

Technology Strategy Board

Driving Innovation



Developing the civil nuclear supply chain

**COMPETITION FOR COLLABORATIVE R&D
AND FEASIBILITY STUDY FUNDING**

MARCH 2014

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Summary

The Technology Strategy Board, the Nuclear Decommissioning Authority (NDA) and the Department of Energy and Climate Change (DECC) are to invest up to £13m in collaborative R&D and feasibility studies projects, to stimulate innovation in the UK's civil nuclear power sector.

With the sector undergoing a resurgence, we aim to develop a strong, innovative and sustainable supply chain to serve both national and global markets. We are seeking proposals in areas where the UK is, or can become, a leader, including in the construction, installation, commissioning, manufacture, operation and maintenance, waste management and decommissioning of nuclear plant in a safe, economical and sustainable manner.

We are allocating up to £10m of the total funding for business-led collaborative R&D (industrial research) projects, with business partners attracting up to 50% public funding for their project costs (60% for SMEs), and with projects lasting up to three years. We expect collaborative R&D projects to range in size between £500k and £3m. We are particularly encouraging larger companies to work with SMEs.

Up to £3m of the total funding will be available for smaller-scale feasibility studies (or pre-industrial research projects).

These must be led by an SME, and may be collaborative (with SMEs working with larger businesses, other SMEs or research organisations) or developed by a single SME. SMEs can attract public funding of up to 75% of their project costs (65% for larger business partners). We expect feasibility studies to last up to 12 months and to range in size from £100k to £150k.

Academic and research organisations can apply but cannot lead a project. The total non-business involvement in a project cannot exceed 50% of the total project costs for collaborative R&D, or 30% of the total project costs for feasibility studies.

The competition opens for applications for both types of project on **17 March 2014**.

The deadline for feasibility studies applications is noon on **30 April 2014**.

The application process for CR&D projects is in two stages, with the deadline for stage 1 (expressions of interest) also noon on **30 April 2014**.

A briefing event for applicants will be held in London on **19 March 2014**.

Background

Over the coming decades, the nuclear industry is set for a major expansion. Around £930bn investment is planned globally to build new reactors, with international procurement of around £25bn a year to 2025. In the UK, agreement is now in place to construct the first nuclear power station since 1995, with more likely to follow. In addition, the global decommissioning market (including the decommissioning of UK plants) is estimated to be worth £50bn pa by 2020, with between 82 and 145 reactors being retired by 2030, mostly in Europe.

This represents a significant opportunity for UK businesses in the area of nuclear engineering and its associated technologies. Innovation in this area could deliver direct benefits to the UK worth up to £14bn by 2050.

This competition builds on the findings and recommendations of a number of recent reports on the UK's civil nuclear sector, including the Government's *Nuclear Industrial Strategy* (see www.gov.uk/government, under Publications), the nuclear industry's *Industrial Vision Statement* (see www.gov.uk/government, under Publications) and the Low Carbon Innovation Co-ordination Group's *Technology Innovation Needs Assessment* (see www.lowcarboninnovation.co.uk, under Technology Focus Areas). It also follows on from previous Technology Strategy Board competitions in this area.

Scope

The following scope applies both to feasibility studies and collaborative R&D projects.

We may fund projects that address new-build and/or existing nuclear plants and their decommissioning. Projects may cover all aspects of the power plant, and are not limited to the 'nuclear island'. We welcome applications that include technology transfer from other sectors, and companies not already in the nuclear supply chain, particularly SMEs.

Projects should help to meet the long-term challenge of providing cost-effective, safe, energy-efficient solutions with high reliability and durability. Projects must also take into account the key issues of regulation, health and safety, and non-proliferation. This may be achieved by:

- the incremental development of technologies already used within the nuclear sector
- the development and transfer of innovative solutions from other sectors into nuclear applications (for example, from the materials, manufacturing, automotive, ICT, aerospace, robotics and medical sectors)
- the development of completely new technologies.

We encourage successful applicants to our previous competitions who want to take their innovations further, but participation in previous competitions is not a pre-requisite, and we welcome new applicants.

We are looking for proposals that relate to one or more of the following themes:

1. Construction, installation and commissioning. This includes nuclear new-build and new facilities required for decommissioning and waste treatment. Included are projects that develop innovative construction, installation and commissioning technologies to support lower-cost and more efficient plant delivery.



This may include the development of novel construction materials with improved properties, modular construction, systems integration, and 'virtual' technologies, including visualisation and simulation, to assist in training.

2. Operation and maintenance. We are seeking proposals for projects that will significantly speed up and improve the quality, accuracy and reliability of the operation and maintenance of both new and existing plant. This may be through innovation in areas such as structural health monitoring, control systems, virtual reality, robotics, sensors, ICT and non-destructive evaluation technologies. This theme also includes the development of advanced structural integrity, life extension, materials degradation and modelling methodologies for existing plant, including the application of such methodologies to future new-build plant.

3. High-value manufacturing. Continued support for the development of advanced manufacturing techniques is essential for growing market share in component supply, particularly for new-build, and the associated growth of the UK supply chain. Projects should target the development of high-value manufacturing (and associated inspection technologies), which may include advanced casting and forging technologies, processing, machining, welding and joining technologies. It may also include the development of advanced simulation and modelling technologies where there are clear benefits in terms of reduced cost and improved quality of components.

4. Decommissioning and waste management, including storage.

Encouraging innovation in decommissioning is a key component in the NDA's strategy (see www.nda.gov.uk/strategy). Projects may include technologies related to management of nuclear materials and spent fuels, nuclear waste management, and site restoration related to UK civil nuclear sites. We particularly encourage innovative

decommissioning solutions that are applicable across multiple sites and deal with common needs, risks or opportunities. This theme includes the development of innovative technologies for plant decontamination, decommissioning and dismantling. Novel technologies for the characterisation and treatment of radioactive waste, its handling, packaging and storage are also within scope. In this area we encourage the engagement of the NDA's Site Licence Companies, but this is not mandatory.

5. Open theme. This includes innovative technologies that are not specifically covered under the other themes, but where the UK has expertise, and can develop a robust, innovative supply chain with a clear route to market. This may include, for example, front-end fuel cycle technologies, small modular reactors and advanced materials. It may also include technologies that have not previously been applied in the nuclear sector, but could make a significant technical and commercial impact.

Nuclear fusion is outside the scope of this competition except where early-stage deployment of existing spin-out technologies can be demonstrated

Looking for partners to work on your project? Brokering and partnership-building events will take place between January and March 2014. For further information see the **_connect** group for this competition, at <https://connect.innovateuk.org/web/nuclear>

Funding allocation and project details

We have allocated up to £13m to fund CR&D projects and feasibility studies that address the technical challenges outlined in the scope above.

Collaborative R&D projects

Up to £10m is allocated for collaborative R&D projects (focused primarily on industrial research): business partners can attract up to 50% public funding for their project costs (60% for SMEs). Projects must be business-led. We expect collaborative R&D projects to range in size from £500k to £3m. We may consider larger projects, but you should discuss this with us before making your application. We expect projects typically to last up to three years. We particularly encourage larger companies to work with SMEs.

Academic and research organisations may also participate but cannot lead a project. The total academic and research organisation involvement cannot exceed 50% of the total overall project costs.

Feasibility studies

Up to £3m of the total funding is available for smaller-scale feasibility studies (or pre-industrial research projects). These must be led by an SME, and can be collaborative or involve only a single company. SMEs can attract public funding of up to 75% of their project costs (up to 65% for larger business partners). We expect feasibility studies projects to range in size from £100k to £150k, and to last up to 12 months. Academic and research organisations may participate but cannot lead a project. The total academic and research organisation involvement cannot exceed 30% of the total overall project costs.

To find out whether your business fits the EU definition of an SME, see: http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm

Application process

Feasibility studies

For feasibility studies projects, the competition opens on **17 March 2014**. The deadline for registration is noon on

23 April 2014. The deadline for receipt of applications is noon on **30 April 2014**.

Collaborative R&D

The application process for CR&D projects has two stages.

Stage 1 – Applicants submit an expression of interest, which is assessed.

Stage 2 – We invite selected applicants to submit a full application.

The competition opens on **17 March 2014**, and the deadline for registration is noon on **23 April 2014**. The deadline for expressions of interest is noon on **30 April 2014**.

Each partner in a feasibility studies or collaborative R&D project can receive funding towards their project costs – the funding is a percentage of the total eligible project costs and varies, depending on the type of organisation and the type of research being undertaken. For general guidance on how projects are funded see: www.innovateuk.org/-/funding-rules

The second stage for invited applicants opens on **19 May 2014** and the deadline for applications is noon on **3 July 2014**.

Applications are assessed on individual merit by an independent panel of experts. We may apply a portfolio approach across the themes/ areas identified in the scope above, subject to applications meeting the required quality threshold.

A briefing event will be held in London on **19 March 2014** to highlight the main features of the competition and explain the application process. Applicants are strongly recommended to attend.

More information

For more information and all the documents you need to read before you apply, including the *Guidance for Applicants*, go to the web page for this competition at www.innovateuk.org under Funding & support > Funding competitions.

To apply you must first register with us through the competition page on the website. Registration opens when the competition opens and closes a week before the deadline for applications.

Competition helpline:
0300 321 4357

Email:
competitions@innovateuk.org

Publicity

As part of the application process all applicants are asked to submit a public description of the project. This should adequately describe the project but not disclose any information that may impact on intellectual property, is confidential or commercially sensitive. The titles of successful projects, names of organisations, amounts awarded and the public description will be published once the decision to offer an award has been communicated to applicants by email. Information about unsuccessful project applications will remain confidential and will not be made public. E-mail pressoffice@tsb.gov.uk with any queries.

The Technology Strategy Board is the UK's innovation agency.

We accelerate UK economic growth by stimulating and supporting business-led innovation.

We are a business-led executive non-departmental public body, sponsored and funded by the Department for Business, Innovation and Skills.

Collaborative research and development is part of the Government's Solutions for Business portfolio.

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Key dates

FEASIBILITY STUDIES

Competition opens	17 March 2014
Briefing event	19 March 2014
Registration deadline	23 April 2014, noon
Deadline for receipt of applications	30 April 2014, noon

COLLABORATIVE R&D

Stage 1

Competition opens	17 March 2014
Briefing event	19 March 2014
Registration deadline	23 April 2014, noon
Deadline for receipt of EOIs	30 April 2014, noon

Stage 2

Stage 2 opens for invited applicants	19 May 2014
Deadline for receipt of stage 2 applications	3 July 2014, noon