Reducing Energy Demand in the Transport Sector

Call type: Invitation for proposals

Closing date: 16:00 on 19 August 2015

(EPSRC notified of intent to submit by 31 July 2015)

Related themes: Energy

Summary

EPSRC, as part of its contribution to the Research Councils UK Energy Programme, is looking to support interdisciplinary collaborative research in order to reduce energy demand in the transport sector. In particular, we are seeking proposals with innovation in engineering, physical sciences or ICT together with business or economic modelling, aspects of governance or even considering behavioural effects of transport systems. Whilst we are seeking interdisciplinary proposals the majority of the scope of each proposal should be within EPSRC’s remit.

The successful proposals and institutions will be required to work together as appropriate and to build links with existing centres in order to add extra value to the research.

The call closes at **16.00 on 19 August 2015**. Up to **£4M** is available from EPSRC for this call, and we expect to fund two projects for a period of three years.

Please note that significant interest in this call is expected. Please bear this in mind and think very seriously when considering how and whether to develop your proposal, and only take it forward if you are very sure that it will be competitive at this level.

Any application should be a single submission with a single principal investigator (PI) leading the proposal.

Anyone intending to submit a proposal to this call must register their intent by completing an expression of interest application by 16:00 on 31 July 2015, via the following link:

https://www.epsrc.ac.uk/funding/calls/reducingenergycemandemand/

Please note that this is not intended to restrict detail in the final submission as changes will be allowed, but will give us an indication of the level of interest and enable the prompt identification of reviewers. Applicants that do not register their intent will have their applications rejected.
Background
The RCUK Energy Programme is bringing together engineers and scientists from many areas to tackle the research challenges involved in creating new energy technologies and understanding their social, economic and environmental implications. EPSRC leads the Energy Programme, in which BBSRC, ESRC, EPSRC, NERC and STFC work together to develop and deliver energy research and training within a common strategic framework, using a whole systems approach.

The UK is legally committed to reducing greenhouse gas emissions in the UK by at least 80% by 2050, relative to 1990 levels. The energy consumption scenarios produced by DECC for the Low Carbon Transition plan show that a reduction in energy consumption of 26-43% will be required to achieve an 80% reduction in carbon emissions. The UK transport and mobility systems have a large part to play in addressing this reduction, particularly from the demand management side.

End Use Energy Demand (EUED) is one of the priority themes of the Energy Programme. EUED research is concerned with the use of energy required to maintain sustainable lifestyles. The required carbon reduction, set by UK Government, will be achieved by increasing the use of renewable energy, making better use of current energy generation and reducing the need for energy. EUED is involved in all of these and they may be achieved by: reducing energy demand; increasing the flexibility of demand; reducing the need for goods and services; increasing energy efficiency. Six EUED Centres were funded in order to work collaboratively to conduct research to help better understand the UK’s future energy needs. For more information about the EUED Centres, please visit their website: http://www.eued.ac.uk/

A scoping workshop was held on 01 May 2015 to explore how the UK might reduce energy demand in the transport sector. The outputs from this workshop were fed directly into this call and form the challenges listed in the remit section.

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

Funding available
Up to £4M from EPSRC is available to support proposals under this call. EPSRC expects to fund up to two projects for a period of up to three years.

Remit of the call
EPSRC is looking to fund novel research projects addressing the challenges described below, through meaningful multidisciplinary collaboration. Proposals should not duplicate research underway in the in other grants and centres (such as the End Use Energy Demand (EUED) centres, UK Energy Research Centre (UKERC), Energy Technologies Institute (ETI), etc). The majority of the research proposed must fall within EPSRC’s remit.
1. **Decarbonising freight using multidisciplinary research (including behaviour, economics, governance and technology), including:**

   - Technology and strategies to decarbonise UK freight transport sector embracing everything from new propulsion systems to supporting policy and required business models
   - New and novel HDV propulsion and fuel technologies
   - New engine emissions control technologies required for alternative fuels
   - System modelling framework and models
   - Corporate responsibility and sustainability in freight logistics
   - Collaboration frameworks between businesses and between individuals

   **Example interdisciplinary research areas which could contribute:**

   - Engineering logistics, ICT, Powertrains
   - Role of autonomous systems (all sectors)
   - Transport planning/modelling (and parametric identification)
   - Data gathering and statistical analysis techniques
   - Social Science, in particular the area of multi-level governance and policy
   - Transport economics

2. **Energy demand implications of technological, institutional, and infrastructural change, including:**

   - How technology and infrastructure leads to demand. How the adopting of technologies by people in unexpected ways doesn’t always have the desired outcome and can lead to rebound effects.
   - Trials and demonstrators of new technologies and systems to understand real-world performance and user behaviour (including integration of autonomous vehicles with conventional vehicles).
   - Data acquisition and modelling to assess likely demand of new tech-based characteristics.
   - Sectoral modelling of consumers and providers in wider transport and mobility system.
   - How investment strategy can be developed to enable desired tech and demand changes, essentially driving innovation.

   **Example interdisciplinary research areas which could contribute:**

   - New technology required (Such as wireless charging – inductive power transfer, dynamic and static)
   - New business models for enabling decarbonising transport systems
• Electricity expertise (generator, DNO, etc)
• Accessibility, planning
• Theories of consumption, theories of practice
• Corporate social responsibility, theory in combination with logistics/supply chain management
• Optimisation, economics, management

This section is of particular interest to the Transport Systems Catapult. In particular, “Trials and demonstrators of new technologies and systems to understand real world performance and behaviour”, links with their the on-going LUTZ pathfinder Autonomous Vehicles project (https://ts.catapult.org.uk/driverless), and the Milton Keynes test bed (see http://www.mksmart.org/energy/ and http://www.mksmart.org/transport/).

If you are interested in incorporating these aspects into your proposal, please contact Prof Chris Baker, Science Director, Transport Systems Catapult Centre (chris.baker@ts.catapult.org.uk).

3. **Vehicle design to meet changing mobility needs in an integrated transport system, including:**

   • Impacts of vehicle and system design on demand and behaviour
   • Vehicle design to minimise / optimise integration with infrastructure (fuel, etc.)
   • Regulation and enforcement applied to vehicle design (example: electrical vehicles have impact on safety due to no noise emission)
   • Real world: Evaluation of future power train options, fuel efficiency of vehicles, emissions of GHGs and understanding of how changing regulation would allow changes to vehicles air quality impacts

Example interdisciplinary research areas which could contribute:

• Design tools (CFD, FEA etc.) and procedures (optimisation)
• Shape changing / adapting vehicles
• Duty /drive cycles of autonomous / future vehicles
• Landscape of future vehicles
• Downsizing / engineering / lightweighting
• New business models, regulation and policy
• Designed for drivers vs designed for autonomy
• Integration of real world performance and operation into design processes and performance metrics

**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 up to the current OJEC (Official Journal of the European Communities) procurement threshold can be included on research proposals submitted through this call, but research organisations will be expected to make a contribution to the cost. All requests for single items of equipment above the current OJEC threshold will need to go through a separate process which will assess the strategic need for the equipment and how to ensure maximum usage. These proposals will be assessed through the separate Strategic Equipment peer review process.

For more information on equipment funding, please see: [http://www.epsrc.ac.uk/research/facilities/equipment/](http://www.epsrc.ac.uk/research/facilities/equipment/)

The current OJEC threshold can be found at: [http://www.epsrc.ac.uk/research/facilities/equipment/process/](http://www.epsrc.ac.uk/research/facilities/equipment/process/)

**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/](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/](http://www.rcuk.ac.uk/funding/eligibilityforrcs/)

**How to apply**

**Submitting application**

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

Any application should be a single submission with a single principal investigator (PI) leading the proposal.

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 ‘Interdisciplinary Transport Energy Demand Call’ 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 **16:00 on 19 August 2015** (Please note that you will also need to complete an online ‘expression of interest’ by **31 July 2015** via the following link: [https://www.epsrc.ac.uk/funding/calls/reducingenergydemand/](https://www.epsrc.ac.uk/funding/calls/reducingenergydemand/)).

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 ([https://www.epsrc.ac.uk/funding/howtoapply/](https://www.epsrc.ac.uk/funding/howtoapply/)) 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 non-standard 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/

The proposal should include the following sections:

**Case for support**

The case for support should be up to eight pages in total. Please note that the case for support should include a description of the national importance of the proposed research. Guidance on national importance can be found at:

http://www.epsrc.ac.uk/funding/howtoapply/preparing/includingnationalimportance/

**Pathways to Impact Plan**

Up to two pages. Describe who may benefit from the research, how they may benefit and what you will do to facilitate this and ensure they have the opportunity to benefit. More information on preparing the impact plan and more general information on economic impact can be found on our website at:

http://www.epsrc.ac.uk/funding/howtoapply/preparing/writing/resourcesimpact/
Justification of Resources (JoR)
Up to two pages. Explain the necessity of your requested resources to your project. A poorly written JoR is one of the most common causes of delay in processing proposals so it is important that you are clear about what this should include, please refer to the following address for guidance on how to prepare this document:

http://www.epsrc.ac.uk/funding/howtoapply/preparing/writing/jor/

Work Plan
One page. The work programme should be illustrated with a simple diagrammatic work plan. We do not expect that this will be very detailed for the whole of the project, but it should include a comprehensive plan for the start of the project and then highlight milestones for when important decisions on the project’s direction will be taken.

Statements of Support
A statement of support from Project Partners should be provided on headed paper with a date and signature from the named contact in the collaborating organisation. This should be added to Je-S as the document type “Project Partner Letter of Support”. Only statement of support from partners that will be active collaborators and that offer genuine contributions to the project will be accepted. For advice on what these should contain see:

http://www.epsrc.ac.uk/funding/howtoapply/preparing/writing/lettersofsupport/

Assessment
Assessment process
Proposals will be assessed using postal reviewing. Provided that the reviewers are sufficiently supportive the proposals will then be considered at a prioritisation panel meeting. Reviewers will be independent UK and overseas stakeholders who will all have specific expertise of the area the proposal addresses. The panel will be composed of stakeholders with a broad overview of energy storage research.

At the panel a rank ordered list will be generated for each theme and only the top ranked proposals will be funded. EPSRC reserves the right when funding proposals to ensure there is no duplication in the projects funded and to achieve a balance across the areas. Applicants will be informed of the panel outcomes as soon as possible after the panel meeting.

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

Research Quality
- Research vision, ambition and adventure
- Distinctiveness from other projects in the existing portfolio
- Appropriateness of proposed methodology
National Importance
- Potential impact of the UK research landscape in cross-disciplinary technology research

Pathways to Impact
- Appropriate and viable potential user collaborations
- Plans for dissemination and knowledge exchange with potential beneficiaries of the research

Applicants’ Track Record
- 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
- Effectiveness of planning and resource management
- Appropriateness of resources requested

Fit to the Call
- Degree to which the proposal aligns with the call

Key dates

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call opens</td>
<td>10 June 2015</td>
</tr>
<tr>
<td>EPSRC notified of intention to submit</td>
<td>16:00 on 31 July 2015</td>
</tr>
<tr>
<td>Call closes</td>
<td>16:00 on 19 August 2015</td>
</tr>
<tr>
<td>Panel meeting</td>
<td>25 November 2015</td>
</tr>
<tr>
<td>Funds awarded</td>
<td>December 2015</td>
</tr>
</tbody>
</table>

Contacts
If you have any enquiries about this call please contact:

Dr Daniel Emmerson  
E: Daniel.Emmerson@epsrc.ac.uk  
T: 01793 444 112

Dr Glenn Goodall  
E: glenn.goodall@epsrc.ac.uk  
T: 01793 444 427

Queries regarding the submission of proposals through Je-S should be directed to:
The Je-S helpdesk
E: Je-SHelp@rcuk.ac.uk
T: 01793 444 164

**Change log**

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Version</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenn Goodall</td>
<td>22 May 2015</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>Glenn Goodall</td>
<td>23 June 2015</td>
<td>2</td>
<td>Added Transport Systems Catapult contact details</td>
</tr>
<tr>
<td>Glenn Goodall</td>
<td>07 July 2015</td>
<td>3</td>
<td>Added Daniel Emmerson contact details</td>
</tr>
<tr>
<td>Glenn Goodall</td>
<td>08 July 2015</td>
<td>4</td>
<td>Corrected typos</td>
</tr>
</tbody>
</table>