

Centre for Research into Energy Demand Solutions – Challenges Call

Call type: Invitation for Stage 1 – Outline proposals

Closing date: 30 January 2019

Funding Available:

Up to £2 million of funding (at 80% Full Economic Costs) is available for this call. CREDS expects to fund two challenges each at a level of up to £1 million.

How to apply:

This is a two stage submission. In the first instance applicants should submit outline proposals to CREDS (not through the Je-S system).

Assessment Process:

Prioritisation panel for outline proposals followed by expert peer review of full proposals.

Key Dates: Activity

Date

Deadline for Stage 1 – Outline Proposals	16:00 on 30 January 2019
Prioritisation Panel	20 February 2019
Applicants informed of outcome of Stage 1	27 February 2019
Deadline for Stage 2 – Full bid	24 April 2019
Panel meeting	15 July 2019
Earliest start date	1 September 2019

Contacts:

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Summary

The UK Research and Innovation Energy Programme, primarily via EPSRC and ESRC, have now funded the Centre for Research into Energy Demand Solutions (CREDS) as part of the second phase of the strategy to support the broad community of researchers and innovators in energy demand in the UK. Further details about CREDS can be found at www.creds.ac.uk

As part of the CREDS award, one challenge topic has already been funded on '[Decarbonisation of Heat](#)'. CREDS has funding for two other challenges projects. These will be drawn from three topic areas:

- Equity and Justice,
- Decarbonisation of difficult sectors, and
- Co-Benefits

This call relates to bids for research in these challenge areas. Challenge projects are expected to last for 2 to 3 years and will need to conclude by 31st March 2023. Funding available is a maximum of £1 million (80% Full Economic Costs) for each of two challenge projects. There will be a two-stage process – stage one for outline bids followed by stage two for full bids. This call is stage one for outline bids.

Background

Energy demand reduction is a UK success story, with a 15% fall in final energy consumption since 2004. Major further reductions are possible and will be needed, as part of a transformation of the energy system to low carbon, to deliver the goals of the Paris Agreement and the UK carbon budgets. Moreover, a low carbon energy system will be increasingly reliant upon inflexible and variable electricity generation, and therefore demand will need to become more flexible. In short, changes in energy demand reduction will need to go further and faster, and demand will need to become more flexible.

These challenges have far-reaching implications for technology, business models, social practices and policy. EPSRC and ESRC recognise the value and importance of continued inter-disciplinary research in this area. The UK Research and Innovation Energy Programme, primarily via EPSRC and ESRC, have now funded the Centre for Research in Energy Demand Solutions (CREDS) to form the next part of the End Use Energy Demand Programme. This has been designed to be an inclusive centre for inter-disciplinary, whole-systems energy demand research, and a National Centre which acts as a focal point for the UK's EUED research designed to take into account the whole picture of activity.

CREDS vision is for energy demand research in the UK to rise to the challenges set out above. The Centre's ambition is to lead whole systems work on energy demand in the UK, collaborating with a wider community both at home and internationally. We aim to:

- Deliver globally leading research on energy demand,
- Secure much greater impact for energy demand research and
- Champion the importance of energy demand for delivering environmental, social and economic goals.

This broad ambition means that we take a broad definition of 'energy demand research'. It includes research into the practices and behaviours that produce the demand for energy services, energy efficiency technologies deployed at the point of energy use, non-technical measures to reduce demand reduction, technologies and other measures to increase the flexibility of energy demand, and measures taken to implement the use of decarbonised fuels. It includes research in the context of all energy using sectors including the built environment, transport and industry. The research is interdisciplinary in nature covering socio-technical and techno-economic approaches including energy demand technologies, materials, design, deployment, markets, policy, regulation, organisational aspects and decisions and behaviours of individual institutions and actors.

Scope

As part of the CREDS award, one challenge topic has already been funded on 'Decarbonisation of Heat'. CREDS has funding for two other challenges. After an extensive consultation, we have decided that these two challenge projects will be drawn from bids in three topic areas. These are:

- Equity and Justice,
- Decarbonisation of difficult sectors, and
- Co-Benefits.

All proposals funded will be expected to work with CREDS and report findings and impacts, as well as actively participate in the CREDS programme throughout the duration of the challenge.

Equity and Justice in the Energy Transition

Equity and justice are important considerations in the energy transition, both for normative reasons and because public acceptance of the changes within a transition may be contingent upon them being considered to be fair.

Much existing energy research and most techno-economic analysis use cost benefit analysis or related tests, which measure economic efficiency but can neglect both distributional questions and issues of procedural justice. Research proposed on this topic will be expected to go beyond consideration of issues related to near-term energy prices and costs, by addressing issues related to longer-term systemic change.

Equity, justice and related terms are contested concepts, and we do not seek to constrain the proposed research by defining them here. The proposed research may therefore draw on a variety of disciplines and take a number of different approaches, including a focus on either outcomes or processes.

No projects in the CREDS core work programme focus directly on equity and justice issues. The proposed research may therefore address energy use in any sector or across society as a whole. It may focus attention on the UK, or on the global equity and justice implications of energy use in the UK.

Decarbonisation of difficult sectors

Most research on the energy transition has to date focussed on the decarbonisation of electricity supply. Research that is more demand focussed tends to consider energy demand reduction and, increasingly, the flexibility of electricity demand. However, it is increasingly recognised that meeting carbon emissions reduction goals will require the complete decarbonisation of buildings, transport and industry. This implies the complete replacement of fossil fuels. Where fossil fuels are combusted at the point of energy use, the plausible substitutes are (carbon neutral) electricity and other carbon neutral fuels. There is general agreement that this is difficult for some end uses of energy, including heavy road freight, shipping, aviation and many industrial processes. For the purpose of this call, we define these to be 'difficult sectors'.

The research should consider change that can completely decarbonise the use of energy. It may focus on one or more 'difficult' sector or process. It should be inter-disciplinary, taking account of whole system effects and may include technical, social and policy considerations.

Carbon capture and storage (CCS) and carbon capture and utilisation (CCUS) are addressed by other UKRI initiatives. They are therefore out of scope for this call, except to the extent that CCS is a potential route to the production of carbon neutral fuels.

The proposed research should not have the decarbonisation of space and water heating as its principal focus, as this is already the subject of CREDS Challenge 1.

The proposed research may include aspects of energy demand reduction in buildings, transport and industry. To the extent that it does, it should take account of, and differ from, the research proposed in the CREDS Core Research programme that is described on the [CREDS website](#). Proposals in this topic area will be expected to show complementarity to the relevant work of other bodies, including BEIS and the Committee on Climate Change.

Co-Benefits of Energy Demand Change

The principal benefits of reducing energy demand, via energy efficiency improvement or otherwise, have usually been considered to be in the reduction of energy costs (to users and society) and the reduction of carbon dioxide emissions. The research scope of CREDS is broader than 'energy demand reduction', including end use flexibility and end use decarbonisation, but even in these newer fields the principal metrics are usually the same: costs and carbon.

However, there is increasing evidence that this focus may not capture the full range of research challenges related to these issues. The research may therefore address a variety of areas. These include, but are not limited to, measurement of co-benefits, measures that can increase co-benefits, household and/or business energy user perceptions of co-benefits, and the inclusion of co-benefits in policy-making. Co-benefits may be assessed in many different ways, and therefore the proposed research is likely to be inter-disciplinary.

'Demand change' should be understood to include any or all of increasing energy efficiency, reducing energy demand, improving energy demand flexibility and/or decarbonising end use fuels. The proposed research may therefore potentially interact with most parts of the existing CREDS Core research programme that is described on the [CREDS website](#). Synergies and/or overlaps should be described.

Funding available

Funding available is a maximum of £1 million (80% Full Economic Costs) for each of two challenge projects. Applicants must be based at a UK Research Organisation. Applications must be costed on FEC basis and funds can be requested for staff, equipment, consumables and travel.

Challenge projects are expected to last for 2 to 3 years, with a latest starting date of 1st January 2020. All projects must be concluded by the end date of CREDS which is 31st March 2023.

CREDS seeks international leadership in the field of energy demand research. Proposals including international collaboration are therefore welcome, subject to compliance with the [relevant EPSRC rules](#).

Equality, Diversity and Inclusion

The long term strength of the UK research base depends on harnessing all the available talent and the Research Councils have together developed the ambitious [UK Research and Innovation Equality, Diversity and Inclusion Action Plan](#).

In line with the UK Research and Innovation Diversity Principles, CREDS has adopted an Equality, Diversity and Inclusion strategy. We expect that recognition of the importance of promoting equality and diversity is embedded in the research plans of each challenge.

We are committed to supporting the research community in the diverse ways a research career can be built. This includes career breaks, support for people with caring responsibilities, flexible working and alternative working patterns. With this in mind, we welcome applications from researchers who job share, have a part-time contract, need flexible working arrangements or those currently committed to other longer, large existing grants.

We wish to encourage applicants who do not currently hold major UKRI grants. We recognise that such applicants may have questions about process and expectations and plan to hold a webinar in December to address these. Potential applicants who would like to take the opportunity of such a webinar are asked to contact Sarah Higginson, sarah.higginson@ouce.ox.ac.uk.

Equipment

For information on support for equipment on research grants please see the EPSRC website. We would not expect applications to this call to request individual items of equipment over £138,000k.

Smaller items of equipment (individually under £10,000) should be in the Directly Incurred - Other Costs heading.

Applicants should look to make the best use of existing equipment and facilities, including those funded under other UK Research and Innovation schemes. These should be highlighted as appropriate.

Eligibility

Eligibility of organisations and individuals to receive funding under this call is determined by UKRI funding rules, see the [EPSRC Funding Guide](#). A list of eligible organisations to apply is provided [here](#).

Successful bidders will join the CREDS consortium and therefore be required to sign the Consortium Agreement and to participate in CREDS activities, including its mechanisms for reporting to UKRI.

How to apply

Applications should be made directly to CREDS (not via J-eS). They should be sent to credsadmin@ouce.ox.ac.uk

CREDS must receive your application by **16:00 on 30 January 2019**.

Guidance on writing an application

The Proposal should be up to 6 pages in total, sub-divided as set out below.

Up to one page on 'Track record', which should detail the relevant expertise of the PI first and the proposed research team, and how it applies to the challenge.

Up to 3 pages on 'Description of the proposed research'. This should answer the following questions:

- Which of the three challenge topics are you proposing to address?
- What are the objectives of the proposed research?
- What is the contribution that the proposed research to CREDS goals and how will this help to deliver UK energy policy goals?
- What is innovative in the proposed research?

Up to one page on 'Pathways to Impact'. This should outline the activities which will help develop potential economic and/or societal impacts.

Up to one page on the 'Outline budget'. This should be divided into the following headings:

- Directly Incurred (split into Staff, Travel & Subsistence and Other Costs)
- Directly Allocated (split into Investigators, Estates Costs and Other Directly Allocated)
- Indirect Costs

At this stage one, we do not require a full justification of resources, a detailed work plan, letters of support, user engagement strategies or an ethical assessment. Applicants should be aware these will be required in Stage 2 - full proposal.

Submissions must conform to the restrictions used in Je-S, i.e. a standard 'Arial' or 'other San Serif' font of size 11 or higher, and margin size of at least 2cm.

The sections should be combined into a single pdf file for submissions.

Assessment

At the outline stage, we are looking for convincing evidence of how you might approach your chosen problem, the level of creativity and contribution to the goals of national energy policy. The assessment of outline proposals will be based on the Case for Support and their alignment to the following criteria:

- Scientific quality of the proposed research including novelty, ambition and inter-disciplinarity (primary criterion).
- National importance, with respect to how the research contributes to CREDS goals, in particular to addressing the overarching challenge of moving to an energy system that is secure, affordable and sustainable (secondary criterion).
- Complementarity with the CREDS Core Research programme (tertiary criterion)
- The proposed team, with respect to its ability to undertake the proposed research and extend the expertise of the CREDS consortium (tertiary criterion)

Assessment process

Applications will be assessed via a two-stage process, the Outline Proposal (stage 1) and the Full Proposal (stage 2). The information in this section relates to the Outline Proposal.

Outline proposals may be submitted by eligible researchers only, with proposed contributions from a single institution or a consortium.

The information and documentation will need to conform to the information in the section above on 'Guidance of writing an application'.

Proposals will be assessed solely on the basis of the criteria set out above.

Next Steps

Successful bids will be informed on 27 February 2019 and asked to prepare full bids by 24 April 2019. Guidance on full bids will be provided at that stage.

Grant conditions

Successful bidders will join the CREDS Consortium and will be required to sign the (already agreed) CREDS Collaboration Agreement, which imposes UKRI conditions on the consortium.

Key dates

Key Dates: Activity	Date
Deadline for Stage 1 – Outline Proposals	16:00 on 30 January 2019
Prioritisation Panel	20 February 2019
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Deadline for Stage 2 – Full bid	24 April 2019
Panel meeting	15 July 2019
Earliest start date	1 September 2019

Contacts

Contacts for enquiries about the Call are as follows:

Nick Eyre, Director CREDS (nick.eyre@ouce.ox.ac.uk)

Sarah Higginson, Research Knowledge Exchange Officer, CREDS (sarah.higginson@ouce.ox.ac.uk)

Documentation check list

A single pdf file of the Case for Support of up to 6 pages, sub-divided as follows:

Up to one page on 'Track record'

Up to 3 pages on 'Description of the proposed research'

Up to one page on 'Pathways to Impact'.

Up to one page on the 'Outline budget'.

Applications should be made directly to CREDS (not via Je-S). They should be sent to credsadmin@ouce.ox.ac.uk

CREDS must receive your application by 16:00 on 30 January 2019.