

Wetland Biomass to Bioenergy Competition

Call for Proposals – Guidance Notes

September 2012

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Introduction

This Call for Proposals Guidance document sets out the scope and criteria for applications to the Wetland Biomass to Bio-Energy Development and Demonstration Scheme.

Note: All applications must be received by DECC in electronic form by 12 noon on the 14th November 2012. A signed hard copy of the completed application form must be received within 10 working days of submitting the electronic application (see page 19 of this document for details of how to apply).

Context

The Department of Energy and Climate Change (DECC) is responsible for all aspects of UK energy policy, and for tackling global climate change on behalf of the UK.

The Spending Review of November 2010 announced funding of over £200 million for low-carbon technologies over the next four financial years from April 2011. This funding has been allocated across the energy sector, including support to Bioenergy projects.

Bioenergy is a flexible source of energy that can be utilised across the energy sector with utility for heat, electricity and transport fuels, and importantly provides a non-intermittent source of power. Bioenergy is expected to play a key role in our ability to meet the 2020 renewables target as well as longer term carbon reduction targets to 2030 and 2050. It is however recognised that bioenergy is not automatically low carbon, renewable or sustainable: alongside its many positives, bioenergy carries risks.

The UK Bioenergy strategy¹ published jointly by DECC, DEFRA and DfT sets out a framework of principles to guide UK bioenergy policy in a way that secures its benefits, while managing these risks. It suggests that sustainably-sourced bioenergy could contribute around 8-11% by 2020 to the UK's total primary energy demand and around 16% by 2050. However to achieve these outputs, the Government needs to continue to support UK technology research, development and demonstration to provide the fullest range of deployment options.

Global bioenergy markets are estimated to have a cumulative turnover of £4-14tn. Key areas of UK strength are found within specific niches, within which the UK could take 5-10% of the global market. However, public sector activity is required to unlock the opportunities provided by bioenergy. There are significant market failures to innovation and the UK cannot rely on other countries to develop the technologies. Market failures include policy-dependent market demand (negative externalities) and low investor appetite for high capex, early stage

¹ http://www.decc.gov.uk/en/content/cms/meeting_energy/bioenergy/strategy/strategy.aspx

technologies (knowledge spillovers), as well as failures specific to bioenergy supply chains, where feedstock suppliers and consumers struggle to coordinate development.

Feedstocks

Bioenergy supply is ultimately limited by the availability of feedstocks, which are in turn limited by sustainable land use constraints, due to potential conflict with land use for food production and uncertain indirect land use change implications.

The UK undertakes a considerable amount of land management activities on private and public land, for example to maintain parkland or to conserve wildlife habitats. This land management results in the production of biomass arisings that in many cases are either burned or left to decompose. This biomass therefore presents a unique opportunity to increase the availability of sustainable bioenergy feedstocks on a regional level.

Wetland management poses a range of challenges to land managers. Vegetation has to be harvested within a restricted working window, which is determined by the habitat type. Ground conditions are often soft, even at the driest time of year. Also, many of the areas are protected by statutory nature conservation designations to which management must adhere. Innovation is required to optimise wetland management and enable efficient harvesting that will improve conservation targets and simultaneously increase a potential bioenergy feedstock.

Conversion Technologies

Bioenergy feedstocks can be converted into a variety of energy end uses – biomethane, bioheat, biopower and biofuels (mostly for transport). A range of conversion technologies could potentially be used to convert feedstocks into the energy end uses above. Many of these conversion technologies are unproven at scale and not yet cost-competitive. Innovation is required to overcome the challenges of converting these sustainable feedstocks reliably, efficiently and at scale, across both earlier stage and near commercial technologies.

Innovation in bioenergy across both feedstocks and conversion technologies is calculated to cumulatively save the energy system approximately £42 bn over 2010-2050.

The challenge

This scheme seeks to increase the availability of renewable, sustainable bioenergy whilst addressing the challenges of wetland management. Specific objectives include:

- Optimisation of wetland management processes across challenging UK sites, in particular:
 - the Somerset Levels and Moors
 - the Broads/Fens/Suffolk Coast
- Demonstration of an efficient feedstock conversion technology that utilises wetland biomass arisings

- Integration of harvesting and conversion processes into an efficient cost effective system that can be used by regional land owners across the UK and that will provide energy either locally or nationally.

Key Dates

Phase 1 (system design and life cycle analysis)	
Competition opens	8 th October 2012
Briefing and industry engagement event	8 th October 2012
Deadline for applications	14 th November 2012
Notification of Phase 1 assessment results	December 2012
Phase 1 begins	January 2013
Deadline for design and analysis report	March 2013

NB: Guidance on the requirements for the Phase 1 report will be provided by DECC and should be followed carefully to enable assessment and down selection to Phase 2. Phase 1 submissions need to be made on time and to the appropriate quality otherwise payment for Phase 1 will be withheld and continuation to Phase 2 will not be considered.

Phase 2 (preliminary demonstration and trials)	
Notification of phase 2 project selection	April / May 2013
Phase 2 development commences	May/June 2013
Phase 2 delivery and monitoring	June 2013 to March 2014
Phase 2 development report	March 2014

Nb. Phase 2 reports need to be made on time and to the appropriate quality otherwise payment may be withheld and projects may not enter phase 3.

Phase 3 (final development, demonstration and trials)	
Phase 3 development commences	April - June 2014
Phase 3 delivery and monitoring	April 2014 – Feb 2015
Final report	February 2015

NB. Phase 3 reports need to be submitted on time and to sufficient quality. All payments need to be made before March 2015.

Further Information

For clarification and queries on the application process please email megan.cooper@decc.gsi.gov.uk or call 0300 0686298.

Competition Details

The Department of Energy and Climate Change (DECC) has launched a SBRI (Small Business Research Initiative) competition to develop and demonstrate a bioenergy process that optimises wetland management activities and utilises the biomass arisings.

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/whatisbri.ashx>

DECC are seeking applications to design, develop and demonstrate an efficient end-to-end bioenergy system that optimises wetland harvesting in line with conservation requirements and utilises the biomass arisings. Contracts will be awarded on a competitive basis to companies demonstrating a value for money, innovative approach to the competition challenges where there is a realistic chance of future deployment.

Funding is available for pre-commercial R&D activities, including solution exploration design, prototyping, field testing, trials and demonstrations. Funding is not available for commercial development activities such as quantity production, and the SBRI process does not preclude competition in any future commercialisation phase.

SBRI involves a high degree of risk – benefit sharing. In return for provision of funding, DECC expect to be able to use and share the results of the R&D with other Government Departments, and industry through publication and standardisation.

Competition Process

The competition will run in three phases, with assessment and down selection at each stage. Selection of projects for Phases 2 and 3 will be based on the outputs of the preceding stage.

Phase	Dates	Output
1 – design and analysis	January 2012 to March 2013	Design report including detailed analysis for phase 2 development
2 – development and trials	April 2013 to March 2014	Report detailing development and preliminary trials
3 – trials and exploitation	April 2014 to February 2015	Final report detailing development, trials, and exploitation routes

Phase 1 will enable successful applicants to develop a detailed system design including life cycle assessments and projected energy yields for their chosen technology. A full cost analysis should be carried out to confirm the estimated costs for Phases 2 and 3 provided in the Phase 1 application form.

The output of Phase 1 will be used to assess whether projects will continue forward to development and preliminary trials during Phase 2. Assessment criteria for Phase 2 will be provided to successful applicants before the start of the project.

Successful projects will then be invited to continue to Phase 3, final trials and exploitation planning. Assessment criteria for Phase 3 will be provided to successful Phase 2 projects before the start of the Phase 3.

Application Process

See 'How to Submit Your Application' later in this document.

The call for applications will open on 8th October 2012. Applicants will be asked to provide a robust, evidence based case for the viability of their proposed technologies against a set of assessment criteria. **Applications will need to detail all 3 phases of the project in order to obtain funding for Phase 1.** It is accepted that costs and bioenergy projections for Phases 2 and 3 will be estimates until Phase 1 is complete.

Applications will be reviewed by a panel of experts in November – December 2012. Assessment will take place in 2 stages (detailed later in this guidance document). The 1st stage will determine whether the project is eligible for funding under this scheme. Eligible projects will continue to full assessment against a number of evaluation criteria. As part of this assessment process DECC may request applicants to attend interviews in London.

Phase 1 contracts are expected to be awarded by January 2013. Feedback to applicants will be provided on request after contracts have been awarded. DECC's decision on project funding is final.

Call scope

This call supports proposals that can demonstrate:

- The design, development and on-site demonstration of an efficient end to end bio-energy system that utilises biomass arisings from wetland management activities to generate bio-energy
- Optimisation of wetland harvesting activities in challenging UK wetland areas and in a manner sympathetic to conservation requirements

- Effective use of the following biomass arisings:
 - Reeds
 - Rushes
 - Fen
 - Grass
 - Willow, Alder, Birch (optional).
- At least one innovative step in the specified process.

In addition, the scheme will support:

- Research and Development (R&D) activities only
- All forms of bio-energy, these may include:
 - Fuel for heat generation (e.g. Domestic or large scale boilers)
 - Fuel for power generation (e.g. power station)
 - Fuel for heat and power generation (e.g. Combined heat and power station)
 - Feedstock to produce transport fuel (e.g. Ethanol, diesel from pyrolysis or gasification)
 - Feedstock to produce gaseous fuel (e.g. Anaerobic digestion to produce biomethane).

Other considerations on scope

- The system needs to be fully integrated and should consider the requirement for cutting and harvesting, drying, storage, processing, transport, and energy generation
- The process needs to be efficient, in terms of cost, energy and carbon when processing a range of harvest volumes. eg between 1 and 6 oven dried tonnes per hectare
- This scheme is directly supported by wetland managers in 2 UK regions:
 - the Somerset Levels and Moors
 - the Broads/Fens/Suffolk Coast

On-site demonstrations of the system will be expected to take place on one of these sites or an approved alternative that poses similar challenges. It is expected that more than

one demonstration will be required throughout the course of the project and this should be included in the budget

- Consideration should be given to emissions (eg NO_x emissions, particulates) generated by the bioenergy process. Guidance on emissions can be found in AnnexA of [DECCs Renewable Heat Incentive publication](#)
- Consideration needs to be given to the challenges posed by wetland management, for example harvesting in adverse environmental conditions, processing of mixed feedstocks, and land access restraints. Further information can be found in the following references:
 - http://www.somersetcountygazette.co.uk/news/9372139.Digger_sinks_on_Somerset_Levels/
 - http://www.broads-authority.gov.uk/broads/live/authority/publications/conservation-publications/New_Opportunities_For_The_Sustainable_Management_Of_Fens_Reed_Pelleting_Composting_And_The_Productive_Use_Of_Fen_Harvests.pdf
 - http://www.rspb.org.uk/Images/Reedbed_management_tcm9-255077.pdf
- Existing technologies / facilities should be used where they exist and as appropriate to improve cost effectiveness
- DECC are looking to support projects at Technology Readiness Levels (TRLs) between 6 and 9, although projects at lower TRL will be considered if they demonstrate particularly strong innovation or benefit. Further information on TRLs can be found at Annex 1
- Proposals will be favourably assessed that can demonstrate:
 - how the system will be used alongside wetland managers to provide a cost effective approach to wetland management
 - that the bioenergy can be produced with low carbon emissions (although detailed LCA calculations will only be required at the end of phase 1, proposals demonstrating that low carbon bioenergy is likely to be produced will be favourably assessed)
 - flexibility in the use of mixed feedstocks of varying proportions. Where single feedstocks are required consideration will need to be given to how these will be effectively harvested and processed (sorted)
 - consideration of remote and sensitive sites where access is challenging, for example, a mobile processing system would enable energy production across multiple sites that are harvested at different times
 - flexibility of use on different land types, including remote sites with no hard standing

- strong collaboration across the supply chain
- a clear and feasible exploitation route for the energy produced
- clear commercial exploitation opportunities of the developed technology.

Deliverables

Phase 1 projects will be expected to deliver an evidence-based report of the proposed system design. This report should contain sufficient information to enable assessment of which systems can continue to Phase 2. The report should include detailed considerations of:

- Detailed description of the process
- Carbon and energy life cycle assessment of the entire process, from the harvest of the biomass to the final delivery of the energy
- Process flow diagrams of the proposed process
- Detailed mass and energy balances of the proposed process
- Emissions, such as particulate matter and NO_x
- Cost analysis, including development, operation and maintenance costs
- Exploitation of the end system, including 'statements of intent' or agreements with partners for use of the system, and the energy produced.
- The proposed site where the demonstration unit will be located.

Phase 2 projects will be expected to provide an on-site demonstration of the technology at an agreed site. The final output will be an evidence-based report detailing the development of the system, including lessons learned, and a trials report, detailing the output of preliminary trials of the system on the key wetland sites. Data produced from the trials should be used to back up or update the LCA results of Phase 1.

Phase 3 projects will be expected to provide a further on-site demonstration of the technology at an agreed site. The output will be an extended report detailing the output of these further trials, and refinements made to the system. This report needs to detail the key successes and lessons learned from the development and trials, clearly explaining any deviances from the original system design. It should also provide a roadmap for further development and commercial exploitation. A finalised LCA using the trial data will be produced.

Other Competition Conditions

Intellectual Property

Suppliers will retain the intellectual property generated from the project, and will be expected to identify and protect patentable knowledge within 3 years of its creation. Costs associated with securing intellectual property arising from or associated with this project are not eligible and cannot be included within the contract price.

DECC require a UK wide, irrevocable, royalty-free, non-exclusive licence, together with the right to grant sub-licences, to use or publish information, data, results, outcomes or conclusions arising from the Project and any foreground technology.

The detailed arrangements for intellectual property rights and exploitation of IPR are set out in the template contract for this competition and the relevant contract conditions will be available [here](#) within 2 weeks of the competition launch.

Ownership of Demonstration Devices

Chosen suppliers will retain responsibility and ownership for the technologies and related equipment developed and used during the delivery of the contracts.

Decommissioning Costs

Chosen suppliers will have responsibility for decommissioning demonstration equipment when the project has been completed. When bidding, suppliers need to include any decommissioning costs, at fair market value, in the total cost of their bid.

Eligible Costs

Annex 2 provides details on eligible costs for the project.

Eligibility Criteria

SBRI is aimed at organisations working on research and development (R&D) of an innovative process, material, device, product or service *prior to commercialisation*. Funding is available for R&D activities only. Projects requesting funding for commercialisation activities are not eligible.

SBRI competitions are *open to all organisations* that can demonstrate a route to market for their solution. Successful applications will be those where the technology best addresses the specific needs identified, with the potential to make measurable improvements to the problem presented.

The sharing of *risks and benefits* is key to the SBRI approach. Projects are 100% funded with the contractor retaining any intellectual property generated, with certain rights of use retained by DECC. Applicants should clearly state where cost savings are being provided compared to exclusive development².

Further details on SBRI can be found [here](#).

To proceed to full evaluation, proposals must:

1. Describe all 3 stages of the project (see 'Competition Details')
2. Be in scope and cover the end to end bioenergy process (see 'Call scope')
3. Be costed at a fair and reasonable market value and demonstrate value for money that reflects the risk-benefit sharing approach of pre commercial procurement activities
4. Be led by a single business with evidence of strong collaboration across the supply chain.

Financial Information

Applicants are requested to provide a fixed price quotation for the work. A detailed cost breakdown is required to enable assessment of value for money. Assessors are required to judge whether the application reflects a fair market price, including whether the applicants have provided reasonable cost savings compared to an exclusive development contract.

Financial information should include costs for all 3 phases of the project. Detailed costs for Phase 1, and an indication of costs in Phases 2 and 3 are requested. It is accepted that costs for Phases 2 and 3 may be updated as a result of Phase 1 analysis, but significant changes will not be accepted and may preclude invitation to proceed to Phase 2 or 3.

All costs should include VAT.

The application form also requests further information to ascertain eligibility to obtain funding from DECC.

² Exclusive development means that the public purchaser reserves all the results and benefits of the development (including Intellectual Property Rights or IPRs) exclusively for its own use.

Evaluation Criteria

Proposals will be assessed using the following criteria. Weightings for each section are provided in the application form:

1. Technical approach / Innovation

This section will be assessed using a number of factors that will include, but are not limited to the following:

- Clear description of the proposed solution and how it addresses the challenges as set out in this guidance document.
- Clear description on the particular innovative step(s) being proposed and how they will be integrated into existing technologies.
- Current and proposed stage of development. Please refer to Technology Readiness Levels (TRLs, see Annex 1) and provide an indication of current, and proposed TRL.

2. Project Plan

A detailed project plan will be required and will be assessed using a number of factors that will include, but not be limited to the following:

- Quality and completeness of project plan
- Identification of key risks and mitigation strategies
- Integration of various stages into a system
- Strong supply chain collaboration
- Appropriateness and realism of milestones
- Resource management plan, including management of sub-contractors
- Track record of project team

3. Bioenergy potential

Your application should indicate the extent to which the proposed solution could contribute to the increased sustainable production of bioenergy in the UK. Applicants should respond to this section as fully as possible in the knowledge that successful proposals will have the chance to develop further analyses during Phase 1. This section will be assessed using a number of factors that will include, but not be limited to the following:

- Potential bioenergy feedstock yields from wetland management and other sources of biomass where applicable.
- Predicted bioenergy conversion efficiencies.
- Evidence that bioenergy is likely to result in low carbon emissions. For example, evidence that the diesel requirement for harvesting and the transport distances and methods have been considered.
- Evidence that non-CO₂ emissions have been considered.

4. Conservation considerations

The proposed solution needs to consider the opportunities and challenges posed by wetland management. Your answer should detail, but not be limited to:

- A feasible method for optimising the wetland harvesting process that is sympathetic to conservation requirements and challenges and utilises the specified biomass arisings.
- The main challenges wetland management poses to your technology, and how you will address these.
- Any perceived opportunities that wetland management provides to your technology solution.

5. Exploitation plans

This section considers how the proposed solution will be used following the immediate project. Applicants should respond to this section as fully as possible in the knowledge that successful proposals will have the chance to develop further analyses during Phase 1. Your answer should consider but not be limited to:

- Avenues for commercial exploitation (including market potential).
- How, and by whom the bioenergy will be used.
- How the system will be used alongside wetland managers.
- Scalability and adaptability to different land types, including networks of remote sites.

6. Cost Effectiveness

This section relates to the cost effectiveness of the final, mature technology. Applicants should respond to this section as fully as possible in the knowledge that successful proposals will have the chance to develop further analyses during Phase 1. Your answer should consider but not be limited to:

- The cost of energy (e.g. £/MWh, £/MJ) associated with your technology solution and how this compares to other forms of energy.
- Any opportunities to increase the cost effectiveness of your solution.

Scoring Method

Each question will be scored from 0 to 5. The following illustrates the meaning of each score:

Score	Description
0	Unacceptable: Proposal does not meet the requirement. Does not comply and/or little or no evidence to support the response.
1	Serious reservations: Proposal significantly fails to meet the requirement with major reservations.
2	Minor reservations: Proposal satisfies the requirement with minor reservations.
3	Satisfactory: Proposal satisfies the requirement.
4	Above Satisfactory: Proposal satisfies all requirements and exceeds some requirements.
5	Excellent: Proposal meets the requirement and exceeds most of the major requirements. Evidence identifies factors that will offer significant added value and/or innovative solutions.

Support Available

Successful projects will be supported by a consortium of wetland managers that will be available via a single point of contact to assist with delivery of demonstration events and provision of advice and support on wetland conservation queries.

The total value of the Wetland Biomass to Bioenergy scheme is £2m available until March 2015, although DECC may choose to allocate less than or more than the £2m depending on the quality of the applications. All payments need to be completed by 31st March 2015. A maximum of £50,000 will be available for Phase 1 design proposals selected from the initial application forms. The number of phase 1 projects funded depends on the range of solutions proposed and the quality of the proposals.

Following completion of Phase 1, outputs will be assessed and successful projects will be invited to continue to Phase 2 to develop and trial an appropriately scaled demonstration. Depending on the outcome of Phase 2, projects may be invited to proceed to Phase 3 which will involve further development and trials. Phases 2 and 3 will result in contracts worth between £100,000 and £1m, although projects of higher value will be considered if they demonstrate a clear cost benefit.

Projects need to demonstrate value for money. Please note that contracts should be fixed cost and inclusive of VAT.

Funding under this Competition is only **available until 31st March 2015** and while projects may incur cost throughout this period, DECC may choose to prioritise projects with early opportunity for expenditure.

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 the scheme is required for other, unforeseen, purposes. DECC will not, under any circumstances, make any contribution to the costs of preparing proposals and applicants accept the risk that they may not be awarded a contract.

How to submit your application

The deadline for applications is **1200 on 14th November 2012**.

You can access the application form and associated documentation [here](#).

Send the completed application form in pdf format to wetlandbiomass@decc.gsi.gov.uk with 'Wetland Biomass to Bioenergy application (name of lead applicant)' in the subject line.

The maximum size email you can send is 10 MB. If your application is larger than 10MB break the submission down into smaller sizes and ensure the subject line of each additional email takes the following format 'Wetland Biomass to Bioenergy application (name of lead applicant) – email x of y'.

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

Megan Cooper
Department of Energy and Climate Change
3 Whitehall Place
LONDON
SW1A 2AW

You should endeavour to answer all of the questions on the application in full. Incomplete applications and any containing incorrect or false information will very likely be rejected although DECC may, at its discretion, request clarification or additional data before making a final decision.

All answers should be contained within the application form. Small graphical appendices that support the answers in the application form may be appended to the end of the form or attached to the email. The application form must list all appendices and supporting documents. Please also include a list of all attachments in the body of your 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 the address above before the application deadline.

Any applications or supporting documentation received after the application deadline will not be considered.

Further Information

Publication of results

DECC wishes to publicise details of the award recipients. Therefore, on or after issuing a 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 recognise the need to maintain 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. This reporting will be in confidence to DECCs 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 forms.

Annex 1 – Technology Readiness Levels (TRLs)

Technology readiness levels are an indication of the maturity stage of development of particular technology on its way to being developed for a particular application or product. Below are some broad definitions of the TRLs Research

TRL 1 – Basic Research	Scientific research begins to be translated into applied research and development.
TRL 2 – Applied Research	Basic physical principles are observed, practical applications of those characteristics can be 'invented' or identified. At this level, the application is still speculative: there is not experimental proof or detailed analysis to support the conjecture
Applied research and development	
TRL 3 – Critical Function or Proof of Concept Established	Active research and development is initiated. This includes analytical studies and laboratory studies to physically validate analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.
TRL 4 – Laboratory Testing/Validation of Component(s)/Process(es)	Basic technological components are integrated - Basic technological components are integrated to establish that the pieces will work together.
TRL 5 – Laboratory Testing of Integrated/Semi-Integrated System	The basic technological components are integrated with reasonably realistic supporting elements so it can be tested in a simulated environment.
Demonstration	
TRL 6 – Prototype System Verified	Representative model or prototype system, is tested in a relevant environment.
TRL 7 – Integrated Pilot System Demonstrated	Prototype near or at planned operational system, requiring demonstration of an actual system prototype in an operational environment.
Pre-commercial deployment	
TRL 8 – System Incorporated in Commercial Design	Technology is proven to work - Actual technology completed and qualified through test and demonstration.
TRL 9 – System Proven and Ready for Full Commercial Deployment	Actual application of technology is in its final form - Technology proven through successful operations.

Annex 2 Eligible and Ineligible Costs

Eligible Costs

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 justification of a claim, They comprise:

- Labour costs for all those contributing to the project broken down by individual
- Material costs (incl 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

Ineligible Costs

Under no circumstances can costs for the following items be claimed:

- commercialisation activities
- protection of IPR
- for activities of a political or exclusively religious nature;

- in respect of costs reimbursed or to be reimbursed by funding from other public authorities or from the private sector;
- in connection with the receipt of contributions in kind (a contribution in goods or services as opposed to money);
- to cover interest payments (including service charge payments for finance leases);
- for the giving of gifts to individuals, other than promotional items with a value no more than £10 a year to any one individual;
- for entertaining (entertaining for this purpose means anything that would be a taxable benefit to the person being entertained, according to current UK tax regulations);
- to pay statutory fines, criminal fines or penalties; or
- in respect of VAT that you are able to claim from HM Revenue and Customs.

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

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