The Department of Energy and Climate Change's

ADVANCED HEAT STORAGE COMPETITION

Guidance notes for applicants

30 May 2012

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How to submit your application

Please read this guidance note before filling in and submitting application forms for the advanced heat storage scheme.

In order to apply, you must first register for the Competition at **https://www.surveymonkey.com/s/heatstorage** by 3 August 2012.

The application form is available at **www.decc.gov.uk/heatstorage**

Send the completed application form as a Word document to heatstorage@decc.gsi.gov.uk with 'Advanced storage application (name of lead applicant)' in the subject line.

You must provide your answers within the application form. Small graphical appendices that support the answers in the Application Form may be appended to the end of the form, embedded in the text, or attached to the email. The application form should include a list of all appendices and any additional supporting documents.

Please also include a list of all attachments in the body of the email. Do not put any further information relating to your application in the text of the email.
Electronic copies of relevant supporting documents are preferred. If electronic copies are not available please send hard copies (not originals) to:

Emma Owen
Innovation Delivery Team
Department of Energy & Climate Change
Floor 6E, 3 Whitehall Place
London, SW1A 2AW

The maximum size email you can send is 10MB.

If your application email is larger than 10MB, break the submission down into smaller sizes and ensure the subject line of each additional email takes the following format "Advanced Storage Application (name of lead applicant) – email x of y".

Send the application form in .pdf format. Appendices can be submitted in other common file formats.

You will receive a response by email letting you know that your email has been received and setting out the timescale for reviewing and next steps.

Please also provide 1 signed hard copy of the application to the address above within 10 working days of submitting your electronic application.

Submission deadline
The deadline submission date is **12.00 pm on Friday 17 August 2012**. Electronic submissions are requested, although a signed hard copy will need to be received by DECC within 10 working days of submitting the electronic application. Please send this for the attention of Emma Owen at the address above. In the exceptional case where it is not possible to provide an electronic copy of the application, hard copies will need to reach DECC by the submission deadline. No application forms, attachments, amendments, additions or deletions will be accepted after the deadline.

Key Dates

Phase 1(design/feasibility study)	
Competition opens	30 May 2012
Deadline for registrations	3 August 2012
Deadline for applications	17 August 2012
Design phase commences	1 October 2012
Deadline for design report	21 December 2012

NB: Phase 1 submissions need to be made on time and to the appropriate quality otherwise payment for Phase 1 will be withheld.

Phase 2 (prototype demonstration and monitoring)	
Successful Phase 1 reports invited to tender	January 2013
Deadline for Phase 2 applications	Feb/March 2013
Phase 2 delivery commences	March/April 2013
Phase 2 Monitoring stage	1 April 2013 to 28 March 2014

Further information

For clarification and logistical queries on the process please email emma.owen@decc.gsi.gov.uk or call 0300 068 6616. Application forms and supporting documents are available at www.decc.gov.uk/heatstorage

Competition description

The Department for Energy and Climate Change has launched a SBRI (Small Business Research Initiative) competition, in partnership with the Technology Strategy Board (TSB), to assess the performance of advanced thermal stores which can be integrated with heat technologies (such as heat pumps) to help balance peak loads to the grid.

SBRI is a programme that brings innovative solutions to specific public sector needs, by engaging a broad range of companies in competitions for ideas that result in a fully funded development contract between the organisation and the government department – it is not a government grant. Further information about the SBRI process can be found at: http://www.innovateuk.org/deliveringinnovation/smallbusinessresearchinitiative/whatissbri.ashx

DECC are seeking applications to assess the viability of compact heat storage materials as an effective means to mitigate potential strain on the electricity grid in scenarios of increasing loads from low carbon heat technologies. Applicants will be required to demonstrate:

- Energy performance of storage unit compared to water
- Expected life of the installed system
- Degradation of performance over time
- Cost (measured by payback period and to include product cost; maintenance; installation and ancillary equipment required)
- How the system would operate across wider supply chain components (including controls and heat exchanger)
- Scalability (flexibility of product to enable load shifting over a range of hours)
- Safety considerations

The competition will run in two phases, with the possibility of a third demonstration phase. Phase 1 will open on 30th May 2012 for feasibility studies of product performance and contracts are expected to be awarded at the end of September 2012. Applicants will be asked to provide a robust, evidence based case for the viability of their proposed technologies (for example a desk based feasibility study with some supporting small scale laboratory work/data) against a set of performance criteria. Successful studies will be invited to participate in a prototype demonstration (Phase 2) in Spring 2013 with monitoring to take place over a 12 month period.

Eligibility criteria

The competition will follow the Technology Strategy Board's SBRI process. SBRI is aimed at organisations working on the development of an innovative process, material, device, product or service. Successful applications will be those whose technology best addresses the specific needs identified, with the potential to make a measurable improvement to currently available products, processes materials, devices or services. Development contracts will be awarded only to individual organisations. Applicants must therefore be a legal entity. Although we are encouraging projects that include strong collaboration across the supply chain, the contract will be with the lead party, and other collaborators will be subcontractors of the lead party.

SBRI competitions are open to all organisations that can demonstrate a route to market for their solution. The SBRI scheme is particularly suited, but not limited, to small and medium-sized business, as the contracts are of relatively small value and operate on short timescales. Projects are 100% funded and focused on specific identified needs, increasing the chance of exploitation. Suppliers for each project will be selected by an open competition process and retain the intellectual property generated from the project, with certain rights of use retained by DECC. This is an excellent opportunity to establish an early customer for a new technology and to fund its development.

Further details are set out in the FAQs document

Evaluation criteria

Applications will be reviewed by a selected panel of experts in August-September 2012. Contracts will be awarded at the end of September 2012. Feedback to applicants will be given after contracts are awarded.

The assessment criteria are:

1. Project Plan

How well does the proposal address the challenge as set out in the competition brief? Does the proposal deliver the challenge in terms of demonstrating the potential and viability for roll-out in the domestic sector?

What are the risks to project success? (technical, commercial and environmental) to project success? How effectively will these be managed?

2. Technical performance

How robust is the description and evidence of the product's energy performance? including:

a) Reference to conductivity and heat loss relative to water

b) Description of product's performance and operating temperature within a system (including heat exchanger, controls, integration with heating technologies)

c) Life expectancy and degradation over time

3. Technical Methodology

How appropriate is the technical methodology for modelling and monitoring the product's performance that will be adopted during product development and delivery?

4. Attractiveness for users

Evidence of product's ease of use and practicality for users. Include reference to:

- **Volume** (addressing spatial constraints in homes)
- **Scalability of product.** To what extent is there flexibility to enable load shifting over a range of hours and tailor product for user needs/restrictions?
- **Safety**
- **Installation requirements**

5. Current state of the art and intellectual property

Evidence of competing technologies/market alternatives and the relative benefits of the proposed technology. How significant is the potential advantage which this technology affords a user over alternate technologies that can meet the market needs? Applicants will be required to include details of any other existing IP and its significance to the project's success.

6. Market potential and business case

Applicants are required to present an outline commercialisation plan to indicate the strength of the market potential. Also refer to the availability of material for wide-scale roll out. Include detailed costings (product, maintenance, installation, peripheral equipment) and the payback period. Applicants are requested to calculate the payback period using DECC's standard assumptions for electricity available at:

http://www.decc.gov.uk/en/content/cms/about/ec_social_res/iag_guidance/iag_guidance.aspx

See (towards end of page) "Guidance tables 1-24: supporting the toolkit and the guidance", tab "Tables 4-9".

N.B Given that there may not be large energy savings from the storage product per se and that the focus of the benefit for phase 1 will be on shifting several hours of electricity consumption from peak to off peak periods, an assumption of 22% for the peak / off-peak differential is proposed (based on wholesale price differentials observed in 2009 Elexon data).

Please also ensure you use the prices in row 7 (Variable element: domestic costs), not the retail costs cited in row 4. The variable element prices strip out 'fixed' factors such as office overheads that will not change with alterations in energy use (though these are included in the retail price).

For example, if in the first year (2013) the system shifts 5,000 kWh from peak electricity time to off-peak time, then the saving in cost would be 22% of 5,000 x 9.33 p = £102.63, while in year 2 the cost saving would be 22% of 5,000 x 9.18 = £100.98.

7. A committed team
A detailed description of the skills, expertise and track record of the team, which should include a team member with suitable installation / delivery experience. Evidence of engagement and networks across the heat industry supply chain, including suppliers of low carbon heating technologies such as heat pumps. Details of project partners and the project's governance structure to ensure smooth delivery of the project.

8. Financial plan
How appropriate is the proposal financially? Is the overall budget realistic and justified in terms of the aims and methods proposed? Does the proposed cost for effort and deliverables reflect a fair market price? What are the indicative costs for demonstration of the prototype in Phase 2? See also 'Eligible costs' below.

Support available

The total value of the advanced storage competition is £3m available until March 2015. **All payments need to be completed by the 31 March 2015.** A maximum of £30,000 will be available for each Phase 1 design proposal selected from the initial application forms. We expect to fund between 15 and 20 design proposals at Phase 1; the number funded will depend on the range of solutions, their Phase 1 costs, and estimated Phase 2 costs.

Phase 2 will result in contracts worth between £100,000 and £500,000. Following successful completion of Phase 1, applicants will be requested to propose an appropriately scaled demonstration to determine the benefits as indicated by the evaluation criteria. We expect to fund around 12 delivery proposals at Phase 2; the number funded will depend on the phase 2 tenders.

Please note, contracts are inclusive of VAT, so include VAT in all your costs (it cannot be added later).

Note: Nothing in this funding call requires DECC to award any applicant a contract of any particular amount or on any particular terms. DECC reserves the right not to award any contracts, in particular if DECC is not satisfied by the proposals received or if the funding assigned to this scheme is required for other, unforeseen, purposes. DECC will not, in any circumstances, make any contribution to the costs of preparing proposals and applicants accept the risk that they may not be awarded a contract.

Eligible costs

Applicants are instructed that the project costs quoted must reflect actual costs at a "fair market value" and profit should not be included. All costs should **include VAT**.

Please provide a detailed breakdown (not to exceed 2 sides of A4) as an appendix and summary of costs in the application form for Phase 1 and provide an indication of costs for Phase 2. All costs should include VAT. In addition, please provide a justification of the costs in the space available in the form.

Please note the Assessors are required to judge the application finances, in terms of value for money i.e. does the proposed cost for effort and deliverables reflect a fair market price.

The costs should cover the following, as applicable.

Directly Incurred Costs:

These are costs that are specific to the project that will be charged to the project as the amount actually spent, fully supported by an audit record in justification of a claim. They comprise:

- Labour costs for all those contributing to the project broken down by individual
- Material Costs (inc consumables specific to the project)
- Capital Equipment Costs
- Sub-contract costs
- Travel and subsistence

Indirect Costs

Indirect costs should be charged in proportion to the amount of effort deployed on the project. Applicants should calculate them, using their own cost rates. They may include:-

- General office and basic laboratory consumables
- Library services/learning resources
- Typing/secretarial
- Finance, personnel, public relations and departmental services
- Central and distributed computing
- Cost of capital employed
- Overheads

Itemisation of costs and methods of calculation may be requested to support the application at a later date.

An indication of potential costs involved in participating in Phase 2 is also required.

In Phase 2, eligible costs include product R&D, design and building implementation, making good associated works with the products installed, and monitoring etc. Only costs directly associated with the development, implementation and monitoring of products will be considered.

*****Progression to Phase 2 is dependent upon completion of Phase 1 and on a successful Phase 2 application.

Publication of results

DECC wishes to publicise details of the award recipients. Therefore, on or after issuing an SBRI contract, DECC will publish the following information:

- Identity of the participant and its partners;
- Type of technology involved;
- Summary details of the aims and expected outcomes of the project
- Estimated total capital cost;
- The size of the DECC contract;

In addition, following completion of the projects, DECC expect to publish on its website a summary of the funded activities and the outcomes achieved – likely including the project definition, a summary of the technical details and the outputs. DECC may also revisit projects at a later date and publish an evaluation report for the Scheme as a whole.

DECC however recognises the need to maintain the confidentiality of commercially sensitive information. Any IP gained prior to or arising from the Project will reside with the participating company or consortia. DECC will consult applicants regarding the nature of information to be published, in order to protect commercially sensitive information.

Reporting, evaluation and knowledge sharing requirements

There will be a number of requirements on contractors during the course of the project, including after the final payment milestone.

- **Reporting to track project progress** and ensure payments are made according to a schedule of milestones to be agreed with selected projects in Autumn 2012. This reporting will be in confidence to DECC's technical team and will not be published. Any changes to schedules or project plans will need to be discussed with DECC and applicants should expect significant interaction with the team during the project.

- **Evaluation of the scheme:** Successful applicants will be expected to participate in an evaluation of the scheme during and after final contract payments, to assess whether funds have been used effectively.

- **Knowledge sharing:** to benefit the industry as a whole and to avoid repetition of costly or time-consuming mistakes there will be an obligation on successful applicants to undertake data gathering and knowledge sharing activities. We will expect applicants to share useful data and experience through relevant industry forums.

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