

Derisking Geological Disposal of Radioactive Waste in the UK: Funding Opportunity FAQs

This FAQs document has been prepared in response to queries made during the networking event and programme webinar held on 19 January 2023. Please contact NERC and NWS via geodraw@nerc.ukri.org should you have any further questions about the call.

1. How was the funding opportunity developed?

Following a Nuclear Waste Services (NWS) Research Support Office (RSO) led workshop held in November 2021, NERC and NWS discussed opportunities to work together to fund research that addresses fundamental science knowledge gaps about the LSSR subsurface environment that are critical to address at this stage of the process of developing a GDF for the UK, and that also supports delivery of areas of the [NERC Strategic Delivery Plan](#) around addressing the critical environmental issues of climate change and pollution. To better understand the state of research and the knowledge gaps around LSSR, NERC organised a workshop in June 2022, with scientists invited from 10 institutions, to represent the wider academic community and to provide insight outside of those already engaged with NWS through the Research Support Office. The outputs from this workshop were used to develop the Science Case to inform the funding decision at NERC, and the funding opportunity was subsequently jointly developed with NWS.

2. Why are NERC and NWS funding one large single project rather than multiple projects?

The three objectives outlined in the [funding opportunity](#) came about as a result of extensive community consultation. Integration of workstreams to address these three objectives will be critical to producing the outputs required, due to their interdependence on one another. NERC and NWS jointly decided that a single consortium with a unified governance structure was the best approach to ensuring all facets of the research are undertaken and integrated effectively. As such, we are requesting proposals for single projects under this [funding opportunity](#) that address all three objectives.

3. Can I be involved in multiple project proposals?

Yes. You may be involved in up to 2 proposals submitted to this funding opportunity. Only 1 of these may be as the lead principal investigator.

4. How can the wider academic community stay involved in this research area?

This project is expected to engage with stakeholders where necessary to meet the scientific objectives of the programme, and to encourage impact and uptake of the data, evidence and understanding generated. It is expected that the project will take an outward looking approach in engaging with other academics, to ensure that it remains at the forefront of knowledge and understanding in this area.

Although this project will operate independently of the NWS RSO network, the funded consortium will be expected to engage with this community. The RSO is a dedicated office funded through NWS to support the delivery of independent evidence-based research to underpin the implementation of a UK GDF. Engaging with the RSO community will link the consortium with the wider GDF programme, including the community of more than 100 researchers, academics and NWS subject matter experts working on GDF related research in the UK.

Those interested in developments in the GDF research area could sign up to the RSO mailing list via the [RSO website](#) to find out more about upcoming research opportunities, webinars and events.

5. How is inclusion of Early Career Researchers (ECRs) being supported through this call?

It is a criterion for this funding opportunity that research teams include early career researchers in a meaningful way. Proposals should demonstrate how early career researchers will be supported to develop their careers, to ensure capacity building for the future in this field. Additionally, project plans should ensure they address how diversity and inclusion best practise will be considered and embedded in all project activities undertaken.

As part of the assessment of proposals, the assessment panel will consider the extent to which early career researchers have been embedded within project teams and provided with career development opportunities, along with due consideration for championing diversity and inclusion within project plans.

6. How will proposals be assessed?

An assessment panel consisting of independent experts will be convened following the closure of the call. This panel will provide initial comments on the proposals that will be fed back to the applicants in advance of the panel meeting. Applicants meeting standard NERC eligibility criteria will then be invited to an interview panel in May 2023 where they will be able to present their project plan, respond to these comments and address further questions from the panel. Three criteria will be used to assess the application: research excellence, fit to scheme and diversity & inclusion. Further details of assessment criteria are available in the [funding opportunity](#) and in the presentation given at the webinar on 19 January 2023 (the slides can be found on the [Programme page](#)).

7. What is the basis upon which the diversity & inclusion criterion will be assessed?

The D&I criterion will assess the extent to which the proposed project will bring in new perspectives on geological disposal by having a wide diversity of researcher backgrounds who might be entirely new to this area. We are not asking for data on protected characteristics of the team members, nor are the panel going to be taking it into consideration. It is under this criterion that the extent of the inclusion of ECRs will be assessed.

The other aspect of D&I is that inclusive approaches are embedded throughout every facet of the project to promote an inclusive culture in all activities and structures.

8. Is there scope for inclusion of research into community and stakeholder engagement relevant to the scientific and technical work of this call?

Research proposed by applicants to this call should address the research objectives as outlined in the [Funding Opportunity](#), and the other requirements of the call.

The knowledge and evidence generated by this research programme will be critical to informing decisions and policies pertaining to geological disposal of radioactive waste in the UK. Additionally, it will inform wider discussions surrounding use of the subsurface as part of the green energy transition. Social science research into public perceptions is not in scope, however research proposals are expected to detail:

- any proposed mechanisms or strategies to encourage impact from and uptake of the data, evidence and understanding generated as part of the programme
- any stakeholder engagement plans to ensure this impact and uptake.

9. Can international researchers be funded as co-investigators through this call?

Yes. Since 1 January 2020, it has been possible to include costs for collaborators based at IIASA in line with the funding for UK membership of IIASA. [An agreement between UKRI and Norway starting in November 2022](#) applies to this call, meaning that Norwegian co-investigators can be included in UK-led applications and receive funding from NERC. Please note that an international co-investigator cannot take over as principal investigator on a grant.

10. Is there any potential for drilling new boreholes, within this project?

We would consider that drilling of new boreholes is not likely to be possible within this project due to costs within the project required and the timescales needed for permitting. Applicants are reminded as per the [funding opportunity text](#) that extensive geological samples are available at the [BGS core store](#) within the [National Geological Repository](#). Applicants must [contact the core store](#) at least 2 months prior to submitting a proposal.

11. There is likely to be a vast amount of legacy data out there, potentially held by 3rd parties, and some of it likely confidential, that may be relevant to the development of a GDF in the UK. How will this be accessed to ensure that the research carried out here does not duplicate, or contradict prior findings?

Whilst we agree that unpublished data and data held confidentially inhibits the advancement of research and risks duplication, unfortunately we are limited in what we can do to access such information if it is not in the public domain. NWS will make any relevant data they have available to researchers as far as possible, and BGS hold extensive public domain datasets. Purchase costs for information deemed important for meeting the scientific objectives of this call, and where purchase is possible, could be included in the project costs, so long as this is costed and justified in the proposal accordingly.

NERC requires all data from the research we fund to be made publicly accessible, as per our [data policy](#), and therefore this project will provide a legacy of knowledge and data which can be built on in future.

12. Given the currently engaged communities in the wider GDF programme, there appear to be two target geologies: Mercia Mudstone or Kimmeridge Clay. Should proposals to this funding opportunity try to cover both targets or just focus on one, and will this influence any funding decision?

The objectives of this funding opportunity are to support fundamental geological research around lower-strength sedimentary rocks, including the geology and dynamics of how fluids flow through

generalised lower-strength sedimentary rock environments. Research conducted and funded by this programme will not form the appraisal of any specific site. Selection of particular target geologies along with geographic selection of the site(s) of any field research will need to be fully justified within the proposal as to their relevance to general principles necessary to meet the programme objectives.

13. It was mentioned that it would be good to compare different mathematical models to see if they give similar results. In a single project, this may not be easy to achieve. What is your opinion on this?

Mathematical modelling is one of the three core objectives that proposals to this call must address, to develop system level models of LSSR systems. Proposals should explain how confidence in the models will be built, which may include benchmarking. The approach taken should be fully justified in the proposal.

14. Who would be involved in regulation for an offshore GDF?

The principal regulators of a GDF will be the Environment Agency and Office for Nuclear Regulation, irrespective of whether the GDF is located onshore or inshore (under the seabed in British territorial waters up to 12 nautical miles from the shore). Planning consent will also be required and a GDF is classified as a Nationally Significant Infrastructure Project. There will also be roles for other regulators, for example the Health and Safety Executive during the intrusive investigation phase and, depending on location, Natural England and the Marine Management Organisation.

The North Sea Transition Authority (NSTA) regulates the licensing of exploration and development of the UK's offshore and onshore (England only) oil and gas resources, gas storage and unloading activities. It will not regulate a GDF.

15. From a regulatory perspective, in considering LCA from cradle to grave, does 'grave' correspond to closure only, without including in-perpetuity liabilities?

To meet regulatory requirements, a GDF will be a highly engineered structure consisting of multiple barriers that will provide necessary protection over hundreds of thousands of years. A multi-barrier approach involves engineered and natural barriers working together to prevent radioactivity being released to the surface in amounts that could cause harm to life and the environment. The barriers include the waste form, the waste package, the backfill, the sealing system and the geology units that the facility is constructed in.

Regulatory control by the Environment Agency will only end after a GDF has closed and it is satisfied that the operator can surrender their environmental permit. To surrender their permit, the operator will have to first demonstrate that the site will meet the Environment Agency's high standards to protect both people and the environment in the long term, avoiding any reliance on human action. The Environment Agency's requirements for the demonstration of environmental safety are described in [Geological disposal facilities on land for solid radioactive wastes - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/geological-disposal-facilities-on-land-for-solid-radioactive-wastes).