

Energy & International Development: Understanding Sustainable Energy Solutions in Developing Countries

Call for Expressions of Interest

This is a call for expressions of interest from organisations (based in either developing countries or the UK) who wish to bid under a major new research call on understanding sustainable energy solutions in developing countries. Successful organisations will be invited to take part in a short development workshop to refine the priority research challenges around energy in the context of international development and help facilitate collaborative bids.

Date of Workshop: Wednesday 12th to Friday 14th December 2012

Location: Nairobi, Kenya; Venue TBC.

Closing date for applications: 12.00 noon Friday 28th September 2012

Purpose

The UK Research Councils' Energy Programme¹, the Department for International Development (DFID) and the Department for Energy and Climate Change (DECC) invite expressions of interest from organisations (based in either developing countries or the UK) who wish to bid under a major new research call on understanding sustainable energy solutions in developing countries. Successful applicants will be invited to take part in a short development workshop to refine the priority research challenges around energy in the context of international development and help facilitate collaborative bids. This workshop will be held from 12th - 14th December in Nairobi, Kenya with full consortium proposals expected by February 8th - successful applicants will be notified by March 2013. **Only attendees present at the development workshop (and those they are representing) will be eligible to submit full proposals to this call.**

The UK Research Council's Energy programme has allocated a budget of up to £5M to support research projects arising from this call. Depending on the quality of proposals received, up to an additional £7.5M of matching funding could be made available from DFID & DECC, bringing the total for this call up to a maximum of £12.5M. It is anticipated that up to three large-scale and ten smaller-scale proposals will be funded through this call.

The aims of the call are two-fold:

 to increase clean energy access, resilience and wealth creation in developing countries (particularly for the urban and rural poor), through high quality research that improves the understanding and evidence base of the opportunities and challenges associated with clean energy for development.

¹ The Energy Programme is a Research Councils UK cross council initiative led by EPSRC and contributed to by ESRC, NERC, BBSRC and STFC.

 to forge mutually-beneficial multi-disciplinary partnerships between researchers in the UK and developing countries (as well as south-south partnerships) that create transnational added value through meaningful intellectual collaboration, and enhance the scientific capabilities of southern partners for the longer term.

There will be two components to this call:

- a) (larger scale) Research Partnership Grants (RPG): a small number of larger scale multi-partner research projects, supporting a co-ordinated package of research tackling a number of priority research questions in a priority area.
- b) (smaller scale) Targeted Research Grants (TRG): multi-partner, smaller scale research projects that will address specific targeted research questions.

Rationale & Principles

The scale of the clean energy challenge is considerable. What choices will be made by the 1.3 billion people without access to electricity, the 2.7 billion without clean cooking, or the additional 3 billion middle class consumers by 2030? And what impact will these decisions have on people's livelihoods (particularly the poorest) and on the world's climate? There exists a strong need for evidence on what works and what doesn't in driving access to clean energy, a critical constraint to growth for industry, communities and households in many developing countries.

In December 2010 the UN General Assembly declared 2012 the 'International Year of Sustainable Energy for All' in recognition of the fact that access to affordable modern energy services is essential for sustainable development and for the achievement of the Millennium Development Goals.

Recognising the growing importance and urgency of tackling climate change and its impact on growth and poverty reduction, the UK Government has established the International Climate Fund (ICF). The purpose of the ICF is to support international poverty reduction by helping developing countries to adapt to climate change, take up low carbon growth, and tackle deforestation. The ICF amounts to £2.9 billion and represents, in part, the UK's commitment to meeting the international commitment of \$100 billion of public and private sector finance each year by 2020. The ICF priorities include:

- Demonstrating that building low carbon, climate resilient growth at scale is feasible and desirable.
- Recognising that climate change offers real opportunities to drive innovation and new ideas for action, and create new partnerships with the private sector to support low carbon climate resilient growth.

The UK Government is committed to expanding access to clean and sustainable energy in developing countries and in January 2012 supported the formation of the Low Carbon Energy for Development Network (LCEDN). The first in a series of LCEDN conferences held in Loughborough on the 4th-5th April 2012 brought together academics, practitioners, policy-makers and private sector representatives who identified areas of UK expertise and a number of ways in which this experience could most add value in helping to address some of the critical research questions in low carbon energy for development.

A key message to emerge from that conference is that the UK research community can best add value in this space when working in close collaboration with research partners in these

and

developing countries², which is why this call has been structured deliberately to encourage such collaboration.

The conference also identified a few 'guiding principles' for research in this area, including the need to develop research techniques and approaches that better integrate technological developments with efforts to understand the social context (i.e. interdisciplinary, innovative processes that learn from history and other sectors, user-participation should be a design feature not an add-on).

A recent systematic review commissioned by DFID on barriers to increased use of modern energy services³ highlights the lack of solid evidence in key barriers to access, especially in the political and cultural aspects. There is a need to strengthen understanding of the key market failures and the business models that can successfully deliver sustainable access to clean energy for households, communities and industry, through a package of research on the business, socio-economic and political economy aspects of what works in scaling access for poor people to clean, wealth-creating, modern energy services. Alongside this there is a need for more technological and business model innovation, with research incorporating early stage demonstrations of new technologies, to test what works in practice and to accelerate the pathway to tangible impact for developing countries.

Scope of the Call

Expressions of interest are invited from those wishing to develop full proposals in the following five priority areas:

1. Energy Systems & Decentralised Use

- Innovative ways to combine system-wide energy modelling with national/regional energy resource assessments, transition pathways and competing understandings of the energy service needs that different social and economic sectors articulate in developing countries (N.B. proposals in this area would need to clearly show how they will add value to the existing range of models being developed by and for developing countries⁴)
- Research that explores the social, institutional, financial and technical factors affecting the success and failure of low carbon innovation/deployment/adoption experiences in order to better understand how and why some interventions have succeeded and others have failed. This is particularly crucial in the context of the rapid expansion of international funding for sustainable energy projects including the UK's ICF, which is seeking to achieve transformational impact. This provides an opportunity through historical research to better understand the innovation process (such as how to build indigenous low carbon capabilities and systems) and addresses the need to strengthen the evidence base on market failures and the business models that successfully tackle market failures and industry the technical, business, socio-economic and political economy aspects of 'what works' in scaling access for poor people to clean, wealth creating, modern energy services.
- Research on key challenges for micro- and mini-grids, decentralised generation and energy storage for both rural and urban environments, in a developing country context.

³ Watson, J., Bryne, R., Morgan-Jones, M. (2012) *What are the major barriers to increased use of modern energy services among the world's poorest people, and are interventions to overcome these effective?* DFID Systematic Review carried out by RAND Europe & Sussex University.

² There are many positive examples of the UK energy research community building closer links with researchers in developing country, e.g. DFID's PISCES programme is delivered through an international consortium led by a Nairobi based organisation; applicants following up the recent Memorandum of Understanding between DECC, EPSRC and the Government of Bangladesh would be welcome to apply, as would any other southern partner looking to build links with UK research.

⁴ e.g. ESMAP's low carbon modelling tools (META, EFFECT, MACTool & TRACE), etc.

<u>2. Solar</u>

- Technological innovations and cost reductions in solar, in particular, the developments in PV and CSP technologies and business models and the potential for large scale deployment in developing countries.
- Improved understanding of the opportunities and barriers (technical, market, social & environmental) for developing countries, especially in Africa, to take full advantage of their solar resource for large scale generation.
- What works and what doesn't in terms of the sustainability and development impact of existing large and small scale solar PV projects involving assessment of system performance (technical, social and economic); in-depth assessment of household/community impacts; assessment of governance arrangements/business models; and drawing up recommendations from the lessons learnt.

3. Bioenergy

Bioenergy and biofuels for growth and trade: a strengthened evidence base that
 addresses priority knowledge gaps on the potential benefits, trade-offs and implications of
 an increased use of bioenergy and biofuels, from an African perspective. Solid
 interdisciplinary research on developing countries' perspectives of bioenergy and biofuels
 <u>opportunities</u> (e.g. mapping national resource potential, agricultural wastes. 'marginal'
 land, livelihoods, local fuel substitution, exports, energy security, local markets,
 community level bioenergy schemes, etc.) <u>choices/trade-offs</u> (i.e. social, environmental,
 economic) and <u>impacts</u> (e.g. food, growth, GHG, etc.) which informs a more evidence based dialogue in what is often a polarised debate.

4. Urban & Transport

- Sustainable transport as a source of income generation, and integration with spatial/infrastructure planning in the context of rapid urbanisation in Africa and Asia and the need to avoid lock-in of high carbon transport systems.
- Potential for integrating renewable and/or passive technologies into urban buildings, including low income housing, to provide cooling (and heating).

5. Energy Efficiency

• Energy efficiency and demand management. This includes energy efficiency in buildings, industry and infrastructure to reduce/optimise overall demand for energy services. The links between behaviour, pricing and energy conservation needs to be explored in more detail particularly in relation to growing industrial and domestic sectors and a growing middle class and their consumption patterns.

Whatever the focus of the research proposed, there should be a strong knowledge sharing element to the programme, both in terms of dissemination of knowledge created through the research funded by the programme itself, but also via the collating and interpretation of existing knowledge and making it more readily available to stakeholders. It is important that knowledge sharing in this area is a two way process which is as much about researchers enhancing their own knowledge and understanding by closer interaction with user communities, policy-makers and technology developers as it is about researchers disseminating their findings.

The Development Workshop

The Development Workshop will be a 2.5 day event that that will bring together a balance of participants from academia and other stakeholder organisations with interests in the technical, environmental, social, economic and political aspects of Energy & International Development. Participants will discuss and refine the issues around the key themes outlined above and identify opportunities for collaboration to address priority multidisciplinary challenges, either through the smaller Targeted Research Grants route, or as a larger scale Research Programme Grant. These opportunities will be developed into outline proposals that will undergo peer review immediately following the workshop and the successful drafts will be invited to submit full proposals via EPSRC.

The development workshop is deliberately being held at a hub location in Africa rather than the UK, to encourage a strong participation by applicants from both developing countries and the UK.

Successful applicants to the EOI call will receive further information before the event.

Societal Implications and Ethical Issues

It is recognised that non-conventional clean energy has the potential to raise societal, ethical, philosophical and legal issues, and opportunities also exist for research in areas outside the natural sciences and engineering, for example policy and public acceptance. The involvement of researchers from these other fields is essential to ensure that scientific research develops in a societal framework and that any ethical, legal and societal issues that are raised are fully explored.

Eligibility for Expressions of Interest - Who Should Attend the Development Workshop?

Having the right mix of participants at the development workshop will influence the success or failure of this research call. Expressions of Interest are encouraged from diverse research areas across engineering, physical sciences, environmental sciences, life sciences and the social sciences; and from UK and non-UK researchers based in either recognised higher education institutions or other research institutions, or in not-for-profit or private sector organisations with a credible and relevant research capacity.

In this EOI call we are not defining the disciplines that should be represented at this workshop; rather we are asking potential participants to indicate how their expertise can contribute to identifying the challenges facing Energy & International Development research.

Expertise is required from a very broad range of disciplines; the workshop is intended to bring people together who may not normally interact. We actively encourage people to apply that are experts in their own research areas but have not yet applied it to the challenges facing Energy & International Development.

Participants are welcomed at any stage of their research career.

It is anticipated that up to 50 places will be available.

Location and Date of the Development Workshop

This Workshop will take place at a venue (TBC) in Nairobi, Kenya between the 12th and 14th December 2012.

An application to attend will be taken to mean you are available for the full 2.5 day event and will attend if selected.

It should be noted that all accommodation, refreshments, breakfast, lunch and dinner costs will be met by the RCUK Energy Programme. All other travel expenses (including flights and transfers) and incidental costs (such as sundries and bar bill) while at the event must be met by the participant. Support may be available for some researchers from developing countries to help meet the cost of flights.

If you need any special arrangements to be made at the venue then please let us know by enclosing details as requested in the equal opportunities monitoring form.

Should it not prove possible to host this event in Nairobi for any reason, the workshop will be relocated to London, UK.

Submitting Expressions of Interest

Applicants should complete the short Expression of Interest (EoI) web form. Your answers to these questions will be used to assess your application and convince us that you have the suitable skills and attitude to participate in this workshop. *Please note that we are not looking for your academic publication or research track record but rather evidence of your knowledge of the issues that face Energy & International Development research from a multidisciplinary perspective and your ability to communicate these to a multidisciplinary audience.*

The deadline for applications is **Friday 28th September 2012 at 12 noon**. Applications should be submitted electronically via the web form located at: www.epsrc.ac.uk/funding/calls/open/Pages/energyandinternationaldevelopment.aspx.

If it is not possible to submit your details through the online form then please email the manual application form to <u>EnergyInternationalDevelopment@epsrc.ac.uk</u> stating your Name, Institution and "Energy & International Development EOI" in the subject line.

Please note that late submissions will not be considered.

All applications must be accompanied by a letter of support from your Institution, applications cannot be considered without this. Where appropriate this letter should indicate where an applicant is the institution's preferred nominee.

Applicants will be informed of their selection for the workshop event by Monday 15th October 2012. If selected as a participant Section 1 of your EoI application form will be made available to the other participants – and you will see theirs – to facilitate networking and collaboration at the event.

Assessing Applications: Expressions of Interest

Expressions of Interest applications will be considered by an internal selection panel and will seek to ensure a mix of disciplines, experience and country representation. Overall, the selection panel will ensure that a balance of expertise is present at the workshop; their assessment will be based on the specific criteria outlined below.

- Institutional balance; we will endeavour to ensure that as many institutions with International Development & Energy research interests as possible are present. This may mean that we may have to limit attendance to one or at most two persons per institution. It is recommended that prior to application interested parties at an institution discuss who should take precedence and communicate this on the application form. Preference will be given to those who have the nomination of their institution and are representing their colleagues.
- If multiple applications are received from a single institution and no preferred representative is indicated then the selection panel will decide who to invite and the panel decision will be final.

- Discipline balance; as broad a discipline base as possible will be selected. The selection panel will look to balance, for example; engineering, materials, environmental, economics expertise, across the participants and ensure that no single discipline dominates.
- Academic/Industrial balance; whilst the UK Research Councils cannot support industry
 partners as the admin lead organisation, researchers from the private sector could be a
 key part of some of the final proposal teams/consortia and so will hopefully be well
 represented at the development workshop.
- The potential to contribute to research at the interface between disciplines; as the challenges are most likely to be multidisciplinary the selection panel will seek to invite people that can show an interdisciplinary knowledge of the challenges that Energy & International Development research faces.
- Thematic balance; we will also aim to get balance of thematic interests/specialists spanning the full scope of this call (see Scope of Call section above). So it will be important that you identify your likely thematic area(s) of focus on your Eol form.

Please ensure you fully complete the EoI form, as this is the **only** information on which potential workshop attendees will be selected. It is therefore important to give evidence of your experience against the criteria in your application.

Applicants should show an appreciation of the challenges, the latest research and the current and future issues facing Energy & International Development research when completing their Expression of Interest.

Please note that because of the large number of applications expected, we will not be able to give individual feedback to unsuccessful applicants.

Eligibility and Partnership Requirements for the final call

Only attendees present at the development workshop (and those they are representing) will be eligible to submit full proposals to this call. The programme is open to <u>non-UK researchers</u> based in recognised higher education institutions or other research institutions, or in other not-for-profit or private sector organisations with a credible and relevant research capacity, as well as all <u>UK researchers</u> who are normally eligible to apply for funding from UK Research Councils and/or DFID/DECC.

All applications to this Programme must include at least one partner from a Research Council (RC) eligible UK institution and at least one from a developing country. All applications must include an eligible UK partner who leads on the <u>administration</u> of the award, but the <u>scientific</u> lead can be with the southern and/or UK partners:

- a. Administration Lead
 - (i) The applicant and institution must be eligible to apply for funding for participating RCs' managed mode calls.
 - (ii) Will be the lead PI on the Joint electronic Submissions (Je-S) form and will submit the Je-S proposal.
 - (iii) Will be recipient of the award and will manage the finances for the partnership.
- b. Scientific Lead

Could be either

(i) a UK researcher who is normally eligible to apply for participating RC's managed mode and/or DFID/DECC calls.

(ii) a non-UK researcher based in recognised higher education institutions or other research institutions, or in other not-for-profit or private sector organisations with a credible and relevant research capacity.

For the categories of eligible organisations, see the RCUK eligibility guidance⁵. Details of eligibility criteria can be found in the EPSRC Funding Guide⁶.

There is no restriction on the number or location of other research institutions that may participate in a proposed project, or on the location of the host institution of the researcher responsible for its overall scientific leadership. Research partners are not restricted to institutions in Sub-Saharan Africa, South Asia or South East Asia, provided that the research to be undertaken is relevant to the needs of developing countries in at least one of those regions. Developing countries are defined according to the Development Assistance Committee (DAC) List of Recipients of Official Development Assistance⁷.

Where appropriate, collaboration with industry would be welcomed in projects funded through the programme, provided that arrangements for the ownership and exploitation of intellectual property would be compatible with the funders' requirement for compliance with the core principles of Global Access as defined below.

Assessing Applications: Final Proposals

Final proposals will be assessed against a suite of criteria relating to each of the principal aims of the programme:

- i, Developmental relevance and impact;
- ii. Science quality;
- iii, Trans-national partnership and capacity-building.

The assessment panel will consider <u>all</u> of the criteria listed below in deciding which proposals to recommend for the invitation of full applications. In doing so, the panel will also have regard to the overall scope and balance of the programme. The RCUK Energy Programme, DFID & DECC, will carry out an initial screening of outline proposals against the subset of criteria indicated by asterisks (*) below. Proposals that fail to meet any one or more of those criteria will <u>not</u> be considered further by the assessment panel.

i. Developmental relevance and impact.

- <u>*Does the proposed research fall within the scope of the programme (see Scope of the Call section above)?</u>
- Does the energy issue to be studied have a significant impact on the lives of the poor and is this justified by the evidence provided?
- Is a pathway to poverty reduction been articulated? Is it capable of being monitored and evaluated to provide a full understanding of the potential impact of the research being supported?
- Does the research outline which market failure it seeks to address?
- Has the economic, social, gender and environmental context of the project been sufficiently considered and articulated?
- Does the proposal ensure right mix of field and empowerment methods which are gender sensitive?
- Have the pathways to impact of the potential outcomes of the research been adequately considered and clearly presented i.e. does the proposal have a

⁵http://www.rcuk.ac.uk/research/Pages/Eligibilityforrcs.aspx

⁶http://www.epsrc.ac.uk/funding/apprev/fundingguide/Pages/default.aspx

⁷http://www.oecd.org/dataoecd/9/50/48858205.pdf

clear theory of change showing how the results will impact on people's livelihoods, particularly the poorest?

- How the communication and uptake strategy will be developed and maintained during the project?
- How does the proposal account for the country context and political economy constraints?
- Does the proposal show clearly how it will add value to the existing knowledge in this area?
- Has the proposal identified the relevant market failure(s) which the research will help to address/understand?

ii. Science quality.

- *Will the majority of the proposed research be within the RCUK Energy Programme's remit?
- Is the proposed research potentially of high quality in relation to the highest international standards of scientific excellence?
- Will the project add value to existing research on the topic of the proposal and is this supported by the evidence provided?
- Is the proposed research novel in its approach or context and is this supported by the evidence provided?
- Is the proposed research feasible?
- Is the proposed research timely?

iii. Trans-national partnership and capacity-building.

- <u>*Does the scientific partnership include at least one RC-eligible UK institution</u> and one developing country institution?
- Are the proposed roles of the partners clearly defined, with appropriate balanced divisions of responsibilities and resources between UK and developing country partners?
- Does the partnership demonstrate trans-national added value by bringing together complementary expertise in a meaningful intellectual collaboration?
- Does the collaboration have the potential to enhance the scientific and training capabilities of southern partners for the longer term?
- Does the collaboration address training and development of skills relevant to the programme?
- Is the team appropriate to conduct the proposed research (i.e. is there an appropriate mix of scientific disciplines working together)?
- Does the collaboration have the potential to inform policies in developing countries?
- Are appropriate management plans in place to identify and address any potential failures to ensure success of the proposed research in a timely manner?
- Does the proposed project represent value for money?
- Where applicable, does the partnership build on willingness of communities and policy-makers to participate and maximise benefits at the household level?

The assessment criteria specified in above will apply to all proposals, for both TRG (small scale) and RPG (large scale) awards.

Dissemination, Data sharing and Intellectual Property

Information about research funded through this programme will be made available in the public database of grants awarded by EPSRC⁸. Recipients of grants awarded under the

programme will also be required to provide information about their projects for DFID's R4D (Research for Development) portal⁹.

Grant-holders will be expected to promote the dissemination of the results of their research as widely as possible, and to conform with the requirements of EPSRC's policy on data sharing, which is based on the premise that publicly-funded research data are a public good, produced in the public interest, and which should be made openly available to other researchers in a timely manner to the maximum extent possible.

As well as scientific communication, emphasis is placed by all of the funders on engagement with potential users and beneficiaries of research, and the route to application of its outcomes. Consideration of possible pathways to impact will form an essential element of the assessment of proposals.

All intellectual property rights in all material (including but not limited to reports, data, designs, whether or not electronically stored, and technologies) produced by the investigator(s) or the investigators' personnel, and arising from research funded through the programme, will be the property of the investigators' institution(s). The investigators' institution(s) will grant to each of the funders of the programme, if requested, a world-wide, non-exclusive, irrevocable, royalty-free licence to use all such material. However, if investigator(s) wish to apply for a patent for a particular application arising out of the information, they may request that publication of data is withheld until the patent has been applied for. After that time, the data must be made freely available. The funders should be consulted about any request of this kind at an early stage, and any licence(s) granted must be managed in a way that is consistent with the core principles of Global Access, *i.e.* that the findings of the research would be disseminated promptly and broadly, and that products and technologies arising from the knowledge gained would be made available and accessible at reasonable cost to people most in need in developing countries.

Where appropriate collaboration with industry would be welcomed in projects funded through the programme, provided that arrangements for the ownership and exploitation of intellectual property would be compatible with the funders' requirement for compliance with the principles of Global Access.

Equal Opportunities

The Research Councils are committed to a policy of equal opportunities for our applicants for funding. No eligible applicant should receive less favourable treatment on the grounds of disability, sex or gender re-assignment, marital status, sexual orientation, pregnancy, race, colour, nationality, ethnic or national origin, religion or belief, or contractual and work roles.

If anybody has any concerns regarding our equal opportunities policies or any other aspect of the workshop application process then please contact us to voice these issues as we constantly strive for absolute equality within our organisation, and we make every attempt to make the workshop available to as many people as possible.

To help us achieve our aim of equality and fair treatment, an equal opportunities monitoring form is supplied at the end of the Expression of Interest form. This form is OPTIONAL however; it will help us to monitor the effectiveness of our policy. The form will be removed from your application and the information you have provided will be used for statistical monitoring purposes ONLY.

⁹www.research4development.info

Timeline

Date	Stage	Applicant Responsibilities
15 th Aug 2012	Call for EOI issued.	Applicants to discuss preferred nominees. Applicants to prepare EOIs.
28 th Sept 2012	Deadline for EOI.	Applicants to submit EOIs and letters of support.
15 th Oct 2012	Inform Successful applicants and share Section 1's of EOI	
12 th – 14 th Dec 2012	Project Development Workshop.	Scientific lead or agreed alternate must attend the workshop; attendance is required to progress beyond this stage. Applicants to prepare draft proposals.
17 th Dec 2012	Invitation to full proposal.	Applicants to prepare full proposals.
8 th Feb 2013	Deadline for full proposals.	Applicants to submit proposals via the Joint electronic Submissions (Je-S) System.
Late Feb 2013	Peer Review Panel.	
March 2013	Funding Awarded.	

For Further Information

For further information, advice or queries regarding the format of the event or application procedure please contact:

Dr Lewis Preece Portfolio Manager, RCUK Energy Programme RCUK Energy Programme, Polaris House, North Star Avenue, Swindon, SN2 1ET 01793 444268 <u>lewis.preece@epsrc.ac.uk</u>

For other operational matters please contact:

Programme Support RCUK Energy Programme, Polaris House, North Star Avenue, Swindon, SN2 1ET EnergyInternationalDevelopment@epsrc.ac.uk