HI-ACT
Hydrogen Integration for Accelerated Energy Transitions

UK Research and Innovation

Engineering and Physical Sciences Research Council

New and Expanding Areas Flex Fund

Call for Proposals - Guidance Document

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1. Summary

This call for proposals will award funding for successful researchers and industry partners to co-create research on the role of hydrogen in local and regional net-zero energy transitions.

The project duration will depend on the scope of the project. Projects lasting from 3 months to 9 months are envisaged but other lengths can be considered as appropriate for proposed work.

You must:

- be based at a UK organisation eligible for UKRI funding
- meet individual eligibility criteria

Projects can be costed up to £50,000 at 100% full economic cost (fEC). We will fund 80% of the eligible full economic cost (fEC), the remaining 20% will need to be met by the recipient Research Organisation. The annual New and Expanding Areas Flex Fund available is £200,000.

2. Flex Fund Objectives

The overall purpose of the new and expanding areas funding call is for researchers and industry/public sector/third sector partners to co-create research on the role of hydrogen in local and regional net zero transitions.

The specification of this call is to target areas such as rural locations, and island communities, rather than large industrial clusters which have been investigated via other research grants (i.e. IDRIC). We welcome hyper-local community-level proposals, as well as proposals covering larger geographies of towns and (small) cities. Whilst links to the Regional Energy System Planner are welcome, we do not expect proposals to model an entire RESP area.

Proposals to support activities should be developed between organisations in the region and the lead academic organisation, to deliver impact on the role of hydrogen in local and regional net-zero energy transitions. This can include engineering, science and social science research, consistent with the scope of HI-ACT.

Each project will need to ensure it has at least 1 outreach/engagement activity, to disseminate the work undertaken.

Preference will be given to applicants who can clearly demonstrate the expected impact of their proposal, and how it will achieve the objectives listed below.

- Consider the development of local/regional whole energy systems approaches, with the integration of hydrogen.
- Target rural locations, island communities, towns, (small) cities, and hyper-local community-level geographies
- Demonstrate links to one or more HI-ACT work packages (see below).
- Clear methods to co-create research with partners.
- Attract match-funding from co-creation partners.

3. Making an Application

3.1 Eligibility to Apply

Standard UK Research and Innovation (UKRI) eligibility rules apply and 'Terms and Conditions' of the overall Grant will be flowed down to projects. Research grants are open to:

- UK higher education institutions

- Research council institutes
- UKRI-approved independent research organisations
- Eligible public sector research establishments

Check if your institution is eligible for funding

Early Career Researchers (ECRs) are encouraged to apply to the New and Expanding Areas Flex Fund as a significant proportion of the Fund is for Early Career Researcher-led projects. HI-ACT defines an ECR as someone who is either:

- within eight years of their PhD award, or equivalent professional training,
- within six years of their first academic appointment.

If this does not apply to you, but you still feel you are an ECR, please contact HIACT@newcastle.ac.uk

3.2 Funding and Duration

The maximum fEC project value will be £50,000 p.a.. However, we welcome proposals for a range of differently sized projects as appropriate for the research plan.

Please note this Fund encourages Early Career Researchers to apply as project Principal Investigators.

Projects from 3 up to 9 months are envisaged but other lengths can be considered as appropriate for proposed work.

The following categories are eligible, as per UKRI funding requirements, see table below:

Directly allocated costs	Investigators (PIs and Co-Is)
	Estates Costs
	Other Directly Allocated (eg infrastructure technicians)
	Indirect costs
Directly incurred costs	PDRAs * and other staff (ie researchers, administrators)
	Travel and subsistence

	Consumables
	Other (subcontracts, fees)

*Salary costs for PDRAs including National Insurance and other salary on-costs, as per UKRI Full Economic Costing guidelines. Where the PDRA is already a member of the HI-ACT consortium, additional salary costs must be for research tasks which are clearly new or expanding on the original scope of work for that individual.

Please note equipment is not an eligible cost.

Non-academic partners will need to include some in-kind/cash contribution to the project, such as staff time or access to facilities.

3.3 Monitoring and Reporting Requirements

The academic project lead must provide a mid-term report, engagement summary and closing report to HI-ACT at the completion of their project. The closing report must include how the project has delivered the key objectives outlined in the funding application, if there were any challenges and how these were addressed, the wider impacts of the project and any future collaboration or engagement. The final report will not contain any sensitive or confidential information or data (as we may wish to share the report publicly).

4. HI-ACT Research Programme

Hydrogen Integration for Accelerated Energy Transitions (HI-ACT) is a £12.5m EPSRC funded research hub comprising 12 universities and 55 academics, led by Birmingham University. The Hub aims to drive forward the design of a hydrogen integration plan for the UK's energy system to help progress the UK's transition to net-zero. HI-ACT will ensure that hydrogen is appropriately integrated into the UK's future energy system by exploring the technical, environmental, social, economic, regulatory and political challenges facing the industry and policy makers.

We will achieve our objectives by analysing the role of hydrogen and alternative liquid fuels (HALF) in the context of the overall energy landscape and to understand the requirements of all those stakeholders who can help accelerate this transition.

Through academic research, HI-ACT aims to develop a better understanding of the potential pathways for integrating hydrogen into future energy use. Currently, there are gaps in our understanding of how to integrate hydrogen into the UK's energy system, particularly around issues such as infrastructure for storage, delivery and transportation as well as demand and supply chain availability. HI-ACT intends to address these challenges by convening key industry and policy stakeholders to identify key gaps in research and knowledge to help drive forward the Government's ambitions. By helping to develop models and demonstrators of real-world whole systems infrastructure that answers where, in what form and at what scale

hydrogen integration should occur, we can drive forward a future energy market that is greener, more efficient, and more secure, with less reliance on imported energy supplies.

4.1 HI-ACT Work Packages

The Programme will be delivered through four interconnecting work packages brought together to collaborate on Hydrogen and Alternative Fuels (HALF) Use Cases.

The Way Forward (Work package 1)
There are significant gaps between current levels of hydrogen production, transportation, storage, conversion, and usage, and the estimated requirement for achieving net-zero by 2050. HI-ACT will develop forward-thinking HALF technology roadmaps; assess the supply chain availability and security; identify and quantify the opportunities, risks and dependencies of selected representative HALF use cases, which will provide building blocks to the whole-system analysis; and develop an overarching roadmap for HALF system integration in order to inform technology advancement, industry and business development, as well as policy making and social interventions.

Whole System Understanding (Work package 2)
This work package will push the boundaries of whole systems methodologies, improving HALF characterisation and exploring urgent new perspectives on the energy transition, including those related to ensuring resilience and security while also achieving net-zero, and contrasting the energy transition delivered by real incentives/behaviour versus those projected by widely used optimisation models. It provides the whole systems modelling engine of the HI-ACT Hub, with a diverse array of state-of-the-art tools to explore HALF integration.

Cyber Physical Architecture (Work package 3)
Our academics will explore the vital coupling of data and information relating to whole system planning and operational decision support through the creation of a cyber physical architecture (CPA). The CPA will synchronise digital assets with physical networks, within a digital modelling environment. This will generate new learning on current and future opportunities as well as risks leading towards a whole system ontology for accelerated integration of hydrogen technologies.

Social and Political Perspectives (Work package 4)
This work programme will consider solutions or options for a future Whole Energy System (WES) which incorporates HALF from several perspectives. The first is to consider expert views on HALF energy futures, and the public perceptions of those views. The second is a perspective which considers place-based options for social benefit in WES+HALF transitions. The third is to consider regulatory and policy options which would better enable the WES+HALF futures which the other WPs are investigating.

More information on HI-ACT Research Programme is available on HI-ACT website.

5. Application Process

To apply, please complete the online application form and EDI form on the HI-ACT website. If you have any queries, please contact HIACT@newcastle.ac.uk.

We intend to contact applicants approximately 2 months after the deadline with an outcome, and summary feedback. Your proposal must address the objectives of this funding opportunity and demonstrate how it will achieve these objectives. Please refer to these in your application.

What you must submit:

- Proposal Details (see application form).
- Case for support (see application form)
- Statement of expertise of the applicants (maximum two A4 pages)
- Supporting letter from the host organisation (maximum two A4 pages)
- Supporting letters from partner organisations (maximum two A4 pages per partner)

5.1 Proposal Details

Please include the following information on the application form:

- Applicant details
- Lead organisation details (including finance/legal contact).
- Project details:
  - o Project title
  - o Proposed start date
  - o Duration of the project (months)

o Total cost (please include this at 100% fEC total cost, HI-ACT will be able to support 80% fEC for eligible costs), the remaining 20% will need to be met by the recipient Research Organisation.

5.2 Case for Support

The case for support should describe the proposed project and its intended outcomes. It should cover the context, importance, methodology and all the associated work and activities you propose to carry out that will contribute to the funding opportunity objectives. *It should not contain any identifiable information on the project team as the New and Expanding Areas Fund will use an anonymised application process.*

1. **Short Summary** (250 words)

This summary will be made publicly available if funded.

2. **Impact of proposed activities** (750-1000 words)

Outline the proposed work and how it will contribute to HI-ACT's objectives, and to HI-ACT work packages.

- Provide the background of the project, particularly the context of previous relevant research
- Describe the research novelty, and the research activities at a high level (further details on the research activities are required in section 3, the Activity Plan)
- Identify whether the Principal Investigator (PI) is an Early Career Researcher, or experienced PI
- Summarise the importance, with respect to the benefits and impacts the project will have to the wider hydrogen integration challenge (e.g. social, economic, environmental, technical)
- Describe the planned commitment and involvement of industry, public sector or third sector partners (or other relevant end-users of the research) in the project. Even if these commitments are included in letters for support, their engagement should still be justified clearly in this section.
- Describe plans for at least 1 outreach/engagement activity to disseminate the work undertaken and how any other relevant stakeholders will be engaged.

3. **Activity Plan** (750-1000 words)

Please provide an activity plan that contains:

- The key approach, methodology (if applicable)
- Key Performance Indicators (including deliverables), responsibilities, and timeline for all tasks/work packages
- A description of risk management
- An Equality, Diversion and Inclusion (EDI) statement which describes how you have implemented EDI considerations in your proposal and (if relevant) team as well how you will consider EDI through the delivery of the work.

4. Summary of resources required

This section of the application form will ask for more detailed information on the resource needs to support the project and justification for the inclusion of each item. Please follow EPSRC guidelines for allowable costs and use Full Economic Costing (fEC): https://epsrc.ukri.org/funding/applicationprocess/fundingguide/resources/

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The following categories are eligible, as per UKRI funding requirements, see table below:

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*Salary costs for PDRAs including National Insurance and other salary on-costs, as per UKRI Full Economic Costing guidelines. Where the PDRA is already a member of the HI-ACT consortium, additional salary costs must be for research tasks which are clearly new or expanding on the original scope of work for that individual.

Please note equipment is not an eligible cost. Non-academic partners will need to include some in-kind/cash contribution to the project, such as staff time or access to facilities. Projects are expected to provide value for money.

5. Fit with HI-ACT Research Activities (250 words)

Section 4 of this Call document describes HI-ACT and our work packages with further information at HI-ACT website. Your proposal should:

- Identify the proposed project's alignment to HI-ACT work packages, this can be to more than one work package or across work packages,

- Specify how the project will contribute to HI-ACT research through these work packages.

5.3 Supporting letter from Home Organisation

The maximum page limit for the letter of support is two A4 pages.

In your letter of support, you must:

- Confirm the organisation's commitment to the proposed project, including in-kind and/or cash contributions
- Specify the full nature and timescale of the support that will be provided.
- Include the date and signature of an appropriate representative of the organisation.

5.4 Supporting letter from Partner Organisation(s)

The maximum page limit for the letter of support is two A4 pages per partner.

In this letter of support, the partner must:

- Confirm the organisation's commitment to the proposed project, including in-kind and/or cash contributions.
- Articulate the benefits of collaboration with academia/connecting with researchers to the partner organisation.
- Specify the full nature and timescale of the support that will be provided and how the partner will provide added value.
- Include the date and signature of an appropriate representative of the organisation.

6. Assessment Process and Criteria

The applications will be reviewed by the HI-ACT Governance and Management Team using the criteria outlined below. HI-ACT will aim for applicants to receive a decision no more than 2 months from submission. The New and Expanding Areas Fund will use an anonymised application process.

Criterion	**Indicators**
Research Excellence	• Ambition and innovation • Value for money • Deliverability in time frame • Complementarity to HI-ACT research programme

	• Avoidance of duplication from other existing industrial cluster research
Impact on wider Hydrogen integration challenge	• Impact and relevance of work to the hydrogen community • Impact of proposed stakeholder engagement • Likelihood of impact being realised
Suitability of applicant	• Early Career Researcher-led project • Expertise and track record • Effectiveness of proposed activity plan • EDI considerations
Suitability of partner organisation	• Academic institution support (including in-kind or cash funding) • Stakeholder engagement during the proposed project • Stakeholder support (in-kind or cash funding)

7. Additional Information

For additional information please contact HIACT@newcastle.ac.uk