships around net zero, a significant unrealised opportunity exists about how universities can support meeting future skills needs and shape a course offering that can prepare local graduates for the jobs and workforce shifts that will come with net zero. Beyond the conventional degree offering, these course offerings could consider exploring modular learning, micro credentials and in-service training, adapting teaching methods trialled during disruptions to teaching due to the Covid-19 pandemic.

- Emerging 'green jobs' and sectors were referenced as an opportunity to create sustainable job markets in local areas, but there were only a small number of limited models and initiatives referenced that were currently finding ways to shape graduates for these roles; and furthermore seek to create a pipeline from university recruitment through to local employment, to ensure that local graduates consider local workplace destinations in the green economy.

- There is a need to consider how course offers, curriculums, workplace learning and service-learning models could be developed to specifically respond to the shifting industrial, economic and social context of local places in net zero. Aligned to this, there may be choices to be made by universities between sector drivers towards high-return courses and course delivery, versus the development of demand-led courses that can lead to greater employability or innovation skills within new net zero economies, but which may be more resource and partnership intensive to deliver.

- The scale of transitioning the workforce was discussed in every roundtable, except within London. HEIs within certain regions, particularly rural and highland Scotland and the northern regions, described the challenge of how to upskill workers across industry, professional services, manufacturing, and agriculture as well as the public sector. The spatial inequality of the UK means almost all HEIs in the sector are situated in or near one of two types of place: those with a low density of jobs (so-called monoemployer areas) with persistent challenges of often intergenerational underemployment and low social mobility; or in areas of high inequality between neighbourhoods of deprivation and affluence, with an expansive spectrum of skilled and less skilled workers.

- HEIs have a vital role to play in either case, but the upskilling or reskilling of the spectrum of employability needs and upskilling cannot - and should not - all necessarily be done by the university, due to challenges of disciplinarity, specialist vocational expertise, and accessibility needs of workers re-entering education. It was recognised that more needs to be done to map, plan for and address emerging skill gaps as industries transition across all employment sectors; and furthermore that there is a need for a dialogue between further education and higher education about who takes responsibility for what 'reskilling' challenge, by working with colleges and other further education institutes to equip all types of worker affected within and by net zero.

3. The importance of collaboration to level-across local communities in net zero

- Greater and more strategic collaboration between HEIs and a diversity of local stakeholders; and between HEIs as a sector, could capitalise on the opportunity to 'level across': ensuring all places and communities are supported to participate in the social, economic, environmental and cultural shift of net zero. The distribution of HEIs across different communities may not be equal in density, but through strategic working groups and partnerships founded on building sustainable places, universities can be a powerful network of enhanced knowledge exchange, coordinating working and place innovation towards how different places can adapt to becoming sustainable.

- Given the commonalities faced by places within shared net zero scenarios, opportunities to collaborate could include 'twinning' models with knowledge exchange activity grouped not solely on the basis of geographical proximity but on the basis of uniting universities working in similar profiles of place across the UK. Equally, closer, proximate working between HEIs within a place and with multi-layered governance - local authorities to combined authorities – is needed to share strengths in innovation, estate use and civic

engagement and to achieve a coordinated vision for that place's transition to net zero. The levelling up agenda provides an important framing, however in a net zero context where poorer and less industrial places lack infrastructure and innovation capacity to adapt to net zero, the challenge is how to 'level-out' a region through strategic civic partnerships.

- In all cases, there are distinct needs for the sector to drive for strengthened models of governance between anchor and other institutions; coordinate and in some cases, incentivise staff, student and partnership efforts towards net zero more visibly in order to drive and support a culture of behavioural change towards sustainability inside and outside the university; and seek appropriate and timely forms of community engagement around the issue of local places' transition to net zero.

Appendix A: Roundtable participants

In-land, rural and highland economies

	University of West England
	University of Bath
	University of Chester
	Canterbury Christ Church University
	University of Swansea
	University of Glasgow

Coastal economies

	University of St Andrews
	Southampton University
	University of Aberdeen
	Lancaster University
	Arts University Bournemouth
	University of Sussex
	University of Portsmouth
	University of Exeter

Post and new industrial cities in the north and Midlands

	Birmingham University
	Sheffield Hallam University
	University of Manchester
	Liverpool John Moors
	Aston University
	University of Huddersfield
	University of Northumbria

London and south-east home counties

	King's College London
	University Arts London
	University College London
	University of Roehampton
	University of Kent
	University of East London
	Queen Mary's Universtiy London
	Goldsmiths, University of London
	Middlesex

Appendix B: Specific case studies of HEI practise to support place transition to net zero

Exeter City Futures: A CIC leading the city's net zero strategy

Exeter City Futures is a Community Interest Company working with the city and key stakeholders to make Exeter carbon neutral by 2030. They spearheaded the development of the city's Net Zero plan, using the city's unique assets and characteristics to create a collectively-owned roadmap to carbon neutrality. The roadmap focuses on four themes: sustainability, transportation, energy and capability.

Exeter City Futures is now working with key partners across the public, private, third sector and education sectors to deliver the roadmap, including Exeter City Council, Royal Devon and Exeter NHS Foundation Trust, University of Exeter and Exeter College. Both the development and deployment of the roadmap have been highly permeable and collaborative, providing tools, resources and inspiration for residents, local businesses and organisations to take action. Their stated mission is to "bring Exeter's businesses, individuals, communities and leaders together and provide the coordination needed to deliver the city's carbon ambitions" (Exeter City Futures, 2022). A key part of Exeter City Future's roadmap is to build the skills and capability of residents, entrepreneurs and workers, enabling them to play a role in the collective delivery of the city's Net Zero plan.

More information: www.exetercityfutures.com

Sussex Innovation Forum: an open space for innovation to drive decarbonisation

The Sussex Innovation Forum is an academic led space for collaboration and innovation in pursuit of decarbonisation, improved wellbeing and economic growth in Greater Brighton. It emerged from the Greater Brighton Energy and Water Plans, a programme of water and energy conservation projects that aim to help Greater Brighton "grow back greener" after the Covid-19 pandemic. The Forum was led by University of Sussex' Science Policy Research Unit, in partnership with University of Brighton's Green Growth Platform, Brighton and Hove City Council, and a series of local and regional partners.

The aim of the Forum is to provide an informal, inclusive space for local businesses, organisations, and local authorities collaborate on reaching the city's ambitious water and energy sustainability goals. The Forum harnesses the collective intelligence and insight of multiple actors to generate new ideas to reach these goals. It also provides specialist support from a range of stakeholders to get projects off the ground, accelerating change.

The Forum began with an online consultation to set the Forum's programme of events, topics for discussion and forms of support in October 2020. It has been running a range of events and support programmes since.

More information: https://www.sussex.ac.uk/broadcast/read/53603

Tyndall Centre for Climate Change Research: universities working in partnership to develop research to inform climate change policy

The Tyndall Centre, founded in 2000, is a partnership of universities that brings together researchers across multiple disciplines to develop responses to climate change. They produce independent research to support national and international public policy and identify working solutions and existing knowledge of what works. The centre puts climate action in the context of the Sustainable Development goals, ensuring that climate change research is aligned with other social priorities.

The Tyndall Centre represents a unique partnership between the universities of East Anglia UEA (Headquarters), Cardiff University, The University of Manchester, Newcastle University, The Centre for Social Climate Change and Social Transformations and Fudan University in Shanghai. It coordinates activities across the partner institutions, including events to promote research and webinars to present climate-related topics using non-technical language for researchers in other fields.

The themes that sit at the core of the Tyndall Centre represent their view of climate change as a socio-technical challenge: accelerating social transitions, building resilience, overcoming poverty with climate actions and reaching zero emissions.

More information: https://tyndall.ac.uk/

Kent Community Oasis Garden: a sustainable hub to promote localised food supply change

Kent Community Oasis Garden is a sustainability hub for students, staff and the local community run by University of Kent in partnership with East Kent Mind. Launched in 2018, it is a multipurpose space supporting wellbeing, growing food and providing learning opportunities related to sustainable food. It is run by volunteers who benefit from free vegetables, herbs and flowers grown on-site.

Kent Community Oasis Garden acknowledges the many roles that nature can play in communities, as a space to boost wellbeing and connection, to learn new skills, and build alternate food systems. It hosts a multitude of workshops and activities, including foraging workshops, astronomy evening, citizen science sessions (e.g., butterfly count or bee species identification), house plant consultations, sustainability walk and talks, and ecotherapy sessions. Its vision is to keep developing as a fully accessible wellbeing and growing space for the local community.

More information: https://www.kent.ac.uk/sustainability/kentcog

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