

Engineering X Frontiers Seed funding Application Guidance Notes

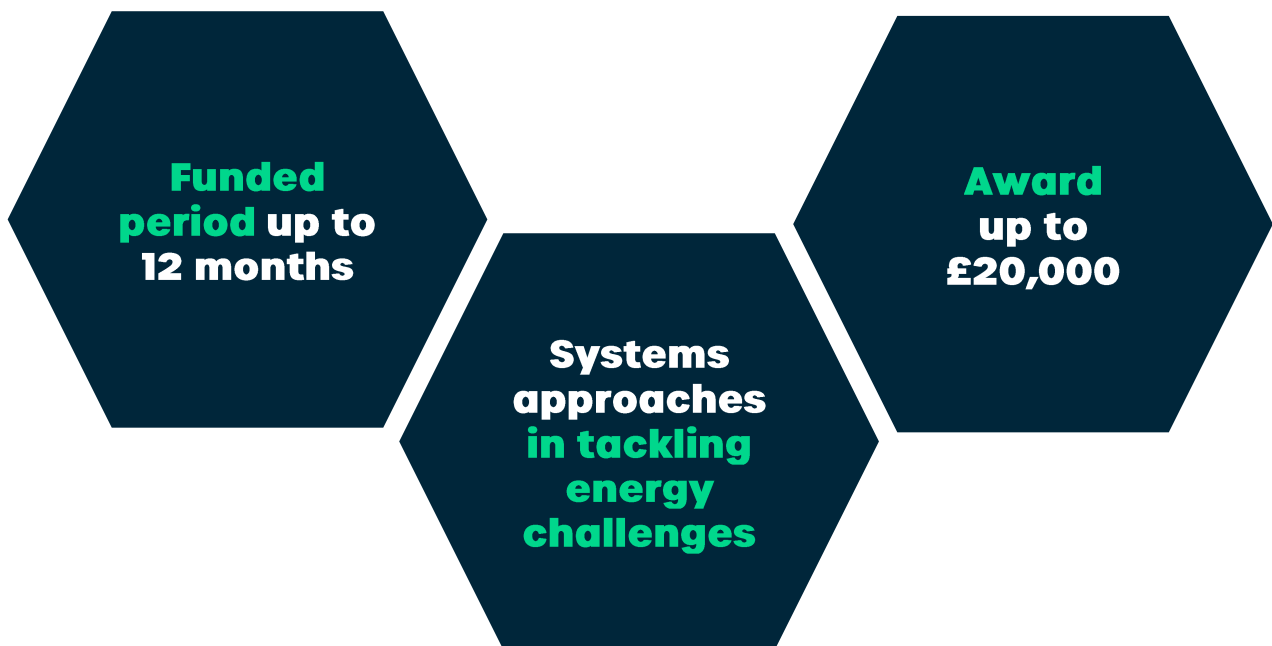
**Deadline:
9 May 2024, 4.00pm (UK time)**

**Send any questions to
frontiers@raeng.org.uk**

Seed funding overview

Following the Frontiers symposium, Engineering X is offering seed funding to support collaborative projects by systems innovators, experts, and practitioners who put **systems approaches** into practice **whilst tackling the energy access and/or just energy transition challenges**. We hope to see projects that will have impact on this critical challenge whilst also testing and furthering the skills developed during the symposium on systems approaches.

The funding is ring-fenced for newly formed teams from the April 2024 Symposium participants and external collaborators.



Funding may cover the following activities (but is not limited to):

- Bringing together a consortium of symposium participants to implement projects using systems approaches on energy transition pathways.
- Using systems approaches to gain preliminary data to form the basis for a new project, intervention, product, or service related to circularity and technology's end-of-life.
- Creating prototypes for products or services supporting energy transition decisions, such as energy-efficient cooling systems that integrate systems approaches in the project design and implementation.
- Developing workshops for stakeholders to envision future energy transition scenarios, co-create solutions, and inform policymakers.
- Convening stakeholders and organising discussions to understand different perspectives on energy access and identify opportunities for collective action.
- Using systems approaches to create communities of interest around specific energy transition and energy access challenges.

This award scheme is funded by [Engineering X](#), an international collaboration founded by [the Royal Academy of Engineering](#) and [Lloyd's Register Foundation](#).

Application and award process

Funding opens for applications: 24 April

Applicants work in collaboration with partners and their institutions to agree details



Deadline for submissions: 9 May, 4.00pm (UK time)

Applications must be submitted via <https://grants.raeng.org.uk>



Eligibility checks: 9-13 May

Please reserve some time on these dates in case we need to clarify eligibility questions



Applications reviewed and panel decides which will move forward



Applicants notified on the results: 7 June

Contracts sent to successful applicants. Unsuccessful applicants notified



Deadline for contract signature: 1 July

Deadline for due diligence forms if applicable

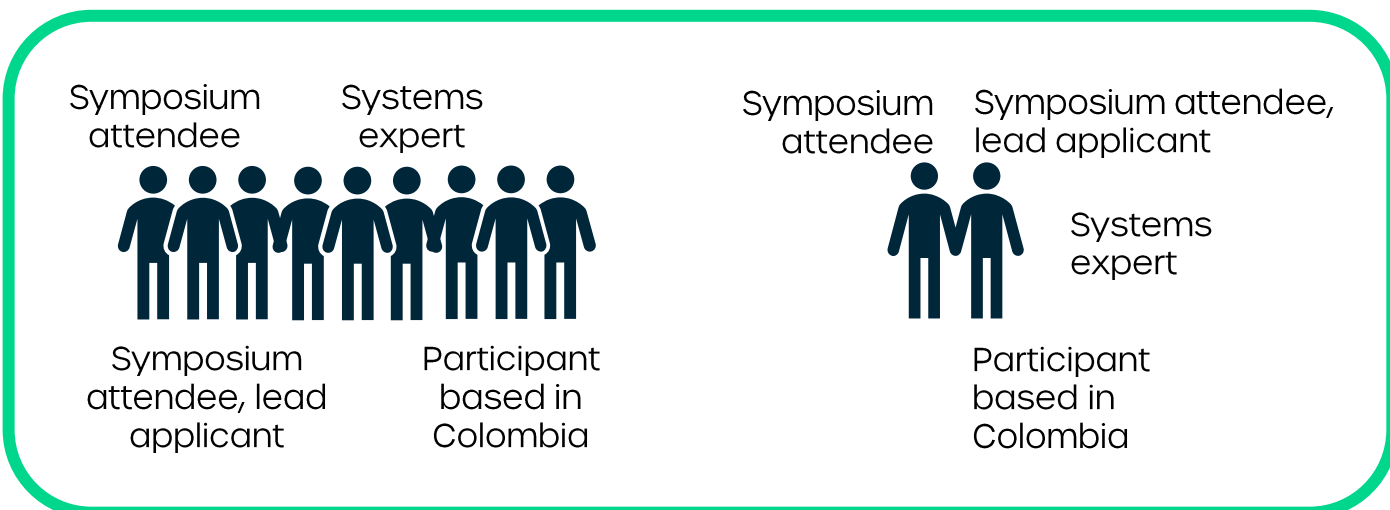


Project begins and initiation report submitted by 5 July

Eligibility criteria – who can apply for funding?

This funding is to promote new collaborations between Frontiers symposium participants. Teams must meet the following criteria:

- The project team should have at least two team members (including the lead applicant) who attended the Symposium in April 2024.
- The team must include at least one member with systems expertise¹.
- The project team should include at least one team member based in Colombia.
- The team is a newly formed partnership. Its' members should not have worked on the proposed project together before.
- The project should center on addressing a challenge related to access to reliable and clean energy.
- The project must be framed using systems approaches. It must be interdisciplinary, pilot-stage and challenge-focused, aligning with the required approaches outlined below.
- The lead applicant must be affiliated with an organisation that can administer the funding on their behalf.



Please note the team composition criteria may overlap. For example, one team member could be a lead applicant and Symposium attendee, have systems expertise, and be from Colombia. The team could also be comprised of three different participants, meeting one criterion each. Teams are encouraged to engage other co-applicants and collaborators who will enrich the project.

Co-applicant = a team member who attended the most recent Frontiers event.

Collaborator = an external expert, a team member who did not attend the Frontiers event.

¹ The participant must have both theoretical understanding and practical application of systems thinking principles, tools and methods. For example, have studied systems approaches, conducted research using systems approaches, implemented systems approaches in the project cycle.

The lead applicant

The lead applicant is the person who will do and coordinate most of the project work. This person is typically at the early to mid-career stage, usually up to 20 years postdoc/equivalent level of training. However, this is not a hard rule and non-standard career paths and career breaks are welcome. Where those who are more established in their career are included in the project team, they will usually take an advisory position as a co-applicant or collaborator.

The lead applicant must be affiliated with an organisation that will receive and administer the funding on their behalf. We expect the lead organisation to be based in the focus country. However, if the lead applicant is not based in the focus country, they will need to demonstrate partnership with actors in the focus country, city or region. The eligible organisations include:

- Public bodies, institutions, and research organisations
- Professional bodies or institutions
- Charities and Non-Governmental Organisations
- Private sector businesses and social enterprises of any size
- Research institutes and universities.

Required approaches

The projects proposed must apply **systems approaches** in the project cycle.

There is no single way to take a 'systems approach'. A systems approach involves using a range of techniques to determine how different components of a system interact and what is needed to deliver a system that is fit to fulfil its intended purpose. A true systems approach does not deliver solely technical solutions. It ensures appropriate technology, processes, interactions, and policy alignment to provide innovative responses to today's most complex and pressing challenges.² In our pursuit of sustainable energy solutions, it's essential to adopt a systems approach - a holistic way of thinking that considers the interconnectedness of various factors shaping energy transition and access. Unlike traditional approaches that focus on isolated components, systems thinking allows us to understand the complex web of interactions and dynamics at play in the energy sector.

This is an example on how systems experts have applied systems approaches in a project cycle (Go-science systems thinking toolkit). See figure below for reference.

² Engineering better care, RAEng, 2017



Notice that this is an example and you can approach the task in other ways.

For further reference on what we mean by taking a systems approach, please visit the below documents which you may find useful:

- [Royal Academy of Engineering Net Zero: A systems perspective on climate change](#)
- [Engineering X Safer Complex Systems Case Studies](#)
- [Royal Academy of Engineering: Managing complexity, how systems approaches can drive better policy](#)
- [Go-Science systems thinking toolkit](#)

In taking a systems approach, we anticipate projects will apply systems tools and methodologies to increase understanding and gain actionable insights into tackling energy access and the just transition. We expect projects to collaborate with stakeholders to consider and support the implementation of a systems approach.

In addition to systems approaches, all projects must be **interdisciplinary, pilot-stage and challenge-focused**. Interdisciplinary research is defined as “a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialised knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice”³. Participants will have the chance to meet potential collaborators via the formal and informal networking opportunities at the event and using the profiles in their welcome packs.

³ Committee on Facilitating Interdisciplinary Research, Committee on Science, Engineering, and Public Policy (2004). Facilitating interdisciplinary research. National Academies. Washington: National Academy Press, p. 2

How to apply

The application has six sections. It takes about an hour to complete the form if you write answers offline and copy them in rather than writing as you go. We recommend this approach to avoid accidental data loss.



All applications must be submitted via the Academy's online application system at <https://grants.raeng.org.uk>. The lead applicant must register first. They must provide basic log-in details to create a profile.



Once logged in to the grant management system, select 'Frontiers – seed funding'. There will be general instructions, and the application form



The lead applicant must provide a letter from an organisation confirming approvals. Details on page 11. You should request the letter as soon as possible to avoid delays.



At any stage in the process you can save and return to the application later. You can answer questions in any order, skip sections and return to them later. **Make sure you save every page as you go, to avoid losing work.**



Submit the application before the deadline (9 May, 4.00pm UK time)

Project budget

Projects may be awarded up to £20,000 per award.

The total project budget may exceed the maximum funding participants can request under this scheme. The participating institutions or other sources must meet additional costs. If this is the case, the contribution of each institution/source should be stated.

Eligible expenses include the following:

- Staff costs for lead applicants, co-applicants and collaborators, and experts.
- Small stipends to cover expenses that enable people to engage in the project.
- Travel and subsistence.
- Consumables, including project-specific costs of small equipment, computer software licenses or publication costs.
- Necessary service provisions related to the project, such as conferences and seminar fees, translation or IT services.
- The host institution(s) can include up to 10% of the grant as a contribution to project management, administrative and other running costs. The award funds can be dispersed to different project partners as appropriate for the project activities.

The following costs are not eligible:

- Funding activities outside of the project objectives and scope.
- Funding activities contrary to the values of the Royal Academy of Engineering and [Lloyd's Register Foundation](#).
- Loans, further grants or revolving funds.
- Infrastructure, buildings, large physical assets and vehicles.
- Facilities, such as air conditioning units, office buildings, furniture, etc.
- The funding cannot cover any indirect costs or overheads related to staff costs.

Things to consider

Diversity policy and monitoring

The Royal Academy of Engineering and Engineering X are committed to diversity and inclusion and welcomes applications from all underrepresented groups. It is our policy to ensure that no applicant is disadvantaged or receives different treatment because of age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, gender and sexual orientation.

Before completing the application form, applicants are asked to complete a Diversity Monitoring Form to help the Academy monitor and assess its [diversity and inclusion policy](#). It will only be used for statistical purposes with access restricted to staff involved in processing and monitoring the data. No information will be published or used in any way that identifies individuals. The Academy will retain personal information as per our [Data Retention Policy](#) in line with the General Data Protection Regulations 2018. The information is strictly confidential, nonattributable and is not seen by anyone involved in any selection processes. You must complete the diversity monitoring section before you see the grant application form and can always choose “prefer not to say” in responses.

Equitable partnerships

The Academy and Engineering X are committed to promoting equitable practices in the design, delivery and dissemination of research and innovation projects. Some things to consider when designing and collaborating on your project:

- Ensure transparency by establishing a partnership agreement within the initial three months of your project.
- Account for the time required to build strong partnerships, especially remotely, by including a generous timeline within your project.
- Think about whether your project includes a diverse set of perspectives.
- Think about how to embed equality into the division of labour in the project.

For further resources on equitable partnerships please visit the [UKCDR Equitable partnerships resource hub](#) and refer to the [Global Code of Conduct for Research in Resource Poor Settings](#).

Using Artificial Intelligence to draft your application

The use of AI to draft your application is permitted, but you must use caution, and acknowledge it's use. Please follow these guidelines:

- You are responsible for all content in your grant application, so make sure that the application represents your own voice and ideas. While AI tools may assist you, the application must primarily represent your own original work.
- Be rigorous in checking content generated by AI to avoid any ‘hallucinated’ references or factual errors. Reviewers may perceive these as a lack of rigour.

- Plagiarism is never acceptable: AI tools may use ideas from human authors without proper referencing. Make sure you check sources are appropriately attributed.
- If AI tools are used to draft your application, you **must** acknowledge the name of the tool and how you used it. For example:
 - “We acknowledge the use of [*AI system/version number/link*] to generate materials for background research/styling/proofreading.”
 - “[*AI system/version number/link*] was used to generate materials within [*section title*], in modified form.”

Application form

This section lays out all the questions you can expect to find in the application form.

1. Applicants and Institution Details

Question	Information
1.1. Please provide contact details of the lead, co-applicant(s) ⁴ and collaborators ⁵	We will use these details to contact the lead applicant and collaborators. Make sure that you have permission to share these details.
1.2. Team members (lead, co-applicant, collaborators) details	Provide details of all team members participating in the project, highlighting their expertise, discipline and project role or contribution (maximum 100 words per person).
1.3. Systems expertise	The team must include at least one team member with systems expertise. Please articulate how your team meets this criterion and specify systemic tradition, perspective, or methodologies to be used (maximum 150 words).
1.4. CVs of the applicants and collaborators	Upload a CV for all named project team members. Each CV should be a maximum of three pages long and submitted as a pdf.
1.5. Lead organisation/ institution/ university declaration	<p>The declaration confirms that the application is acceptable in principle to the lead organisation/research institution/university and has received all internal authorisations. It must be on headed paper, signed by an authorised signatory (for example, from the Research Grants Office or equivalent team) from the lead applicant's organisation. Digital signatures are allowed. We do not require a hard copy. Upload the letter via the online form.</p> <p>The required terms are listed below. You may select organisation, research institution, or university. The rest of the statement must use the exact phrasing as stated.</p>

⁴ Co-applicant – attended the most recent Frontiers event

⁵ Collaborator – did not attend the Frontiers event

Please copy this text directly into the declaration:
The applicant will be employed by the [organisation/ research institution/ university] for the duration of the award. OR The [organisation/research institution/university] commits to maintain a relationship with the lead awardee such that it will administer the grant funds on their behalf.

The applicant and any co-applicant(s) will be given full access to the facilities, equipment, personnel, and funding as required by the application.

The costs submitted in the application are correct and sufficient to complete the award as envisaged. Any shortfall in funding will be met by the [organisation/ research institution/ university].

2. Project summary

Question	Information
2.1. Project title	The essence of the research should be captured in the title and should be as informative as possible. Ensure it is understandable to a non-specialist (maximum 10 words).
2.2. Project abstract	Include the problem statement, project purpose and expected results. It should provide an overview of how the team will apply systems approaches and work in a collaborative and interdisciplinary way. Ensure it is understandable to a non-specialist (maximum 300 words).
2.3. Total project cost	This is the total value that is requested from the Academy and may be up to £20,000.
2.4. Project keywords	Please provide several keywords (1-5 keywords or phrases) that encapsulate the essence of your project. These keywords should convey important aspects such as the project's focus, key themes, and relevant areas of interest. Examples could include terms like 'end of life', 'governance', 'sustainability'.
2.5. Start and end date	Enter the start and end date of the proposed project. It must start on 5 July 2024 and finish on/before 5 July 2025.

- 2.6. Is this a new collaboration? Please confirm this is a new collaboration, as pre-existing collaborations are not eligible.
- 2.7. Sustainable Development Goal(s) Select the primary Sustainable Development Goal that your project will address. If applicable, you may select a second and third goal. Explain how your project will address the Sustainable Development Goal(s) you have chosen, and why it is needed (maximum 400 words).
- 2.8. Identify the primarily focus country (where the main impacts will accrue) You must identify one country to be the focus of the project. This should be where the impacts of your project will mainly accrue.
- 2.9. Please list any other countries or regions your project will focus on This should be a list, not an explanation. You can also indicate a region, or, in rare cases, the project may aim at global impacts (maximum 10 words).

3. Project details

Question	Information												
3.1. The project objectives	Please describe your project’s objective/objectives: the changes the project hopes to achieve or contribute to within its lifetime (maximum 200 words). For more information on setting objectives, please use this resource .												
3.2. The project activities, outputs, outcome, and impact	This section outlines the logic of planned activities and their impacts. For more information, please refer to this resource .												
	<table border="1"> <thead> <tr> <th>Activity</th> <th>Output</th> <th>Outcome</th> <th>Impact</th> </tr> </thead> <tbody> <tr> <td>Activities of the project</td> <td>The tangible products or services the project will produce. Please keep in mind that each activity might have one or several outputs.</td> <td>The short-term and medium-term effects of outputs. The changes the project achieves within its lifetime. Please remember that several activities and outputs can contribute to one significant outcome, and outputs can also contribute to several outcomes.</td> <td>The long-term effect or change the project aims to create. The project might have one or several impacts.</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Activity	Output	Outcome	Impact	Activities of the project	The tangible products or services the project will produce. Please keep in mind that each activity might have one or several outputs.	The short-term and medium-term effects of outputs. The changes the project achieves within its lifetime. Please remember that several activities and outputs can contribute to one significant outcome, and outputs can also contribute to several outcomes.	The long-term effect or change the project aims to create. The project might have one or several impacts.				
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3.3. Timeline of activities	Please indicate when each activity will occur (maximum 800 words).												

3.4. Measuring success	Describe how you will monitor the project and measure success (maximum 400 words).
3.5. Application of systems approaches	Describe at what stages of the project cycle you will integrate systems approaches (see guidance and figure on page 5 as a reference).
	Additionally, outline any specific diversity and inclusion considerations and implications for your proposed project (any measures you have put in place to ensure equal opportunities, any expected impacts on people of different backgrounds).
	See more in: https://www.gov.uk/government/publications/systems-thinking-for-civil-servants/journey
	As a guide, this question should be between 300 - 600 words.
3.6. Stakeholders	Describe the primary stakeholders (i.e. those who are influenced by your project or could influence it). Include which key stakeholders are already engaged, the status of the relationship, and how you will engage other stakeholders (maximum 400 words).
3.7. Safety consideration	How will the project anticipate and address potential safety risks in the long term, specifically concerning the transition to cleaner energy sources and improving energy access? (maximum 150 words)
3.8. Project's scalability and sustainability beyond the funding period	Describe how the sustainability and scalability of the project/initiative will be ensured beyond the initial funding period. This may include resource management, stakeholder engagement, and expanding to other regions or communities (maximum 300 words).
3.9. Pictures and diagrams (optional)	Upload any pictures and/or diagrams related to your project as a single file.

4. Budget

4.1. Provide a breakdown of the funding requested using the table in the application form. Give a narrative description of what resources are requested and why.

Category	Cost	Description/Further details
Travel, subsistence, accommodation and visa fees	£	
Staff costs	£	
Consumables and equipment	£	
Administrative fees charged by the lead organisation	£	
Other costs	£	
Total	£	

Please note that the funding provided by this scheme is not calculated based on full economic costs. Please refer to the eligible cost guidance on page 8.

The totals may exceed the maximum funding you can request under this scheme. If so, the participating institutions or other sources must meet the additional costs. Please state the contribution each institution/source will make.

At the end of the project, any unspent funding awarded will be repayable to the Academy.

4.2. Is there anything else you would like to tell us about your budget? This may include expected in-kind support, additional funding, projected costs per goal/milestone, etc.

5. Applicant declaration

At the end of the application form, you will be asked to confirm, via a simple tick-box declaration, that the information is accurate, the ideas are your own, that you have credited/cited any sources, including AI tools you may have used, and that you understand the application will be shared with reviewers as part of the process.

6. Academy Marketing

You will be asked to select, from a list, how you heard about this scheme. In this context please answer based on how you heard about the Engineering X Frontiers Symposium and the Seed funding.

Submission

Once you have completed all sections and pressed save on all the pages, a "submit" button will appear on the summary page. This button is greyed out until all sections are complete. If you have completed and saved all sections but the button is still greyed out, please ask all your collaborators to save and complete all sections and sign out of the system. Contact the Frontiers team with any issues or questions about the form.

Assessment of applications

Applications will be checked for eligibility before being assessed by a minimum of two panel members. The panel will include Academy Fellows and experts from relevant disciplines. All applications will be assessed against the following criteria:

The project's quality

- Reviewers will assess the proposed project's quality and its objectives' feasibility, applicants' approach to monitoring and evaluation.

Professional track record and team complementarity

- Reviewers will assess the team members' experience, capacity to deploy systems approaches and implement the project, and the partnerships' robustness.

Application of systems approaches

- Reviewers will assess how clearly application of systems approaches is demonstrated in the project cycle outlined in the proposal. This includes diversity and inclusion of multiple perspectives, considerations on sustainability and end of life and on long-term impact.

The outcome and impact

- Reviewers will assess the extent to which outcomes and impact are reasonable, tangible, feasible, and sufficiently ambitious.

Budget suitability

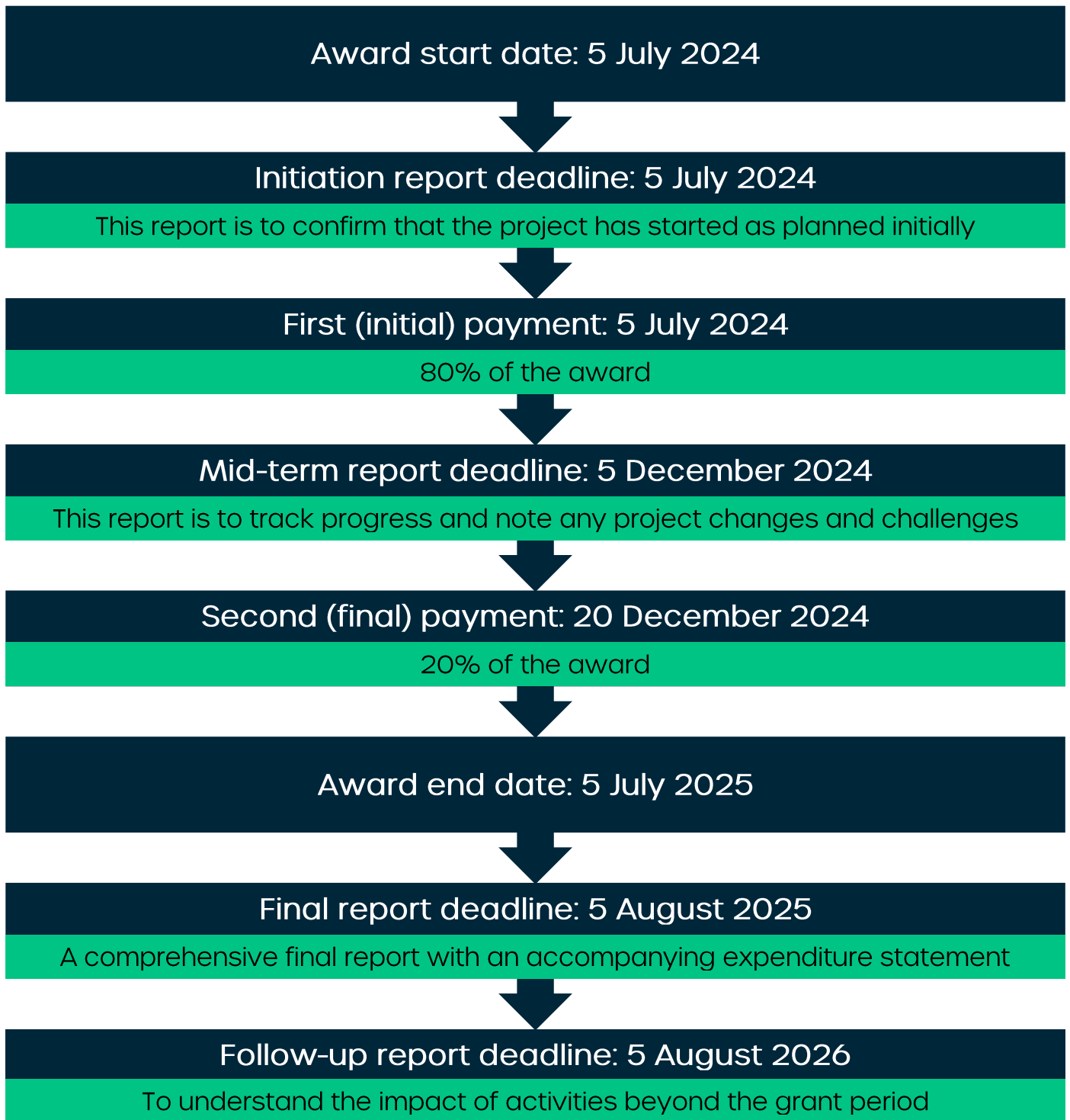
- Reviewers will assess how suitable, realistic and clear the budget is. Whether the project demonstrates value for money

The project's sustainability

- Reviewers will assess project's scalability and sustainability beyond the funding period

The final outcome is decided by a Sift Panel made up of reviewers and Academy Fellows. Expect notification of the outcome by 6 June.

Project implementation and monitoring



FAQs and further questions

If you have questions about the application or assessment process, please email Frontiers@raeng.org.uk.

Visit our [FAQs page](#) to check answers for the frequently asked questions on Frontiers seed funding.