



**Programme Area:** Bioenergy

**Project:** ELUM

**Title:** Request for proposals for the ELUM project.

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**Abstract:**

Soil carbon and Green House Gas (GHG) (CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O) changes are an indicator of soil productivity and contribute a significant proportion of an overall bioenergy Life Cycle Analysis. A fundamental requirement of this work was the quantification of Land Use Change (LUC) and crop management impacts on soil carbon and nitrogen pools together with the GHG emissions under Bioenergy Crop land use changes. The approach taken was to make use of existing networks of bioenergy field sites/locations in addition to taking a chronosequence approach to understanding LUC impacts on soil carbon and GHGs over longer timescales.

**Context:**

The ELUM project has studied the impact of bioenergy crop land-use changes on soil carbon stocks and greenhouse gas emissions. It developed a model to quantitatively assess changes in levels of soil carbon, combined with the greenhouse gas flux which results from the conversion of land to bioenergy in the UK. The categorisation and mapping of these data using geographical information systems allows recommendations to be made on the most sustainable land use transition from a soil carbon and GHG perspective.

Some information and/or data points will have been superseded by later peer review, please refer to updated papers published via [www.elum.ac.uk](http://www.elum.ac.uk)

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# Request for Proposals (RfP)



Title of Services for which Proposals are Requested:

## **Ecosystem Land-Use Modelling and Soil Carbon GHG Flux Field Trial**

Request Issue Date:

**March 16th 2010**

Deadline for Notification of Intention to Submit a Proposal:

**Notification for intention to submit must be received by Friday 26<sup>th</sup> March**

Closing Date:

Proposals must be received before 5pm on Monday 12<sup>th</sup> April

Contact for Enquiries:

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## **1. Introduction and Overview of the Services Required**

### **1.1. Introduction to the Energy Technologies Institute**

The Energy Technologies Institute LLP (the ETI) is a private organisation formed as an innovative Limited Liability Partnership between international industrial energy companies and the UK government.

Our mission is to accelerate the development, demonstration and eventual commercial deployment of a focused portfolio of energy technologies, which will increase energy efficiency, reduce greenhouse gas emissions and help achieve energy and climate change goals.

We will do this by leveraging the skills, capabilities and market access routes of our members, working with other organisations worldwide, to take the most challenging large-scale energy projects to full system demonstration, thus bridging the gulf between laboratory proven technologies and full scale commercially tested systems. Our projects will also develop knowledge, skills and supply-chains, and will inform the development of regulation, standards and policy. Hence we aim to overcome major barriers, de-risk the future development and shorten the lead times to market for secure, affordable, low-carbon energy systems for power, heat and transport.

Our portfolio includes programmes in areas such as Wind, Marine, Distributed Energy, Transport, Energy Storage & Distribution and Carbon Capture & Storage.

Further information can be found on our web-site at [www.energytechnologies.co.uk](http://www.energytechnologies.co.uk)

### **1.2. Background to the Project**

The response of ecosystems to anthropogenic land use change will play a crucial role in the overall life cycle benefits and hence arguments for, the widespread implementation of Bioenergy Crops to reduce the equivalent carbon intensity (CI) of fuels for heat, power and transportation. Data on which to assess these impacts at regional and global scales in order to minimise land use change (LUC) impacts on ecosystem function is currently in short supply. To understand the effects of LUC into Bioenergy Crops on ecosystem function, will require the identification and quantification of key ecosystem service indicators, such as carbon sequestration, that encompass both the sustainability and CI of a biofuel.

The UK Gallagher Review of the Bio-fuels sector in 2008 highlighted that due to uncertainties in measuring and monitoring the CO<sub>2e</sub> life cycle analysis for bio-fuels (due to direct and indirect land-use changes); that the UK should be more cautious in its progress towards bio-fuels, until these could be monitored appropriately. Globally, land-use change accounts for over 20% of annual CO<sub>2e</sub> emissions. While there is much work being conducted internationally in the bio-fuels standards arena; there is limited work being conducted on integrated land-use management in the UK context, especially on soil carbon responses to significant increases in land converted to Bioenergy Crops. Soils contain more carbon than the above ground vegetation and atmosphere combined and function as major sources and potential sinks of CO<sub>2</sub> and other greenhouse gases (GHG). Soil management practices therefore play a crucial role in the development of sustainable strategies for bio-energy crop production.

### **1.3. Outline Scope of the Project**

Soil carbon and GHG (CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O) changes are an indicator of soil productivity and contribute a significant proportion of an overall bioenergy Life Cycle Analysis. A fundamental requirement of this work will be the quantification of LUC and crop management impacts on soil carbon and nitrogen pools together with the GHG emissions under Bioenergy Crop land use changes. The approach taken should make use of existing networks of bioenergy field sites/locations in addition to taking a chronosequence approach to understanding LUC impacts on soil carbon and GHG's over longer timescales.

The project comprises of the following four work packages (WP):

- **WP1.** A data mining exercise for existing LUC effects on soil carbon and GHG's in the UK
- **WP2.** Supplementation of existing soil carbon and GHG LUC data using a chronosequence approach
- **WP3.** Development of a network of Bioenergy Crop field sites across the UK to provide empirical data for development and parameterisation of a bioenergy LUC/crop management model
- **WP4.** Development of a LUC/crop management model to assess the current and potential future impacts of LUC into Bioenergy Crops and subsequent crop management on soil carbon and GHG storage and other ecosystem services in the UK

Please refer to section 3 for a detailed description of each project work area and requisite deliverables.

The project budget is capped at £2.5 million with a project duration of three years.

## **Exclusions**

It is anticipated that field trial work outside the UK will be out of scope, unless specifically identified as relevant to a UK context and where bioenergy LUC data/locations are limited in number for the UK. The ETI will not support such work unless compelling evidence is provided of its value in a UK context.

### **1.4. Required Outcomes and Critical Success Factors for the Project**

This project will provide the following outcomes:

- A modelling and planning framework for land-use change to enable a quantified assessment of the impact of land-use change in terms of overall GHG and water mass balance, as a function of crop change, temperature rise, atmospheric CO<sub>2</sub>
- Assessment of the potential impact of differing types of land-use change and agricultural practices on soil carbon and GHG flux; including a recommendation on the types of agricultural practices that would need to be changed; and development of a modelling tool that predicts the long-term impacts on soil carbon stocks and GHG's dependent on differing land-use changes
- Cross-mapping and categorisation of UK soil carbon stocks and GHG flux spatially in the form of GIS mapping
- Documented and detailed results from the establishment of a 3 year programme to monitor and test soil carbon and GHG flux on contrasting soil types and environmental gradients. The qualitative results will be used to validate the model
- Documentation of the tools and methods required to predict, monitor and minimise the impact of land-use changes and their communication through peer reviewed journals and scientific conferences
- An evaluation of ongoing work required to support the development of significant LUC to bio-energy cultivation in the UK which is aimed at a wide stakeholder community, both refinement of models prior to major LUC and monitoring alongside early LUC to ensure that the impact is consistent with the models.

The project should provide a more detailed evidence base and clarity on the key issues around soil GHG flux. Critical success factors which either characterise a successful project outcome or which

are required to facilitate a successful project outcome are detailed below. Any additional factors should be described in the proposal.

The project must provide sufficient information and present it in such a manner as to provide the ETI with the following:

- An understanding of the impact of land-use changes on soil GHG flux
  - Suitability of differing land-use to energy crop changes, considering reversion
  - Tightly bounded figures for soil carbon flux for major land-use changes in the UK (including land-use changes not currently legislated)
  - Published data-base and outcomes on soil GHG flux
- Ecosystem modelling tool to be made available for all stakeholders
  - Ecosystem modelling and planning framework for land-use change mapped spatially incorporating factors including GHG flux, hydrology, biodiversity, etc
- Effective use of existing UK intellectual and physical assets, built up by previous investments
  - The project will need to demonstrate and ensure close communication with other key stakeholders working in this area including those involved in the recent NERC project announcement, Carbo-Europe, and DEFRA.

### **1.5. Anticipated Project Organisation Structure**

It is anticipated that a number of Participant organisations / entities will be required to work together in order to provide all the necessary knowledge, skills, experience and inputs to complete the Project (as detailed in Section 2.2).

These Participants may choose either:

- to form a Consortium, contracted with the ETI, governed by its own Consortium Agreement and led by a 'Lead Coordinator' to manage the Project and act as primary interface with the ETI, or
- to form sub-contracts between themselves and one of their number who shall act as 'Prime Contractor', shall form a contract with the ETI, and shall manage the Project and act as primary interface with the ETI.

Either of these contracting arrangements is acceptable to the ETI, but there must be a single organisation (Lead Coordinator or Prime Contractor) leading and acting as the primary interface with the ETI. This organisation shall appoint a Project Manager to lead and coordinate all activities of the Project Participants, and to liaise regularly with the ETI's Programme Manager to whom he/she is accountable on behalf of the Participants. This organisation shall also act as the Respondent for the purposes of this Request for Proposals. . It is also anticipated that the participant organisations will appoint a single Technical Leader who will be responsible for the coherent integration and delivery of all technical aspects across the entire project. The Technical Leader and the Project manager may be the same person. Bidders are requested to explicitly identify their Project Manager and Technical Leader.

## 2. Request for Proposals Process and Terms

### 2.1. Content and Format of Proposals

Interested organisations are requested to submit a collective Proposal through their nominated Respondent as described in Section 1 above. The Proposal shall be arranged according to the structure detailed in Appendix A and shall include all the information listed therein.

The Proposal must be written in a succinct manner and must not include imprecise statements, generalities or repeated information. The Proposal must be easily readable with appropriate font sizes, margins, etc, and **shall not exceed a maximum of 25 pages** (excluding the due-diligence information required under Section 12 of Appendix A).

Additional information (such as organisational brochures, etc) may be provided to accompany the Proposal if this is expected to add value (although it is not necessarily required by the ETI), but such additional information will not usually be taken into account when reviewing Proposals.

The Proposal shall consist of **4 complete hard copies and one (1) electronic copy**. The latter shall be provided in both PDF and Microsoft Word formats.

### 2.2. Acceptance, Review and Selection of Proposals

Proposals will be reviewed and judged primarily against the criteria listed below.

- Completeness of information content, structure and quality of Proposal (against areas listed in Appendix A)
- Compliance with technical specification (i.e. Sections 1.3, 1.4 and 3 of this RfP)
- Knowledge, skills and experience, which must include ALL of the following. A table should be provided to identify which Participant(s) is/are proposed to satisfy each of the following criteria:
  - (a) Generic Criteria:
    - Availability and stability of deployable resources to mobilise sufficiently rapidly and for sufficient durations
    - Record and ability in quality, timely and on-budget delivery (of technology programmes) to the full satisfaction of the main stakeholders
    - Knowledge and previous experience of industry, environment, technologies, and of this type of study, etc
    - Ability and experience in collaborative working
    - For the lead organisation particularly, project management expertise in managing multi-organisation consortium
  - (b) Specific Technical Criteria:
    - Expertise in soil carbon and GHG flux, soil agronomy and agriculture
    - Knowledge and access to modelling tools in existence
    - Ability to utilise large GIS database tools
    - Experience in modelling
    - Understanding of UK forestry and agricultural industry and practices
    - Capability to run a field trial across multiple UK locations
    - Access to a representative range of commercial field trial sites
    - Expertise in monitoring soil GHG flux and running appropriate monitoring equipment
    - A demonstrated ability to leverage existing work in the arena
    - Project management experience and capability relevant to managing large scale field trial design and implementation
- Effectiveness of the contracting, organisational, governance and control structures and processes proposed for the participating entities / organisations
- Project approach and plan, including Gantt chart, suitable stage gates & payment milestones, and proposed management of specific risks and issues

- Compliance with terms and conditions, including any intellectual property issues (such as acceptance of ETI IP terms, or the existence of any IP issues which may affect the ability to carry out the Project and exploit the results)
- Value for money
- Suitable Health & Safety systems to safely and successfully execute the proposed field trial.

The ETI at its discretion may request further information in order to assess a Proposal, and may reject any Proposal which does not provide sufficient information.

This RfP is not an agreement to purchase goods or services, and the ETI is not bound to enter into a Contract with any Respondent. All decisions made by the ETI relating to the acceptance, review and selection or otherwise of Proposals are final. The ETI will be under no obligation to explain or justify any such decisions at any time.

### 2.3. Estimated Time-Frames

Respondents shall notify the ETI of their intention to submit a proposal. This notification shall be in writing to the Address for Submission of Proposals, no later than the Deadline, all as listed on the front cover of this RfP.

The following timetable outlines the anticipated schedule for the contract process. The timing and the sequence of events resulting from this Request for Proposals may vary and shall ultimately be determined by the ETI.

Event	Anticipated Date(s)
Deadline for Notification of Intention to Submit a Proposal	March 26 <sup>th</sup> 2010
Closing Date for Responses to RfP	April 12 <sup>th</sup> 2010
Preferred Bidder Identified	April 23 <sup>rd</sup> 2010
Project Detailing and Contract Agreement	23 April to July 2010
Contract Approval	July 2010
Project Start	ASAP after approval
Project Duration	approx 3 years

### 2.4. Ownership of Proposals and Confidentiality of Information

All documents, including Proposals, submitted to the ETI become the property of the ETI. They will be received and held in confidence by the ETI, subject to the ETI reserving the right to provide such documents to third parties engaged by the ETI in its assessment of them. Organisations selected by the ETI to be taken forward to the Project Detailing Stage will be required to sign non-disclosure agreements.

### 3. Specification of Project Scope of Work and Deliverables

#### 3.1 Work Package 1: A data mining exercise for existing LUC effects on soil carbon and GHG flux in the UK

The assessment of existing LUC data for Bioenergy Crops should:

- Identify LUC impacts on soil carbon and GHG for a range of Bioenergy Crops to include but not be limited to sugar beet, wheat, willow, miscanthus, and forestry within the UK
- Assess the effects of land use change into, and management of, the different Bioenergy Crops identified above on soil carbon and GHG
- Identify and assess other ecosystem services, including water mass balance, that are relevant to a sustainability assessment and opportunity mapping for the Bioenergy Crops identified above
- Identify data gaps for inclusion in subsequent work packages

This WP will review and collate existing data and literature that assesses the impacts of LUC into Bioenergy Crops on changes in soil carbon and GHG within the UK. The effects of LUC on soil carbon and GHG within existing literature and data bases should take a formal meta analysis approach, and aim to provide a more quantitative assessment of LUC effects on soil carbon and GHG. It is anticipated that there may be data gaps for the effects of LUC on soil carbon and GHG, therefore the results from WP1 should feed into and direct other WP's and data gathering.

The types of LUC scenarios included in WP1 should incorporate land uses that are most likely to undergo land conversion into Bioenergy Crops within the UK. The Bioenergy Crops identified should include but are not restricted to sugar beet, wheat, willow, miscanthus and forestry. The effects of different land management practices (e.g. residue management, fertiliser use etc.) relevant to the Bioenergy Crops and their effects on changes in soil carbon and GHG should also be incorporated into the data mining exercise. It is critical that the study should assume realistic levels of resource and care in agricultural practices rather than using results from closely planned and monitored trials as a baseline.

Whilst changes in soil carbon and GHG cover one aspect of sustainability as it relates to Bioenergy Crops and LUC, there are other ecosystem services that should also be included in the data mining. Ecosystem services can be classified under the headings: provisioning (e.g. crop production,) supporting (e.g. soil fertility), regulating (e.g. climate change, groundwater protection) and cultural (e.g. aesthetics and recreation). Therefore in WP1 a range of additional relevant ecosystem services should be identified, the goal being to generate a sustainability matrix, which will form a component of the opportunity mapping for Bioenergy Crops across the UK within WP4. The review should also incorporate an assessment of techniques and frameworks developed by others internationally.

#### Deliverables

[1] A detailed technical report defining

- The effects of LUC into Bioenergy Crops on changes in soil carbon and GHG for the UK
- Identify additional key ecosystem services that will form the basis of a sustainability assessment for LUC into Bioenergy Crops, as part of an bioenergy opportunity mapping framework
- Identify gaps in existing data for UK bioenergy LUC
- Identify existing modelling tool-kits and frameworks available internationally



### **3.2 Work Package 2: Supplementation of existing soil carbon and GHG LUC data using a chronosequence approach**

The chronosequence study for assessing the impacts of LUC into Bioenergy Crops on soil carbon and GHG should:

- Include a range of Bioenergy Crops that have been in production over a number of years since LUC within UK
  - Include soil carbon and GHG measurements in the associated original land uses
  - Include soil carbon and GHG changes for different land management options
- Cover a broad and representative range of soil types and environmental (climatic) gradients within the UK
- Generate data that will feed into a soil carbon and GHG LUC model to be defined within WP4

Changes in soil carbon and GHG are best obtained by repeated measurements over time on the same piece of land, but the rate of change is slow and a considerable number of years may elapse before significant changes can be detected. To circumvent this problem, the most commonly used approach is to establish a chronosequence or artificial time series comprising of fields of similar soil type in similar climates that have been under the management practice of interest for differing periods of time. The assessment of LUC into bioenergy feedstocks and the impacts on soil carbon and GHG pools should therefore make use of the maximum timescales available, and include a soil sampling strategy that accounts for soil carbon and GHG changes over a range of depths.

A chronosequence analysis is susceptible to the initial carbon and GHG stock prior to land use change (which is usually not known). Thus care is required in selecting samples to represent the pre-LUC situation to minimize the impact of this variation. Where a reference sample can be established (often an area close to the field being sampled) this is called a paired plot. This can be an area close to the field of interest (such as a field margin or track). How this pairing is to be made reliable is a critical question that should be addressed in the proposal.

Given the data generated in the chronosequence will feed into model validation in WP4, it is important that a broad range of environmental climatic conditions and soil types are covered within each bioenergy LUC scenario identified in WP1.

#### **Deliverables**

- [1] A peer reviewed recommendation and prioritised list of LUC types to base work package 3 upon and availability of those sites.
- [2] A detailed technical report defining
  - The effects of LUC into Bioenergy Crops on changes in soil carbon and GHG for the UK across a range of soil types and climatic regions
  - A soil carbon and GHG database suitable for integration into modelling approaches to be undertaken in WP4. In addition this data base must be web based and freely accessible to other groups internationally, to facilitate an online bioenergy LUC carbon and GHG data base

### **3.3. Work Package 3: Development of a network of Bioenergy Crop field sites across the UK to provide empirical data for development and parameterisation of a bioenergy LUC/crop management model**

The Bioenergy Crop field site network should:

- Develop a range of controlled experimental field sites covering the Bioenergy Crops identified in WP1 and 2 at locations across the UK
- Quantify direct effects of LUC into the different Bioenergy Crops identified in WP1 and 2 and their management on soil carbon and GHG pools, and additional ecosystem services identified in WP1 and 2
- Seek to generate a mechanistic understanding of LUC/crop management impacts on changes in soil carbon and GHG and other ecosystem services
- Generate empirical data that will facilitate development of the LUC/crop management model in WP4

The establishment of a network of field trial sites to monitor and assess soil carbon and GHG changes due to LUC and subsequent Bioenergy Crop management should cover the Bioenergy Crops identified in WP1. The funding under this programme will only cover initial network and field site development for the 3 year duration of this trial. Proposals should provide justification as to why the project will be appealing to funding bodies beyond the initial 3 years covered by this proposal. In addition to the development of new field sites under this call for proposals, requests for funds to maintain existing Bioenergy Crop field sites should be included.

#### **Deliverables**

[1] A detailed technical report defining

- The effects of LUC and subsequent Bioenergy Crop management on changes in soil carbon and GHG for the UK across a range of soil types and climatic regions
- The mechanisms resulting in changes in soil carbon and GHG for LUC and subsequent recommendations on Bioenergy Crop management
- Data for development and parameterisation of the LUC/crop management model in WP4

## **Work Package 4: Development of a LUC/crop management model to assesses the current and potential future impacts of LUC into Bioenergy Crops and subsequent crop management on soil carbon and GHG emissions in the UK**

The bioenergy LUC model should:

- Incorporate data for Bioenergy Crop LUC and crop management impacts on soil carbon and GHG and ecosystem services generated in WP1-3
- Predict the current and future impacts of converting land into Bioenergy Crops anywhere in the UK on soil carbon and GHG and ecosystem services identified in WP1-3
- Provide a tool for the spatial mapping of bioenergy LUC and crop management impacts on soil carbon and GHG and ecosystem services for the UK
- Allow for future additional complexity to include economic modelling factors to value ecosystems services, such as CO<sub>2e</sub> abatement, hydrology benefits, etc

The output from the model should provide a quantitative carbon and GHG opportunity mapping tool for LUC effects on soil carbon and GHG and ecosystem services. The model should be based on process understanding that specifies the equivalent carbon intensity of Bioenergy Crop LUC and management over a defined timeframe, at a particular location, to identify areas of the UK where LUC into Bioenergy Crops will give the lowest equivalent carbon intensity.

The model should be able to map results spatially within a GIS mapping tool, the carbon opportunity map, identifying locations for biomass planting on the basis of the net carbon benefit from the soil, and driven by a particular adoption scenario. The spatial resolution of the mapping tool along with a appropriate justification shall be clearly defined in the proposal.

### **Deliverables**

[1] A detailed technical report defining

- The LUC/crop management model and validation/parameterisation
- The effects of LUC into Bioenergy Crops and subsequent crop management on soil carbon and GHG in the UK and results presented as a bioenergy opportunity mapping, in line with future predictions of renewable energy requirements across the UK
- A working copy of the bioenergy LUC/crop management model and mapping tool with documentation and training sufficient for the members of the ETI to operate it

### **Exclusions**

It is anticipated that field trial work outside the UK will be out of scope, unless specifically identified as relevant to a UK context and where bioenergy LUC data/locations are limited in number for the UK.

#### **4. Price and Payment**

This Project will be paid on a “**capped cost plus**” basis. The Project Contract will include defined deliverables, with acceptance criteria, and defined Payment Milestones by which one or more deliverables will have been completed. Payments will be made against each defined Payment Milestone according to actual costs incurred by the Participants (plus an agreed profit margin), up to the agreed maximum for each Payment Milestone, subject to ETI acceptance of the Milestone Completion Report. Unless otherwise agreed as part of a formal contract variation process, the ETI shall not be liable for any payments above the maximum stated in the Project Contract.

Further information is contained in the Summary of Terms contained in Appendix B.

An Accountant’s report shall be required to support selected financial reports and invoiced amounts, dependent upon the total contract value to be paid to each Participant. Details of these requirements will be agreed during the Project Detailing phase.

#### **5. Terms and Conditions for Project Contract**

During the Project Detailing phase, a Project Contract will be drawn up by the ETI based on its standard contracts for such work and incorporating appropriate information from the ETI’s RfP and the Respondent’s Proposal. Full terms and conditions will be agreed at that time, but a Summary of Terms is included in Appendix B.

If the Project is to be undertaken by a Consortium, then the Consortium members will be required to execute a Consortium Agreement between themselves prior to signature of the Project Contract with the ETI. The ETI may request a copy this Agreement for review / approval, and a Model Consortium Agreement is available from the ETI.

## Appendix A – Content and Format of Proposals

The Proposal shall be arranged according to the structure defined below and shall explicitly include all the information listed.

### 1. Executive Summary *[maximum 1 page]*

A summary of the Proposal, describing briefly:

- The organisation / Consortium undertaking the work
- Summary of the technical approach and **key** deliverables
- Confirmation of compliance with the Specification detailed in the Request for Proposals and/or brief summary of **key** exceptions/deviations
- Total Project cost and duration.

### 2. Project Objectives *[typically ≤ ½ page]*

The overall Project objectives will be as specified in the Request for Proposals. The Respondent may provide subsidiary objectives if they think this is appropriate. The Respondent should also describe any Critical Success Factors which either characterise a successful Project outcome or which are required to facilitate a successful Project outcome.

### 3. Background to Proposed Participants

The Respondent should provide a brief description of each of the proposed Participant organisations, including any major Subcontractors, *[maximum 1 page per Participant]*, including:

- Key skills, knowledge, experience and previous track record in the area (technical, commercial and project management, including any UK-specific issues such as technology applicability to UK systems, UK industry practice, UK market/industry knowledge, etc)
- Key staff members involved (including a designated Project Manager), with the amount of each individual's time which will be dedicated to the Project, and detailing their experience – with CVs included in an Appendix (maximum 2 pages per individual)
- Alternate resources available to be deployed in the event that the above key members become unavailable
- Relevant quality, health, safety and environment management systems.

If the Project is to be undertaken by a group of organisations (whether as a Consortium or as Subcontractors), a table *[typically ½ page]* should also be provided to identify which Participant(s) is/are proposed to satisfy each of the specific criteria (skills, experience, etc) listed in the 'Criteria for Review and Selection of Proposals' section of the Request for Proposals.

Also if the Project is to be undertaken by a group of organisations (whether as a Consortium or as Subcontractors), evidence of previous collaborative working (or subcontract management as appropriate) should be provided, both within and outside the Participant group *[typically ½ page]*.

### 4. Project Organisation *[typically 2 pages]*

The Respondent should provide Project organisational, governance and control structures and processes (particularly for Consortia).

The Respondent should indicate in the structure each Participant (including the ETI) and the position of the key individuals identified in Section 3 (including the Respondent's Project Manager).

The Respondent should identify in their Proposal any foreseen issues or difficulties in executing a Consortium Agreement and/or subcontracts (as appropriate).

### 5. Programme of Work *[typically 5 – 10 pages]*

The Respondent should provide a summary of the overall approach to delivery of the Project, and a Task-by-Task breakdown of the proposed work, identifying for each Task:

- the Task leader
- other Participants involved
- key dependencies

- the technical approach (including use of any specific methodologies, techniques or tools)
- Task objectives
- deliverables, including for each deliverable a specification (e.g. quality, appearance, scope, function and purpose as appropriate) and proposed Acceptance Criteria

The Respondent should be specific about the activities within the Task, e.g. including test/simulation matrices or stating a number of tests/simulations.

Any issues or assumptions in defining the programme or schedule (e.g. inputs required from the ETI or other projects) should be explicitly stated.

A specific project management Task (or Tasks) should be identified describing all the activities in this area (e.g. regular meetings, reporting, Stage Gates etc). **Note that throughout Project delivery the ETI will require reports of monthly progress with supporting financial data, reports to substantiate completion of each milestone, etc.**

If appropriate, a work flow diagram should be provided to illustrate the relationships between Tasks.

Any relevant activities related to but not included within this Project, and the relationships with these activities, should also be described.

## **6. Deliverables & Payment Milestones [typically 1 page]**

Following the detailed specifications of each deliverable in the previous section, a summary table should be provided here listing all the Project Payment Milestones (i.e. key points in the Project where one or more Deliverables will have been provided and payment is requested from the ETI), and their constituent deliverables, with due dates for each deliverable and Payment Milestone.

Refer also to Section 11.

## **7. Project Schedule [typically 1 page]**

The Respondent should provide a time schedule for the Project (e.g. in the form of a Gantt chart) showing the main Work Packages, Project stages and main Tasks within each Work Package and stage. This should clearly identify:

- Task durations and dependencies (including any inputs required from the ETI or other parties and any other external dependencies)
- Project Deliverables
- Payment Milestones and other relevant milestones
- Project Stage Gates, if appropriate (i.e. major review point(s) in the Project).

## 8. Risk and Health, Safety & Environment (HSE) Management *[typically 3 pages]*

The Respondent should describe the proposed Risk Management Strategy (i.e. how risks to the successful delivery of the Project will be identified and managed throughout the Project). They should also provide a Risk Register, identifying the key challenges, risks (including any assumptions or dependencies identified earlier), issues and opportunities which may affect the successful delivery of the Project outcomes and identifying planned activities to address / mitigate each item.

Further to the summaries of each Participant's HSE management systems provided in Section 3 of the Proposal, The Respondent should provide here a register summarising the main anticipated HSE issues potentially affecting the Project and proposed strategies to address / mitigate each item.

## 9. Statement of Compliance *[typically 1 page or less]*

The Respondent shall provide a statement that the Proposal is fully compliant with the Specification and all other aspects of the Request for Proposals, or shall state clearly any exceptions, deviations, alternative approaches or additions to the required Specification, with justification. **Note that in the absence of any specifically-stated deviation in this section of the Proposal, in the case of any subsequent dispute, the ETI's specification will take precedence over the Proposal.** Additional comments and clarifications should also be listed where appropriate (for example to clarify interpretation of requirements), but these must be differentiated from any deviations / exceptions above.

## 10. Intellectual Property (IP) *[typically 1 – 2 pages]*

Any Project commissioned by the ETI will be subject to the appropriate ETI terms and conditions, (a summary of which is included in Appendix B), which state that all Arising IP will belong to the ETI. (Any necessary licensing from the ETI to the Participants may be discussed if appropriate). The Respondent should provide a brief overview of the nature of any anticipated IP Arising from the Project.

The Respondent should describe any Background IP (e.g. patents, proprietary data, computer algorithms, knowhow or other IP):

- which is needed to carry out the Project or which may be used during the Project; or
- which may be needed by the ETI to exploit the Arising IP.

The description of any such Background IP should detail:

- the nature of the IP,
- rights to that IP, and
- ownership and control, whether this is by any of the Project Participants or by any third parties.

**11. Project Payment [typically 1 – 2 pages]**

(a) The Respondent should provide:

- a figure for the **maximum (capped) total contract value**, and
- a **breakdown** between Tasks and (for consortia or other Participant groups) **between Participants against each Task**.

If there are any assumptions or limitations to this price, these should be clearly stated.

(b) The Respondent should also provide a **breakdown of the total contract value (only) by category**, as specified in the Table below.

	Participant 1 (Lead Coordinator or Prime Contractor)	Participant 2	Participant 3	Participant 4	Participant 5	Total
Number of Person-days						
Base Labour						
Materials						
Capital						
Subcontractors						
Travel & Subsistence						
Overheads						
Other						
Profit						
<b>TOTALS</b>						
Profit Margin, %						

Notes on Category Breakdown table:

1. Base Labour should include direct add-ons (eg NI, pension etc)
2. Capital costs should be based on depreciation during the Project x % usage on Project
3. Participants will be required to provide justification of overhead calculations during the Project detailing stage. ETI can provide a spreadsheet to calculate overheads on request
4. Participants are required to declare their profit margins
5. Academic Participants should determine their costs using the JeS system. Note that ETI funds Academic Participants at 100% Full Economic Cost.

**Please note that during Project Detailing (prior to contract signature) the ETI will require more detailed cost breakdowns, including a schedule of payments against the Payment Milestones identified in Section 5 above.**

**12. Due Diligence Information [this is excluded from the page limit]**

- A. ALL Participants shall confirm that there are no potential, threatened, pending or outstanding recovery orders by the European Commission in respect of any funding received by any Participant.
- B. All Participants (except ETI Members, universities / higher education institutions and UK/EU government laboratories / agencies) which provide more than 20% of the resources for the Project or which provide an input which is critical to the Project's success, shall provide Due Diligence Information to the ETI according to the table overleaf.



<b>Details of organisation</b>
Full name:
Registered Office:
Type of Business (sole trader, limited company, partnership etc):
Names of directors/partners/owner:
VAT number:
<b>Details of directors, partners or associates</b>
Have any directors, partners or associates of the organisation been involved in any organisation which has been liquidated or gone into receivership? (Yes/No)
Have any directors, partners or associates of the organisation been convicted of a criminal offence relevant to the business or profession? (Yes/No)
Please give (and attach if necessary) full details if you have answered 'Yes' to either of the two previous questions.
<b>Audited Financial Accounts</b>
Please supply Audited Financial Accounts for the last 3 years for the organisation, or relevant part thereof.
<b>Claims or litigation</b>
Please provide (and attach if necessary) details of any claims or litigation against the organisation, outstanding and/or anticipated.
<b>Insurance</b>
Please confirm that you have insurance cover for the following risks, and confirm levels of cover and expiry for each. ETI will require evidence of these during the Project Detailing phase.
<ul style="list-style-type: none"> <li>• Property damage</li> <li>• Business interruption</li> <li>• Employer's liability</li> <li>• Public liability</li> <li>• Product liability (or justify its exclusion if not appropriate)</li> <li>• Professional Indemnity</li> </ul>

## **Appendix B – Summary of Terms and Conditions for Project Contract**

### **Introduction**

The following represents a summary of the key contractual terms which the ETI would expect to be included in the Technology Contract for an ETI project. This summary assumes that any projects will be carried out by a multi-party consortium with one of the consortium members acting as a lead co-ordinator.

### **Structure**

1. The project participants shall be represented in dealings with the ETI by a lead co-ordinator, who shall, in the majority of instances, be the intermediary for any communication between the ETI and the project participants. This role includes providing notices of meetings and other activities to the ETI, reviewing and commenting on project reports (as required under the project) and administering payment of invoices for all project participants.

### **Project Management**

2. The project participants will be required to appoint a project manager for the day-to-day management of the project. The ETI will appoint a programme manager to act on behalf of the ETI with regards to the project.
3. The project participants shall form a steering committee to make decisions on day-to-day matters (excluding decisions affecting the overall scope structure and timing of the project). The frequency of meetings of the steering committee will be agreed. The ETI and its members shall be entitled to attend any meetings of the steering committee.
4. The project participants must fulfil various reporting obligations which will include monthly reports, milestone reports, annual reports and a final report. Each report must address a specified list of topics required by the ETI.
5. The ETI will require the right to carry out a stage gate review on completion of a "stage" (or at least once a year) in order to assess whether the project continues to deliver against ETI outcomes and also in order to carry out a validation exercise against the business case. The ETI may carry out stage gate reviews more frequently if the project is in jeopardy. The need for stage gate reviews and the definition of a stage will depend upon the nature of the project.

### **Finance**

6. ETI will pay against milestones and only in respect of actual costs incurred (or at pre agreed profit margin, if appropriate) for the work done under the project. Only eligible costs will be payable. Ineligible costs include interest charges, bad debts, advertising costs and legal costs incurred in finalising contracts and carrying on the project. Acceptance of milestones will be determined by the ETI, where appropriate, against agreed acceptance criteria. Any increase in costs in carrying out the project over and above the agreed contractual amounts will only be payable by the ETI when such charges are agreed in accordance with the contractual variation control procedure.
7. Costs are payable in Sterling and ETI will pay valid invoices within 30 days of receipt of invoice following acceptance of a milestone. An accountant's report will be required to support selected financial reports and invoices, in accordance with a standard ETI matrix.
8. The ETI reserves the right to require the return of funding in certain circumstances (such as in the event of corruption or fraud, overpayment, costs incurred in respect of unapproved project changes and failure to comply with State Aid obligations).

## **Confidentiality**

9. Restrictions on disclosure of any other party's confidential information will apply. Any publication of results (if appropriate) will be subject to the confidentiality provisions in the agreement.

## **Audits and Records**

10. ETI will require the right to audit the project and project participants during the project and, in certain circumstances, up to 7 years from the end of the project on financial or technical grounds
11. The parties will be required to maintain the majority of project records for a minimum of 10 years from the project end date and for potentially more than 20 years where the records relate to registered intellectual property rights.

## **Sub-contracting**

12. Sub-contracting is not permitted without consent. However, details of known sub-contractors (and therefore the requisite consent) can be given in the agreement at signing.

## **Variation**

13. Any variations to the project must be made via the variation control procedure.

## **Liability**

14. The liability provisions relating to project participants will be tailored on a case-by case basis but are likely to be several and capped at (or at a multiple of) the amounts payable or received under the project (except in the case of IP infringement claims, certain third party claims or other liabilities which cannot be limited or excluded by law). For these claims, no cap will apply. Recovery of indirect, consequential etc. damages will usually be excluded. The ETI will require an indemnity in respect of certain claims brought by any third parties against the ETI as a result of the acts or omissions of the project participants under the project, the terms of which will be negotiated on a case by case basis.

## **Withdrawal**

15. Withdrawal from the project is only possible with the unanimous consent of all other contracting parties. Withdrawing participants cannot recover outstanding costs, unless otherwise agreed.

## **Termination and Suspension**

16. The ETI reserves the right to terminate the agreement in certain circumstances (such as breach by a participant, withdrawal of a participant, insolvency, change of control of a participant etc). The ETI also reserves the right to terminate the agreement unilaterally upon giving a (to be agreed) period of notice to the project participants. Upon termination, the ETI will pay the eligible costs incurred by the project participants up to the date of termination.
17. The ETI will reserve the right to suspend the project in certain defined circumstances.

## **Intellectual Property**

18. The ownership of Arising IP will be agreed on a project by project basis. Appropriate licence provisions will be put in place to ensure adequate rights are granted to the ETI members and, where relevant, project participants.

19. The project participants will be required to licence their Background IP: (i) to other project participants on a royalty free basis where required for the purposes of the project; (ii) to the ETI or sub-licensees of the ETI, on fair and reasonable terms, where required for the use or exploitation of the Arising IP.

## Appendix C – Glossary

Term	Definition
Bio Energy Crops	For the purposes of this RFP, then bio energy crops are defined as biomass that can be used for the purposes of energy production and suitable for the UK climate and agronomy.  Bioenergy Crops identified should include but are not restricted to sugar beet, wheat, rape, willow, miscanthus src, srf, and forestry.
Consortium	The group of organisations described in Section 4 which may decide together to submit a Proposal to carry out the Project and be governed by a Consortium Agreement between themselves. This will not include the ETI itself.
Consortium Agreement	The agreement to be entered into between the organisations together forming a Consortium, as described in Section 4, which governs the execution of the Project within the Consortium.
Lead Coordinator	The organisation which is a member of the Consortium, and which manages and coordinates the activities of all the Consortium members, and which acts as the primary interface between the Consortium and the ETI, as described in Section 4.
Participant	An organisation which is responsible for the delivery of part of the Project scope and which is therefore the Prime Contractor, or is Subcontracted to the Prime Contractor, or is a member of the Consortium, or is a subcontractor to any of these organisations, as appropriate, as described in Section 4.
Payment Milestone	A contract milestone with defined constituent deliverables, associated deliverable acceptance criteria, and milestone value (all to be detailed in the Respondent's Proposal and agreed in the Project Contract) which should be completed in order to reach the said milestone, and at which, subject to acceptance by the ETI that the milestone has in fact been reached, payment may be claimed from the ETI on the basis described in Section 4 and on the Terms in Appendix C,
Prime Contractor	The organisation which manages and coordinates the activities of all the Subcontract Participants, as described in Section 4.
Programme Manager	The individual appointed by the ETI to manage the overall ETI programme to which this Project is affiliated, and to whom the Project Manager is accountable.
Project	The project for which the purpose, scope of work and other details are described in this Request for Proposals.
Project Contract	The contract, as described in Section 5, to be entered into between the ETI and the Participants (whether as a Consortium, Prime Contractor or single contractor)
Project Detailing Stage	The stage of Project commissioning carried out by the ETI if and after it has decided to take forward a Proposal, during which full and final Project details are established and a Project Contract is agreed.
Project Manager	The individual who is appointed by the Lead Coordinator or Prime Contractor, or is otherwise agreed by the Project Participants, to carry out its responsibilities.
Project Organisation	The entity or group of entities / organisations, and the contracting and management structure which they adopt, as described in Section 4, which together will carry out the Project if commissioned by the ETI.
Proposal	The proposal for the Project submitted to the ETI, as described in Section 2.1, in response to this Request for Proposals.
Respondent	The organisation submitting a Proposal to the ETI, as described in Section 2.1, on behalf of themselves and of any Consortium or Subcontract Participants.
Subcontract	A contractual arrangement between the Prime Contractor (described in Section 4) and another Participant organisation to which work has been subcontracted. This includes Participant organisations subcontracted in turn by other Participant organisations, but the Prime Contractor is not defined as a Subcontractor to the ETI.
Task	A significant activity or group of activities (within a Work Package) which results in completion of a deliverable or a significant part of one, or which represents a significant step in the process towards one.
Work Package (WP)	A major section of the Project scope of work, which may be identified in this RfP or in

	the Respondent's Proposal, in order to break up the scope of work into separate manageable parts. A Work Package will usually consist of a number of Tasks.
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