Call for the new SUPERGEN Hydrogen and Fuel Cells ‘Hub’

This is an open call for the next stage of the SUPERGEN initiative in Hydrogen and Fuel Cells.

The Research Councils UK (RCUK) Energy Programme is looking to support a Hydrogen and Fuel Cells SUPERGEN ‘Hub’. The PI and CoIs of this Hub will act as Hydrogen and Fuel Cells research ‘Champions’ coordinating and driving research in this area forward to meet the UK’s future energy requirements. There is up to £4M available for this call, and the duration of the grant will be for five years.

This call closes at 16:00 on 11 October 2011.

Note: Please read through this call document carefully. If you are considering applying to this call contact Neil Bateman at the details given at the end of the document to discuss the call in detail.

Background information to the SUPERGEN initiative

In 2011 the first of the SUPERGEN consortia will come to an end. In order to assess the impact of the original SUPERGEN programme a series of consultations took place in 2009. It is intended that the SUPERGEN activity will continue, but will change to take account of the findings of the consultation.

Main findings of the SUPERGEN consultation exercise

Strengths

• The operation as consortia has definitely enabled better technology progress in some areas.
• Industry has a single research group point of contact that is more coherent than previously.
• A well run consortium achieves more than the sum of its parts.
• The ‘SUPERGEN’ brand is valuable both politically and internationally.
• The formation of stable groups allowed the focus on longer term research issues.
• SUPERGEN has proved an effective way of promoting interdisciplinary research
• Some address an immediate and major industrial shortage of trained personnel

Opportunities

• International collaboration is important but should be carefully focussed.
• Many new technologies have been produced, these should be better exploited.
• The research should be always focussed to national energy targets/ambitions.
• Mechanisms should be developed for working with other funding organisations.
• Fundamental research should not be compromised at the expense of application.
• Training has been an important element of SUPERGEN, future activities should link to the newly created CDTs.
• SUPERGEN is perceived to be exclusive; the projects need to be more effective at engaging with the wider renewable energy research community. Networking should be integral to any new activity.
• The current funding mechanism does not have enough flexibility to enable wider engagement, or for the rapid pursuit of new research directions.
• The SUPERGEN consortia need to be encouraged to act more as entities outside their immediate SUPERGEN grants.
• The legal status of a SUPERGEN consortium is an issue, this would be need to be addressed for any applications to be made to the EU by a SUPERGEN consortium.

Conclusions
It was acknowledged that the SUPERGEN programme has succeeded in its original aims. However, the UK research landscape has changed greatly over the last seven years and SUPERGEN needs to evolve to take account of this. There was a strong desire of those researchers outside SUPERGEN to engage with SUPERGEN groups and this should be enabled. Research capacity has grown since SUPERGEN was initiated and there is now much complimentary expertise that could be brought into the research effort.

The new SUPERGEN structure

Objectives
• Refocus to more underpinning science in the Hub, and address more applied research in the additional activities.
• Continue to be a route for industry involvement in academic research.
• Be more adaptable and flexible.
• To have a greater ownership of its strategic direction.
• To look at medium to long term challenges, and to work towards how technology can meet them.
• To work towards being self sustaining in the long term
• Connect with applied research through other funding agencies.

The aim of the new SUPERGEN programme is to create relatively small ‘Hubs’ run by a theme champion. This hub will operate as a cross between a Programme Grant, a Platform Grant, and a Network Grant. The network must be integral to the new SUPERGEN; this network will help define the overall research direction, provide a means for communication and dissemination, and provide a source of additional expertise as and when it is needed. The remaining bulk of the SUPERGEN award will be split roughly half to support a suite of related research activities focussing on a strategic theme (as in a programme grant), and half to provide a baseline of flexible support (a platform) that can be used for the retention of key staff, feasibility studies, and longer-term research. This flexibility should enable the group to take a strategic view of their research which will be enhanced by securing additional funding from multiple sources during the lifetime of the grant.

For information on Platform Grants
http://www.epsrc.ac.uk/ResearchFunding/Opportunities/Capacity/PlatformGrants/Scope.htm

Fro information on Programme Grants
http://www.epsrc.ac.uk/ResearchFunding/Opportunities/Capacity/ProgrammeGrants/default.htm

The new SUPERGEN consortia will need:
• To have a small initial ‘core’ of member institutions (between four and six) that can be expanded with associate members as the programme grows.
• To be adaptable as different technologies have different requirements.
• A mechanism for the addition and removal of effort/members as needed.
• To encourage openness and inclusivity.
• An expansion plan that details how they will use other funding mechanisms (including non-EPNSRC) to expand the research effort to address the challenges of their technology. These new activities should bring in new groups as associate members.
• Be prepared to accept new members (that wish to join the SUPERGEN group) that have independently secured significant funding for research that meets the SUPERGEN strategy.

The RCUK Energy Programme will need to:
• Align calls strategically between councils and other funding organisations.
• Be very clear in our strategy.
• Monitor progress more closely and be prepared to act/react quickly as the needs arise.
Fig 1. The new SUPERGEN structure.

Examples of possible Additional projects

Hydrogen and Fuel Cell Technology Strategy as defined by road maps etc.

Networking activity that includes the wider academic and industrial community
SUPERGEN Hydrogen and Fuel Cells ‘Hub’ call

Summary

Proposals are invited to establish a consortium for a SUPERGEN Hydrogen and Fuel Cells ‘Hub’.

The remit of the Hub will initially be in; the generation, distribution and storage of hydrogen; fuel cells; hydrogen and fuel cell systems. This should include the science, engineering and system issues together with the environmental and safety impacts of the technologies and their socio-economic aspects (including policy).

It is anticipated that once the Hub is operational the remit of the hub will be expanded beyond what is listed above in subsequent targeted calls.

There should be a single submission with a single PI. The PI and the CoIs of the successful application will be expected to take on the role of Champions for Hydrogen and Fuel Cells research, and as such should show that they have the time to take on these roles.

This should be a consortium of the leading research institutions working in Hydrogen and Fuel Cells research, and should include no more than seven institutions. The call is open to new entrants but any submission should include some of the researchers that are involved in the current Hydrogen and Fuel Cells Consortia.

The proposal should include a network that is open to the broad energy academic and industrial community.

Proposals should include a technology strategy for driving research in this area forward and for exploiting the research outcomes. It should include an expansion strategy for extending the research beyond the core Hub funding.

The call closes at 16:00 on 11 October 2011. Up to £4M is available for this call and only one Hub will be funded. It is anticipated that the project will commence in mid 2012. The duration of the grant will be for five years.

Remit of the call

The SUPERGEN Hub should include the following research areas:
- Hydrogen generation
- Hydrogen storage
- Hydrogen infrastructure
- The economics of hydrogen as an energy carrier
- Fuel Cells
- Hydrogen and Fuel Cell systems

Whilst it is noted that the initial remit of the Hub should be focused it is expected that the hub may expand into other fuel cell related technologies as the Hub evolves.

In addition to the purely technological areas listed above the Hub should include the following non-engineering and physical science areas:
- Environmental impacts
- Safety
- Socio-economics
- Policy

Call criteria

Any submission to this call must satisfy the following criteria:
Continuity. The SUPERGEN groups have established industrial and policy linkages, these linkages must be preserved. However, this is an opportunity for new entrants to the SUPERGEN activity, please note the restrictions listed in the summary. Due to the limited number of institutions that can be involved in the Hub it is a stipulation that the associated network will be open to membership by any academic or industrial group that wishes to join. The successful project will then be judged on how inclusive they are in bringing network members into the Hub as associate members as the research portfolio grows. It is expected that in any submission there will be representation from the existing Hydrogen and Fuel Cell SUPERGENs, and at least one Institution that is currently outside the SUPERGEN projects.

Project Management. The Hubs are going to need careful management; the PI and lead CoI's should have demonstrable experience in successfully running large multi-institutional programmes. In order to assist in this it is permissible to include resource for project management in the application.

Technology Strategy. The proposal should present a clear strategy for taking Hydrogen and Fuel Cells research forward and how the group will ensure knowledge transfer and the exploitation of intellectual property. This strategy should refer to, and take account of, the existing national landscape and published technology roadmaps. This research strategy should include:

- A description of the research challenges that the sector faces and how this consortium will meet these challenges.
- How the consortium will grow its activities to meet the defined challenges and how it will secure other, non-energy programme, funding to meet these challenges.
- How the group will interact with existing activities including the Hydrogen and Fuel Cell CDT.
- An Industrial engagement strategy.
- A description of how IP generated through the project will be protected and exploited.
- How the consortium will draw on the associated network to augment its capability as needed when the consortium activities grow beyond the initial hub programme of work.

Networking. The successful PI and also the CoIs are expected to act as a champions for Hydrogen and Fuel Cell Technologies. This will involve:

- Working to the technology strategy as defined above.
- Overseeing a networking activity that is open to all interested parties.
- Acting as advocate for Hydrogen and Fuel Cell research and for the Hub.

The RCUK Energy Programme is not looking to duplicate existing networking structures in this call. Any proposal must identify what networking activities already exist in the UK and how they can be engaged with for the networking of the SUPERGEN Hub. The role of the Network will be to:

- Co-ordinate the Hydrogen and Fuel Cells community.
- Advise the hub on emerging research priorities (and through the hub these priorities should be passed on to the research councils Energy programme).
- Provide a source of capability that the Hub can draw on as required.
- Provide a route for industry to engage with the broader academic community.
- Link to international programmes in Hydrogen and Fuel Cells.
- Provide a route to inform policy.

It is imperative that the Hub engages with existing Hydrogen and Fuel Cell networks and does not duplicate current activities. It is expected that the Hub will complement on going activities and preferably take on a co-ordination role.

For the SUPERGEN Hydrogen and Fuel Cell energy Hub the network may be run in conjunction with the Energy Generation and Supply KTN. The KTN is has been consulted over this call and is prepared to fully engage with the successful group. Proposers wishing to engage with the EG&S KTN should contact the energy generation and supply KTN and obtain a letter of support outlining what the KTN will do. The KTN contact details can be found at the end of this document.

The Energy Generation and Supply Knowledge Transfer Network (EG&S KTN) [link – www.innovateuk.org/energyktn] aims to create an integrated and dynamic network of
business, technology, academic and policy stakeholders delivering strategic and effective knowledge exchange to advance the UK EG&S sector. THE EG&S KTN can help establish a dedicated group on the connect portal for the successful Hydrogen and Fuel Cell ‘Hub’ enabling members to construct and control webpages, start sub-groups, network, file share, organise online meetings, discuss topics, blog and interact with other EG&S KTN members. Additionally the EG&S KTN expert staff can support the ‘Hub by proactively identifying complementary linkages to other activities to widen the influence of the Hydrogen and Fuel Cell network. The KTN can also facilitate active networking to develop stronger links between industry and academia, building on extensive KTN industrial contacts.

Role of the Champion (PI). The project should be led by an individual with extensive knowledge of Hydrogen and Fuel cells technologies, and who should be able to take an impartial view across the disciplines. They should be able to work with and command the respect of the community in order to take a leading role in organising the Hydrogen and Fuel Cell research landscape. They will be expected to be an advocate for the research both in the UK and overseas in academia and in industry. The role of PI/Hub Champion is going to be an exacting one and will require an individual able to devote a substantial amount of time to the activity.

Role of the CoIs. As this Hub will be multidisciplinary and it is unlikely that a single individual would have the time, energy and expertise to cover all the technology issues that the hub will include the CoIs will be expected to take on a strong supporting role. The roles of the CoIs should be defined in the proposal document.

Governance. The Hub should set up a project management and a project advisory group, similar in scope to the existing SUPERGEN consortia. The project management group should be responsible for looking after the day to day operation of the projects. The scientific advisory group should have responsibility for shaping the research direction that the work of the Hub takes. It is expected that the role of the management and advisory groups will grow as the work of the Hub grows.

Guidance on writing proposals

Proposers should refer to the expected Hub structure that is highlighted on page two of this document. The Hub should consist of a Network, a clearly defined research programme, and an element of flexible funding that can be deployed quickly as the need arises. The exact split between the three elements I leave to the applicant but the rationale behind the split that an applicant chooses will need to be communicated in the proposal.

The proposal document should include the following.

Case for support
The case for support should be up to 10 pages in total, to include:

- Two- page track record, which should detail the relevant expertise that each investigator will bring to the research programme. For the Principal Investigator, there should be evidence of leadership and management skills.

- Six- page description of the proposed programme of research, and a brief statement of the research vision, and details of the methodology proposed in each research strand to achieve that vision. **Note: this section should detail the actual research that will be done and present objectives, deliverables and milestones.**

- Two-page management description and how it will be part of the SUPERGEN Hydrogen and Fuel Cell Hub management structure, to include:
  - Management structure, including day-to-day management strategy.
  - Details of external advice streams, including potential users of the technology
  - Monitoring strategy, including how the direction of the research programme will be assessed

Pathways to Impact Plan
Up to two pages. This document should describe who may benefit from the research, how they may benefit and what will be done to make sure 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/apprev/preparing/Pages/economicimpact.aspx

**Justification of resources**
Up to two pages. This should be a narrative description of the need for the resources requested.

**Workplan**
Up to two pages. It is not expected that this will be a Gantt chart for the whole time of the project, but should include a comprehensive plan for the start of the project and then refer to the management strategy to give appropriate milestones for when important decisions on the direction will be taken.

**Statements of support from collaborating Project Partners**
A statement of support from Project Partners should be provided on headed notepaper with a date and signature from the named contact in the collaborating organisation. For advice on what these should contain see:
http://www.epsrc.ac.uk/funding/apprev/preparing/Pages/lettersofsupport.aspx

In addition to the case for support the following information should also be included:

- A description of the national roadmaps for both Hydrogen and Fuel Cells technology. (up to two additional sides of A4).
- Description of your strategy for taking forward Hydrogen and Fuel Cells research to meet the national roadmaps. (up to Three additional sides A4).
- Description of additional research that will need to be done through other funding sources and how that funding will be acquired. (up to two additional sides A4).
- A description of the networking activities that the ‘Hub’ will undertake. (up to two additional sides A4).
- A description of how new members are to be brought into the core ‘Hub’ activity. (up to one additional side A4).
- A description of what the PI and Cols will do as Champions for Hydrogen and Fuel Cell research. (up to Two sides of A4)
- One page description on how the project will integrate with the current Fuel Cells SUPERGEN which will continue to operate until September 2013. Hint: you must have discussed this with the Fuel Cells PI before the submission.
- One Page description on how any IPR generated by the project will be handled and how it relates/augments to the SUPERGEN Hydrogen and Fuel Cell Hub activities.

For advice on writing proposals see:
http://www.epsrc.ac.uk/funding/apprev/preparing/Pages/default.aspx

Please Note: when submitted through JeS this additional information should be included in the same attachment as the case for support. If you do not do this the proposal will be returned to you.

**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/apprev/fundingguide/Pages/default.aspx
As this call is a targeted (managed) 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/research/eligibility.htm

How To Apply

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

Full proposals should be submitted by 16:00 on 11 October 2011

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 ‘SUPERCEN Hydrogen and Fuel Cell ‘Hub’ call.

Details of which research organisations have registered to use Je-S are available from http://www.so.stfc.ac.uk/jes/jes1/RODetails(Web).pdf.

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.

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 (http://www.epsrc.ac.uk/funding/apprev/basics/Pages/default.aspx) which should be consulted when preparing all proposals.

Assessment process

Key Dates
- Call Issued – 26/07/11
- Full proposals Submitted – 11/10/11
- Postal Peer Review
- Interview panel – Jan 2012

The interview panel will be comprised of independent UK and overseas stakeholders who will all have expertise in Hydrogen and Fuel Cells research.

Proposals will be reviewed using postal refereeing. Applicants will be invited to an interview panel where they will be expected to present their proposal and respond to panel questions.

The panel will be asked to assess the proposals against the usual EPSRC criteria. As such the fundamental nature of the challenge and the scientific quality of the proposal are critical, as well as the fit of the proposal to the call.

A rank ordered list will be generated and only the top ranked Hub will be funded should its quality be of sufficiently high standard.

Assessment criteria

The proposals will be assessed on their fit to the scope of the call, and to the following criteria;
**Scientific Quality.** The Hub should be of international standing and demonstrate an established record of research and innovation. This should not rely on publication lists, but present evidence of recognised first-class research and collaboration. The Hub should present a strong, multidisciplinary partnership of researchers with an international profile in the field.

**Technology Research Strategy.** The Hub should show knowledge of the national technology roadmaps for Hydrogen and Fuel Cells research. The Hub will describe its strategy for how it will work to meet the challenges described in the roadmaps. Within this strategy the Hub proposal will define the **Potential for research impact and exploitation.** Mechanisms should be in place that will allow the potential benefits of research to be exploited, both through dissemination of generic findings to the wider community and, where appropriate through protection and exploitation of intellectual property.

**Future plans –** The proposal will present a strategy for how the Hub will use the resources available to grow their activities to meet the technology research strategy. This should be a detailed plan for where this extra support will be sought, and how additional capability will be brought into the Hub as required.

**Networking and collaboration.** The networking activity should be clearly described. It should explain how the networking will aid **collaboration and connectivity,** and how it will ensure that the research will remain **relevant to the wider stakeholder community.** The networking element of the Hub is essential. It should provide a means for a useful and constructive relationship with external stakeholders, which adds value to the Hub and brings tangible benefits to both the collaborative partners and the academic centres. The proposal should communicate an enthusiasm for collaboration.

**Management.** The Hub should have in place appropriate management to operate effectively. The management structure must be explained clearly in the proposal and the chosen management structure must be justified.

**Leadership** – the PI of the Hub is expected to take on the role of ‘Champion’ for Hydrogen and Fuel Cells research. They should demonstrate the experience and ability to run a large multi-institution collaboration, and also provide evidence that they are able to act effectively as an advocate for Hydrogen and Fuel Cell research.

**Guidance for reviewers**

Can be found at the main call page: [http://www.epsrc.ac.uk/funding/calls/open/Pages/supergenfuelcells.aspx](http://www.epsrc.ac.uk/funding/calls/open/Pages/supergenfuelcells.aspx)

**Additional grant conditions**

The principal Investigator will be required to submit annual progress reports.

The SUPERGEN Hub project may be reviewed after 3 years.

The project must collect details of industrial collaborators and their contributions to the research and provide these figures to the EPSRC on request.

For a project to be supported through this call a collaboration agreement must be agreed between all the participants, and must be signed by all participants, before funding can be released.

The project must have a management committee, or equivalent body to oversee the day-to day-running of the project.

Any grant is awarded on the understanding that, in addition to the core research programme, the project will undertake a wider networking role with the research and user community outside the project membership.
Contacts

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