

THE TECHNOLOGY PROGRAMME:  
NOVEMBER 2004 COMPETITION FOR FUNDING

## Energy Technologies

### Summary

The development of new and renewable energy technologies is an important element of the Government's policy of stimulating the development and utilisation of new and renewable energy sources. These technologies can provide a continuously growing contribution in the competitive energy market, contributing to environmental goals, energy diversity and security.

An indicative budget of £7M has been allocated for Collaborative R&D projects in this competition that will ultimately deliver significant energy, environmental and business benefits to the UK, addressing the following technology areas:

- Bio-energy
- Fuel cells
- Wave power
- Tidal stream
- Off-shore wind power
- Photovoltaics
- Embedded generation

### Background and Scope for Applications

Projects should tackle critical development issues, thereby offering significant prospects for improving our understanding of the prospects for new and renewable energy and improving their economic attractiveness. Applications are encouraged in the following areas:



## Bio-energy

The development of viable, cost-effective energy crop fuel supply chains, and the subsequent use of energy crops in conversion processes, is essential to any substantial and long-term development of bio-energy in the UK. It is equally important to reduce the current high level of capital and operating costs that make it difficult for Bio-energy to compete in the Renewables Obligation, and to improve the overall efficiency of resource usage. The priorities are therefore as follows:

- The development, and subsequent evaluation, of innovative techniques and equipment within the fuel production, harvesting and supply chain to reduce the delivered cost/GJ of energy crops. Applications should describe the current state of the art and quantify the economic improvement that the innovation would deliver if successful
- Research and development of advanced biomass conversion technologies with high electrical and overall efficiencies that will significantly improve the cost effectiveness of combined heat and power in process and space heating/cooling. Applications should provide simple energy balances and economic projections illustrating how current proposed innovation would improve on the state of the art
- Research that will improve the understanding of how energy crops behave in combustion and other thermal processes, and how their physical and chemical properties impact on the reliability and performance of practical equipment
- Research into next generation transport biofuels (this does not include translation of existing well-understood processes for the production of transport biofuels to the UK)

## Fuel cells

The prospects for fuel cells in the key markets of interest (commercial/industrial CHP, distributed power generation and road transport) remain uncertain and proposals should focus on tackling critical development issues that affect commercial prospects in these markets. Commercial entry to these markets may be some way off and proposals addressing earlier market opportunities will be considered but proposers should provide evidence of a clear route to significant longer-term markets.

We particularly welcome proposals for developing and evaluating innovative fuel cell stack and system designs, and key stack and system components, with particular emphasis on the UK supply chain. Proposals involving any type of fuel cell technology will be considered on their merits.

If your project involves the use of micro or nanotechnology then please highlight this in the 'Project Abstract' section of your application form. Please note that if the main activity in your proposal is the development of micro or nanotechnology you should apply for funding under the Nanotechnology area of this competition.

## Wave and tidal stream

Funding is available for projects that will further develop, evaluate and test wave and tidal stream device concepts and components. Proposals must include a clear description of the concept, the rationale for its configuration and energy capture and the basis for the work proposed. Proposals will be assessed on the basis of the long-term economic prospects and must include a relevant and rigorous evaluation of the long-term economic prospects with assumptions and data clearly identified and justified.

### Offshore wind

Funding is available for innovative technologies and approaches that offer the prospect for significant reductions in capital and operating costs of offshore wind farms. We are also prioritising technologies that will reduce the radar cross section of wind turbines, through new materials and designs. Ideally, such proposals should include turbine and component manufacturers.

### Photovoltaics

The key issue for PV is its high cost and the need to become competitive with other electricity generating sources. This will require breakthrough development, which can reduce costs by an order of magnitude from today's costs. The priority is therefore for projects that offer credible prospects for significant improvements compared to current PV options through cost reduction and/or better performance.

This is not an easy task and will require a sound understanding of the 'current leading-edge', a novel approach offering a credible development route and substantial effort in high quality, industrially focussed research and development. Proposals should be based around multidisciplinary teams with the relevant scientific, technical and industrial skills and resources. Proposals also need to demonstrate a credible route to market for the exploitation of successful work.

If your project involves the use of micro or nanotechnology then please highlight this in the 'Project Abstract' section of your application form. Please note that if the main activity in your proposal is the development of micro or nanotechnology you should apply for funding under the Nanotechnology area of this competition.

### Embedded Generation and Sustainable Networks

The structure of the UK electricity system is set to change over the coming years with new generating technologies connecting to the system. The integration of these technologies, often having radically different characteristics to conventional plant, will pose considerable challenges in terms of network design, operation and control. Proposals are invited which identify and respond to these challenges, against a background of maintaining or enhancing network standards of security, quality of supply and resilience. There are also opportunities for proposals that involve advanced metering, demand side management and network storage. Projects are sought that will help deliver the above objectives at least cost to the consumer. Proposers should note the activities of the DTI/OFGEM DGCG and the DTI/OFGEM/IEE 'Technical Architecture Programme' to ensure the industry progresses the issues in a coherent manner.

### Project Details

Proposals that address the above technology areas are sought for Collaborative R&D projects that involve science-to-business and business-to-business interactions. Projects can range from small, highly focused basic research they aimed at establishing technical feasibility, though to applied research, and to experimental development projects configured to produce technology demonstrators. In particular we would encourage projects that can demonstrate benefits to a number of business sectors, and ideally should include at least one partner with defined end-user needs.

Typically a project would have a 1-3 year duration and require DTI support of up to £1m, although larger projects will be considered. Projects will generally aim to implement significant business change in a 5-7 year time frame, rather than offer immediate payback.

## Other Funding Opportunities

EPSRC are interested in co-funding applied research projects in this technology area where there is a significant high quality academic component. Applicants who wish to seek EPSRC funding should read the additional guidance provided at [www.dti.gov.uk/technologyprogramme](http://www.dti.gov.uk/technologyprogramme)

## Contact

If you have any queries about this technology area, please contact Jonathan Holyoak at the DTI.

**[jonathan.holyoak@dti.gsi.gov.uk](mailto:jonathan.holyoak@dti.gsi.gov.uk)**  
**020 7215 0117**

For general enquiries on the application process please contact the helpline on **01355 272155** or e-mail **[info@technologyprogramme.org.uk](mailto:info@technologyprogramme.org.uk)**

Deadline for registering your intention to submit an application:  
31st January 2005

Outline application submission deadline: 7th February 2005

For details on how to register and apply go to [www.dti.gov.uk/technologyprogramme](http://www.dti.gov.uk/technologyprogramme)



# Energy Technologies Addendum

Included in the indicative £7 million funding for Energy Technologies will be projects that focus on:

- Brownfield Technologies
- Offshore Field Trials

The research and development of technologies that can make a significant contribution to DTI's objective of maximising recovery from UK hydrocarbon reservoirs will be considered in this competition. A special focus will be given to projects that address the key issues in maximising recovery from 'Brownfields'. These technologies can come from across the full range of Industry operations ie from enhancing reservoir understanding and development (eg 'Geomechanics') through to production enhancing technology areas such as 'Through Tubing Drilling' (TTD) and 'Downhole Water Control'.

In addition, there are plans to consider a few demonstration projects where a key technology requires an offshore field test as part of the prototype development. Projects considered under this part of the call would have to demonstrate a clear and significant benefit to the UK industry and evidence of Industry commitment to run this technology on the UKCS on completion of a successful test.

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Energy Technologies

