**Net Zero Transport for a Resilient Future Research Hub**

Establish the Net Zero Transport for a Resilient Future Research Hub, focusing on climate adaptation and mitigation solutions for our transport system across modalities and landscapes.

You must:

* be based at a research organisation eligible for UKRI funding
* build a co-created interdisciplinary research consortium with stakeholders
* network within academia, industry, policymakers and third sectors
* demonstrate at least £2 million of matched funding from project partners at application stage and a plan to increase this to £12.5 million during the lifetime of the hub

A joint programme between UKRI and DfT as part of the UKRI ‘building a green future’ strategic theme.

UKRI and DfT will fund one £10 million hub at 80% of the full economic cost (FEC).

The hub has a fixed start date of 1 September 2023 and can run for up to 43 months.

Standard UKRI eligibility rules apply. Research grants are open to:

* UK higher education institutions
* research council institutes
* UKRI-approved independent research organisations
* eligible public sector research establishments
* eligible research and technology organisations
* NHS bodies with research capacity

[Check if your institution is eligible for funding](https://www.ukri.org/apply-for-funding/before-you-apply/check-if-you-are-eligible-for-research-and-innovation-funding/who-can-apply-for-funding/#contents-list).

We also welcome research technical professionals and [professional research and investment strategy managers](https://www.pris-managers.ac.uk/) as co-investigators.

You can apply if you are a resident in the UK and meet at least one of the following conditions:

* are employed at the submitting research organisation at a level equivalent to lecturer or above
* hold a fixed-term contract that extends beyond the duration of the proposed project, and the host research organisation is prepared to give you all the support normal for a permanent employee
* hold an EPSRC, Royal Society or Royal Academy of Engineering fellowship aimed at later career stages
* hold fellowships under other schemes (please contact EPSRC to check eligibility, which is considered on a case-by-case basis)

Holders of postdoctoral level fellowships are not eligible to apply for an EPSRC grant.

Submissions to this funding opportunity will count towards the [EPSRC repeatedly unsuccessful applicants policy](https://www.ukri.org/councils/epsrc/guidance-for-applicants/unsuccessful-applicants-and-resubmissions/repeatedly-unsuccessful-applicants-policy/).

### Overview

As part of UKRI’s strategic theme of ‘building a green future’ and aligning to the UK’s Net Zero Research and Innovation Framework, UKRI and DfT will support the establishment of a single £10 million flagship Net Zero Transport for a Resilient Future Research Hub. This will build capacity and research critical mass in the UK. The hub will take a systems approach to developing and implementing sustainable, low carbon, adaptation solutions for resilient transport infrastructure and streetscapes.

As the largest contributor to UK emissions, accounting for 27% of emissions, decarbonising the transport sector is a crucial component of achieving the UK’s net zero 2050 target. The scale of transformation required to decarbonise our transport system is unprecedented and at the same time, the climate is already changing. We need to be able to respond quickly to ensure our transport system continues to be resilient and will support our net zero future.

Warmer wetter winters, hotter drier summers and more extreme weather events bring a range of hazards that the transport system is not currently built to withstand. This is generating a dual challenge that needs to be tackled, we need solutions that both reduce the carbon footprint of our transport system and enable it to adapt to the effects of climate change.

Transport and its linked infrastructure and streetscapes are excellent illustrations of the complex interdependencies between:

* innovation in engineering
* construction processes
* materials
* reuse and recycling
* new technological modalities
* people
* communities
* our economy
* policy

Given that most of the infrastructure that will be in place in 2050 are already in service this becomes a challenge of rethinking and reworking our current infrastructure and streetscapes. It also means we should introduce new solutions that are resilient and net zero from the outset.

The most effective way to reduce carbon is to ‘design it out’, rethinking how we can achieve mobility of people, goods, and services without relying on traditional infrastructure design, installation, and current maintenance regimes. At the same time, much of this infrastructure will need to be modified or replaced to help it adapt to the impacts of climate change over this period and into the future.

Compared to development of low carbon emission technologies, the adaptation of existing infrastructure to increase its ability to absorb and recover the effects of climate change is unexplored. Approaches to achieving net zero emissions and creating resilience in transport systems and streetscapes need to be developed rapidly through a wide range of solutions that bring co-benefits such as:

* wider access
* reduced inequality
* enhanced safety
* reduced waste
* greater levels of recycling
* improved air quality
* biodiversity
* economic growth
* environmental net gain

The hub is expected to bring together research, early-stage innovation, and demonstrations across transport modes to create, develop and test climate resilient places. It will bring together work in climate change mitigation and adaptation, recognising that different places and modes will require different solutions but need to learn from each other.

It spans academic disciplines, with work required on materials, construction methods, retrofitting, economics, geography and behaviour change. It meets a pressing UK need to build the resilience of our transport system, and to develop innovations that have international potential as the world faces the same challenges simultaneously.

This hub will provide a focus for the UK transport systems research community, working in close partnership with businesses, communities, government departments, and administrations throughout the UK to tackle research challenges linked to decarbonisation and adaptation of the sector.

The hub should be co-delivered with stakeholders and users to address critical issues where further research and innovation is required. Governance arrangements will include engagement of the DfT and cross-government [Transport Research and Innovation Board](https://www.gov.uk/government/groups/transport-research-and-innovation-board).

The hub will build capacity linking together the investment landscape, carry out research, undertake knowledge exchange, develop key skills, while offering policy solutions and commercialisation for economic growth.

### Scope

The Net Zero Transport for a Resilient Future Research Hub will focus on the transport sector’s needs over the next 25 years, as we approach 2050. During this time the sector is required to reach net zero and will be challenged by the impacts of our already changing climate, including temperature change, increasing frequency and severity of extreme weather events and sea-level rise.

Research in partnership with communities, organisations, policymakers and transport delivery bodies needs to take a whole systems approach to improving the resilience of our transport system, and planning for a greater likelihood of disruption. Fundamentally, the impacts of climate change will vary across modes of transport, associated infrastructure, temporally, and geographically.

Adaptation of our transport system requires substantial research and policy progress. UKRI, DfT and partners have identified 4 priority areas. The hub will be expected to add value to these areas through researching solutions to improve resilience, and deliver net zero solutions to improve the transport systems for the user including:

* building solutions for resilience in transport infrastructure including rethinking existing transport infrastructure to reduce emissions and increase resilience as well as the development of new low carbon and resilient transport infrastructure
* changing how we consider:
  + streetscapes
  + maximising co-benefits from the transition such as wider access
  + reduced inequality
  + enhanced safety
  + reduced waste
  + greater levels of recycling
  + improved air quality
  + biodiversity
  + economic growth
  + environmental net gain
* modelling local climate and temperature change, sea-level rises, and extreme weather events to better understand climate impacts on our transport system and aid mitigation at the local level
* bridging the gap between the transport system, infrastructure, research, and policy

#### Building solutions for resilience in transport infrastructure

By developing lower carbon infrastructure solutions that are able to adapt to the known and anticipated effects of climate change, including maintenance regimes, amidst technological advances.

The hub is expected to take a whole systems approach to inform the design of an affordable and useable transport system across modalities and locations. This includes improved designs that require fewer materials, and which are produced to support higher levels of reuse and recycling and delivering on a sound understanding of systems engineering practices for transport infrastructure. This will include a focus on:

* existing transport infrastructure contains a large amount of resources, not only financial, but also embodied carbon and other environmental costs associated with its construction. Rather than replacing such infrastructure there are opportunities to increase its resilience to climate impacts in the near-term, while reducing the carbon footprint associated with use, maintenance, retrofitting and repairs, improve energy and heat performance, and promote the use of new, climate resilient and more sustainable products and materials. A major aspect here is not only understanding interactions with the wider system, but the need to improve the real time monitoring and performance of structures, their use and ability to withstand extreme weather events as much infrastructure is currently overdesigned and underused, with insufficient data as to how it is performing
* development of new infrastructure will at times be necessary. This will be where it is not possible to adapt existing infrastructure to meet future needs, and where we need new infrastructure and materials with greater resilience to the many challenges climate change brings, such as temperature variance, drainage, flooding, changing soil moisture and bank stabilisation. However, a key consideration will be reducing the amount of carbon needed in construction. This can be achieved through design optimisation, resource efficiency, modern methods of construction, the use of monitoring and performance data as well as new, sustainable and climate smart low carbon materials and identifying the opportunities for circular economy in the design, maintenance, and operation

Through changing how we consider streetscapes there is an opportunity to consider wider benefits from the transition to net zero and resilient transport solutions by exploiting opportunities from the move to increased urbanisation and our evolving localised transportation needs.

Designing our streetscapes to mitigate and adapt to a changing climate will necessitate the consideration of all elements of a street, including:

* roads
* pavements
* lighting
* adjoining buildings
* street furniture
* charging infrastructure
* active travel infrastructure
* increased trees and open spaces
* location of transportation hubs

There is the potential for these climate and carbon adaptations to reduce carbon, build climate resilience and maximise the space. It also has the potential to build co-benefits such as improving streets’ and communities’ characters, enhancing safety, improving community health and producing more livable communities.

#### Localised climate modelling of temperature change, sea-level rise, and extreme weather events

To better understand climate impacts on our transport system. The coarseness of current models mean that many predictions reflect the worst-case scenario across the UK. However, we know that necessary improvements to infrastructure will be affected by not only the local climate, but also the geography and geology of the area.

Linking in current work from policy experts (such as the Met Office and the Department for Environment Food and Rural Affairs), a better understanding with clear local policy engagement of climates impacts on specific places will be created. This will include knowledge exchange of different types of climate events in these places and will allow the prioritisation of climate adaptation responses.

#### Bridging the gap between the transport system, infrastructure, research, and policy

At both local and national levels to make informed decisions about climate adaptation requirements. Currently many local authorities are struggling to identify which, if any, approaches they should adopt as results often do not relate to their local area, but the wider UK. Hence this may include providing evidence, guidance and tools to help local and national decision-makers prioritise UK transport investments in mitigation and adaptation measures.

There is also a substantial lag between the development of novel solutions such as materials and their adoption due to a lack of understanding of their properties, trust in their longevity, and maintenance requirements, within a legal and health and safety framework, which this research should address. Any linked equality, diversity, and inclusion issues with the development of transport systems should also be explored.

### Research activities

The hub’s core focus should be the delivery of a series of interdisciplinary research work-packages, led by academics from across the hub’s institutional consortium. The hub is expected to create demonstrable leadership on an international scale focusing on net zero adaptation to climate change in the transport system. Given the current impacts of climate change on the UK’s infrastructure we would expect that there would be some near-term, as well as mid to long term deliverables from the hub’s activities.

The hub’s research should focus on delivering a low carbon, resilient transport system including tackling the most pressing technology needs of the sector and the necessary behavioural and economic changes, including (but not limited to) the following:

#### Build solutions for resilience in new and existing transport infrastructure

This includes:

* development of low carbon, affordable climate change adaptation solutions for new and existing infrastructure: looking at how we can reduce the cost and carbon of road or rail and interchange construction and maintenance and build-in the necessary resilience of infrastructure to climate change
* identifying, quantifying, and making the case for cost-effective solutions, including the longer-term cost and benefits of adaptation measures providing economic competitiveness and productivity growth
* enabling the necessary behaviour change at an organisational and individual level to enable the transition
* identifying the opportunities for circular design in maintenance and operation that may allow us to adapt existing assets to future needs
* considering embodied emissions, which in the context of infrastructure includes the carbon emitted in producing the materials used in construction, their transport to and installation on site, as well as their disposal at end of life

#### Existing transport infrastructure

This includes:

* development of models of transport infrastructure performance and management to identify whether the changing needs of transport can be met within appropriate safety margins
* improving the performance of transportation networks over the lifetime of the asset that reflect changing demographics, behaviour, and mobility needs and utilise appropriate available technical solutions
* what new, sustainable or adaptable materials and solutions can be utilised when maintaining transport infrastructure?
* developing accurate monitoring and reporting of existing infrastructure to support a risk based, proactive management and targeted upgrade of the transport network when required to reduce embodied emissions, rather than responding to a failure
* developing accurate monitoring, quantification and reporting of carbon emissions and the comparison of projects and programmes covering maintenance and retrofitting requirements. This would also apply to new infrastructure

#### Development of new infrastructure

This includes:

* expanding and embedding the role of circular economy and sustainability in planned infrastructure maintenance to reduce the embodied carbon and other associated environmental costs
* informing planning of more effective regional networks, linking rural areas, towns, and cities through efficient interchanges, delivering low carbon, flexible and adaptable infrastructure transportation systems for both freight and passenger
* accelerating the identification and development of new materials and technologies required to build and adapt infrastructure to the risks of climate change
* building on existing guidance and practice on whole-life carbon assessment to ensure good practice and performance improvement includes consideration of adaptation to future climate change
* delivering on a sound understanding of systems engineering practices for transport infrastructure to build in climate change adaptation and reduce excess emissions
* understanding the effectiveness of adaptation measures embedded in new infrastructure, such as High Speed 2, so best practice can be disseminated for future activities

#### Streetscapes

This includes:

* how to design and implement widespread streetscape reform within neighbourhoods to mitigate and adapt to climate change. For example, integrating new small-scale infrastructure such as electric vehicle charging and changing street functions such as prioritising active travel within neighbourhoods, while maintaining or improving the areas character to support diverse needs of communities
* modelling of nature-based solutions such as urban tree cover to mitigate the impacts of climate change around transport infrastructure
* building on research findings to provide clear guidance for planners, communities, organisations, policymakers and planners at both local and national levels to make informed decisions about adaptation requirements for our transportation systems
* exploring how interactions on the streetscape affects the safety of users, including lighting provision, signage, pavement quality, active travel provision and location of transport hubs
* how will different funding and operational models influence the adaptability, resilience, and design of transport systems (for example, how will policy and new models take climate change into consideration as well as influence planning and decision making)?
* how can the co-benefits of carbon mitigation and climate adaptation measures best be implemented to improve neighbourhood streetscapes? What are the most cost-effective options?

#### Localised climate modelling

This includes:

* modelling the interplay between climate change, geography and geology on places and their transportation networks
* establishing how the impacts of climate change will affect new and existing infrastructure
* applying this learning in practice to inform decision making including funding decisions

#### Bridging the gap between the transport system, infrastructure, research, and policy

This includes:

* providing pathways for organisations and policymakers at both local and national levels to make informed decisions about adaptation requirements for passenger and freight mobility while improving inequalities and enhancing the environment and clean air
* developing place-based solutions to climate adaptation and mitigation that comparable local authorities could learn from and adapt including the provision of tools how could new technologies in transport be accelerated and scaled-up to meet our environmental commitments (including, net zero, adaptation, biodiversity, and air quality)?
* how do we accelerate the trialling of health and safety legislation, as well as adoption of new materials and technologies required to build and adapt infrastructure to the risks of climate change?
* what are the skills needed to enable us to adapt our transport systems? Where are the skills gaps?
* how the design and development of transport systems enable access for all, and how we can support people in making sustainable mobility choices
* understanding the factors that determine whether corporate decision-makers will accept and adopt climate adaptation measures for transport operations
* modelling demographic changes in population movements and understanding organisational and community behavioural choices across modes and routes to inform policy and financial planning

### Hub expectations

#### Capacity building and skills

There will be an expectation on the hub to deliver skills outputs, support capacity and capability growth with the transport systems UK research community. The hub should expect to actively support career development across all career stages in the transport sector. A key focus should be on early career researchers, including provision of targeted flexible funding opportunities.

Suggested activities that the hub could include, but is not limited to, running summer schools, secondments between academia, industry and government, policy internships or fellowships, joint conferences, and papers.

#### Knowledge exchange and engagement

A critical feature of the hub will be its ability to convene the main actors in the transport research and innovation landscape. It should also tackle the most pressing needs of businesses, UK government departments and their arms-length bodies, and policymakers across the UK to secure both UK commercial advantage and policy objectives. This will ensure effective 2-way engagement, and information and knowledge exchange between all related investments and the hub to accelerate research and development.

The hub is expected to engage proactively with other major complementary investments looking at decarbonising transport, linked adaptation, sustainable choices and energy research and development landscape. They are also expected to engage with any relevant research and innovation investments made by UKRI and other public funders, including innovation investments funded by Innovate UK.

In the hub governance procedures, advice from users must be appropriately used in the hub decision-making strategy to help grow user engagement including securing leveraged funding and increasing the numbers of users involved. To evidence your partnerships, applicants are asked to include a user engagement strategy in their full proposals.

The hub is expected to take an open and inclusive approach and to grow and evolve over the lifetime of the grant. To reflect this, it is expected that the applicant should develop a flexible approach to the research agenda and priorities of the programme beyond the first 12 months of the hub to account for changes in the landscape, emerging opportunities, and industrial sector priorities.

#### Matched contributions

To ensure that research outcomes from the hub can be fully exploited by industry and policy at all spatial levels, UKRI expect to see clear evidence of genuine, substantive partnerships, with co-creation and co-delivery of projects and activities, in addition to financial contributions.

Given the commercial interest and needs for this critical area, UKRI expects the hub to evidence at least £12.5 million of matched funding (from the private sector, and regional and civic bodies) over the lifetime of the grant. At application stage, UKRI expects the hub to evidence at least 20p of matched funding (from the private sector, and regional and civic bodies) to every £1 of UKRI and DfT investment. The panel will be asked to assess evidence of stakeholder interest and contributions.

#### Flexible funds

The hub will be expected to provide a flexible funding mechanism, intended to support agile research on emerging topics and to encourage the involvement of the wider community, beyond the core academic members, as partners on such projects. The hub should release these funds annually, to support a full portfolio of research activities throughout the hub’s lifetime, amounting to a maximum fund of £2 million for the hub’s duration.

You will need to think carefully about how the flexible fund budget will be commissioned via a robust peer reviewed process where, the allocation of funds must be fair and transparent and within the framework of the UKRI principles of assessment and decision making.

In partnership with the academic and business community, the hub should conduct a landscape mapping of research into net zero resilient transport infrastructures in the first 6 months of the hub. This should be able to be used to identify the optimum research areas to focus on using flexible funding.

Please note that the flexible fund will be restricted to EPSRC current research organisation eligibility, but will not be bound by standard EPSRC investigator [eligibility criterion](https://www.ukri.org/councils/epsrc/guidance-for-applicants/check-if-you-are-eligible-for-funding/).

UKRI would expect some examples of the types of projects at the application stage, but the research challenges should evolve during the hub lifetime.

Please note that flexible funds may only be used for activities that may be funded through a standard research grant (for example, not studentships or the kind of student costs that would be funded through a training grant).

The flexible fund should be clearly listed under the ‘directly incurred’ headings on the application.

#### Governance and management

In addition to a standard hub management board, the hub will be required to establish its own independent advisory board, with EPSRC and DfT appointed project officers expected to be formal participants.

The hub advisory board will be required to include appropriate industry and policymaker representation, in addition to independent academics. Advice from end users, including the cross-government [Transport Research and Innovation Board](https://www.gov.uk/government/groups/transport-research-and-innovation-board), must be considered in the hub strategy development to grow user engagement, including ongoing development of an effective user engagement strategy.

#### Capital infrastructure

Eligible equipment can be included in hub proposals in addition to the £10 million grant funding available, with the intention of supporting access for the transport research community to equipment needed to address the pressing research related to this challenge.

The equipment could be a single item, or a series of items, that combine to form a single asset. This could include, but is not limited to:

* cutting-edge technology that enables new research
* high-specification equipment that improves existing research

Requested equipment can be between £10,000 to £400,000 in value at 50% FEC for a single item, with matched funding, providing there is a sufficient case made for each item and the scale of investment requested. Single items of capital infrastructure over £400,000 are not eligible in this funding opportunity.

Eligible capital equipment does not include equipment that you would expect to find or easily access in a well-funded laboratory. We wish to maximise use of equipment therefore the hub must have in place and justify a mechanism to share the equipment across the hub or nationally as appropriate.

Any equipment should be received and receipted before March 2025.

Smaller items of equipment (individually under £10,000) should be in the ‘Directly Incurred – Other Costs’ heading. Read more about EPSRC’s approach to equipment funding.

[EPSRC approach to equipment funding](https://www.ukri.org/councils/epsrc/guidance-for-applicants/types-of-funding-we-offer/epsrc-approach-to-equipment-funding/).

#### Contribution to place-based agenda

Transport, climate adaptation, carbon mitigation, infrastructure, and green behaviour choices impact across all UK regions, from the local to national government levels. The appropriate solution to many problems will vary due to geographic location and historical constraint.

While it will be impossible for the hub to address all of these issues, the hub should engage with local-authority and civic stakeholders in meaningful collaboration, delivering benefits to specific local situations rather than a generic one-size fits all approach to the wider UK. While the hub is expected to be multi-institutional, there is no prerequisite for them to be located in the same area of the UK as their local authority or civic stakeholder collaborators.

Examples (non-exhaustive) of organisations we consider having a civic role:

* enterprise, development, or skills bodies (such as local enterprise partnerships or devolved equivalents)
* local authorities, councils, or combined authorities
* growth, city, and region deals
* devolved administrations and their agencies (noting projects still need to be focused on clusters or geography sub-national level)
* regional or local industrial and transport bodies (such as Transport for the North or Transport for the West Midlands)

We do not consider international bodies to have a civic role. They can however be included as project partners on proposals where it is appropriate to the aims of the scheme and your application.

Examples (non-exhaustive) of possible support from civic bodies:

* involvement in hub governance
* access to innovation or knowledge exchange activity
* secondments to or from hub activities or projects
* supporting or facilitating networking and engagement beyond the consortium
* supporting policy development and delivery
* direct adoption of research outputs
* market assessments
* infrastructure

#### Monitoring and evaluation

You should ensure that monitoring and evaluation of the hub and its impacts is well-considered from the outset in order to effectively track the hub’s contribution and impacts across the transportation sector.

The hub will be expected to engage with the monitoring and evaluation regime put in place with UKRI and DfT¸ including data provision to assist with supporting the overall evaluation of the programme. Detailed guidance will be provided after the award has been made, and key performance indicators will be agreed with the hub.

The standard expectations for monitoring and evaluation within the hub will include annual reporting requirements, a mid-term review conducted by an independent panel and a post-investment evaluation. There will also be a requirement for the hub to submit a landscape evidence base report at the end of the first year of the investment. A schedule will be agreed upon award.

#### Equality, diversity, and inclusion (EDI)

As leaders in the community, the hub will be expected to embed EDI in all their activities throughout the lifetime of the hub. If funded, this will include identifying the specific EDI challenges and barriers in their own environment and developing a strategy to address these, with reference to EPSRC’s published [expectations for EDI](https://www.ukri.org/about-us/epsrc/our-policies-and-standards/equality-diversity-and-inclusion/expectations-for-equality-diversity-and-inclusion/) [and EDI action plan](https://www.ukri.org/publications/epsrc-equality-diversity-and-inclusion-action-plan-2022-to-2025/).

The hub must ensure that they request appropriate resources to develop and deliver their EDI strategy effectively.

### Funding available

The FEC of your project can be up to £12.5 million, including indexation. UKRI and DfT will fund 80% of the FEC. EPSRC and DfT will collectively fund one hub. The hub will be expected to match fund an additional minimum of £12.5 million, including indexation (via in-kind and financial contributions the private sector, and regional and civic bodies) over the lifetime of the grant.

The hub should consider how it will adapt to and respond to urgent and emerging research needs and national priorities, with the potential for additional in-year funds.

#### Eligible costs

The team are expected to request the funding required to achieve the objectives and outcomes they have proposed for the hub. This may include, but is not limited to, funding for:

* the principal investigator time to lead the hub, and co-investigators to provide the required interdisciplinary inclusive approach
* staff to support the management, integration, coordination, knowledge exchange and publication activities of the hub
* research staff and associated consumables
* travel and subsistence
* flexible funding of up to £2 million to support agile research on emerging topics and to encourage the involvement of discrete parts of the community
* funding to support impact activities (including stakeholder and user engagement, policy engagement and public engagement)
* funding to support networking and community building activities, to enable engagement and collaboration across key disciplines and sectors, and with policy officials
* funding to support governance, monitoring, and evaluation activities
* equipment between £10,000 to £400, 000 at 50% FEC for a single item, providing there is a sufficient case made for the item and scale of investment

Smaller items of equipment (individually under £10,000) should be in the ‘Directly Incurred – Other Costs’ heading.

Read more about EPSRC’s approach to equipment funding.

[EPSRC approach to equipment funding](https://www.ukri.org/councils/epsrc/guidance-for-applicants/types-of-funding-we-offer/epsrc-approach-to-equipment-funding/).

#### Duration

Funding is available for up to 43 months. The hub will have a fixed start date of 1 September 2023 and an end date of 31 March 2027. No extension to the start date can be given. You must have the necessary staff in place so that the projects can start on 1 September 2023. Funding is subject to business case approval.

### Responsible innovation

You are expected to work within the [EPSRC framework for responsible innovation](https://www.ukri.org/about-us/epsrc/our-policies-and-standards/framework-for-responsible-innovation/).

### International collaboration

Applicants planning to include international collaborators on their proposal should visit Trusted Research for [guidance on getting the most out of international collaboration while protecting intellectual property, sensitive research and personal information](https://www.cpni.gov.uk/trusted-research).

You must apply using the [Joint Electronic Submission (Je-S) system](https://je-s.rcuk.ac.uk/).

You can find advice on completing your application in:

* the [Je-S handbook](https://je-s.rcuk.ac.uk/Handbook/index.htm)
* [how to submit your proposal in Je-S, EPSRC](https://www.ukri.org/councils/epsrc/guidance-for-applicants/how-to-submit-your-proposal-in-je-s/)

We recommend you start your application early.

Your host organisation will also be able to provide advice and guidance.

A mandatory expression of interest (EOI) stage completed via the [smart survey](https://www.smartsurvey.co.uk/s/Y8YZU2/)  which will close on 20 March 2023 at 4:00pm UK time, will need to be completed. This EOI will require a list of all principal investigators and co-investigators, their institutions and research areas. Failure to complete the EOI will mean any full proposals submitted will automatically be rejected.

### Submitting your application

Before starting an application, you will need to log in or create an account in Je-S.

When applying:

1. Select ‘documents’, then ‘new document’.
2. Select ‘call search’.
3. To find the opportunity, search for: Building a Green Future – Transportation Hubs.

This will populate:

* council: EPSRC
* document type: Standard proposal
* scheme: Standard
* call/type/mode: Building a Green Future – Transportation Hubs

Once you have completed your application, make sure you ‘submit document’.

You can save completed details in Je-S at any time and return to continue your application later.

### Deadline

A [mandatory EOI](https://www.smartsurvey.co.uk/s/Y8YZU2/)  stage must be completed before it closes on 20 March 2023 at 4:00pm UK time. EPSRC must receive your full application via Je-S by 24 April 2023 at 4:00pm UK time.

You will not be able to apply after this time. Please leave enough time for your proposal to pass through your organisation’s Je-S submission route before this date.

You should ensure you are aware of and follow any internal institutional deadlines that may be in place.

### Attachments

Your application must also include the following attachments.

You should attach your documents as PDFs to avoid errors. They should be completed in single-spaced Arial 11 font or similar-sized sans serif typeface. EPSRC will not accept any other attachment types under this opportunity.

Read our advice on [writing proposals for EPSRC funding](https://www.ukri.org/councils/epsrc/guidance-for-applicants/what-to-include-in-your-proposal/).

#### Case for support

The case for support can be up to a maximum of 20 sides of A4 and should include:

* 2 sides of A4 on your track record
* 10 sides of A4 to address the assessment criteria
* 4 sides of A4 on the technical annex
* 4 sides of A4 on the management and governance strategy

##### Track record

The track record should be two sides of A4. It must be based on the leadership team, focused specifically on experience of leading and coordinating complex interdisciplinary programmes in an inclusive way.

##### Address assessment criteria

Addressing the assessment criteria should be 10 sides of A4. This section should include:

* overall vision and ambition for the hub
* research programme and methodology: this should be focused on high-level objectives, cross-cutting research questions and challenges and is expected to include flexibility to address emerging topics once funded. You should provide an initial plan alongside your approach to developing it as the hub progresses. Technical detail should follow in the 4-page technical annex. This should also include details about how the research programme will be balanced between research carried out within the core of the hub and research facilitated by the agile flexible fund
* planned coordination and integration activities: including the strategy and approach for connecting the broad and diverse interdisciplinary community, and for coordinating knowledge exchange across other research and innovation investments to identify key challenges and maximise the outcomes of the investment
* collaboration and stakeholder engagement, including how the hub will engage with and deliver to address the needs of stakeholders from across the ground transportation sector, providing benefits and impact to consumers, government, business (across a range of sector contexts) and other stakeholders. This should include details of the strategy for engaging with stakeholders including relevant government departments and user groups, as well as a user engagement strategy

##### Technical annex

The technical annex should be 4 sides of A4. This is intended to provide additional information on the research programme (for example, on individual work packages or themes) for the expert reviewers.

Please ensure there is sufficient detail to allow peer review to assess the quality and ambitious nature of the research. There are no stipulations about the format of the technical annex, but it should complement the other sections of the case for support, primarily the section on research programme and methodology.

##### Management and governance strategy

The management and governance strategy should be four sides of A4. This should not focus specifically on the principal investigator but should demonstrate the strategy and track record across the proposed management team.

It must include:

* demonstration of how the proposed management structure and the team composition will enable them to manage an inclusive interdisciplinary hub
* a monitoring strategy, which includes a logic model detailing the outputs and outcomes to be delivered by the investment made through the hub. This should clearly articulate outcomes achievable within the hub lifetime and those that the hub investment will enable in the longer term
* baseline key performance indicators should be defined for measuring the success of the hub in progressing towards these outcomes. This should be accompanied by a plan for monitoring and the major decision points identified, and how these will be used to reassess the direction of the hub. In addition, a plan for engaging in the required monitoring and evaluation activities for the hub and how the hub will support UKRI in these activities should be included
* how equality, diversity and inclusion is embedded within the hub and how the core leadership team will embed equality, diversity and inclusion into all activities
* a day-to-day management strategy for ensuring individual research, coordination and integration activities meet the overall vision for the hub, and for use of resources
* details of the strategy and planned governance of the allocation and management of flexible funding including consideration of appropriate equality, diversity and inclusion considerations
* the planned governance and advisory board structures of the hub and how inclusivity will be built into stakeholder engagement

#### User engagement strategy

The user engagement strategy can be up to 2 sides of A4. You must add this attachment under ‘Other Attachment’ in Je-S.

This strategy should describe how the coordinators will support the delivery of actionable solutions. The vision and programme for the hub must be designed and delivered in partnership with relevant users, including industry and government (UK and devolved as appropriate), regional or other local stakeholders.

Coordinators are required to provide details of the strategy for engaging with potential users of the research funded in the hub (resources for impact activities can be requested and must be justified in the application). This strategy should be reviewed and updated regularly as part of the formal management of the grant.

The strategy should cover how the coordinators will:

* form new collaborations with users, including policy officials, industry and the third sector, throughout the hub lifetime
* attract additional co-funding (both direct and in kind) from new and existing project partners to reach a level similar to the UKRI and DfT contribution
* prioritise co-creation and co-delivery of projects with project partners from relevant industries, ensuring that user needs are forefront throughout the development and delivery of hub research and activities
* make best use of the financial, in-kind and intellectual contributions of project partners to meet the needs and objectives of the hub
* foster genuine and committed engagement with project partners, where project partners are a core part of the delivery team and develop strong relationships with the hub
* determine the success of the strategy in delivering value to users and by what metrics and key performance indicators that are tracked throughout the hub lifetime
* coordinate and engage the wider transport community, with detail on how the hub would identify and exploit potential opportunities to work with other existing UKRI investments, where appropriate, to maximise engagement and impact

While applicants need to consider this strategy in their full proposal, UKRI recognises that flexibility is needed given the dynamic nature of this field and the programme.

You should therefore provide an initial plan alongside your approach to developing it as the hub progresses.

##### The work plan

The work plan can be up to 2 sides of A4.

It is not expected that this will be a Gantt chart for the full duration of the hub. It is expected that the work plan includes a comprehensive plan for at least the first 12 months, which relates to the management strategy to give appropriate milestones for when important decisions on the further direction of the hub will be taken.

The hub is encouraged to retain flexibility in the work plan to respond to emerging priorities and opportunities.

##### Justification of resources

The justification of resources can be up to 2 sides of A4.

It should include a narrative description of the need for the resources requested. Please ensure you justify all the resources you request.

##### Equipment quotations

Quotes for equipment above £25,000 (no page limit).

##### CVs

CVs (up to 2 A4 sides each) for any named:

* postdoctoral staff, researcher co-investigators (research assistants who have made a substantial contribution to the proposal and will be employed on the project for a significant amount of time)
* visiting researchers
* professional research investment and strategy, managers (see the ‘Who can apply’ section)

##### Project partner letters of support

This is an optional attachment, as information is required from all project partners in the Je-S form itself. There is no page limit.

You may include letters if inclusion of a partner is integral to an applicant’s plans and the letter is necessary to demonstrate the project partner’s commitment to delivering the aims of the proposal.

If included, project partner letters of support must be signed, dated (no more than 6 months before the opportunity closing date) and on letterheaded paper.

DfT are unable to supply any project partner letters of support for this funding opportunity as they are a funder. Any letters of support supplied will be removed at submission.

[EPSRC guidance on project partners letter of support](https://www.ukri.org/councils/epsrc/guidance-for-applicants/what-to-include-in-your-proposal/project-partners-letter-of-support/).

##### Host organisation letter of support

The host organisation letter of support can be up to 2 sides of A4 per institution.

There should be one statement for each host organisation involved (each 2 pages maximum), all attached as 1 document. For senior co-investigators from other institutions, a host organisation statement is required from all institutions involved.

Letters should include the institution’s commitment to the hub for the lifetime of the award, and the alignment of the hub’s proposed vision to the institution’s strategy.

The statement should:

* be on headed paper
* be signed
* be dated within 6 months of submission
* state clearly the position held by the author

##### Civic-partner letter of support

A letter of support from a civic partner is mandatory.

The letter should evidence co-creation with the university partners and explain the relevance of the bid to the civic strategy and ambitions. Letters from civic bodies must also provide a forward look that illustrates how their future planned activity will complement the hub, providing detail on any contribution being made to the hub itself.

You are asked to note how we will treat civic contributions during assessment. See the ‘place’ criterion in the assessment criteria.

##### Technical assessments for facilities listed as requiring one in the Je-S guidance

There is no page limit for this.

##### Proposal cover letter

The proposal cover letter is an optional attachment and can be up to 2 sides of A4. This letter will only be seen internally by UKRI. You can express any other information you feel is relevant to your application.

### Ethical information

UKRI will not fund a project if it believes that there are ethical concerns that have been overlooked or not appropriately accounted for. All relevant parts of the ‘ethical information’ section must be completed.

[Guidance on completing ethical information on the Je-S form](https://je-s.rcuk.ac.uk/Handbook/pages/GuidanceonCompletingaStandardG/EthicalInformation.htm).

EPSRC guidance can be found under ‘additional information’.

### Nominating reviewers

As part of the application process, you will be invited to nominate up to 3 potential reviewers who you feel have the expertise to assess your proposal. Please ensure that any nominations meet the [EPSRC policy on conflicts of interest](https://www.ukri.org/councils/epsrc/guidance-for-reviewers/peer-reviews/epsrc-conflicts-of-interest-policy/).

### Assessment process

#### Stage 1: mandatory expression of interest (EOI)

A mandatory EOI stage must be completed via the [SmartSurvey](https://www.smartsurvey.co.uk/s/Y8YZU2/) before it closes on 20 March 2023 at 4:00pm UK time. This EOI will require a list of all principal investigators and co-investigators, their institutions and research areas. Failure to complete the EOI will mean any full proposals submitted will automatically be rejected.

#### Stage 2: expert panel review and prioritisation

All proposals which meet the eligibility criteria will be sent to external peer reviewers for their comments. When a sufficient number of quality reviewer comments have been received, the principal investigator will be invited to submit a response to the reviewers’ comments, if the application gains enough support.

EPSRC will then convene a prioritisation panel for those competitive applications invited to principal investigator response. The prioritisation panel will rank the proposals based on the assessment criteria using the applications, reviews and principal investigator responses. EPSRC will decide, based on the advice of the panel, which applications to invite forward to the interview stage.

No feedback will be provided following the prioritisation panel.

#### Stage 3: interview panel

Successful candidates will be invited to an interview by an independent panel of experts in July 2023.

Full details of the interview process will be sent to candidates before the interviews. The interview will assess whether the proposed hub meets the assessment criteria sufficiently.

The panel may recommend conditions for EPSRC to impose before funding is awarded. Based on the panel’s recommendations, EPSRC reserves the right to seek further information from the applicants before awarding funding.

Feedback will be provided following interview.

In the event of this funding opportunity being substantially oversubscribed as to be unmanageable, EPSRC reserve the right to modify the assessment process.

DfT and EPSRC reserve the right to amend the assessment process and the budget available.

### Assessment criteria

#### Standard criteria

##### Quality (primary)

The research excellence of the proposal, making reference to:

* the novelty, relationship to the context, timeliness and relevance to identified stakeholders
* the ambition, adventure, transformative aspects or potential outcomes
* the suitability of the proposed methodology and the appropriateness of the approach to achieving impact. For multidisciplinary proposals please state which aspects of the proposal you feel qualified to assess
* overall strategy for the hub, including vision and plans for longer term sustainability

##### National importance (secondary major)

Including:

* clear alignment and contribution to targets and priorities of the UK government and devolved administrations, as well as more localised, regional bodies such as civic bodies, local authorities or similar
* evidence of the potential for the proposal to contribute visibly to economic, environmental and social impacts in places across the UK
* contributes to, or helps maintain, the health of other disciplines
* contributes to addressing key UK societal challenges or contributes to future UK economic success and development of emerging industry
* meets national needs by establishing and maintaining a unique, world leading research and integration activity

##### Applicant and partnerships (secondary)

The ability to deliver the proposed project, making reference to:

* appropriateness of the track record of the applicants
* balance of skills of the project team, including collaborators
* ability of the management team to lead or manage a large, complex investment with sufficient support, infrastructure and resources for the day-to-day running of the hub

##### Resources and management (secondary)

The effectiveness of the proposed planning and management and whether the requested resources are appropriate and have been fully justified, making reference to:

* any equipment requested, or the viability of the arrangements described to access equipment needed for this project, and particularly on any university or third-party contribution
* the effectiveness of the proposed management structure and plans
* the suitability of the proposed strategy for governance of the programme, including the flexible allocation of funding and inclusion of a broad and diverse community
* the appropriateness of plans for integrating the views of stakeholders (including government), business and the third sector) as part of governance and advisory structures
* effectiveness of the proposed monitoring and evaluation arrangements to ensure the overall hub opportunity objectives are met
* how equality, diversity and inclusion are embedded in the management of the hub and the delivery of activities
* any resources requested for activities to either increase impact, for public engagement or to support responsible innovation

#### Opportunity specific criteria

##### Fit to opportunity (primary)

The alignment of the research programme to the aims and objectives of the funding opportunity, making reference to:

* how the new science produced by, or the new understanding gained from the proposed research can only emerge from a close collaboration between researchers from the environmental sciences, social sciences, humanities, and engineering and physical sciences
* how the applicants will bring disciplines together in an exciting and novel way to ensure the project achieves a result greater than the sum of its parts; evidence of synergy and added value across the programme of work

##### Fit to place based opportunity (primary)

The ability or potential or both for the proposed hub to build or strengthen research and innovation activity to benefit the targeted places(s) by:

* engaging civic stakeholders in meaningful collaboration
* delivering research and impact activity designed to deliver benefits for local communities and the national landscape

### Feedback

All submissions which meet eligibility criteria will receive postal peer review comments. The interview panel will be invited to provide any further feedback, where appropriate.

### Guidance for reviewers

[EPSRC peer review process and guidance for reviewers](https://www.ukri.org/councils/epsrc/guidance-for-reviewers/).

[EPSRC peer review guidance for standard funding opportunities](https://www.ukri.org/councils/epsrc/guidance-for-reviewers/peer-reviews/reviewer-forms-and-guidance-notes/standard-calls/).

### Background

This funding opportunity delivers to UKRI’s 2022 to 2027 strategy ‘transforming tomorrow together’. It will support world-class ideas, advancing the frontiers of human knowledge and innovation by enabling the UK to seize opportunities from emerging research trends, multidisciplinary approaches and new concepts and markets. This opportunity forms part of the UKRI ‘building a green future’ strategic theme, which seeks to invest in the research and innovation necessary to the nation achieving net zero, developing its green economy and ensuring the future of its environment.

‘Building a green future’ focuses on how we go beyond net zero and the wider implications, such as environmental sustainability, boosting productivity, and community cohesion. This funding opportunity sets out to tackle a national priority, of which more sustainable, user friendly, and cheaper transport is key. This research also sits within the UK’s Net Zero Research and Innovation Framework.

In addition, this opportunity responds to EPSRC’s engineering net zero strategic priority. EPSRC will support a whole systems approach to support the research and innovation critical to the discovery, development and deployment of solutions to tackle climate change, enhance sustainability and ensure economic prosperity detailed in the [EPSRC delivery plan](https://www.ukri.org/publications/epsrc-strategic-delivery-plan/).

This activity also responds to DfT’s [Decarbonising Transport plan](https://www.gov.uk/government/publications/transport-decarbonisation-plan). Transport is the largest contributor to UK domestic greenhouse gas (GHG) emissions, responsible for 27% in 2019. Domestic GHG emissions from transport have been broadly flat for the last 30 years, even as those of other sectors have declined.

We must deliver a step change in the breadth and scale of our ambition on transport emissions to reach net zero. The measures we use to decarbonise transport must also deliver the vast wider benefits available during this change, improving air quality, noise, health, reducing congestion and delivering high-quality jobs and growth for everyone right across the UK. This plan sets out a series of actions and timings that will decarbonise transport by 2050 and deliver against carbon budgets along the way.

This funding opportunity responds to the UN’s Sustainable Development Goals:

* 7 clean and affordable energy
* 8 decent work and economic growth
* 11 sustainable cities and communities
* 13 climate action

### Grant additional conditions (GAC)

Grants are awarded under the standard [UKRI grant terms and conditions](https://www.ukri.org/manage-your-award/meeting-ukri-terms-and-conditions-for-funding/). The following additional grant conditions will also apply:

#### GAC 1: fixed start date

Notwithstanding RGC 5.2 starting procedures, this grant has a fixed start date of 1 September 2023, no slippage of this date will be permitted. Expenditure may be incurred prior to the start of the grant and be subsequently charged to the grant, provided that it does not precede the date of the offer letter.

#### GAC 2: publicity and branding

In addition to RGC 12.4 publication and acknowledgement of support, you must make reference to the DfT and UKRI funding and include the logos and relevant branding on all online or printed materials (including press releases, posters, exhibition materials and other publications) related to activities funded by this grant.

#### GAC 3: equality, diversity and inclusion (EDI)

In addition to RGC 3.4, you are expected to prepare a full EDI plan for the duration of this grant to demonstrate best practice in EDI throughout the lifetime of this funding award. This must be recorded through the grant reporting process.

#### GAC 4: community networking expectations

This grant is awarded on the understanding that, in addition to the core research programme, the project will undertake a wider networking role with the research and user community outside its membership. This may involve coordination of activities such as meetings, workshops or seminars on behalf of us.

A dedicated website must be set up within 6 months of the start of the grant and regularly maintained to provide a resource for engagement with the wider community.

This grant is expected to further develop the network including its academic and user (for example, policy, business, non-governmental organisations) membership throughout the period of funding in order to maximise its impact on a wide range of disciplines.

As part of the grant networks must identify ambitious ‘real-world’ challenges, which require a multidisciplinary approach and will form an agenda for future research in the area.

#### GAC 5: user engagement strategy

You must develop and execute a strategy for engaging with potential users of the research funded in the project. This strategy should be reviewed and updated regularly as part of the formal management and reporting process agreed for this grant.

#### GAC 6: project officer appointment

We will nominate a member of our staff (the project officer) who will be your primary point of contact. The project officer will ensure that the project is being run in accordance with the terms and conditions and in line with financial due diligence.

The project officer(s) should have access to all documentation of governance and reporting bodies, in so far as it relates to the administration and application of the grant. As funding administrators, all UKRI staff have agreed to maintain the confidentiality required by all parties involved in our funded research.

#### GAC 7: advisory board appointment

This grant must establish and run an independent advisory board, or equivalent body, to oversee the running of the project and provide advice on the strategic direction and activities of the project.

The terms of reference and membership of this group (at least 50% independent membership and an independent chair) should be agreed with us. The project officer will also be expected to attend and participate in advisory board and other appropriate meetings for the duration of the grant.

#### GAC 8: management structure

You should have established an appropriate management structure with clear lines of responsibility and authority to oversee the day-to-day running of the project. This should be in place within 6 months of the start date of the grant.

The terms of reference and management structure, including the director, co-director and senior investigators must be approved by us and DfT in advance. As must any changes to this structure. The project officer will be our main contact with the project, and must receive all meeting minutes of the management committees. We reserve the right to attend any meetings.

#### GAC 9: project review

In addition to the requirements set out in standard UKRI grant conditions RGC 7.4 research monitoring and evaluation and 7.5 disclosure and inspection, we reserve the right to instigate a review of all or part of the grant at any stage during the lifetime of the award as well as after the grant has finished.

A mid-term review of this grant will take place to assess the performance of the grant in line with the peer reviewed body of work, published scheme assessment criteria and key performance indicators, milestones and deliverables.

We will give you due notice of the date of any review and will provide details of the terms of reference and documentation required. Any review will be conducted by an expert panel, which will make recommendations to us for the grant’s future.

#### GAC 10: progress reports

In addition to the requirements set out in RGC 7.4.3, You are responsible for providing annual progress reports against non-financial performance metrics. A detailed list of performance metrics and instructions for reporting will be agreed with the grant holder upon commencement of the grant.

#### GAC 11: flexible funds

Notwithstanding standard grant condition RGC 4.4 the sum up to £2 million awarded under the heading of ‘Flexible Funds’ can include both directly incurred and directly allocated expenditure.

These funds must be reported on the final expenditure statement (FES) as awarded on the offer letter and a breakdown of the expenditure must be submitted along with the FES. If a breakdown of this expenditure is not received the FES will be returned. Standard grant conditions apply to all other funds awarded on this grant.

#### GAC 12: cost overrun

We will not be responsible for any cost overrun incurred during the course of this grant. You will be required to make up any shortfall from alternative sources.

#### GAC 13: partner withdrawal

​In line with RGC 13.3, if the funding component(s) from DfT is either not agreed or withdrawn after the project has started, we reserve the right to terminate the grant.

#### GAC 14: collaboration agreements

Where the grant is associated with more than 1 research organisation or other project partners, a formal collaboration agreement must be in place with the basis of collaboration between the organisations including the following:

* the process of the flexible allocation of resources throughout the project
* ownership of intellectual property
* rights to exploitation

It is your responsibility to put such an agreement in place by 1 December 2023.

The terms of collaboration agreements must not conflict with the UKRI terms and conditions.

We must be informed within 3 months of the start of the grant, that the collaboration agreement is in place and has been signed by all partners or the progress made (unless some alternative timeline has been agreed with us beforehand).

If sufficient progress has not been made within three months of the start of the grant, we reserve the right the enact RGC 11.1

Arrangements for collaboration or exploitation must not prevent the future progression of research and the dissemination of research results in accordance with academic custom and practice.

#### GAC 15: co-funding requirement

The total co-funding requirement to be achieved by the end of the grant is as least £12.5 million. This will be monitored by us throughout the grant.

#### GAC 16: change of principal investigator

In addition to RGC 7.3, this award is made on condition that any requests to change the grant holder or co-investigator will require prior approval from us.

We must be contacted in writing and prior approval sought before this change can be made. To facilitate any changes of this nature the case must be made for why a new principal investigator is required.

Requests for such a change are to be submitted via the grant maintenance facility in Joint Electronic System (Je-S). We will then consider and inform you of their decision.

### Responsible innovation

UKRI is fully committed to develop and promote responsible innovation. Research has the ability to not only produce understanding, knowledge and value, but also unintended consequences, questions, ethical dilemmas and, at times, unexpected social transformations.

We recognise that we have a duty of care to promote approaches to responsible innovation that will initiate ongoing reflection about the potential ethical and societal implications of the research that we sponsor and to encourage our research community to do likewise. Therefore, applicants are expected to work within the [EPSRC framework for responsible innovation](https://www.ukri.org/about-us/epsrc/our-policies-and-standards/framework-for-responsible-innovation/).

Applicants planning to include international collaborators on their proposal should visit Trusted Research for information and advice on [how to get the most out of international collaboration while protecting intellectual property, sensitive research and personal information](https://www.cpni.gov.uk/trusted-research). Grant holders will be expected to engage with the relevant regulatory bodies where concerns may arise under the [National Security and Investment Act](https://www.gov.uk/government/collections/national-security-and-investment-act). Aspects of bias, privacy, security, and ethics should be considered where appropriate.

### Sustainability

UKRI’s environmental sustainability strategy lays out our ambition to actively lead environmental sustainability across our sectors. This includes a vision to ensure that all major investment and funding decisions we make are directly informed by environmental sustainability, recognising environmental benefits as well as potential for environmental harm.

In alignment with this, UKRI is tackling the challenge of environmental sustainability through our ‘building a green future’ strategic theme, which aims to develop whole systems solutions to improve the health of our environment and deliver net zero, securing prosperity across the whole of the UK.

Environmental sustainability is a broad term but may include consideration of such broad areas as:

* reducing carbon emissions,
* protecting and enhancing the natural environment and biodiversity,
* waste or pollution elimination,
* resource efficiency and a circular economy

UKRI expects projects to embed careful consideration of environmental sustainability at all stages of the research and innovation process and throughout the lifetime of the project. Projects should ensure that environmental impact and mitigation of the proposed research approaches and hub operations, as well as the associated project outputs and outcomes is considered. Projects must also seek opportunities to influence others and leave a legacy of environmental sustainability within the broader operations of your academic and industry partners.

### Data sharing

The grant will be funded by EPSRC and it is anticipated that DfT will co-fund this opportunity.

DfT will have access to the proposal and grant documents for this opportunity. This will include relevant personal data of applicants from grant applications which will be shared with DfT as observers of both the outline and full proposal panels. It will also include grant information shared with DfT as a co-funder, for the purposes of monitoring and evaluating the impact of the programme