

# UK Japan Civil Nuclear Research Programme Phase 3

**Call type: Invitation for proposals**

**Closing date: 09:00 on 30 June 2016**

**Related themes: Energy, Engineering, Manufacturing the future, Physical sciences**

## Summary

EPSRC in collaboration with The Japanese Ministry of Education Sport Culture and Technology (MEXT) and Japan Science and Technology Agency (JST) seek collaborative research applications in the removal of fuel debris and environmental safety around reactor core decommissioning of the TEPCO Fukushima Daiichi Nuclear Power Plant (NPP). This call represents the third phase of this new collaboration and is for small projects of approximately two and a half years' duration and a network for up to five years.

Any UK applicant considering submitting a proposal to this call must contact Dr Kate Bowman to discuss the call and register their intent to submit before 9 June 2016.

## Background

This collaboration has arisen from negotiations between the FCO and EPSRC in the UK and MEXT in Japan. These negotiations culminated at a meeting at the FCO in October 2013 where it was agreed that a joint collaborative programme of research should be initiated. The subject areas for this third call have been agreed as the removal of fuel debris, and environmental measures for the management of radioactive waste, around reactor core decommissioning of the TEPCO Fukushima Daiichi NPP for long term storage or disposal.

This call seeks to support two research projects, one in the retrieval of fuel debris using robotics and remote sensing and one in the treatment of radioactive waste for long term storage or disposal. The projects are to be of fixed duration, with a fixed start date in November 2016 and an end date of 31 March 2019. This is in order to accommodate the Japanese funding cycle.

It is expected that applications will complement existing UK Japan research projects funded under Phase 2

(<http://gow.epsrc.ac.uk/NGBOViewPanelROL.aspx?PanelId=1-2ZR6Q6&RankingListId=1-2ZR6RG>).

UK applicants are also invited to submit a proposal for a UK-Japan civil nuclear network to facilitate networking, collaboration and to organise annual meetings for UK Japan Civil Nuclear grant holders. The network is to be for a fixed duration of up to five years and should be led by a single PI.

As this is a joint call with MEXT in Japan all applications should be collaborative, with the UK partner submitting their part of the proposal to EPSRC and the Japanese partner submitting their part of the proposal to MEXT through JST.

Please note the following differences to a standard application:

- The projects must have a fixed start in November 2016 and an end date of 31 March 2019 in order to accommodate the Japanese funding cycle.
- The call will have a closing time of 09:00 on 30 June 2016. This is to coordinate with the Japan closing time of 17:00.
- The case for support is allowed two extra pages to bring it into line with the allowed limit in Japan.
- The application should include an additional two page outline of the project describing both the UK and Japan components. This outline will be used by MEXT in their interview stage, which is described in the assessment section.
- The case for support should be common, in-so-far as this is possible, given the difference in language and script, and describe the work being done in both Japan and the UK.
- Applicants should note that they should request only the travel and subsistence cost for the UK part of the project. The Japanese partners should request any funds they need from MEXT.
- Additional grant conditions will apply and are described below.

For more information about EPSRC's portfolio and strategies, see our website: <https://www.epsrc.ac.uk/research/ourportfolio/>

## **Subject areas of the call**

### **Joint research on removal of fuel debris**

In order to accelerate the decommissioning of the TEPCO Fukushima Daiichi Nuclear Power Plant (NPP), fundamental collaborative research between the UK and Japan is invited that allows the safe removal of fuel debris from the damaged NPP.

The present situation, location and condition of fuel debris in the reactor core and the containment vessel is unknown. It is envisaged that difficulties will be faced in removing the fuel debris in the high-dose region.

Therefore, the specific purpose of this joint research is to contribute to the whole process concerning removal of fuel debris, including the assessment of the condition and situation of the reactor core and containment vessel and the removal of fuel debris by remote control. Example topics of joint research, suggested as topics for prompt solution of the challenges, are shown below.

### **Example topics of joint research**

- Robotics and remote sensing technologies.

- Assessment and analysis technologies for physical, chemical and thermal properties of fuel debris (including critical characteristics).
- Simulations of severe accident progression, and other simulation techniques to facilitate the decommissioning.
- Safe removal methods for fuel debris.
- Measurement technologies such as visualisation in the high-dose condition.
- Acquisition of basic data concerning severe accidents.

## **Joint research on environmental measures including for the management of radioactive waste**

In order to accelerate the decommissioning of TEPCO Fukushima Daiichi Nuclear Power Plant (NPP), collaborative basic and fundamental research between the UK and Japan is invited, which contributes to environmental safety around reactor core and reactor building while decommissioning, and to storage, treatment and disposal of radioactive wastes produced by decommissioning of the TEPCO Fukushima Daiichi NPP.

The purpose of the joint research is to contribute to storage, treatment and disposal of fuel debris and radioactive wastes produced in the process of decommissioning of the damaged NPP, and to contribute to ensuring radiation safety in the contaminated site of NPP and facilities thereof. Example topics of joint research, suggested as topics for prompt solution of challenges, are shown below.

### **Example topics of joint research**

- Studies on storage, treatment and disposal of radioactive wastes.
- Radiation measurement.
- Technologies for analysis and assessment of contamination.
- Assessment of environmental safety.
- Assessment of evolution of contamination in the environment.
- Technologies for stabilisation and restoration of the contaminated environment.

## **Additional grant conditions**

Please note that this call will carry several additional grant conditions.

### **GAC 1. Reporting**

Successful applicants must provide an annual report with a form and content as specified by the EPSRC. Details for the report contents will be sent to the PI at least two months in advance of the report deadline. The reports will be scrutinised by the Nuclear Champion group.

## **GAC 2. Start Date of the Grant**

Notwithstanding GC4, this grant has a fixed start date of November 2016. No slippage to this date will be allowed.

## **GAC 3. Fixed Duration of the grant**

Notwithstanding GC7, this grant must end on 31 March 2019. Grant extensions may be requested later, as the grant progresses, for the usual conditions:

<http://www.epsrc.ac.uk/funding/managing/extensions/>

This call is to support a research programme that will enhance the research councils existing projects in this area, and maintain and strengthen the UKs research capability.

For more information about EPSRC's portfolio and strategies, see our website:

<http://www.epsrc.ac.uk/research/ourportfolio/>

## **Funding available**

Up to £1.0M is available to support the UK part of the research funded through this call. It is expected that one project in the removal of fuel debris and one in environmental measures including measures for the management of radioactive waste will be supported. Up to £0.4M is available to support a UK-Japan civil nuclear network.

## **Equipment**

Where possible, researchers are asked to make use of existing facilities and equipment, including those hosted at other universities. If equipment is needed as part of the research proposal, applicants must follow EPSRC's rules for requesting equipment over £10,000 in value. Individual items of equipment between £10,000 and £400,000 can be included on proposals for this call if the equipment is essential to the proposed research and if no appropriate alternative provision can be accessed but research organisations will be expected to make a contribution to the cost. Given that capital provision has been reduced by about 50%, contributions of this order of 50% of the full cost of the equipment will be expected. Additional justification of the requirement for individual items of equipment between £10,000 and £400,000, and details of the proposed contribution to the cost of the equipment, must be provided in the justification of resources. For any items or combined assets with a value above £138,000 (including VAT) a two-page Equipment Business Case must also be included in the proposal documentation.

For more information on equipment funding and guidance on how to prepare an Equipment Business Case, please see:

<http://www.epsrc.ac.uk/research/ourportfolio/themes/researchinfrastructure/subthemes/equipment/>

## **Eligibility**

For information on the eligibility of organisations and individuals to receive EPSRC funding, see the EPSRC Funding Guide:

<http://www.epsrc.ac.uk/funding/howtoapply/fundingguide/>

As this call is a targeted funding opportunity provided by EPSRC, higher education institutions, and some research council institutes and independent research organisations are eligible to apply. A list of eligible organisations to apply to EPSRC is provided at: <http://www.rcuk.ac.uk/funding/eligibilityforrcs/>

## How to apply

### Submitting an application

You should prepare and submit your proposal using the Research Councils' Joint electronic Submission (Je-S) System (<https://je-s.rcuk.ac.uk/>).

When adding a new proposal, you should select:

- Council 'EPSRC'
- Document type 'Standard Proposal'
- Scheme 'Standard'
- On the Project Details page you should select the 'UK Japan Civil Nuclear Energy Collaboration Phase 3' call.

Note that clicking 'submit document' on your proposal form in Je-S initially submits the proposal to your host organisation's administration, not to EPSRC. Please allow sufficient time for your organisation's submission process between submitting your proposal to them and the call closing date. EPSRC must receive your application by **09:00 on 30 June 2016**.

Guidance on the types of support that may be sought and advice on the completion of the research proposal forms are given on the EPSRC website (<http://www.epsrc.ac.uk/funding/howtoapply/routes/>), which should be consulted when preparing all proposals.

### Guidance on writing an application

If the attachments are uploaded as Word documents, please be aware that once the application has been submitted to the Council/Funder, all the attachments will be converted and held as an Adobe Acrobat file (PDF). Also please note, that whilst we support a wide range, **we do not support all MS Word font types**. Therefore if an unsupported font type is used a different font type may be substituted which may result in changes to the layout of the document. For this reason we recommend that the documents are converted to PDF files before uploading.

Also, 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.

In addition, where non-standard fonts are present, and even though 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 nonstandard fonts (scientific notation, diagrams etc.), the document is converted to PDF prior to attaching it to the proposal.

For advice on writing proposals see:

<http://www.epsrc.ac.uk/funding/howtoapply/preparing/>

Standard proposal criteria apply. Applications must include:

- Case for support, including track record of applicants (two sides A4) and description of proposed research (up to **eight** sides A4). Please note that a **National Importance Statement must be included in the case for support**, for guidance on writing national importance see <http://www.epsrc.ac.uk/funding/howtoapply/preparing/includingnationalimportance/>. The case for support should not exceed ten sides of A4.
- Pathways to impact Document (two sides A4).
- Work plan (one side A4).
- Justification of resources (two sides A4).
- The application should include an additional two page outline of the project describing both the UK and Japan components. This should be uploaded under the "other document" option (two sides A4).
- CV's (up to two sides A4 for each named researcher, visiting researcher and researcher co-investigators – where applicable).
- Statement of support from any project partners - where applicable (no page limit).
- Letters of support - where applicable (no page limit).
- Quotes for equipment - where applicable (no page limit).
- Technical assessment for the use of any major facility - where applicable (no page limit).

For advice on writing proposals see:

<http://www.epsrc.ac.uk/funding/howtoapply/preparing/>

## **User Engagement Strategy**

Successful applicants will be required to develop and execute a strategy for engaging with potential users of the research funded in the project (resources for this activity can be requested as part of the Pathways to Impact and must be justified in the application). This strategy should be reviewed and updated regularly as part of the formal management of the grant.

The strategy should cover:

- how and when potential users have been / will be identified.
- what form the engagement will take.
- what steps will be taken to ensure that outputs of the research are made available to potential users.
- suitable metrics for determining the success of the strategy in delivering value to users.

## **Assessment**

### **Assessment process**

Proposals will **not** undergo postal refereeing due to constrained timescales. As a consequence applicants will not have a 'right to reply'. Proposals will be assessed by a combined UK-Japan expert panel at a formal panel meeting in September 2016. **Applicants will be informed of the outcome as soon as possible after the panel meeting.**

The panel will be asked to assess the proposals against the usual EPSRC and MEXT assessment criteria as listed below. As such the fundamental nature of the challenge and the scientific quality of the proposal are critical, as well as the fit of the proposal to the call.

A rank ordered list will be generated and only the top ranked proposals will be funded.

It should be noted by the UK applicants that there will be an additional interview stage **in Japan only**. This will occur before the full panel in September (there will not be an equivalent interview stage in the UK). UK project partners may be asked by their Japanese partners to contribute via teleconference or videoconference to the Japanese Interview panel but this may be impractical due to the time difference.

### **Assessment criteria**

Proposals will be assessed on their fit to the scope of the call, and to the following standard criteria:

#### **Quality of the scientific research**

- Research vision, ambition and adventure
- Distinctiveness from other projects funded from the existing portfolio
- Appropriateness of proposed methodology

#### **Potential impact of the project**

- Potential impact of the UK research landscape in cross-disciplinary technology research
- Appropriate and viable potential user collaborations
- Plans for dissemination and knowledge exchange with potential beneficiaries of the research

#### **Ability of the applicant team to deliver the research**

- The leadership quality and experience of the PI
- The track record of the team
- The balance of skills of the project team

## Resources and management, including:

- Effectiveness of planning and resource management
- Appropriateness of resources requested

## Feedback

Feedback can be provided on request.

## Key Dates

Activity	Date
Call opens	19 May 2016
Intent to submit notification	09 June 2016
Deadline for Full Proposals	30 June 2016
Japanese Interviews (Japan Only)	July 2016
Full Panel Meeting	01 September 2016
Funding decision	27 September 2016
Grant start date	November 2016

## Contacts

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**Any queries regarding the submission of proposals through Je-S should be directed to:**

The Je-S helpdesk  
Tel: 01793 444164  
[JeSHelp@rcuk.ac.uk](mailto:JeSHelp@rcuk.ac.uk)

## Change log

Name	Date	Version	Change
Kate Bowman	21 April 2016	1	N/A