From: "Janice Darch" <J.Darch@uea.ac.uk>
To: <env.faculty@uea>, <env.researchstaff@uea>
Subject: Towards a Sustainable Energy Economy deadline
Date: Wed, 7 Jan 2004 10:35:14 -0000

Dear All,
Is any one involved in proposals for this initiative?

Please let me know.
Janice

First call for research proposals
A call for expressions of interest for participation in Consortia, Research Groups, Networks, Collaborative Proposals and Capacity Building
Closing date: 5pm, Monday 19 January 2004

Intending applicants should note that all those receiving funding from this programme will be expected to collaborate with the UK Energy Research Centre following its establishment on 1st April 2004.

Introduction
The Towards a Sustainable Energy Economy programme (TSEC) is aimed at enabling the UK to access a secure, safe, diverse and reliable energy supply at competitive prices, while meeting the challenge of global warming. The Engineering and Physical Science Research Council (EPSRC), Economic and Social Research Council (ESRC) and Natural Environment Research Council (NERC) jointly have funding of £28 million for the programme, which is co-ordinated by NERC on behalf of the three Research Councils, with participation from the Biotechnology and Biological Sciences Research Council (BBSRC) and Council for the Central Laboratory of the Research Councils (CCLRC). The Councils are advised on the use of the programme's funds by the TSEC Scientific Advisory Committee.

TSEC is an interdisciplinary research programme that will adopt whole systems integrated approaches. The Research Councils' working definition of 'a whole systems approach' is: "A whole systems integrated methodology demanding a truly interdisciplinary approach that facilitates the joint working of engineering, technological, natural, environmental, social and economic scientists to tackle fundamental issues (such as sustainable energy)." A whole systems approach should ensure that new work carried out complements current and planned activities of the individual Research Councils in the area concerned and will take into account known understanding for the issues addressed.

The TSEC programme will provide a focus for, but will not be the only source of, energy research in the UK. As such, the TSEC programme will aim to make an impact on UK energy research by promoting this whole systems approach. Proposers wishing to carry out research under TSEC should familiarise themselves with the role of TSEC in the energy research landscape, as described in Annex 1.

What research will TSEC support?
Up to £12 million of the programme's funding will be used to establish the UK Energy Research Centre (UKERC) by 1st April 2004, for which the Councils have already invited full proposals. The Centre's two major activities will be its own research programme and the co-ordination of a National Energy Research Network.

The remainder of the TSEC programme's funds (at least £16 million) will be used to support research that will operate independently of, but complementary to, the research done by UKERC. Calls for proposals will be broadly under the following themes:

. carbon management

. nuclear power

- renewable energy

- managing new uncertainties.

In keeping with the whole systems approach of the programme, applications are invited from all disciplines that have a research interest in any of the themes (eg the environmental, social, economic and technological aspects of nuclear power).

What areas are covered in this call?
This first call covers all aspects of the TSEC programme but the Research Councils wish to focus initially on two of the themes: nuclear power and managing new uncertainties. It is anticipated that a further call focused in particular on the other two themes - carbon management and renewable energy - will be issued in mid-2004.

The present call invites expressions of interest for participation in:

- Consortia under the theme Nuclear Power - Keeping the nuclear option open

- Research Groups under the theme Managing new uncertainties - The socio-economic challenges and implications of moving towards a sustainable energy economy

- Expressions of interest for Networks and Collaborative proposals will also be considered, under either of the themes Carbon management and Renewable energy.

- Expressions of Interest for preparation for projects (Capacity Building) will also be considered under any of the areas except Nuclear power.

The key features of Consortia, Research Groups, Networks, Collaborative Proposals and Capacity Building are described in the Application Process.

Consortium bids: Nuclear power - Keeping the Nuclear Option Open
The research challenges in fission R&D span areas as diverse as maintaining and extending the life of existing generation plant; management of the current and future fission waste legacy; technology for future fission power generation; and research that can contribute to an open and informed debate on the current and future role for nuclear power in the UK's energy supply industry. The scope of this theme has been broken down into three main topics:

- maintaining current generation capacity

- fission within a sustainable energy economy

- future fission power.

The sponsors intend to commission one or more large, integrated, multidisciplinary projects that can address the research challenges, with the scope of projects potentially cutting across the three topics.

Further details on the scope of the theme and consortia requirements can be found in Annex 2.

Research Group bids: Managing new uncertainties - The Socio-Economic Challenges and Implications of Moving Towards a Sustainable Energy Economy
The aim of this theme is to facilitate research on the cross-cutting socio-economic challenges and implications of moving towards a sustainable energy economy and their interactions with broader technological, engineering, and environmental issues. It offers opportunities for productive, interdisciplinary research within and beyond the socio-economic field, with the potential to contribute to the development of whole-systems approaches to energy issues. Many of the potential research issues have resonance in a number of other areas of public policy and are not specific to energy. In line with the aims of the programme, this theme is not constrained by traditional disciplinary or Research Council boundaries, whilst focusing on the socio-economic research agenda. Although a number of the proposed topics and questions focus on UK and European issues, many are generic and could be applied to both OECD and developing country contexts.

Possible topics identified under this theme include:

. Processes of long-run change in socio-technical systems

. Vulnerability, resilience and adaptiveness

. Services, systems of provision and consumption practices

. Policies in natural monopolies and liberalised markets

. Public attitudes and processes of governance

. Energy in the global context

. Integrated appraisal of energy systems.

This framework should be regarded as illustrative, not definitive. Researchers are encouraged to define and justify alternative topics and questions which would contribute towards the TSEC programme's overall objectives.

More detail on this theme can be found in Annex 3.

Expressions of Interest under the themes Carbon management and Renewable energy will be considered in this call. However, the following brief indication of the scope of these two themes is given for initial guidance only; a detailed scope will be provided in the next call, expected to be mid 2004.

Carbon management
Conventional energy research is often vertically divided, so that research looks at the use of individual fuels, or energy use in particular industrial, commercial or domestic sectors. There needs to be more "cross-boundary" and "whole systems" research, looking at how different technologies and social/environmental factors might be optimised to deliver the overall objectives. The following are two examples of the type of issues which should be addressed.

Fuel switching and renewables
Displacing coal and petroleum with natural gas and/or biogas, or biofuels,

or renewables are alternative ways of reducing carbon dioxide (CO2) emissions. These options require a full whole lifecycle approach to carbon management, integrating environmental, engineering, resource, economic and social dimensions. Issues such as length and type of supply chains, emissions associated with agriculture, fuel processing, infrastructure and construction need to be fully understood to limit the risk that emissions are increased or displaced to another part of the energy/resource chain.

Carbon dioxide capture and storage
The continued use of fossil fuels will demand effective carbon management, particularly through reduction of the associated CO2 emissions. The greatest long-term potential for reduced CO2 emissions to the atmosphere from fossil fuels is likely to be through capturing CO2 from large industrial point sources before it enters the atmosphere, and then sequestering it back into the bio/geosphere by geological means. The research challenges include: the mechanisms of large-scale carbon capture at source, CO2 storage, transport and distribution, and geological sequestration, monitoring and verification technologies as well as modelling the long term fate of CO2 injected into a variety of geological scenarios. Understanding is also needed of the potential risk posed by CO2 leakage into terrestrial and marine settings, and of the economic risks, costs and benefits, public acceptability and regulatory issues associated with moving towards large-scale CO2 capture.

Renewable energy
The objectives for TSEC in this area will centre on work that supports the development of renewable and sustainable energy systems of relevance to the UK economy. Specifically, it will: encourage the introduction of renewable and sustainable energy systems into the UK economy; encourage consideration of renewable energy in the context of social/economic/environmental issues and carbon management; and provide data for the development of policy. TSEC will fund research that is complementary to that supported through other Research Council activities, such as the ongoing Sustainable Power Generation and Supply Programme (SUPERGEN). Again, the following is purely an example of the type of research which could be funded.

Carbon cycle audits
Audits of full lifecycle carbon (or carbon equivalents of other greenhouse gases emitted in the lifecycle) need to be undertaken, and the energy balances of different renewable energy generating technologies need to be considered and understood, if true impacts on carbon reduction are to be achieved. For example, if energy crops are to be encouraged, then consequences on land use change, aquifer recharge, and rainfall run off need to be fully understood. It would also be important to ensure that the crops are 'low-input' in terms of energy usage and that the energy balance is therefore positive. Environmental impacts of growing energy crops would have to be compared with the alternative land use (food crops, set-aside, etc)), and consideration given to their potential economic and social impacts.

Risks, barriers and incentives in renewables innovation
Innovation will be essential in the renewables industry if the sector is to play a central role in future energy supply. Research is required to understand and quantify the risks inherent in the development of new technology and the barriers preventing its exploitation to inform both the priorities of future renewable energy R&D and the development of future market instruments and incentives that can encourage the effective management of risk and enable the exploitation of the outputs of R&D. In the longer term, new disruptive technology may significantly affect the operation of the energy market, and research is required to investigate how incentives and market instruments can adapt to changing market conditions while still providing a long term framework within which companies can make capital investments requiring a return on capital over long (20-30 year) timescales. (In addition to research on such issues relating specifically to renewables there are opportunities for broader cross-cutting research on these issues under the Managing New Uncertainties Theme).

The Application Process
The schemes and theme areas under which EoIs will be accepted in this call are highlighted in colour in the table below.

Nuclear power Managing new uncertainties Carbon management Renewable energy

- Consortia
- Research groups
- Networks
- Collaborative proposals
- Capacity building

Characteristics of the schemes

Consortium
A Consortium will comprise a number of academic groups, normally from different disciplines and institutions, working in partnership with appropriate stakeholders and users to design and deliver a collaborative programme of world-class research. It is expected that the consortium will deliver higher quality research outputs than groups working in isolation. This call for expressions of interest is open to all potential partners of a research consortium, irrespective of their existing links to academic research in the field. Consortia may be funded at a value of up to £5m. Expressions of interest can be submitted by individuals, existing groups, and existing or new collaborations. However, where expressions of interest are made by a group or collaboration, the Research Councils reserve the right to take forward those expressions in total or in part during the Consortium-building process, potentially excluding elements of proposed collaborations.

Research Groups
A Research Group will be a national focal point for research where researchers can collaborate on long-term inter-disciplinary projects. It will facilitate the building of strong relationships with research users, international collaboration and the development of the careers of new and outstanding researchers.

Funded initially for five years, Research Groups will be expected to provide the training for postgraduate students and other new researchers where appropriate, and to improve opportunities for securing co-funding or sponsorship from sources outside the Science Vote. Applications for Research Group funding will normally be expected to be in the range of £200k - £600k per annum although applications outside this range can be considered.

Networks
A major task of UKERC will be to co-ordinate a National Energy Research Network that will draw in all significant research activities. However, once the components of this network are known, the TSEC programme will wish to support new research 'nodes' that complement them. Such complementary activities would normally be UK-based networks that link research groups and industrial organisations, across disciplines, to develop new or enhanced collaborations.

Collaborative Proposals
These will be intended to support focussed, co-ordinated, collaborative research into specific issues and will be expected to enhance opportunities for inter-disciplinary collaboration. A minimum of three eligible institutions are required for a proposal under this scheme, each of which will be separately awarded funds. The consortium will retain ownership and management of the science programme, and a lead institution will be expected to act as co-ordinator.

Collaboration awards will provide funding for up to five years with costs ranging, as required by the research, from modest sums up to approximately £2M. Proposals may include tied research studentships.

Proposers are free to submit expressions of interest for one or more themes.

Capacity building
For projects that require considerable preparation, applicants may submit an Expression of Interest for capacity building, to a maximum of £50k, for:

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support for a researcher to work in a different science department for a period of up to 12 months (eg for a natural scientist to work in a social science department);

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support for an overseas researcher to work in a UK institution, or for a UK researcher to work in an overseas institution, for up to 12 months focusing on interdisciplinary research issues;

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support for a series of four or more interdisciplinary events (involving social and natural scientists) over a 12 month period;

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scoping studies, focusing on any of the TSEC themes. Applicants must demonstrate the interdisciplinary nature of the proposed research. Awards may be up to 12 months in duration

Eligibility
Standard Research Council eligibility criteria will apply to this call; those normally eligible to participate in any Research Council programme can apply. Research Council funding can only be awarded to UK universities, Research Council institutes, Government Research Establishments and not-for-profit research organisations. Organisations and industry which are themselves ineligible for receipt of Research Council funding may participate, using their own cash or in-kind support.

Applications from members of the public or individuals outside academia will not be accepted.

Academic expressions of interest may be submitted by leaders of individual research groups within one or more universities. While existing groups of researchers are able to apply as a team, it should be recognised that the Research Councils may recommend the building of new partnerships involving only a minority of members from existing collaborations. Where there is scope to do so, it is recommended that individuals submit their own expression of interest on behalf of their group.

The Selection Process
An initial sift of EoIs will be conducted by expert panels established by the Programme Scientific Advisory Committee or by the SAC. Applications will be judged on their quality, innovation, originality and compliance with the objectives of the programme.

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Quality - The proposal should indicate clear potential to support innovative and high quality research of international standing and include information on the capacity and track record of the applicants in delivering such high quality research. This should not rely on publication lists, but present evidence of recognised first-class research, innovation and collaboration.

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Innovation - The proposal should present novel approaches to current research challenges and persuasive approaches to roadmap solutions. This should be in the context of the research theme defined in the technical appendix.

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Originality - The proposal should demonstrate innovative approaches to problem solving with evidence of ability, creativity and vision and added value to current research in the field. The application should be focused toward addressing research challenges of the theme.

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Objectives - The applicant should communicate an enthusiasm for collaboration and ability to contribute to a programme of research that

delivers the objectives of the TSEC programme. They should demonstrate awareness of the drivers affecting the research agenda and the potential to contribute to the development of whole-systems approaches to energy issues.

Applicants for consortia will be informed of the outcome of their bids in January 2004 and if successful will be invited to a workshop in March 2004 to facilitate the formation of consortia partnerships. Attendance at the workshops will be mandatory for consortium members, including users and industrial collaborators. Following the workshops, consortium partners will be invited to submit EPSRC grant applications, which will be subject to rigorous peer review.

Applicants for Research Groups will be informed of the outcome of their bids by mid-March 2004 and if successful invited to submit full proposals by mid-June. Assessment of full proposals will entail applicants being interviewed by the assessment panel in September/October 2004.

All other applicants will be informed of the outcome of their bids in February 2004 and successful applicants invited to submit full proposals as appropriate.

How to Apply

Expressions of Interest
Expressions of Interest must be submitted using the Research Councils' joint application form (available in Word or PDF versions)and (with the exception of proposals for Research Groups on Managing the New Uncertainties - see below) be accompanied by no more than four sides of A4 text (minimum font 12 pt), including diagrams, figures and charts etc. in support of the application. This should include any relevant information that will assist assessment of the project that is not covered in the sections of the application form. It should include

. Details of the track record of the applicant or business and the particular qualities they would bring to the proposal.

. Identification of the broad challenge which the applicant would seek to address or to which they would be able to contribute

. Definition of the perceived key research challenges within the theme.

. Indication of potential deliverables.

. Information on the collaborating organisation in terms of cash or in-kind support and proposed benefits from collaboration.

Expressions of interest for Research Groups under the 'Managing the New Uncertainties' theme must be submitted using the Research Councils joint application form. However instead of the four sides outlined above the form should be accompanied by the following information:

. A research proposal of no more than 3,000 words outlining the main proposed elements of the proposed Group's research programme and how this would contribute towards the achievement of the objectives of the Towards a Sustainable Energy Economy Programme

. Plus the following appendices:

- no more than 1 side of A4 (minimum font 12 pt) providing details of references cited in the research proposal

- no more than 1 side of A4 (minimum font 12 pt) giving details of the proposed strategies for involving non-academic users at all stages and outlining the potential for collaboration and/or co-funding

- no more than two sides of A4 (minimum font 12 pt) outlining the proposed management structure of the Research Group, including time commitments of the proposed Director(s) and abbreviated cvs for all named applicants.

- no more than one side of A4 (minimum font 12 pt) outlining the Group's strategy for contributing to the development of inter-disciplinary research capacity in the field.

In section E of the form, under Scheme applicants should state Consortium, Centre Group, Network, Collaborative proposal, or Capacity building, as appropriate; and under Call should insert 'TSEC call 1': followed by the appropriate theme name: Nuclear; Managing new uncertainties; Carbon Management, or Renewable energy.

As the majority of institutions have not yet registered with the Research Councils for electronic submission, in this call electronic submissions cannot be accepted. An original plus ONE copy are required in hard copy. Faxed copies are not acceptable.

All applications should be submitted to reach the NERC at the address below no later than 5pm on 19th January 2004. Personal callers may deliver applications during normal office hours only (9am - 5pm Monday - Friday). The Research Councils will reject late or incomplete submissions and those that do not comply with the application criteria set out above.

Receipt of applications will be acknowledged after the closing date. It will assist administration of the call if applicants do not telephone to enquire if their proposal has been received.

Applications and administrative queries should be addressed in the first instance to:
Dr Chris Baker (e-mail preferred)
Programme Co-ordinator
Science and Innovation Programmes
NERC, Polaris House, North Star Avenue
SWINDON, Wiltshire SN2 1EU.
Telephone 01793 411758.

Queries regarding the technical aspects of the Nuclear Power theme should be addressed to: Dr Peter Hedges, EPSRC, telephone 01793 444176. Queries regarding the application criteria or eligibility for the Nuclear Power theme should be addressed to the Associate Programme Manager Mr Robert Heathman, Room GFN, EPSRC, telephone 01793 444131.

Queries regarding the application criteria or eligibility for the Managing New Uncertainties theme should be addressed to Mr Paul Rouse, Senior Science and Development Manager, Research Training and Development Directorate (RTD), ESRC, at the above address, telephone 01793 413030, or Mr Oliver Moss, Science and Development Manager, RTD, ESRC, telephone 01793 413064.

All other queries should

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