



Department for
Business, Energy
& Industrial Strategy

ADVANCED MODULAR REACTOR RESEARCH, DEVELOPMENT & DEMONSTRATION: PHASE A

An SBRI Competition: TRN 5690/02/2022
Applicant Questions and Responses

May 2022

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1. Introduction

On 8th April 2022, BEIS launched an SBRI competition to provide up to £2.5 million in innovation funding to support the development and demonstration of High Temperature Gas Reactor (HTGR) technology in the UK. The Competition Guidelines stated that prospective applicants to the competition could submit questions by 14:00 (BST) 3rd May 2022.

This document details responses to generalised and anonymised questions either submitted through the formal portal before the deadline, or during the competition launch event which was held at the BEIS conference centre in London on 29th April 2022.

2. Questions and Responses

2.1. Scope and Technology

Can this programme accommodate high temperature reactors that are not classified as High Temperature Gas Reactors (HTGRs)?

The focus of this SBRI competition is HTGR technology so other technology families are not eligible. The decision to focus on HTGR technology was taken for this programme only and followed a [Call for Evidence](#) that found no significant additional evidence to materially change the outcome of our underpinning analysis.

Beyond the RD&D programme the Government is technology agnostic. Government continues to support the development of all advanced nuclear technologies as part of wider activities including opening the Generic Design Assessment (GDA) process to advanced technologies; developing a siting approach for further nuclear developments; considering financing arrangements for future nuclear; and working to ensure the wider uses of nuclear (such as low carbon hydrogen production or direct industrial heat) are suitably recognised within wider Government policy.

Materials irradiation may affect the design of the HTGR. Is this included in the scope?

All appropriate failure mechanisms should be considered in the design in accordance with the expert judgement of the technical authority.

Any additional materials testing or development requirement should be included in the Ancillary Technology Annex.

Where the deliverables are focused on reactor demonstration, how will these be related to fuel?

The deliverables are supposed to be generic to be applicable to both the Fuel and Reactor pre-FEED studies.

Can end-user technologies (such as for hydrogen generation) be developed as part of the programme?

The scope of this fund is to demonstrate the reactor technology only. However, applicants will be expected to demonstrate how they would ensure their proposed solution will be developed in line with end-user requirements.

Could other government grants be used to fund end user technologies (such as for hydrogen generation) as part of a wider integrated programme in phases B and C?

This would be acceptable in principle provided subsidy control requirements are complied with across the wider programme.

Does lifetime levelised cost need to be submitted as part of deliverable 5?

Deliverable 5 is intended to obtain a Rough-Order-of-Magnitude (ROM) budget for phases B and C. Therefore, only a cost estimate to deliver those phases is required as part of that deliverable. However, any additional economic information that could contribute to our evidence base would be helpful.

Do you want us to list the technological challenges that need solving to help de-risk HTGRs?

This is a requirement of the Phase A deliverables (as highlighted below) to be produced by successful applicants. In the application form, applicants should provide evidence that they have the expertise required to deliver this to sufficient quality.

Deliverable 1:

“Challenges – appraisal of the key technical challenges that would need to be overcome during the proposed demonstration and associated timings.

.....

Value adding R&D – Identify how the proposed R&D will support and add value to; the demonstration programme, synergies with the development of advanced nuclear technologies (or beyond), and potential future commercialisation of advanced nuclear technologies more broadly.

- *Innovation versus cost-effective expediency – How innovation will be effectively balanced, creating UK value whilst not disproportionately affecting the time and cost of the RD&D programme “*

Deliverable 3:

“The contractor shall provide a separate annex detailing a proposal for priority applied research to be undertaken. Importantly it should detail what is best placed to be addressed within phases B and C of this programme, and which aspects need to be delivered outside of the RD&D programme (and reasoning for this).”

The current licensing regime requires single use, how much consideration should be given to this?

A regulatory health check will be part of the programme. As stated in the competition guidance for Deliverable 2 there will be an opportunity to engage with the regulators in the initial stages of Phase A to discuss Deliverable 2.

Is there a more detailed set of requirements for demonstration?

The requirements set out in the competition guidelines are intentionally high-level to empower the applicants to specify the appropriate demonstration to meet the market needs and maximise the potential contribution of HTGRs to the Net Zero target.

To what extent do BEIS expect us to provide market solutions during Phase A?

We will expect a level of detail that gives us sufficient confidence to justify any potential investment in Phase B.

2.2. Terminology

What does BEIS mean by ‘Market Failures’?

When referring to market failures, BEIS means any situation that requires government intervention to achieve a specific national objective. In the case of this programme, we have elected to intervene to increase the Technology Readiness Level of HTGR technology to enable it as an option to support governments Net Zero commitments.

What do BEIS mean by ‘Ancillary Technology’?

Ancillary technology is the supporting technology that applicants would need to be developed to improve the eventual commercial viability or technical feasibility of the potential First-of-a-Kind (FOAK) reactor enabled by the applicant’s proposed demonstration. For example, this could be development of a novel material, manufacturing technique, or anything else deemed appropriate by the applicant.

What is the difference between a Main Contractor and a Lead Organisation?

BEIS are happy to contract with either a single organisation (Main Contractor) or a Lead Organisation nominated by a consortium provided that the cross-organisational delivery team includes all required expertise. In the case of a consortium a Lead Organisation must be nominated, which will have certain responsibilities as detailed in the competition guidelines.

2.3. Bid Process / Practicalities

Do all bidders need to register interest, or just the Lead Organisation/Main Contractor?

We recommend that all Partner organisations and Sub-Contractors register as well as the Lead Organisation/Main Contractor. This will ensure that all parties receive relevant updates. The Lead Organisation/Main Contractor must register.

The Competition Guidelines states that the application deadline is 14:00 1st June 2022 but the online application form states 12:00 Mid-Day 25th May. Which is correct?

14:00 1st June 2022 is correct. Thank you for bringing this to our attention, the online application form has been updated accordingly.

The online application form states that a completed risk register should be uploaded for Phase 1. Should this be Phase A?

Yes, this should be Phase A. Thank you for bringing this to our attention, the online application form will be updated accordingly.

Are CVs of sub-contractors required?

We require CVs for key team members including those employed by sub-contractors and partner organisations who will taking an active role in delivering the programme. The information submitted should be sufficient to allow BEIS to assess the applicants capability to deliver the scope.

With respect to Section 6 of the of the Standard Selection Questionnaire, is any further action required beyond providing the details requested?

No further action is required beyond submitting the information requested in the Competition Guidelines.

2.4. Commercial

What commercial arrangements are expected between the Lead Organisation and other Partners?

Please refer to B.4. Competition Route (paragraph 3) of the Guidance Notes:

‘Applicants are actively encouraged to form relationships that ensure they have access to the necessary expertise to deliver the scope of work. Applicants may either form contractor/sub-contract relationships or consortia at their discretion. However, in all cases, applicants must identify a Main Contractor or Lead Organisation who will be the primary point of contact with BEIS.’

Will the T&Cs, including eligible cost rules also be required to be applied to the other partners and that these partners are bound by the same rules as the lead partner?

If a Consortium arrangement is being used, it is expected that all Partners (Lead and others) would be working under the same T&Cs, including eligible cost rules.

Please advise in contractually binding terms how ownership and application of pre-existing AMR intellectual property is protected for the exclusive use of the tendering contractors or subcontractors under the BEIS conditions of contract and the specific restrictions imposed in the SBRI Competition: TRN 5690/02/2022 document.

See Appendix 4 Paragraph 27 (1) of the competition guidance outlines ownership of background and pre-existing IP.

Please advise in contractually binding terms how ownership and application of pre-existing AMR intellectual property is protected and separated from IP arising from the competition and who is the legal owner of IP arising from a consortium bid.

Legal ownership of IP arising from a consortium bid is for the consortium members to determine. Notwithstanding legal ownership status, please refer to I.2. Intellectual Property of the Guidance Notes:

‘The proposed arrangements for intellectual property rights and exploitation of IPR are set out in the contract terms and conditions for this competition, in Appendix 4.

Subject to the requirements of Conditions 27(3) and 28(5) of the pre-commercial terms and conditions (Appendix 4), applicants will retain ownership of the intellectual property generated from the project. Applicants are required to identify and record any such intellectual property and to protect patentable knowledge in accordance with Condition 28 of the standard terms and conditions. If within five years of its creation applicants have not commercially exploited intellectual property generated from the work, then in line with clause 28(5) of the standard terms and conditions, BEIS may request the Arising Intellectual Property be assigned to BEIS.

For further information please refer to the T&Cs, notably Conditions 27-28’

Please advise in contractually binding terms how implementation for profit of any RD&D outcomes from the Advanced Modular Reactor Research, Development & Demonstration work is allowed under the BEIS conditions of contract.

Please confirm whether companies that may potentially profit are excluded under the conflict of interest clause were they to be involved in subsequent development?

Future profits arising from subsequent development are permissible as such profit would occur out with the timescale of this project. However, under SBRI rules, profit during the project is an ineligible cost, as per Appendix 2 – Eligible and Ineligible Costs, M.2. Ineligible Costs (paragraph 1) of the Guidance Notes:

*‘Under no circumstances can costs for the following items be claimed as part of an SBRI programme:
Profit and/or contingency sums’*

Could you define the BEIS definition of ‘monopoly position as in clause 27 (6) “..the Contractor has established a monopoly position.”

The context of this clause is to avoid a situation where BEIS funding creates arising IP that only the applicant has, and does not wish to or is unable to “commercialise” that IP

What level of detail is required for cost breakdowns?

Please refer to Section G) Financial Information (paragraphs 1 & 2) of the Guidance Notes:

‘Applicants are requested to provide a capped price quotation for the work. A detailed cost breakdown is required to enable assessment of value for money.

Financial information should include costs for the project, detailing labour (including manpower rates), material and capital equipment costs, and any travel and subsistence requirements. Applicants are required to complete a detailed financial summary template (the finance form) as part of the application process.’

When completing the Finance Form mentioned above, please ensure that all relevant columns within the form are completed as required.

With regards to 27(3) “The Contractor hereby grants to the Authority a worldwide, irrevocable, royalty-free, non-exclusive licence at no cost to the Authority, together with the right to grant sublicences, to use or publish any Arising Intellectual Property, Data, results, outcomes or conclusions which are created as part of the Services, for its non-commercial purposes”.

Please can you provide an exhaustive list of what ‘non-commercial’ purposes could be?

Please can you provide a list of who might be the intended sublicensees?

Please can you confirm that only Arising IP is subject to this Clause?

The context of this clause is to enable BEIS to share the outputs from the projects with other government departments carrying out similar or related projects. At this stage until projects are completed it is hard to give a definitive list of who such sub licences may be included.

As defined in the clause only arising IP is subject to this clause

27(5) The Contractor shall procure for the Authority any worldwide, irrevocable, royalty free licence, at no cost to the Authority, from any third party, to use any Intellectual Property Rights that are essential to the functioning and use of the Arising Intellectual Property for its non-commercial purposes (ITT Page 101)

Does this mean the lead organisation is required to purchase, as its own cost, all the IP associated with the technology solution?

The contractor will need to ensure that they have the appropriate agreements in place to ensure that they have the right to use any IP required to create any arising IP

Please can you confirm the intent of this clause with respect to Phase A?

Please see above

27(6) Under clauses 27(3), 27(4) and 27(5) the Authority shall only grant sublicences to third parties if, after five years from the date of this Contract, the Arising Intellectual Property has not been commercially exploited by the Contractor, or the Contractor has established a monopoly position. (ITT Page 101)

This clause reads that it refers to only Arising Intellectual Property and not any associated background IP. Please can you clarify this is correct?

That is correct

Can costs be claimed for that are associated with commercial facilities/designs currently in planning and/or construction phase?

This is a pre-procurement Small Business Research Initiative (SBRI). SBRI's are aimed at organisations working on research, development and demonstration (RD&D) of an innovative process, material, device, product, or service prior to commercialisation. Funding is available for RD&D activities only, including related dissemination activity.

Projects requesting funding for commercialisation activities are not eligible.

Is section 8 (requirement for insurances) of the Standard Selection Questionnaire relevant for this programme?

Insurances are required in relation to this programme

2.5. Eligibility

Would a proposal from a non-UK based organisation be considered if the intent was to licence IP to a UK based organisations in Phases B and C?

As stated in the Competition Guidelines, the majority of the Phase A scope must be carried out in the UK, and the Phase A Lead Organisation/Lead Contractor must be based in the UK.

Can the lead applicant be an international corporation which fulfils all the other criteria such as treaties and has a UK presence but is foreign owned.

Yes, provided the contract is made with UK based entity and registered at Companies House.

How will the yes/no responses to the eligibility questions be verified?

We will look at the evidence submitted as part of the competition application and will also consider additional evidence as part of a due diligence process prior to any contract award.

The eligibility criteria states “Can you confirm that your proposed deployment methodology has not been previously tested in the market or commercialised ?” In the frame of Lot 2, do you mean that the technology of the Fuel must be untested in the market (innovative technology), or is it the methodology (innovative methodology of deployment, innovative methodology of supply) ?

The technology or manufacturing technique must not have been tested or deployed previously in the market.

2.6. Policy

Are there likely to be further developments in nuclear policy?

As highlighted in the British Energy Security Strategy, the Government’s nuclear policy will continue develop over the coming years. Outputs from the RD&D programme may support that policy development and equally future policy may influence delivery of future phases of the RD&D programme.

Have HMG ruled out non-HTGR AMR technology in general?

No. Non-HTGRs are only excluded from the scope of this specific programme. Beyond the RD&D programme the Government is technology agnostic. Government continues to support the development of all advanced nuclear technologies as part of wider activities including opening the Generic Design Assessment (GDA) process to advanced technologies; developing a siting approach for further nuclear developments; considering financing arrangements for future nuclear; and working to ensure the wider uses of nuclear (such as low carbon hydrogen production or direct industrial heat) are suitably recognised within wider Government policy.

2.7. Performance Indicators

Regarding the question - “State how many FTE jobs could be supported in your organisation as a result of participation in this project?”

- a) Is that FTE jobs delivering Phase A, delivering the whole of the RDDP programme, or delivering the HTGR solution beyond the programme?**
- b) Do you just mean the lead applicant organisation - and if so why - or lead applicant and UK supply chain?**

How many FTE jobs the funding supports would be for delivering Phase A and for the Lead Organisation and Partners in the consortium.

Regarding the question - "What is the number of Partner Organisations supported to deliver the project? (Enter a number)" - what do you mean by Partner Org in this context?

This relates to the number of Partner Organisations within the immediate consortium.

What is the benchmark scale for Commercial Readiness Levels?

Applicants should select their response from the drop down. It is up to the applicant to determine what Commercial Readiness Level applies to them. Qualitative descriptions are provided in the form to assist with this.

It is worth noting that this is not a scored section of the application form. It is used for BEIS KPI data.

2.8. Miscellaneous

Given that organisations will be working together to form partnerships, the requirement to name individuals and provide salary data is likely to lead to GDPR concerns. Please can you advise how this can be dealt with?

All organisations are expected to comply with GDPR regulations including but not limited to obtaining explicit consent for how data will be processed in order to comply with the submission requirements set out in the Competition Guidelines.

The requirement for early deliverables will impact their quality. Will that affect the final score?

There will be no final score for the Phase A pre-FEED studies as there is no down-select between phases B and C. We expect all deliverables to be delivered to the highest possible levels of quality in consideration of time available.

Will Phase B require an additional ITT response, BEIS evaluation etc? Can further details be provided on the approach, information required, and timescales to contract award?

The proposed Phase B will be a separate process. That process will be outlined in early 2023 subject to BEIS internal approvals and decisions.

Regarding social value, should we submit a summary of our ongoing work on social value or should we detail only the initiatives that are applicable to this opportunity?

Applicants should detail social value that will be added by the BEIS provided Phase A funding only.

Deliverables 3, 4, 5 are due 26th August – is this realistic given holiday season, etc.?

Applicants should indicate whether they believe they can meet the schedule detailed in the Competition Guidelines.