



Ultra-efficient lighting for homes

Competition for development contracts
February 2010

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 and the Department for Environment, Food and Rural Affairs (Defra) are launching a £1.2m SBRI initiative to fund development work on ultra-efficient lighting (UEL) for the domestic environment.

The rise in energy prices and the need to reduce carbon dioxide emissions is leading to an increasing public awareness of energy and environmental sustainability. The aim of this competition is to develop capability within the UK to supply high-quality directional and non-directional lighting for the home that is exceptionally efficient, whilst providing a medium-term payback of costs in real terms.

The competition comprises several phases:

Initial application

Applicants outline their proposal, describing technical work that will lead to the demonstration of a UEL source which meets our criteria. Applicants should include their plan for phase 1 and an indication of their approach for phase 2.

Phase 1: feasibility

Successful applicants will be offered a contract with 100% funding to show the technical feasibility of their design proposal. Each contract will be for a maximum of three months with funding up to £40k. As part of the selection process for phase 2, applicants may have to attend an interview and present their proposal.

Phase 2: development

Companies that successfully complete phase 1 may be offered a phase 2 contract with 100% funding to develop their prototype. Up to £450k in total will be available to fund the generation of 50 demonstration units. Phase 2 will last up to 12 months and complete by the end of Q3 2011.

Demonstration testing

After phase 2 the Technology Strategy Board will coordinate a six-month period of demonstration testing for each of the 50 lighting units.

Background and challenge >

As reported in Defra's *Life Cycle Assessment of Ultra-Efficient Lamps* in May 2009, there are approximately 25.1 million homes in the UK, with slightly more than 750 million lamps actively in service. Electricity consumption for domestic lighting is slowly increasing, with Defra's Market Transformation Programme projecting that the domestic lighting sector could reach 19.2 TWh by 2020 (Defra, 2008). Government and industry need to work together to transform the lighting market and encourage energy-efficient lighting, since this is one of the 'easy wins' in terms of carbon abatement.

The UK lighting industry is well established at multiple points in the supply chain owing to the maturity of the lighting market and a strong research pedigree – covering inorganic semiconductors, printed electronics, microwave technology, lighting fixture design and luminaire manufacturing – all of which result in a promising environment for exploitation. The challenge is to ensure that this well established UK lighting sector successfully transfers production to the new, high-margin technologies represented by ultra-efficient lighting.

Compact fluorescent lamps already offer consumers a light source that is approximately four times more efficient than traditional incandescent lamps, though with some perceived drawbacks. This competition will develop lighting products or systems that are more energy efficient than current good practice, whilst meeting other user needs such as the ability to be dimmed, and a warm colour light.

Scope >

The competition will result in the successful demonstration of compact UEL sources suitable for domestic use, so that business helps Defra reach its policy goals. As such, the selected proposals will provide lighting solutions that are similar to or better than the products targeted for replacement, in terms of operation, light quantity, distribution and light quality, and also demonstrate substantial energy savings. Solutions shall also be fully RoHS compliant without any exemptions¹.

These projects shall provide prototypes which enable the direct replacement of incandescent lamps (non-directional light source – NDLS) or halogen reflector lamps (directional light source – DLS) or lighting fixtures without extensive re-wiring of the home. We will consider proposals to change the lighting fixture as long as the existing wiring termination is used and the cost of replacement is included when calculating the payback period. Applicants should ensure that their proposed solution meets the performance criteria defined in the Technical Specifications document (see www.innovateuk.org under Competitions) to ensure that proposals meet consumers' and users' expectations.

It is encouraged that solutions should work in conjunction with sensors (such as ambient light sensors, proximity sensors or presence detectors) to ensure that lights operate only when necessary to maximise savings – recognising that the most efficient light is one that is turned off.

The table below shows the target payback period for the consumer or end-user after potential utility or retailer incentives have been applied. To be successful in the market, proposed solutions should be cost effective and attractive to buyers, and the payback period – when the price has been offset by energy savings – must be medium term, as defined below.

Target payback period including incentives from utilities and retailers

Product	Payback period*	Reference product
Non-directional light source	Less than 60 months	11W or 20W compact fluorescent
Directional light source	Less than 24 months	35W halogen

* A 25% incentive/subsidy to manufacturers can be assumed when making this calculation.

Application process >

The Technology Strategy Board and Defra have allocated up to £1.2m in total to 100% fund development work on UEL for the domestic environment.

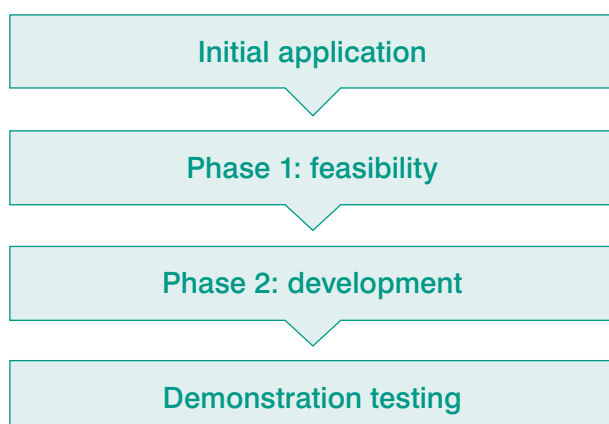
The competition is being run through the Technology Strategy Board's SBRI initiative. This is a way for government departments to find novel solutions to specific problems by engaging innovative companies they could not otherwise reach. This open and transparent competition will result in direct contracts between successful companies and the Technology Strategy Board.

The competition is open to all businesses. Individual companies or consortia may apply, and there is no limit on the size or type of company. The SBRI scheme is particularly suited to small and medium-sized businesses, as the contracts are relatively low value and have short timescales. Companies with contracts will retain the intellectual property rights, with certain rights of use retained by Defra.

This competition is governed by a clear and competitive process. Details of the process are outlined in the Guidance Notes, a separate document, which will be available when the competition opens on 22 February 2010. Applicants must refer to the Guidance when applying. The document will be available in the Competitions section of our website at www.innovateuk.org

The Photonics and Plastic Electronics Knowledge Transfer Network (PPE KTN) will also be holding briefing events to provide information about this competition on 9 March in Birmingham and 17 March in Daresbury. For details, visit www.ppektn.org

The competition comprises several stages:



Applicants who submit a successful proposal may be offered a contract with 100% funding to perform a feasibility study (phase 1). Companies that are assessed to have successfully completed phase 1 will be offered a contract with 100% funding to develop their prototype and produce 50 demonstration units (phase 2).

Initial application

Applicants must submit a short form outlining their proposal. The Guidance Notes provide full details of how to complete and submit the application form.

The challenge is to develop directional and non-directional lighting for the domestic market. Applications should describe specific technical work that will lead to the demonstration of a UEL source which meets the criteria outlined in the Technical Specifications document.

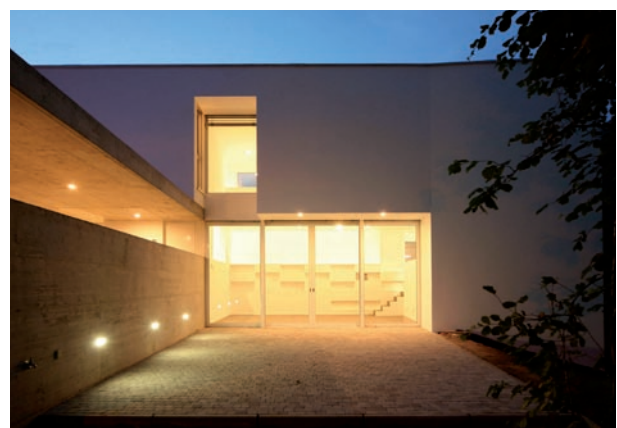
Successful initial applications will be awarded a contract for phase 1 only. Contracts for phase 2 will only be awarded to companies that are assessed as the most successful phase 1 contracts. However, in their proposal all applicants should state their goals and outline their plan for phase 2 as an explicit part of the path to full commercial implementation.

Full details of the assessment criteria will be available when the competition opens.

Phase 1: feasibility

Successful applicants will be offered a contract with 100% funding to show the technical feasibility of their proposed concept. Each contract will be for a maximum of three months with funding up to £40k, with contracts being awarded on the basis of value for money, amongst other criteria.

At the end of phase 1 each project will submit a report. We will assess the reports and select those that will continue to the next phase. As part of the selection process, applicants may also have to attend an interview and present their proposal. Further details are provided in the Guidance Notes.



Phase 2: development

Companies that perform successful feasibility studies may be offered a contract and 100% funding (up to £450k in total) to develop their prototype and produce 50 fully-functional, tested demonstration units. As in phase 1, contracts will be awarded on the basis of value for money, amongst other criteria. Phase 2 will last up to 12 months and complete by the end of Q3 2011.

During phase 2 companies may need to make further improvements to their prototype; for example, by refining the design and method of manufacture, and conducting product testing and documentation, including CE mark certification.

By the end of the development, each of the 50 lighting units should have full safety certification, environmental reliability studies will have been completed, and each prototype will have undergone at least three months' accelerated life testing with an expected performance of >25,000 hours (L70).

Demonstration testing

After phase 2 the Technology Strategy Board will coordinate a six-month period of demonstration testing for each of the 50 lighting units.

Key dates >

Initial application	
Application forms available	22 February 2010
KTN briefings (optional)	9 March 2010 17 March 2010
Deadline for applications	19 April 2010 (noon)
Notification of decision	26 May 2010

Phase 1: feasibility	
Feasibility contracts issued	9 June 2010
Deadline for returning signed contracts	25 June 2010
Deadline for submitting project reports	9 September 2010 (noon)
Notification of decision	4 October 2010

Phase 2: development	
Development contracts issued	20 October 2010
Deadline for returning signed contracts	3 November 2010
Development to be completed by	end Q3 2011
Demonstration testing begins	Q4 2011

Further information >

For more information about this and other competitions, and details of how to register and apply, please see www.innovateuk.org under Competitions. The Invitation to Tender, Guidance Notes and Technical Specifications are all published on the web with this briefing document.

Helpline: **0300 321 4357**

Email: competitions@tsb.gov.uk

For further information about the SBRI scheme see www.innovateuk.org/sbri

For more information on the Technology Strategy Board's activity to encourage the development of these and related technologies and the deployment of products based on them, see our *Electronics, Photonics and Electrical Systems Strategy 2008-11* on our website under Publications.

Publicity >

The Technology Strategy Board frequently publicises the results of competitions and this includes engagement with the media. All applicants will be given a chance during the competition process to opt out of any publicity. Willing applicants will be asked to provide an agreed form of words for use in publicity material. Email pressoffice@tsb.gov.uk with any queries.

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The Department for Environment, Food and Rural Affairs (Defra) is a government department in the UK. The overarching challenge for Defra is to secure a healthy environment in which we and future generations can prosper. As we build a low carbon, resource efficient economy, Defra helps people to adapt to changes, deals with environmental risks and makes the most of the opportunity we have to secure a sustainable society and a healthy environment.

The SBRI scheme is one of the tools that the Technology Strategy Board uses to drive innovation. 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.