



Environmental Risks to Infrastructure Innovation Programme



Environmental Risks to Infrastructure Innovation Funding Call – Guidance for submitting a full proposal

Closing date for full proposals: 4pm 11th July 2017.

The closing date for Expressions of Interests (EoI's) has passed. Successful applicants at EoI stage are being asked to submit a full proposal via J-eS.

Only applicants successful at the Expression of Interest stage are eligible to submit full proposals. We expect applicants to revise proposals so that they respond to the feedback given by the panel at the EOI stage.

1. Environmental Risks to Infrastructure Innovation Programme

The [Environmental Risks to Infrastructure Innovation Programme](#) (ERIIP) is a collaboration between the Natural Environment Research Council (NERC) and infrastructure owners, operators, policy-makers and regulators to enable the UK infrastructure sector to use environmental science to identify, quantify and manage environmental risks, such as those from extreme weather and climate change.

Through ERIIP NERC are investing £5 million over 5 years to fund projects that take the outcomes of existing research and translate these into industry-relevant information, tools to help identify environmental risk, assess their impacts on infrastructure and develop solutions.

NERC are working with owners and operators from across the infrastructure sector, including energy generation (nuclear, renewables), energy transmission, water, road, rail as well as regulators, policy-makers and consultancies.

More information about the themes and hazards covered by ERIIP, including a list of ERIIP members can be found on the NERC website. The Programme aims to fund a balanced portfolio of projects which cover the range of environmental hazards and sectors of interest to ERIIP members, across all three themes of the programme.

2. Scope of the call

For this third funding call NERC and ERIIP members are encouraging proposals that address the challenges of ERIIP members as well as proposals that fill gaps in the portfolio of themes, hazards and sectors within the scope of the programme.

A list of ERIIP members looking to develop collaborative projects with academics, along with their areas of interest and contact details, are available in the [ERIIP members challenges document](#).

Some of the areas that are under-represented in the current portfolio include (these are expanded in the ERIP members challenge document):

- Tools and methods to help understand the **propagation of impacts of environmental hazards as a result of interdependencies** between infrastructure assets, including from international connections and supply chains. Recent workshops have explored infrastructure interdependencies and have highlighted key issues faced by industry as well as research and innovation gaps¹.
- Understanding the impact of **sequences of hazard events or combinations of hazards** on the infrastructure system. Often it is not individual extreme events but sequential non-extreme events or combinations of hazards (e.g. high winds and flooding) that affect infrastructure asset degradation and performance – how likely are these events and what impact do these sequences/combinations have?
- **Space weather impacts on UK infrastructure.** Strategies for dealing with space weather are generally, less well developed compared to other environmental events.. Areas of interest include: How might the impact of space weather events vary both spatially and temporally? Can historical network disruption or failures of railway assets correlate with space weather events? What are the interdependencies between systems.
- **Lightning impacts on UK infrastructure.** Over recent years, total train delay due to lightning strikes has steadily increased. Areas of interest include: Are assets becoming more vulnerable or is the number of lightening events increasing? Does spatial variability of the phenomenon suggest locations that are particularly vulnerable?
- **Scour of structures in rivers and estuaries.** Areas of interest include: the application of tools and data at a catchment/sub-catchment level that can help asset owners identify the likelihood of risk to particular assets from scour / deposition (as opposed to the inspection of individual assets) and novel inspection techniques for assessing the condition of submerged elements of bridges and other structures prone to scour.

Projects that address issues outside of these areas will still be considered as long as they address the areas of interest to ERIP members, have strong engagement from partner/s and can demonstrate the potential for significant impact.

Across all themes and hazards, projects which have clear benefits to multiple organisations or a whole sector are strongly encouraged. For example, where different organisations have similar assets and share the same environmental risks, or where infrastructure is linked through interdependencies, or through the communication and translation of environmental risk into industry guidance, standards or regulatory frameworks related to design of resilient infrastructure and its operation.

More information can be found on the [ERIP web page](#) and a list of the projects already supported through the programme is available. A list of the areas of interest for ERIP members is published alongside this call.

¹ Adaptation Sub-Committee: [UK Climate Change Risk Assessment Evidence Report: Infrastructure Chapter](#); [ICE Engineering the Future: Infrastructure Interdependencies Timelines](#) and ERP, ITRC & UKWRIP: [Energy & water interdependencies](#).

Types of project

NERC would welcome a range of projects from short term (3-6 month) feasibility studies, to longer-term, translational projects. Projects are strongly encouraged between 6-12 months in length, however projects up to 18 months will be considered.

The following types of innovation projects will be considered for funding:

- Syntheses and mapping of existing research in a particular area to aid and transfer knowledge to the industry
- Bringing together data from disparate sources (e.g. related to different environmental hazards, or environmental data with data on the engineering or economic impacts sourced from academia or project partners)
- Translation of existing data, knowledge, expertise into tools, solutions and approaches to meet a specific industry need
- Decision-support tools incorporating NERC data or knowledge
- Scenarios of environmental risks and their impacts on infrastructure
- Model synthesis, merging and manipulation to answer a specific challenge, need or issue

Proposals must be ‘translation-focused’ – i.e. focused on using existing science research (knowledge, data, models or skills) and translating this into outputs that meet the needs of the end user(s) (as opposed to generating new research outcomes).

What is research translation?

For the purpose of this call, research translation is defined as the integration or adaptation of existing research outputs to enable the development of technologies and solutions for the benefit of practitioners and decision-makers outside of academia. This includes merging or adapting research outputs or the bringing together of dispersed knowledge, and developing it into a form that is appropriate for use by the practitioner/decision-maker. Research translation is predicated on access to expertise and the exchange of knowledge – often leading to the fusion of knowledge between academia and the practitioner/decision-maker. Therefore, effective knowledge exchange is the cornerstone of research translation, resulting in new products, services, tools, technologies, demonstrator projects, evidence-based systematic reviews, and other outcomes that create tangible economic or societal benefits.

3. Project partners

All projects must have a partner related to UK infrastructure, e.g. infrastructure owners, operators, regulators or policy-makers (project partners cannot be other research organisations). **Annex A** contains further information on what a project partner is and gives advice about when and how to involve project partners throughout the lifetime of project.

All projects must specify and address a real industry, policy or regulatory issue that arises from managing environmental risks. The proposals should clearly indicate how the project will develop tangible outputs in terms of knowledge, data, models, tools or approaches, how these will be utilised by project partner/s (e.g. for planning, operational or strategic decisions) and what outcomes (benefits) this will have on the project partner/s.

It is anticipated that project partners will be willing to provide their time and expertise 'in kind' to shape the proposal, steer the project (in conjunction with the academic) and report on how the project's outcomes have been incorporated into their organisation.

At full proposal stage the involvement and role of project partners must be clearly articulated and secure.

Project partners are not restricted to ERIP members.

Potential project partners are invited to contact NERC or CIRIA if they are looking for academic collaborators interested in developing projects for this Innovation funding call.

Project partnering support service

NERC has contracted the [Construction Industry Research and Information Association \(CIRIA\)](#) to support ERIP. CIRIA's role with regards these projects will be to

- Broker relationships between the programme members and academics in the call including support in developing academic-stakeholder collaborations
- Monitor funded projects – including through an interim reporting stage
- Work with projects to develop case studies of impact
- Organise dissemination events at which projects will be expected to attend

For more information on all of the above, or to discuss your idea informally, please contact CIRIA:

Sirio D'Aleo 020 7549 3300, sirio.daleo@ciria.org
Owen Jenkins, 020 7549 3300, owen.jenkins@ciria.org

4. Funding

NERC has up to £1M available for this call and envisage funding 10-12 projects.

This call funds all costs at 80 per cent FEC.

As the projects are aimed at the utilisation and development of existing data and knowledge, costs associated with equipment should be minimal and restricted to those needed for the delivery of the project. Agreement to fund these costs are made on a case-by-case basis.

The funders reserve the right not to fund up to the limit allocated to the call. The funders reserve the right to make changes to the budgetary limits of the grants, and to the process of commissioning grants if deemed necessary.

This call will fund projects to enable balanced coverage of hazards, sectors and themes across the portfolio of the programme as a whole.

5. Reporting requirements

Being funded as part of the Environmental Risks to Infrastructure Innovation Programme carries responsibilities for grant-holders in addition to standard annual reporting into ResearchFish.

Grant-holders will be required to

- Report on the progress made against the project's objectives at 6-monthly intervals, and work with NERC and CIRIA (the Programme Coordinators) to identify any outcomes or impacts of relevance to the industry members. Grant holders will be notified in advance when a progress report is due and a form will be provided.
- Attend and present the results and progress of projects funded under the Programme at regular ERIIP dissemination events. The grant holder will be notified of the dates and format of their presentation.
- Work with CIRIA and their project partners to produce a case study that clearly states the project partners' problem, how science has been applied to develop a 'solution' and the (quantified) impact of the project on the project partner's organisation, i.e. how the project has had a 'disruptive' or transformative influence. It is anticipated that the case study will be based on the information provided in the [Innovation Projects Highlights and Impact template](#) – however it is anticipated that a bespoke version of this will be developed for ERIIP. Grant-holders will also be notified in advance when this report will be due and will be sent a template.

NERC reserves the right to approach project partners and named project partners on funded grants to understand their benefits from the grant.

6. Eligibility

Standard RCUK eligibility rules for NERC funding apply to this call. Full Guidance on eligibility is available on the [NERC website](#). For further information on approved UK Higher Education Institutions (HEIs), approved Research Institutes (RIs) and approved Independent Research Organisations (IROs) visit the [RCUK website](#).

Proposals must fit within NERC remit.

7. Application process

Full Proposal Stage

Only applicants successful at the EoI stage will be eligible to submit full proposals. There is no guarantee of funding if asked to submit a full proposal.

Applications must be submitted through the [Joint Electronic Submission](#) (Je-S) system along with a completed [‘Case for Support’ template](#), which can be downloaded.

The deadline for receipt of application is **4pm on 11th June 2017**. Applications received after this date and time will not be accepted. Applications that do not use the ‘Case for Support’ template provided, or comply with these specifications or exceed the stated limits will not be accepted.

It is expected that proposals will evolve between the EoI and the Full Proposal stage. For example, the involvement and contribution of project partners may evolve or projects may wish to expand their partnerships. It is also expected that projects may wish to change the resources requested and this is acceptable providing they remain within the upper limits set by the call. Significant changes from the EoI or if there is any doubt then applicants should get in touch with NERC to discuss.

The funders reserve the right to request that where one or more Eol's would benefit from a wider collaboration they be asked to work together in fullproposal.

Applying through the Je-S

Proposals should be submitted through [Je-S](#). Guidance on submitting through Je-S is below.

You must use the **Joint electronic Submission (Je-S)** system to prepare and submit your Innovation proposal. In order to apply, the organisation where the applicant is employed must be registered to use Je-S. Most UK research organisations are now registered. A summary is available of [organisations' current Je-S registrationstatus](#).

If you do not have a Je-S account

You will need to create one. To do this, you will need to select the option "Create Account" from the main Je-S log in screen.

Je-S Helpdesk

If you have forgotten your account log in details or are unsure whether you already have an account, please contact the Je-S helpdesk who will advise you. Email: JeSHelp@rcuk.ac.uk ; Phone: +44 (0) 1793 44 4164

Guide to completing proposal in Je-S for Environmental Risks to Infrastructure Innovation Funding Call – Fullproposal

The submission route that your Environmental Risks to Infrastructure Innovation proposal will take depends upon how the Research Organisation has configured its submission process.

You will of course be in discussion with your Research Organisation about your application. As part of these discussions, you should ensure that it is content to submit the proposal on your behalf. Upon submitting the proposal to the Research Council, the Research Organisation submitter will be asked to confirm that it has verified your identity.

Step 1: Log in with your Je-S account, click on Documents and create a new Document

Step 2: Complete Add a Document

Select Council: NERC

Select Document Type: Standard Proposal

Select Scheme: Innovation

Select Call/Type Mode: Environmental Risks to Infrastructure July 2017

Step 3: Complete the following sections:

- **Project Details**
- **Applicants**
- **Joint proposals**-Tick yes or no as appropriate. The lead application will generate a unique joint reference number which should be quoted on each component proposal.
- **Objectives**- List the main objectives, which will be explained in more detail in the separate case for support.

- **Summary-** Please copy and paste in the Executive summary which is asked for in the Case for support template
- **Beneficiaries-** A brief overview of the beneficiaries (partners from industry/policy/civil society). More detailed information is requested in the case for support.
- **Impact summary-** A brief overview of the impact expected. More detailed information is requested in the case for support.
- **Other Support** – Insert details of other support sought or received for working in a related area.
- **Related Proposals** – How the proposal relates to previous proposals to NERC, if applicable
- **Research Council Facilities** - Complete as appropriate
- **Resources-** This call will fund proposals at 80% FEC. Please refer to the [Grants Handbook on finance and costing](#).
 - **Staff resources** – Complete as appropriate.
 - **Non-staff resources (T&S, Equipment, Other Directly Incurred Costs, Other Directly Allocated Costs)** – Add new item and complete boxes as requested.
 - **Estates and Indirect Costs** – Add new item and complete boxes as requested.
- **Project Partners** – All projects should have project partners from stakeholder organisations (i.e. business, policy or civil society). Please complete this section for each project partner. More information about the contribution of project partners is requested in the case for support.
- **Classification of proposal** – Complete Scientific Area and ENRI –by assigning
 - % relevance to NERC scientific areas
- **Collaborative Centres** – Check the appropriate button if this proposal is submitted under the auspices of NCAS or NCEO.
- **Proposal Classifications** –Add Research Area and assign the Percentage Relevancies, Add Qualifiers for Geographic Area and Project Engagement by Sector as applicable

Step 4: Add attachments (see below)

The following attachments are mandatory:

- 1. Case for support template**
- 2. Letters of support from project partners**
- 3. CV's for applicants.**
- 4. Justification of resources**

Step 5: Check your document

Click on Document actions to check document validity and preview document. The red buttons on the left hand side of the page will turn green once the sections are completed and the submit button will become available.

2. Supporting information and attachments

All attachments must comply with the NERC standard requirements as listed in [NERC Research Grants and Fellowships Handbook](#)

All attachments must be printed in single-spaced typescript of **minimum font size 11 point (Arial font or equivalent), with margins of at least 2cm.** Photo-reduced type

must not be used.

Applicants should avoid the use of colour graphs or pictures, which will not be reproduced in colour for referees. Any proposal in which the attachments do not comply with these specifications will be rejected.

Please note that on submission to council ALL non PDF documents are converted to PDF, the use of non-standard fonts may result in errors or font conversion, which could affect the overall length of the document.

Additionally where non-standard fonts are present, and even if the converted PDF document may look unaffected in the Je-S System, when it is imported into the Research Councils Grants System some information may be removed. We therefore recommend that where a document contains any non-standard fonts (scientific notation, diagrams etc), the document should be converted to PDF prior to attaching it to the proposal

The following attachments are mandatory:

1. Case for support:

The Case for support template provided with this guidance MUST be used, applications will be rejected if not. It asks for more detailed information than can be submitted on the Je-S form.

2. Letters of support from project partners

The letters of support from the project partners must be written by a stakeholder organisation. An email from a project partner is also acceptable as a letter of support. The letters of support form an important part of the proposal and it is advised to contact project partners as early as possible to allow time for them to be written. They must include the information listed below:

- Name and contact details of project partner
- How the project will help the organisation/why the project is important
- How the project partners will be involved in the project including the extent to which they were involved in the design of the proposal
- What the organisation will contribute
- How the project partner will input/steer the project and access the outputs.
- How the results will be used by the project partner – what impact this will have on the organisation. .

3. CV's for applicants.

4. Justification of resources which should include a breakdown of costs outlined in the Je-S form.

8. Assessment

Assessment Criteria

In order to be considered fundable proposals must:

- Be based on a programme of work within NERC remit
- Address the hazards, themes or issues identified by the ERIIP programme and its

members as presented in the scope of this document

- Be focused on research translation (not new research)
- Involve a project partner from the UK infrastructure sector.

At Full proposal stage proposals will be assessed against the following criteria:

1. **Potential impact and industrial relevance to the ERIIP**, including

- Fit to scope of call and the aims of ERIIP:** Proposals must demonstrate alignment with ERIIP's aims, themes and the scope of the call. This call will fund projects to enable balanced coverage of hazards, sectors and themes across the portfolio of the programme as a whole.
- Relevance to ERIIP industry members:** The extent to which the proposal meets the challenges of individual ERIIP members, as well as the members as a whole. All ERIIP members have been asked to comment on the relevance to their organisation of proposals at EOI stage.
- How the project will change “business as usual” within the project partner, or be transformative to UK infrastructure as a whole.** The proposals should clearly indicate how the project will develop tangible outputs (e.g. knowledge, data, models tools, approaches), how these will be utilised by the project partner and what outcomes (benefits) this will have on the project partner. The proposal should articulate what success will look like and how success will be measured: e.g. is success likely to reduce costs for the project partner, inform investment decisions etc..
- Strength of engagement from project partner/s.** At full proposal stage the role of partners should be confirmed and it is anticipated that full proposals will have been developed in conjunction with project partners. A key assessment factor at full proposal stage will be the level of involvement from project partners.

A high score against this criterion will indicate a project that is well aligned with the aims of the ERIIP programme and its members, and which will lead to a step change in how the sector as a whole is able to identify and manage environmental risks. The proposal should show strong evidence of project partners being deeply involved in the development of the proposals and of their commitment throughout the project. There is a clear route for the project outputs to be utilised by the project partner and the benefits to the partner are well defined, including success measures.

2. **Project design and delivery**, including

- Appropriateness of science to answer project partners' questions including the novelty of the science being applied or the approach proposed.** This criterion judges the soundness of the science (e.g. data/knowledge/models) being used and the extent to which the approach is appropriate for the project partners' challenges being addressed. Does the project utilise excellent underpinning science of the highest international standards? Can the data sets or methodology proposed actually provide a robust answer? It is not expected that all projects will use state-of-the-art technology or the latest science, indeed we encourage projects involving existing data that has been under-utilised, but in all cases the proposals must show that the science being used will provide the best possible results to achieve the aims of the project.
- Expertise and achievability.** This criteria looks at the appropriateness of the expertise

in the team and the achievability of the work plan. Does the team include an appropriate balance of skills? Are the proposed milestones and deliverables achievable within the stated timeframe? Where appropriate the proposal should account for the long-term updating of data, and stewardship of databases, models or specific data management tools when ERIP funding ends.

- c. **Value for money.** The extent to which the resources requested, relative to the anticipated deliverable(s), represent an attractive investment of ERIP funds.

A high score against these criteria will indicate a project which is supported by excellent underpinning science of the highest international standards. The science being utilised may be being applied in a new context or the project may bring together novel combinations of academic data or expertise which has the potential to deliver exciting and transformative outcomes for the infrastructure sector. The project team has relevant skills, the project plan has clear milestones, outputs and outcomes and is achievable. The project represents good value for money.

Assessment process

Full Proposals will be assessed at a panel meeting involving academics and industry members, according to the assessment criteria. Applicants will be notified by 31st August 2017 if successful. After the assessment is undertaken, feedback on proposals will be provided by NERC only.

9. Timeline

Date	Event
11/07/2017 (4pm)	Full proposal call closes
31/07/2017	Full proposal Assessment Panel
31/08/2017	Successful applicants informed
01/11/2017	Projects start asap and by 01/11/2016 at the latest

10. Contacts

NERC Contacts

Katie Hart
01793 411563
Katrt@nerc.ac.uk

Ruth Hughes
01793 411537
rugh@nerc.ac.uk

CIRIA Contacts (for project partnering)

Siro D'Aleo
020 75493330
Sirio.daleo@ciria.org

Owen Jenkins
020 7549 3330
Owen.jenkins@ciria.org.uk

Annex A: Guidelines and considerations for working with project partners

This annex provides a quick overview of good practice in academic-project partner engagement so as to improve the climate for collaboration and maximise the benefits of early and continued engagement in innovation projects.

NERC appreciate that there is no one-size-fit-all approach that works for every project, and that people are the key to building effective and long-lasting relationships between project partners and researchers, so the below are to be taken as suggestions, not as requirements for the Programme.

The role and importance of project partners in ERIIP

All ERIIP projects must have at least one project partner from industry, government, regulators or NGO's etc.

Project partners have an input to the process, from the project's inception, in order to maximise the potential impact. Since the strength of the relationship between end-users and researchers is often what underpins the likelihood of success of any translational and knowledge exchange activity, it is **essential** that end-users are involved in both the development and delivery of proposals. The project partners should co-create the project, defining the issues to be addressed, the project objectives, and the specification of outputs, ensuring value and utility to the end-users.

The paragraphs below outline when and how project partners should be involved in all stages of a project. The form of engagement with the partner throughout the project should be agreed and maintained.

Development of the idea

- Make use of networking opportunities at seminars or events that bring potential partners and academia together (e.g. brokerage workshops), which can facilitate formal and informal conversations and lead to new insights.
- Identify the shared interests and promising opportunities for collaboration.
- Establish dialogue with potential partners and encourage cross-fertilisation of ideas.
- Establish and understand sector needs and how partners can/would like to contribute to the project.
- Spend time to understand each other and make sure the partnership's goals and benefits are clear to each party.
- Use a formal collaborative agreement and ensure that everyone understands intellectual property, e.g. refer to the [Lambert Toolkit](#) or the Higher Education Funding Council for England (HEFCE) [Online Portal](#). Please see Intellectual Property text box below.

Intellectual Property

It is most appropriate for the IP implications to be discussed early on in the development of the project idea and agreed between the grant-holding academic and the project partners.

Each project is different, in terms of the inputs from academics and project partners, as well as the intended route for exploitation (e.g. knowledge synthesis, commercialisation, embedded tool in project partners' operational system) and therefore needs to be dealt with on an individual basis, taking into account the specific circumstances of a project.

In many cases project partners may be inputting data as well as significant intellectual property into the design of the project and its outputs. Therefore NERC recommend a clear and open discussion between the academic grant holder and the industry project partners to establish the most appropriate route/s for knowledge exchange and form of project outputs. The discussion should include agreement regarding any intellectual property as inputs to the project ("background IPR") as well as any rights arising from the grant ("foreground IPR").

These may be formalised in a collaborative agreement. It may also be appropriate for the academic to sign a Non-Disclosure Agreement (NDA) if they are accessing sensitive information.

More information about the forms of collaboration agreements is available from university Technology Transfer offices. In addition, [The Lambert Toolkit](#) contains advice for universities and companies that wish to undertake collaborative research projects with each other – it includes templates for collaborative agreements.

Where a project partners wishes to contribute background IP or data, these must be offered on the understanding that the terms and conditions of grant, including the dissemination of results and commercial opportunities will remain the same, unless agreed otherwise by the academics and project partners.

Writing the proposal

- Project proposals should demonstrate a clear understanding of the project partner/sector issue and the way the project outcome will help address it. Although proposals are submitted by researchers, they should demonstrate they have been developed with the partner
- Agree a defined programme, including milestones, deliverables and regular meetings or phone calls with project partners.
- Factor in the time required to develop and maintain the relationship with the partner, within the management of the project.

Project start

- Form a Project Advisory Group that will have regular meetings/discussion. This will also facilitate two-way exchange between researchers and the partners.
- Hold a formal kick-off meeting where all the parties can meet and discuss the project together.
- Define the metrics for success and impacts. Aim for metrics that demonstrate benefits to the partners or their client. Avoid the use of metrics such as papers published as these are not often representative of the impact of the project.
- The project should have a clear programme so that both parties can assess progress against set milestones / targets

Project duration

- Have regular phone calls (i.e. monthly) and meetings over the course of the project (frequency and number depend on the type and duration of the project).
- Devote time to the partnership. Ensure partners feel they are fully engaged and actually contributing to the project.
- Enable two-way communications between academia and the partners.
- Use progress reports to monitor scope and programme of the project.

End of the project

- Hold a formal end-of-project meeting to discuss and record the final outcomes, lessons learnt and next steps.
- Submit a formal end-of-project report, outlining the challenge/issue addressed, the methodology and the impacts for the partner. Input from project partners is key to this report. The project should conclude with a clear statement of the organisational or sector impact achieved.
- Measure the impacts and compare with what was anticipated at the project start.
- Identify how impacts can be extended (by continued application) or replicated (by other organisations).