



Retrofit for the Future

Competition for development contracts

April 2009



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 short-term development contracts.

Joint funders:

Technology Strategy Board
Driving Innovation



Summary

The Technology Strategy Board is launching an SBRI initiative to retrofit UK social housing stock in order to meet future targets in reduction of CO₂ emissions and energy use. This competition is open to all companies, including social landlords and those companies not currently engaged in the construction sector. Although there is no limit on the size or type of company applying, we particularly welcome applications that enable small companies to participate within the supply chain.

This 'Retrofit for the future' competition will enable building and renovation companies to retrofit social housing stock. The competition is looking for at least 50 demonstrator whole house solutions that will improve the performance of the entire property – with the specific goal of making deep cuts in carbon emissions. We will be offering 100% funding for each proposal we accept, delivered through the new SBRI cross-government initiative for the procurement of technology projects. Suppliers for each project will be selected through this open competition process and the key area of focus will be on ambitious, cost-effective carbon and energy reductions with potential widespread applicability in low rise, whole house solutions.

The outcomes of the Retrofit for the Future competition will be:

- A kick start for the social housing retrofit market and associated UK business.
- Innovative solutions from UK business to evaluate for future procurement.
- Exemplar retrofitted properties with radical and realistic solutions.
- A demonstrator pattern book and database.
- Development of UK skills.
- Evidence of actual in-use performance benefits and costs.

Background and challenge

Housing in the UK accounts for 27% of carbon emissions and more than 80% of the houses we will be living in by 2050 have already been built. To meet the UK's target of an 80% reduction in carbon emissions by 2050, we must dramatically improve the performance of our existing housing stock and we must act now.

The Decent Homes Programme and its devolved equivalents, together with the carbon emissions reduction target (CERT), have done a lot to improve energy efficiency of UK social housing. Taken as a whole, the social housing sector is now more energy efficient than the rest of the country's housing stock and it is increasing its energy performance more quickly. Through the Communities and Local Government Select Committee, the Government has committed itself to consider how emissions from social housing stock can be reduced still further.

The UK social housing sector has over 4.5m homes. There is a lot of interest in retrofitting the stock to a high standard of energy efficiency but, as a whole, the sector is not currently able to easily procure innovative and effective solutions for high performance refurbishment. There is now an opportunity for the Technology Strategy Board to connect the future procurement needs of social landlords, such as local councils and housing associations, with the capability of innovative suppliers to develop a range of high performance and cost effective 'whole house' solutions.

To date, the Technology Strategy Board has invested in projects within the construction industry with a value of approximately £100m. The Retrofit for the Future competition offers an additional opportunity to take through some of these often radical innovations into demonstrator buildings. It may also allow those UK companies that have developed innovative solutions intended for other industry sectors to apply them within the construction sector.

With our role to promote, support and exploit innovation, and in collaboration with our sponsoring department, the Department for Innovation, Universities and Skills (DIUS), the Technology Strategy Board will lead and deliver the competition. Those departments and agencies that are responsible for delivering the Government's Heat and Energy Saving Strategy will support the research, namely the Department of Communities and Local Government, the Department of Energy and Climate Change and the Homes and Communities Agency.

This Retrofit for the Future competition will provide practical demonstration of how cross-government working can ensure innovative technologies are pulled through to government procurement for the benefit of both UK business and UK society.

Scope

We are looking for proposals to develop and demonstrate whole house solutions for refurbishment that deliver deep cuts in energy use and carbon emissions, high levels of comfort, and attractive costs. Rather than using individual technologies, each integrated whole dwelling solution will address all the aspects of the home that can be used to cut carbon emissions, including insulation, heating systems, ventilation, white goods and control systems.

Companies will be invited to bid for contracts to retrofit example single houses, or a small number of houses where the retrofit can be delivered within the funding limits yet still achieve the deep cuts in carbon emissions. These are intended to cover the broadest range of low rise house types and geographic location possible. Successful companies will have the opportunity to show the social housing sector what they can deliver and will be well placed to bid for future refurbishment contracts.

The competition is strictly for houses drawn from the social housing stock and excludes low rise apartment buildings, high rise dwellings, owner occupied dwellings and private landlords. We recognise that other types of building and ownerships are important for meeting future CO₂ targets but they are not eligible for funding within this Retrofit for the Future competition.

In summary:

- The competition is for low rise houses, drawn from the UK's social housing stock.
- A whole house, holistic approach will be required that seeks to achieve deep cuts in carbon emissions through innovative approaches that can be scaled up, rolled out and copied, cost-effectively and in a widespread fashion.
- A broad range of house type and geographic location is required and the competition will probably fund single houses only. However, there may be a case where retrofitting a small number of houses together is appropriate and where the retrofit can be delivered within the funding limits and still achieve the required deep cuts in carbon emissions.
- The houses will be measured for performance, before, during and after the retrofit is complete. Specific criteria and the measurement strategy are currently being developed.
- The competition is open to all regions and devolved administrations (Scotland, Wales and Northern Ireland).
- The consortia will need to be led by a single company which will then be responsible for distributing funds to subcontractors.
- We have not identified the properties to be retrofitted, the applicant companies will need to identify these, in collaboration with a registered social landlord/local authority.

Application process

The competition is being run through the Technology Strategy Board's SBRI initiative. This is a way for government departments to find novel solutions to specific problems by engaging innovative companies that they could not reach otherwise.

- It enables government departments and agencies to procure new technologies faster and with managed risk.
- It provides vital funding for a critical stage of technology development through demonstration and trial – especially for early-stage companies.

It is run through an open and transparent competition which will result in direct contracts between successful companies and the Technology Strategy Board.

This competition offers 100% funding for each proposal. Competitive bids will be judged on innovation and potential for impact as well as projected build cost. The contracts will include costs for the Phase 1 feasibility/design phase as well as the Phase 2 build phase. The contracts are designed to cover the costs of retrofit work that tackles the reduction of CO₂ and energy use only. Costs that would ordinarily be incurred as a result of standard refurbishment works such as bringing a house up to the Decent Homes standard are not covered.

Competition Launch – Finding Buildings, Technologies and Collaborators

During the competition launch period until 24 June – the deadline for applications for Phase 1 feasibility/design – there will be opportunities for potential applicants and collaborators to find out more and get together with a view to partnering up.

It is the responsibility of applicants to connect with suppliers and collaborators; this includes finding the house to retrofit. To help facilitate this and to help housing providers connect with suppliers and vice-versa, there will be a number of 'brokering' events held in late April and early May to bring together registered social landlords/ local authorities, contractors, designers, architects, and suppliers etc. These will be organised by the Modern Built Environment Knowledge Transfer Network and those wishing to attend can register for an event at:

www.regonline.co.uk/retrofit_for_the_future

The draft timetable is as follows:

- Scotland, 22nd April 2009 in partnership with Scottish Enterprise and the Scottish Construction Centre.
- East Midlands, 5th May 2009 in partnership with the Sustainable Construction i-NET.
- London, 7th May 2009 in partnership with the Department for Business, Enterprise and Regulatory Reform.
- Wales, 15th May 2009, in partnership with the Welsh Assembly Government.
- Northern Ireland, 22nd May, in partnership with the Northern Ireland Housing Executive.

The SBRI scheme is intended to be attractive to small and medium-sized businesses. The contracts are simple and a quick route to technology development and public procurement. As previously stated, we are keen to see applications that enable small companies to participate within the supply chain and proposals that demonstrate this are particularly welcome.



Phase 1 feasibility/design

The feasibility/design Phase 1 is funded to a maximum of £20K and is intended to generate a technical feasibility study. The present economic climate is putting great pressure on the construction industry. Phase 1 funding is provided to help companies prepare for the future retrofit market and take risk out of the application process for the Phase 2 build stage. The funding will cover specific technical work and may include:

- Technical assessment of primary energy use and CO₂ emissions using appropriate modelling software.
- Detailed design proposals.
- Planning report, Conservation Officer report or Building Control Officer report where appropriate.
- Air tightness measurement (by demonstration, all testing must be carried out in accordance with ATTMA¹ Technical Standard 1 and CIBSE² TM23).

The Technology Strategy Board will require SAP modelling during Phase 1. To facilitate comparable data, the Technology Strategy Board will provide a set of technical and energy modelling guidance notes to successful applicants. These will ensure that the assumptions entered into SAP by competition entrants are uniform, thereby removing the potential for discrepancies.

Although not mandatory, feasibility/design studies that also model their proposals in PHPP³ or similar, would be particularly welcome and would enhance Phase 1 work. PHPP may facilitate the optimisation of energy and CO₂ reductions at a more detailed level. For instance, PHPP incorporates an explicit overheating target with external temperatures that can be modified and locations changed, thus allowing some analysis of future climate change resilience.

The results of the feasibility phase will be assessed by expert assessors and a number of the most innovative and effective projects in terms of ambition and cost-effective carbon and energy reduction with potential widespread applicability will be funded and taken forward to the Phase 2 retrofit build.

Phase 2 retrofit build

The retrofit build Phase 2 contracts will fund the implementation of those proposals generated during Phase 1 feasibility work into demonstrator low rise houses. A maximum of £150K will be available in Phase 2 for carbon reduction measures only and not standard refurbishment costs. It is envisaged that during Phase 2, single houses, or small numbers of houses will be retrofitted with particularly effective, replicable and innovative technologies within the maximum £150K potential budget.

The monitoring and measurement of the retrofit demonstrators is crucial to the success of the competition. This will be funded and managed by the Technology Strategy Board but will require the cooperation of the successful companies and social landlords in each case. More details on this subject will be provided prior to Phase 2.



Key dates

Pre-application launch	
Feasibility application forms available	April 2009
Modern Built Environment Knowledge Transfer Network brokering events	April - May 2009
Consortia bid planning	April - May 2009
Deadline for feasibility applications	Noon, 24 June 2009
Phase 1 Feasibility/design (funded – £20K max)	
Assessment of feasibility applications	July 2009
Notification of decision	15 July 2009
Feasibility contracts awarded by	16 July 2009
Feasibility/design stage work begins	3 August 2009
Feasibility/design stage ends	23 October 2009
Phase 2 Retrofit build phase (funded – £150K max)	
Assessment	November 2009
Notification of decision	23 November 2009
Build contracts awarded	26 November 2009

More information

For more information on this and other competitions and details of how to register and apply, please see www.innovateuk.org under **'Competitions'**.

Helpline: **01355 272155**

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The Technology Strategy Board is a business-led executive non-departmental public body, established by the government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve quality of life.