



DST Government of India – RCUK

India-UK Collaborative Research Initiative in Solar Energy

Department of Science and Technology (DST), New Delhi, in collaboration with the Research Councils UK Energy Programme, jointly invite proposals for consortia research projects focussing on Thin Film and Excitonic solar energy.

Closing date for proposals: September 30th, 2009

Introduction

The Research Councils UK (RCUK) and the Indian Department of Science and Technology (DST) are looking to strengthen collaboration between UK and Indian research institutions. India remains one of the UK Research Councils' priority countries for increasing research collaboration.

This call will focus on Thin Film and Excitonic Solar Energy Technologies. The area of the call was agreed upon through a dialogue between the UK Research Councils' Energy programme and the Government of India's Department of Science and Technology (DST). Development of technologies relating to solar energy was agreed to be of importance to both countries.

Background

Solar energy has been identified by both India and the UK as an area of significance in providing solutions to the problem of meeting future energy needs. For example, India's National Action Plan for Climate Change (NAPCC) has a target of having 1000 MW solar power installed by 2012, and the UK's 2007 energy white paper highlighted solar energy as one of the technologies that will help the UK meet its 20% renewable targets by 2020

Development of call for proposals

In order to scope the areas for potential collaboration, a workshop to bring together leading solar energy researchers from both the India and the UK was arranged and held in New Delhi in April 2009. This call is based around areas identified as themes of common interest during the workshop.

Types of Proposals Sought

The RCUK Energy programme and the DST expect to support one or two collaborative consortia projects from this call which address the 'Grand Challenges' set out below. In addition to the usual academic requirements for a research project a successful application must:

- be a joint activity involving research groups from both the UK and India,
- have a clear exploitation route for the research outcomes;
- involve personnel exchange between the Indian and the UK partners

The UK and India have each committed to a contribution of up to £5M for this call over a three year period.

Scientific focus for the call

The key areas of this call will focus on **the performance and stability** of photovoltaics as well as **novel material and devices** which have the potential to **reduce costs**. Where possible, the approach should focus on technologies with clear **routes to market**. In the **materials** area research is encouraged which demonstrates new technologies, **removing known bottle necks** in materials supply, as well as **novel device designs** which will allow significant **reduction in costs** and result in **higher efficiencies**. In the field of **photovoltaic performance** research is encouraged which aims at understanding the **long term behaviour** of photovoltaic devices and systems, covering all steps from short term operational performance, module metrology to long term stability of PV modules and systems. Research that looks at these issues in the context of the diverse environmental climates of India and UK is also welcomed.

Within an overarching focus on energy generation through solar photovoltaics, the following 'Grand Challenges' were agreed at the workshop to be of mutual interest to both the UK and India:

1. Thin Film Performance and Stability

*Key areas within this that new research could focus on include: thin film crystalline silicon, new materials, new concepts and loss reduction

2. PV power systems and distribution

*Modelling, ageing and life time analysis

3. Cost effective isolated PV systems

*Storage is a relevant issue here, but research should not be limited to this

4. Low cost materials for PV

*This might include exploration of novel materials and the supply of key materials for production

5. Excitonic solar cells (*can include Organic and Dye Sensitised solar cells*).

*Including issues relating to device efficiency, stability and other technical factors required to facilitate the route to the market

6. Cost reduction

*Sustainable and low cost materials and processes including thin film silicon

This call invites consortium proposals that address some or all of the grand challenges listed above.

Summary Guidance for applicants

As this is a joint application to DST and EPSRC¹, applicants should ensure that identical applications are submitted by the closing date to DST and EPSRC. The UK application should be submitted through the UK Research Councils grant submission system which is known as 'Je-S' (further details on this below). The DST application should be a hard copy of the UK Je-S form and attachments; both must include financial and project information for both UK and India parts of the joint project. For further details see the JeS submission guidance on page 3. The costs of the UK Institutions will be met from Research Councils funds, those for the Indian partner institutions will be met by the DST. Proposed consortia should decide on a **UK based lead partner** and an **Indian based lead partner**, each of whom will lead on interaction with the funding agency in their respective countries.

The **UK based lead partner** will ensure the application is submitted via the Je-S system. The application must comply with current Research Council guidelines on format and content. Further information is available on the Je-S website ('About Je-S' on this page <https://je-s.rcuk.ac.uk/Jes2WebLoginSite/Login.aspx>) and in the EPSRC Funding Guide on the EPSRC website (www.epsrc.ac.uk).

The **Indian based lead partner** will submit the identical proposal (10 hard copies of the Je-S form) using the same common proposal format to DST by the stipulated closing date for processing as per requirements of DST India (<http://www.serc-dst.org>). These applications should be submitted to the Department of Science and Technology, Head Science and Engineering Research Council, Department of Science and Technology, Technology Bhawan, New Delhi.

Only activities that involve academic collaboration between the UK and India can be considered. The Proposals should be for consortia and should include both UK and Indian partners. Proposals involving industrial collaborators are welcomed but costs for these partners will not be covered by DST/ EPSRC through this call.

Application Procedure – Je-S submission and guidance

The lead UK partner should submit the application to the EPSRC via the JeS system. Applications are sought from UK institutions eligible to receive research council funding. Eligibility rules can be found at www.rcuk.ac.uk/research/eligibility.htm.

Those unfamiliar with Je-S should note that it is a pre-requisite of submission that the lead UK investigator's organisation is registered to use Je-S. Applicants should ensure that the registration process is complete as soon as possible, well in advance of the call closing date. A table showing the current status of research organisations registered to use Je-S is available at [http://www.so.stfc.ac.uk/jes/jes1/RODetails\(Web\).pdf](http://www.so.stfc.ac.uk/jes/jes1/RODetails(Web).pdf). Submission of proposals after the closing date will not be accepted due to incomplete Je-S registration. Full details of how to register are available from the Je-S Helpdesk at JeSHelp@rcuk.ac.uk.

When adding a new proposal, you should select Council 'EPSRC', document type 'Standard Proposal' and the 'India UK solar collaboration' Scheme.

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 ensure you allow sufficient time for your organisation's submission process between submitting your proposal to then and the Call closing date. EPSRC must receive your application by **4:00PM (Greenwich Mean Time) on Wednesday 30th September**.

The following information and documentation will need to be submitted via Je-S:

- [Je-S](#) application form for the relevant call detailing funds requested from the Research Councils.
- A 'summary' describing the nature of the partnership, the main elements in the proposal and the benefits to the UK and partner country.

¹ The UK's Engineering and Physical Sciences Research Council (EPSRC) leads on the broader RCUK Energy Programme under which the UK funding for this call falls. EPSRC will therefore act as the administrative co-ordination point for this call.

- Case for support including a track record (up to 2 sides of A4) and a description of the proposed research and its context (up to 6 sides of A4). It is important that this includes a description of how Intellectual Property is to be shared and managed between UK and India partners;
- Impact plan (up to 2 sides of A4)
- Justification of the resources requested (up to 1 side of A4)
- Work plan (up to 1 side of A4)
- CVs (up to 2 sides of A4 each) for named researchers, visiting researchers and researcher co-investigators - where applicable
- Letters of support from any project partners (no page limit) - where applicable
- Quotes for equipment (no page limit) - where applicable
- Technical assessment for the use of a major facility (no page limit) - where applicable

Note that costing details entered directly in to the Je-S form should be UK based costs that are requested of the EPSRC. Any Indian based costs that are to borne by DST should be entered on the 'joint proposal format' form (see further detail below) and uploaded as a separate attachment to the application within Je-S.

Additional material is required for India-UK Collaborative Initiative in Solar Energy Research applications as follows:

- A Host Organisation Statement from the Pro-VC or equivalent of the UK institution, indicating their commitment to the proposed UK-India links
- Up to 2 letters of support from the key India institution(s) with whom you are working. One of these must be a Host Organisation Statement from the Pro-VC or equivalent of the lead India institution on the application, indicating their commitment to the partnership and how this will be delivered.
- The joint application form detailing the funding requested from DST; This is available on both DST and EPSRC's website ('**Joint Proposal Format**'). The lead partner(s) in India should be indicated on this document.
- A 'statement of agreement' from the UK and India PI, providing written assurances that both parties are fully engaged in the collaboration and agree to deliver the work programme as described. This should be attached as an additional Letter of Support;

See also: <http://www.epsrc.ac.uk/ResearchFunding/HowToApply>

Please note: We do not require full CVs, supporting technical annexes, letters from UK partners or separate lists of publications. Any excess material will be removed from your application. If you wish to refer to additional supporting information, please use a web-link in your case for support but we cannot guarantee that the reviewers will consider additional web material. Papers for the prioritisation panel (see further detail below) are converted and copied in greyscale/black and white, therefore colour material will not be accurately reproduced. We require the use of minimum 11pt Arial font on A4 pages with 2cm borders on all pages.

After submitting your application:

When we receive your application through Je-S, you cannot make any amendments or additions. Therefore please make sure that all letters of support are secured well in advance of the closing date.

We will contact you if there is a problem with your application. Any delay in your proposal will jeopardise the quantity of reviews we receive on your application which may affect the final panel decision.

The deadline for receipt of outline proposals is 4:00PM on Wednesday 30th September. We will not accept late applications.

Assessment procedure

Applications submitted to this call will undergo the following peer review process.

Once a joint application has been received at EPSRC and at DST, each funding agency will send the proposal to peer reviewers drawn separately by both UK and India. The reviewers will receive the complete proposal (i.e. including UK and the Indian information). The peer reviewers also receive a covering letter, guidance and a form that they will complete with their comments and return to EPSRC/ DST. There will be an opportunity, during the application process, to nominate potential reviewers of your application.

Proposals that receive highly supportive comments from peer reviewers will be submitted to a joint EPSRC/ DST Prioritisation Panel. Panel members will be drawn from the EPSRC college and DST. The peer reviewers' reports (made anonymous) will be passed back to the lead investigators from India and the UK to comment on any factual inaccuracies or questions raised before consideration by the Prioritisation Panel. All reviewers' comments received in time will be seen by the Prioritisation Panels. The lead investigators' response to the peer review comments, if such a response is made will be given to the panel for consideration, along with all other documents.

A rank ordered list will be produced by the prioritisation panel and EPSRC and DST will then fund as far down the list as either quality or funds permit.

Funding decisions will be made by March 2010.

Assessment criteria

The proposals will be assessed following a procedure mutually agreed by EPSRC and DST. In particular, the proposals should demonstrate:

- That they promise excellent and innovative research
- That they are a joint activity involving research groups from both the UK and India.
- A clear exploitation route for the research outcomes.
- That they involve personnel exchange between the Indian and the UK partners.
- How the project will building new or substantially stronger links between UK and Indian research groups.

Timetable

June 30 th 2009	Joint Call Issued
Sept 30 th 2009 (16:00*)	Closing date for receipt of applications
February 2010	Joint Prioritisation Panel
March 2010	Decisions announced (formal grant offer to follow)

* this 4 pm deadline relates to UK proposals submitted through J-eS

Contacts

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FREQUENTLY ASKED QUESTIONS:

Q: Does the Principal Investigator have to be a senior officer of the university?

A: No, the named Principal Investigator should be the UK academic lead of the UK-Indian application. They will be the main point of contact for EPSRC correspondence.

Q: What UK letters are required?

A: We ask for a host Organisation Statement from the UK holding institution which outlines the perceived value of the research to the institution and the support which is to be associated with this if the bid is successful. This should be signed at pro-VC level or equivalent.

Q: What Indian letters of support are required?

A: As well as the UK letter described in the previous question, you should provide up to 2 letters of support from partners in India, including an India Host Organisation Statement.

Q: What additional joint paperwork is required?

A: In addition to the above, you will need a statement of agreement from the participating UK and India applicants.

Q: What UK costs can I claim as part of the application?

A: Funding is provided to UK and Indian institutions and may be spent so as to maximise interactions and all costs should be well justified and appropriate to the ambitions of the project. Applicants should refer to the appropriate agency website for further guidance on eligible costs.

Q: What costs can partners claim?

A: Non-academic partners may claim reasonable costs associated with the research in view of the collaborative nature of the research involved; e.g. travel and subsistence, access to infrastructure, samples, data or equipment etc.

Q: What costs can Indian partners claim as part of their application?

A: India based partners can claim costs in India - these will be paid via an award from DST.

Q: How should I manage Intellectual Property (IP) issues?

A: The proposal should ensure that sufficient ownership protection is agreed with UK and India partners before the grant commences. Several model agreements are publicly available. See for example:

<http://www.innovation.gov.uk/lambertagreements>

Costs to register, protect and maintain IP during the lifetime of the funding sought may be requested. This may include reasonable costs of third parties to perform IP maintenance, both in the UK and overseas, but will not include legal costs to defend IP infringements.

Q: Will the Panel make funding cuts to my application?

A: We recommend that Panels do not make cuts to applications, although a Panel may suggest that some activities are redesigned to better fit the objectives of the call for proposals, or propose rebalancing funds around existing activities. Value for money is a criterion for assessment and you should not risk over-inflating your application. Your proposal will be judged as it is presented.

Q: What is a 'Justification of Resources'?

A: This is a 1 side of A4 description and justification of the need for the resources you have requested. You should provide enough information to enable the reviewers to be satisfied that there is a genuine and necessary requirement for what you have asked for, and that it could not be achieved in a more cost-effective way. The EPSRC website has more information.

Q: How will the successful grants be monitored?

A: EPSRC and DST will agree how the evaluation and monitoring of the awards will take place when making funding decisions. You should ensure you have clearly stated how the project will deliver during its lifetime.

Q: Is there funding available to help put together a proposal?

A: Unfortunately there is no funding available to assist UK or Indian applicants in putting together their proposals



**DST INDIA - RESEARCH
COUNCILS UK
India-UK Collaborative
Research Initiative in
Solar Energy**

JOINT PROPOSAL FORMAT

Reference: (this is added once submitted)

Please complete the following information as completely as possible.
This form should be submitted as part of your application to the DST/RCUK UK-India Research Initiative in Solar Energy as described in the Guidance Notes.

Indian Organisation where the DST Grant would be held?

Organisation	
Division or Department	

Names of India lead partners and co-partners

Role	Name	Organisation	Division or Department

Name of UK Lead Partner and Co-partners:	
Organisation and Department:	

Project Title: UK-India Research Initiative on Solar Energy -
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Summary of Resources Required for Project

(INDIAN PARTNERS)

(Rs in Lakh)

Fund heading	Total	1 st Year	2 nd Year	3 rd Year
Staff				
Travel & Subsistence				
Equipment				
Other Costs				
a. Contingencies				
b. Consumables				
Sub-total				
Overhead				
Total				

Summary of staff effort requested

	Months
Investigator	
Researcher	
Technician	
Other	
Visiting Researcher	
Student	
Total	

Note:

For Multiple Partnership proposal, please provide Financial Requirements for Each Partners separately.

Other Support

Details of support sought or received from any other source for this or other research in the same field.

Name of awarding Organisation	Awarding Organisation's Reference	Title of project	Decision Made (Y/N)	Award Made (Y/N)	Start Date	End Date	Amount Sought/ Awarded (Rs in Lakh)

Related Grants

Provide the DST, DBT, CSIR etc. reference numbers of any current grants held by any of the applicants that are related to this proposal.

Interim reports of these grants should be submitted with this proposal.

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Objectives (mandatory)

List the main objectives of the proposed research in order of priority [up to 4000 chars]

[use the same material as given in the Je-S submission by your UK Collaborator]

Summary (mandatory)

Describe the proposed research in simple terms in a way that could be publicised to a general audience [up to 4000 chars].

[use the same material as given in the Je-S submission by your UK Collaborator]

Beneficiaries (mandatory)

Describe who will benefit from the research [up to 4000 chars].

[use the same material as given in the Je-S submission by your UK Collaborator]

Additional Project Partners: details of partners in the project and their contributions to the research. These contributions are in addition to resources identified above.

1	Name of partner organisation	Division or Department	Name of contact		
Direct contribution to project (Rs in lakh)					
	Description	Value		Description	Value
cash			use of facilities/ equipment		
equipment/ materials			staff time		
secondment of staff			other		
other			Sub-Total		
Sub-Total				Total Contribution	

2	Name of partner organisation	Division or Department	Name of contact		
Direct contribution to project(Rs in lakh)			Indirect contribution to project		
	Description	Value		Description	Value
cash			use of facilities/ equipment		
equipment/ materials			staff time		
secondment of staff			other		
other			Sub-Total		
Sub-Total				Total Contribution	

Total Contribution from all Project partners

OTHER INFORMATION:

Reviewers (mandatory – at least one of the reviewers below will be contacted by DST)

1	Name	Organisation	Division or Department	Email Address

2	Name	Organisation	Division or Department	Email Address

3	Name	Organisation	Division or Department	Email Address