



Programme Area: Bioenergy

**Project:** Carbon Accounting Evidence Collation

Title: Carbon Life Cycle Assessment (LCA) Evidence Analysis Request for

**Proposals** 

#### Abstract:

Request for proposals for the project Carbon Life Cycle Assessment Evidence Analysis project.

# Context:

The ETI appointed North Energy Associates (NEA) to lead a new Carbon Life Cycle Assessment (LCA) Evidence Analysis project in its Bioenergy Programme. LCAs are used to understand the greenhouse gas emissions associated with bioenergy from across the supply chain, from feedstock production to energy production. Several different methodologies can be used in LCAs and this ETI project assessed the strengths and weaknesses associated with applying these methodologies to bioenergy value chains. It also reviewed sources of data for LCAs and produced a compendium of the best and most reliable data across different UK-relevant bioenergy feedstocks and value chains. This compendium has formed the basis of a series of carbon balance calculations across a range of bioenergy value chains so that emissions from different feedstocks can be compared.

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Title of Services for which Proposals are Requested

# Carbon Life Cycle Assessment (LCA) Evidence Analysis

#### **Request Issue Date**

10th December 2015

#### **Deadline for Notification of Intention to Submit a Proposal**

14th January 2016

#### **Closing Date**

Proposals must be received before 12:00 noon on 29th January 2016

# **Contact for Enquiries**

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Title of Project	Carbon Life Cycle Assessment Evidence Analysis
Request issue date	10 December 2015
Closing date for submission of proposals	29 January 2016
Notification of intention to submit a proposal and return of non-disclosure agreement	14 January 2016
Contact for enquiries	Geraint Evans
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	Additional documents	Location
1.	Project Commercial and Legal Requirements	http://www.eti.co.uk/wp- content/uploads/2015/12/Commercial-and-Legal- Requirements-Carbon-LCA-RfP.pdf
2.	Annex A1 – Due Diligence Information Requirements	http://www.eti.co.uk/wp- content/uploads/2015/12/Annex-A1-Due-Diligence- Information-Requirements.pdf
3.	Annex A2 – General Due Diligence Requirements	http://www.eti.co.uk/wp- content/uploads/2015/12/Annex-A2-General-Due- Diligence-Requirements1.pdf
4.	Annex A3 – Statement of Compliance	http://www.eti.co.uk/wp- content/uploads/2015/12/Annex-A3-Statement-of- Compliance.pdf

#### SUMMARY OF KEY PROJECT INFORMATION

#### **Project Summary**

Bioenergy could play an important role in helping the UK meet its 2050 GHG targets. Sources of biomass feedstock include domestically produced crops and forestry; international and European woody biomass often in the form of pellets; and agricultural residues. Carbon life cycle assessments to date have examined elements of the supply chain relating to biomass production, and the overall carbon benefits delivered, but this has been piece-meal across the landscape, often with inconsistent methodologies applied. This makes it difficult to readily refer to the key evidence required to assess the use of different biomass types, from different sources, in different applications or value chains. This Project's goals are to:

- assess the strengths and weaknesses of past Life Cycle Assessment (LCA) studies, drawing on
  recent reviews of studies where relevant to expedite the process, and new sources of data where
  appropriate. Relevant studies include those that have assessed direct and indirect land use change
  (dLUC/iLUC) emissions associated with 'biomass production' only; and/or wider whole value chain
  emissions (end-to-end production and use of biomass feedstocks);
- review the evidence collated producing a compendium of the best and most reliable data sources for the different feedstocks (i.e. which data can we have most confidence in);
- based on the review of evidence and compendium produced, to carry out, using a consistent
  approach, carbon balance calculations for a set of UK relevant feedstocks across the six identified
  categories, such that impacts of feedstock emissions can be assessed and to understand how these
  may vary over time this is to better understand optimal future sources of biomass for the UK; and
- to identify key gaps in our knowledge base, scoping out the work required to address them.

#### The key outputs will be

- a review of the most recent studies of carbon LCAs carried out in relation to the use of biomass available and relevant to the UK, based on different feedstocks, used in different chains;
- a compendium of the best and most reliable data for each of the identified categories;
- a set of consistent and comparable LCA calculations plus a written analysis distilling and synthesising the results from these, showing how emissions from different biomass sources vary over time;
- a prioritised analysis of knowledge gaps with a scope of work produced for each.

Request for Proposal and Selection dates	
Issue of RfP	10 December 2015
Closing date for submission of proposals	29 January 2016
Closing date for NDA	14 January 2016
Preferred respondent notified	18 February 2016
Project timescales and anticipated dates	
Agreement execution target date	16 March 2016
Project start	21 March 2016
Project finish	30 September 2016

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#### 1. ETI INTRODUCTION

The Energy Technologies Institute (ETI) is a public-private partnership between global industries – BP, Caterpillar, EDF, Rolls-Royce and Shell – and the UK Government.

We are a commercial organisation that makes targeted commercial investments in technology projects, which can involve the ETI funding entire projects or working with Participants or third parties to co-fund project activities. Further information can be found on our website at <a href="https://www.eti.co.uk">www.eti.co.uk</a>.

Bioenergy could play a significant role in the future UK energy system, especially when combined with Carbon Capture and Storage (CCS). The value of this role is significant, since it can reduce the cost of meeting our 2050 GHG emission reduction targets by more than 1% of GDP¹. Yet the bioenergy sector is immature, reflecting both its complexity, in terms of the multiple value chains that could be deployed; and the political and scientific uncertainties around land use change and the sustainability of biomass use for energy. The need for evidence on carbon emissions arising from bioenergy value chains has been re-iterated in key publications, including the CCC's Bioenergy Review (2011)², and the UK Government's Bioenergy Strategy (2012)³, which states the importance of "ensuring bioenergy delivers genuine carbon savings".

The ETI Bioenergy Programme comprises a portfolio of projects across the bioenergy supply chain, which collectively seek to address four key questions/areas:

- How much of the theoretical negative emissions could be realised through bioenergy deployment in the UK?
- What would be the best ways to use this bioenergy in the future UK energy system?
- What are the right combinations of feedstock, pre-processing, and conversion technologies?
- What enabling infrastructure, and market, policy and regulatory support is needed?

Full information of all ETI projects commissioned under the Bioenergy Programme can be found on the ETI website at: <a href="http://www.eti.co.uk/programme/bio/">http://www.eti.co.uk/programme/bio/</a>

<sup>&</sup>lt;sup>1</sup> Based on opportunity costs derived from ESME modelling. <a href="http://www.eti.co.uk/project/esme">http://www.eti.co.uk/project/esme</a>

<sup>&</sup>lt;sup>2</sup> CCC Bioenergy Review (2011) https://www.theccc.org.uk/publication/bioenergy-review/

<sup>&</sup>lt;sup>3</sup> UK Government Bioenergy Strategy (2012) <a href="https://www.gov.uk/government/publications/uk-bioenergy-strategy">https://www.gov.uk/government/publications/uk-bioenergy-strategy</a>

#### 2. WELCOME TO RESPONDENTS

We are inviting potential Respondents who can bring their experience, expertise, innovation and solutions to tender for our Project. The procurement process is designed to offer each Respondent the opportunity to engage in the Project.

All Respondents have an equal opportunity to be successful. Your proposal will be given active consideration, recognising the need for compliance with our deliverables, reporting accountabilities and contractual requirements.

We value your enthusiasm, commitment and proposals from which we can benefit on this strategically important Project. Your investment in time and resources making the proposal is appreciated.

#### 3. THE REQUIREMENT

#### 3.1 Introduction to the Requirement

#### **Project Aim and Scope**

The key aims for this Project are to analyse and assess the most recent reviews of the existing evidence base in relation to carbon life cycle assessments, and wider sustainability issues; to review the evidence collated – producing a compendium of the best and most reliable data sources for the different feedstocks (i.e. which data can we have most confidence in); to identify and carry out carbon balance calculations on a consistent basis for a set of UK relevant supply chains across six categories; and to identify key gaps in our knowledge base, scoping out the work required to address them. As a result, this study will provide the ETI with:

- a better understanding of the data and methodologies used to date to carry out these assessments on bioenergy resources available and relevant to the UK;
- a 'one-stop-shop' summary (compendium) of the most reliable data regarding emissions associated with different biomass feedstocks from different sources;
- a quality assessment of the data held within the compendium and used within the LCA calculations including strengths and weaknesses;
- a comparison of different value chains using different biomass feedstocks from different sources using a consistent methodology, such that optimal value chains can be identified and understood;
- a prioritised list of key gaps.

## **Background**

The international trade in biomass is growing fast. The UK is currently the world's largest importer of biomass wood pellets, taking approximately 500,000 tonnes per month from the USA and Canada – the vast majority of these are consumed by Drax Power Station. Outside the UK, other large consumers of biomass in Europe are Denmark, Belgium, Germany and Italy, which collectively with the UK, are consuming approximately 20 million tonnes of wood pellets a year. The rest of the world is consuming over 7 million tonnes of wood pellets a year (Argus, 2014). This rapid escalation of recent demand has led to a significant increase in the numbers of wood pellet producers, especially in Germany, Latvia, Portugal, USA, Canada, Russia, Thailand, Vietnam and China (see Figure 1). Many of these new supply routes have developed very quickly in the last few years, and questions have arisen with regard to the sustainability of wood pellet production in some of these countries.

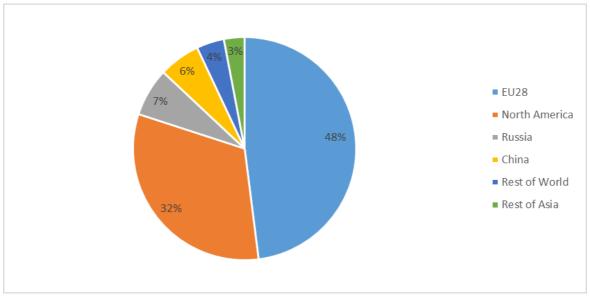


Figure 1: World wood pellet production share in 2014

Delivering the greatest value from bioenergy in the UK depends on our ability to source sufficient biomass from sustainable sources, either domestic or imported. Domestic sources offer the greatest energy security and sustainability benefits in the longer-term, but we just don't have enough of our own biomass feedstocks today to supply a commercially-viable large-scale bioenergy sector in the UK. As suggested previously<sup>4</sup>, ETI believes the most pragmatic approach would be to develop the sector now based on biomass imports derived from sustainable sources, so the key actors in the supply chain can 'learn by doing' in terms of logistics, handling, designing and operating bioenergy conversion technologies; whilst in parallel building up a strong and commercially viable biomass feedstock supply chain in the UK.

This requires a sound evidence base to ensure biomass imports are being produced sustainably, and a need to be able to compare the sustainability and carbon savings delivered across imported and domestically-produced biomass supply chains, as well as agricultural residues. It is anticipated that this Project will firstly assess and appraise the latest LCA evidence base studies available, drawing on recent reviews of studies where relevant to expedite the process, and new sources of data where appropriate. Relevant studies include those that have assessed dLUC/iLUC emissions associated with 'biomass production' only; and/or wider whole value chain emissions (end-to-end production and use of biomass feedstocks);

It will focus on six key areas – as shown below in Figure 2. For clarity, this review is to focus on land based biomass feedstocks relevant to the UK. This includes "second generation" (lignocellulosic) crops such as Short Rotation Coppice willow, Miscanthus and Short Rotation Forestry; and agricultural residue feedstocks such as wheat straw; but excludes "first generation" crops such as oil seed rape, wheat, sugar beet and maize.

	UK generated (example sources & key studies)	Overseas generated (example sources & studies)
Existing forestry	<ul><li>Forestry Commission</li><li>UK woodlands / forestry</li><li>Forestry residues</li></ul>	<ul> <li>Bioenergy Emissions and Counterfactual Model (DECC)</li> <li>USA</li> <li>Canada</li> </ul>
Purpose	<ul> <li>Short rotation forestry</li> <li>Energy crops e.g. Short Rotation Coppice (SRC) willow, Miscanthus</li> </ul>	<ul><li>Plantations such as in Russia and Europe</li><li>USA</li><li>Canada</li></ul>
Agricultural residues	Wheat straw, maize, other relevant food crop residues	Must be UK relevant and permissible as imports

Figure 2: Six key focus areas for collation and review of evidence

It is anticipated that this Project will be delivered in three parts (although the bidder is expected to propose what they suggest is the best approach):

- i. Analyse previous relevant studies of biomass Life Cycle Analysis (LCA) evidence, drawing on recent reviews of studies where relevant to expedite the process, and new sources of data where appropriate. Relevant studies include those that have assessed dLUC/iLUC emissions associated with 'biomass production' only; and/or wider whole value chain emissions (end-to-end production and use of biomass feedstocks); We anticipate that this analysis / review will encapsulate the following activities (but again, proposers must confirm the best approach).
  - Provide a critique of the robustness of the evidence base as a whole, probably based on assessments of the data and methodologies used, taking in to account how each study

<sup>&</sup>lt;sup>4</sup> ETI (2015): Enabling UK biomass. <a href="http://www.eti.co.uk/wp-content/uploads/2015/09/3504-Biomass-Insights-Lores-AW.pdf">http://www.eti.co.uk/wp-content/uploads/2015/09/3504-Biomass-Insights-Lores-AW.pdf</a>

scores against criteria such as those set out in Figure 3 below. Other categories may be relevant and should be added if deemed appropriate by the Respondents.

	Transparency	Question being answered	Assumptions made / used	Overall confidence
High Confidence				
Medium Confidence				
Low Confidence				

Figure 3: Example matrix for reporting confidence levels

- Provide a measure of the certainty behind all data in the compendium, and the confidence the
  reviewer may have in interpreting the data. The analysis must seek to identify the strengths
  and weakness of all data used/available and approaches used. For example, whether data
  used have been based on field work or modelling. This such that, in clear and succinct terms,
  the reasons for data being a) included and b) excluded from the compendium, are
  understood.
- To facilitate this review of data, we anticipate that the Project team will liaise with the authors of key pieces of work to better understand the methodologies and approaches in order to identify strengths, weaknesses, commonalities, differences and hence gaps. Further meetings may include workshops with these authors, and Respondents should identify in their responses how they might best work with these parties to facilitate engagement. This may include contracting with these external authors.

The output of the above will be a compendium of the best and most reliable data sources for the different feedstocks (i.e. which data can we have most confidence in), taking in to account at least all the points above.

- ii. From the six categories shown in Figure 2, a set of UK relevant value chains (with decadal TWh bioenergy production levels provided by the ETI) shall be defined. It is anticipated that these shall be agreed during Project negotiations it should be noted that the sources shown in Figure 2 are a set of examples and do not define the full scope required. For these value chains, the Project team shall prepare, using the best data identified in the compendium, carbon balance calculations on a consistent basis to demonstrate the carbon emissions impacts of different feedstocks from different sources, usable in different value chains. These calculations must be fully auditable (i.e. methodologies must be transparent) and must fully describe the assumptions made. Where data that does not meet the 'high confidence/robust/reliable' criteria for inclusion in the compendium has had to be used, this needs to be made clear, with accompanying assessments of how far short they fall from that criteria. An accompanying synthesis of the findings from the calculations shall discuss the results and their outcomes and shall at least include:
  - An assessment of emissions differences of biomass provided from the different sources shown in Figure 2, such that optimal value chains can be identified.
  - A critique of how the different biomass feedstocks from different sources, used in different value chains may change over time, as relevant sustainability criteria, land criteria and/or GHG thresholds may change over the next few decades. This information must be linked to latest assessments of global biomass feedstock availabilities, assessing current and future sources of biomass feedstocks against risks to meeting sustainability criteria.
  - An assessment of points of vulnerability along the chain, i.e. points along the value chains where e.g. sustainability criteria may be difficult to measure/audit.

iii. The final activity will be to identify and prioritise key gaps in the evidence, using outcomes from steps 1 and 2. These gaps should be prioritised by scale of impact on emission savings, and likelihood of occurrence. Once identified and prioritised – a set number (e.g. 2-5) will be agreed with the ETI, to be scoped out as Project business cases, such that the ETI or other organisation can commission these as future projects. The business cases are to at least identify the aim, scope, key actions and outputs, and outcomes of each piece of work. In addition, they are to identify the key skills needed to deliver the work, and provide an estimate of effort and costs involved.

The principle outputs are expected to be:

- a reliable compendium of the latest and best data and information pertaining to the sustainability of different biomass feedstocks from different sources, that could be used in UK bioenergy value chains;
- a set of carbon balance calculations carried out using a consistent and defined methodology, including the Microsoft Excel tool(s) (capable of being modified);
- an assessment of the potential emission savings that could be delivered across the six categories identified in Table 2, such that optimal value chains may be identified;
- a clear understanding of the strengths and limitations of the resultant work, with key evidence gaps identified and prioritised based on potential scale and likelihood of impact on emission savings;
- identification of key gaps in knowledge, data and understanding and ways to address these scoped out such that future projects can be commissioned.

#### 3.2 Deliverables

- i. Interim workshop (with pre-read report) and presentation. This is to at least include:
  - For the analysis of previous relevant studies, this should detail data and studies included;
     approach to review, including liaison with authors of key pieces of work; how confidence in data and approaches will be appraised and reported; approach to synthesising data.
  - Approach to calculating carbon balances, methodologies to be used, data quality and key gaps and risks, approach to demonstrating calculation auditability/transparency, outputs planned, approach to synthesising

A short pre-read report shall be provided at least two weeks before the meeting – this pre-read should provide relevant background information on the approaches being taken such that attendees can be well prepared in advance of the meeting. The report can be provided in any appropriate format (e.g. Microsoft Word, PowerPoint).

- ii. Written Project report(s): The requirements above lend themselves to the delivery of three written reports. Respondents, however, are to recommend how best to present these (e.g. different number of reports) and the timings for their delivery to the ETI. These submissions should reflect the Project requirements described above:
  - The analysis of previous relevant studies of biomass Life Cycle Analysis (LCA) evidence, including a compendium of the latest and best data and information pertaining to the sustainability of different biomass feedstocks from different sources, that could be used in UK bioenergy value chains. This report is expected to include an executive summary, description of methodology, findings/results, discussion (to include a synthesis of findings and outcomes from the analysis), conclusions and recommendations.
  - The analysis of findings from the carbon calculations. This report is to include an executive summary, description of methodology, findings/results, discussion to include a synthesis of results and outcomes from the calculations, conclusions and recommendations.
    - A review and analysis of key gaps in the evidence to include a clear understanding of the strengths and weaknesses of this Project's outcomes. The report is to describe and discuss these gaps, prioritising them by scale of impact on emission savings, and likelihood of occurrence. This report is to include an executive summary, description

of methodology, findings, discussion to include a synthesis of results and outcomes from the calculations, conclusions and recommendations. Additionally, this report shall include a set number (e.g. 2-5 to be agreed with the ETI) of individual Project Business Cases, such that the ETI or other organisation can commission these as future projects. The Business Cases are to at least identify the aim, scope, key actions and outputs, and outcomes of each piece of work. In addition, they are to identify the key skills needed to deliver the work, and provide an estimate of effort and costs involved.

#### iii. Carbon balance calculations

 A set of consistent and comparable carbon balance calculations – these are anticipated to be provided as fully auditable, unlocked, Microsoft Excel spreadsheets.

#### iv. Executive Project report

- A PowerPoint slide set (or other format if agreed) summarising the key findings from the
  whole Project information provided in the slide set should already have been presented in
  detail in the main report(s). The slides should be more detailed than would normally be
  expected for a presentation to aid understanding.
- v. Final Project Review Meeting (expected to be in Loughborough unless otherwise agreed) to present the findings of the Project to the ETI, the reviewing panel and its members. This meeting will include:
  - A presentation and discussion on the Project findings by the Project team (the slide set used are to be supplied to the ETI).
  - Lessons learned from the Project

The key outcome is that stakeholders have a good and shared understanding of the current collective evidence base – where can they move forward with confidence, where is precaution needed, and where are there still fundamental knowledge gaps.

When preparing tenders, Respondents should describe each proposed deliverable under the following headings (this to facilitate rapid contract completion):

- Title:
- Deliverable description, scope and content;
- Deliverable purpose; and
- Deliverable objectives.

All deliverable reports are to be provided electronically in both Microsoft Word or Microsoft PowerPoint (or other by agreement) and PDF formats. Links to all sources (as appropriate) are to be provided. Additionally, electronic copies of any supporting files (e.g. spreadsheets, databases) and any other supporting data developed or used during the Project shall also be provided, with full rights for their use by the ETI and its members.

The Project Team are to ensure that all relevant permissions have been obtained to use any copyrighted images used in the deliverables. This is particularly important with respect to, for example, images including tables copied from the internet, from reports and from scientific papers.

# 3.3 Timescale and Detail of any Milestones

The ETI is anticipating that the Project will be delivered a maximum of 6 months after contract signature. Payment Milestones should be identified by the Respondent and detailed in the bid document. The ETI's preference would be for no more than three Payment Milestones, one on completion of the Project. There should be an allowance for regular review meetings (below) and a post Project presentation to the ETI to include lessons learned (see 3.2, bullet v).

#### 3.4 Key Personnel

The ETI places great emphasis on two critical roles in the delivery of the Project – the Project Manager and the Chief Technologist – who together will lead the Project on behalf of the Prime Contractor.

**The Project Manager** (PM) is responsible for leading and managing the Project team, delivering the programme of work to time and cost, and handling information flows and commercial issues.

**The Chief Technologist** (CT) is responsible (on behalf of the Prime Contractor) for the technical quality and content of the work and ensuring the competence of key technical staff allocated to individual work packages.

#### 3.5 Review and Other Meetings

During the Project life cycle, there will be regular Project management and technical review meetings with the ETI.

- Project Manager (PM) meetings between the ETI PM and the Project PM will be held fortnightly by telephone and are expected to take approximately 30 minutes.
- Technical review meetings are anticipated to be held monthly attendees will include ETI PM and Strategy Manager (or substitute); the Project team's PM and CT plus any other staff as necessary.
  - Meetings location will be on a 4 way rotation between Loughborough, by phone, at the Project Team's offices, by phone (unless otherwise agreed). Phone meetings are anticipated to be up to 2 hours duration; face to face meetings up to 3 hours duration.
  - In the first technical review meeting, the Project team are to brief the ETI on their scope and approach. In the last technical review meeting prior to submitting the final report, the team should be in a position to brief the ETI on their initial findings including how they are drawing together their conclusions.

#### 3.6 Payment

The ETI will be commissioning this Project on the basis of a Fixed Price contract.

Payment will be made according to Payment Milestones as detailed by the Respondent and agreed during negotiation. These Payment Milestones must be based on tangible deliveries that can justify the value of the payment. Please provide clear details in your bid document of your expectations.

#### 4. COMMERCIAL AND LEGAL REQUIREMENTS

Please refer to the **Commercial and Legal Requirements** document [see page 1], noting that the following specific requirements apply to this Project:

- Value Return Refer to the requirements for a Knowledge Gathering Project
- Intellectual Property the ETI expects to own the Arising IP. (Refer to the requirements for Arising IP and Background IP relating to Knowledge Gathering Projects).
- Participant Contracting Structure Prime Contractor strongly preferred.
- Form of ETI Investment Fixed Price.
- The requirements of technology development and system demonstration projects are not expected to be relevant to this Project

# Background IP and Third Party IP: Bringing together existing work

This Project is aimed at bringing together and analysing existing works to identify the best and most reliable data sources for a set of different feedstocks; to identify and carry out carbon balance calculations on a consistent basis for a set of UK relevant supply chains; and to identify key gaps in our knowledge base. The successful Respondent will need to ensure that it has appropriate rights to use or refer to existing work in the project. The ETI expects that Background IP and Third Party IP may take the form of copyright in reports, data, databases, models and software. To the extent that there is any Background IP or Third Party IP included in any Deliverables, successful Respondents will need to ensure that they obtain appropriate written permissions to do so that enable the ETI to have the full flexibility to share and disseminate the outputs of the Project.

The Respondents will need to identify prior to submission any key Background IP and Third Party IP, identify the approach to obtaining permissions and to the extent that any Third Party IP will form a critical part of the Project, have initial discussions about how Third Party IP with the owners of such Third Party IP and whether it can be used in the way proposed in the Respondent's Proposal.

Respondents will need to consider and propose its Third Party IP management strategy in their Proposal and to demonstrate this can be done in line with the Project's timescales and budget.

The ETI does not expect that Respondents will wish to make use of the Arising IP after the Project. However, if this is the case, Respondents should identify any anticipated use of the Arising IP that they propose. [The ETI welcomes proposals for active dissemination of the outputs of the Project.]

#### 5. PROPOSAL, FORMAT, SELECTION CRITERIA AND SUBSEQUENT EVALUATION

Your proposal shall follow the format set out in Appendix D.

All proposals will be evaluated by the ETI against the Selection Criteria below.

Respondents should note that specific, independent and objective evidence of performance, capabilities and experience will carry greater weight than general statements about and organisational capabilities and experience.

Ability of the Participants to deliver the Project, based on evidence provided and presented at the Selection Panel(s). It should be noted that the performance of the Respondents and quality of information provided to the ETI during the commissioning process will be considered by the ETI as an indicator of likely performance during the Project:

#### S1A Technical

- Experience and availability of the proposed Chief Technologist;
- Level of experience and completeness of the technical skills amongst the Consortium to deliver the Project, including:
  - experience of carrying out carbon balance calculations / Life Cycle Analyses. This must include an understanding of the impacts and implications of different approaches and methodologies to LCA;
  - ability to use and access to relevant software tools;
  - knowledge of key sources of data and evidence and ability to access these;
  - ability to analyse evidence, assess evidence quality and identify gaps;
  - ability to draw clear and concise conclusions.

# S1B Delivery

- Experience and availability of the proposed Project Manager;
- Record and ability in quality, timely and on-budget delivery of projects (of the type requested in this RfP) to the full satisfaction of the main stakeholders;
- Project management systems and expertise appropriate for this sort of project;
- Appropriate health, safety and environmental management systems and experience;
- Effectiveness of the contracting, organisational, governance and control structures and processes proposed for the participating entities / organisations, including interfacing with ETI as it requires, etc;
- Project approach and plan, including Gantt chart, suitable Stage Gates and Payment Milestones; and
- Risk management. Respondents will need to demonstrate clear evidence of a rigorous, risk-based approach to management of the Project. A register identifying the key risks and how they will be managed is required.
- S2 Value for money with respect to Project Funding:
- Contributions from Participants and third parties (including funding, in-kind support and making their own IP available to the project, e.g. data, models, previous analysis);
- Competitiveness of costs; and
- Willingness and capacity to accept the financial risk profile for the Project.

- Risks associated with reaching acceptable agreement with the ETI within the timescales set out in this RfP:
- Respondents' willingness to materially comply with the terms and conditions of the proposed Project Contract including the ETI's IP position and the requirements on Background IP and Third Party IP;
   and
- Evidence of a credible strategy and management plan to identifying and obtaining licences of Third Party IP to enable the Participants to carry out the Project and the ETI to use and outputs of the Project, including specifically the Deliverables.

Availability and commitment of the necessary technical, legal and financial resources to meet the requirements of ETI's commissioning process.

#### 6. PROJECT COMMISSIONING PROCESS AND ESTIMATED TIMESCALES

#### 6.1 Notification of Intention to Submit a Proposal / NDA

Prior to making a Submission in response to this RfP, Respondents are required to provide to the ETI:

- (i) a formal notification of their intention to submit a Proposal, in the form set out at **Appendix B**, and
- (ii) a Non-Disclosure Agreement in the form provided at **Appendix C**, signed by all Respondents involved in the Proposal and returned to the ETI in accordance with the instructions at **Appendix C**.

Both documents must be received by the ETI no later than the closing date specified on the front page of this RfP.

The ETI will make available a draft Project Contract to all Respondents who have submitted a Notification of Intention to Submit a Proposal. Respondents are required to provide feedback on the draft Project Contract as part of the submission requirements.

#### 6.2 Pre-bid meetings with the ETI

The ETI strongly encourages Respondents to contact the ETI to discuss their Proposals prior to submission to ensure the best chance of their Proposals meeting ETI Selection Criteria.

Respondents may request a meeting with the ETI to seek further clarifications on the aims and objectives for this Project and contracting with the ETI. Such meetings can be by telephone or face to face. Please note that face to face meetings can only be offered from 11<sup>th</sup> January onwards - telephone meetings can be offered for 21<sup>st</sup>, 22<sup>nd</sup> December and from 4<sup>th</sup> January onwards.

# 6.3 Submissions in Response to the RfP

Respondents are required to make a Submission comprising the following components.

- a) Detailed Proposal, arranged according to the structure set out in **Appendix D**. The content must clearly demonstrate how the proposed Prime Contractor or Consortium, as appropriate, will meet the requirements and criteria set out in Sections 3 to 6 of this RfP. The Proposal must be written in a succinct manner and must not include imprecise statements, generalities or repetition. The Proposal must be easily readable with appropriate font sizes (10pt or larger), margin widths, and **shall not exceed a maximum of 25 pages, plus supporting information.**
- b) Any supporting information as specifically set out in Appendix A.
- c) Initial due-diligence information, as set out in Section 1 of Annex A1 (including in relation to State aid, insurance, intellectual property, health, safety and the environment and general due diligence, Annex A2).
- d) Statement of Compliance, with supporting information, confirming compliance with or identifying exceptions to the requirements of this RfP and/or the draft Project Contract, as set out in Annex A3. This must be signed by each Respondent; if a Consortium structure is proposed, every member organisation of the Consortium must provide a separate Statement of Compliance.

Additional information (such as organisational brochures, etc.) may be provided to accompany the Submission, but such additional information will not be taken into account when reviewing Proposals.

The Submission shall be provided in electronic format, in both PDF and Microsoft Word formats, with each component as a separate file.

## 6.4 Questions and Clarifications

The ETI welcomes written questions from Respondents for ETI consideration and written responses. The questions are to be submitted no later than 14<sup>th</sup> January 2016. The ETI will endeavour to provide written answers in a reasonable period, prior to submission of the proposal but cannot guarantee doing so.

Any advice or clarifications of ETI requirements requested by and provided to any Respondent may (at the ETI's discretion) be made available to all Respondents to ensure parity of information. Respondents should

therefore consider presenting requests for advice and clarifications in a way that the ETI can respond to all Respondents without revealing confidential information.

#### 6.5 Selection Process

Following the closing date for Submissions, the ETI will convene a Selection Panel as part of its evaluation process to recommend which Respondent(s) should proceed to the Project Shaping, Due Diligence and Contract Negotiation Stage, based on the Selection.

Respondents may be requested to make a presentation to the Selection Panel to support information provided in their submission, although for this RfP, the ETI does not expect to require Respondents to attend the Selection Panel. Respondents should ensure that all information and evidence that the Proposal meets the Selection Criteria is included in their Proposal.

The ETI may also request further clarifications before or after the meeting of the Selection Panel and as part of the Project Shaping, Due Diligence and Contract Negotiation Stage.

In the event that the ETI receives a large number of Submissions, the ETI may make an assessment to select a manageable shortlist of Respondents / Submissions for consideration by the Selection Panel.

#### 7. IMPORTANT NOTICES

- a) The ETI at its discretion may request clarification of a Proposal, and may reject any Proposal which is unclear.
- b) Neither the issue of any documentation in the Project Commissioning Process nor any of the information presented in it should be regarded as a commitment or representation on the part of the ETI or any other person to enter into a contractual arrangement. The issue of the RfP is not an agreement or offer to purchase goods or services, and the ETI is not bound to enter into any contract with the Respondent. By responding to this Request for Proposals, the Respondent does not commit itself to entering into a contract with the ETI.
- c) All decisions made by the ETI relating to the acceptance, review and selection or otherwise of Proposals are final.
- d) 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 terms of the Non-Disclosure Agreement (Appendix C). No part of a Proposal, or other documents provided by Respondents, shall be returned.
- e) The ETI reserves the right to (i) withdraw the RfP at any time; (ii) change the basis and / or requirements of, or the procedures for, the Project Commissioning Process, including the timetable or closing date for receipt by the ETI of Proposals/Submissions, (iii) make modifications to, or alter any of the information within, the RfP at any time until the execution of the Project Contract, (iv) reject any or all of the Proposals received, and (v) not invite any Respondent(s) to proceed further.
- f) Neither the ETI nor any of its agents or advisers accepts any liability or responsibility for the accuracy, adequacy or completeness of any of the information provided or any opinions contained in this RfP or of any other information made available during the Project Commissioning Process. No representation or warranty, express or implied, is or will be given by the ETI or any of its agents or advisers with respect to such information provided or opinion given therein. Any liability is thereby expressly disclaimed.
- g) Respondents must assess the information and terms contained in this RfP independently, having taken professional advice if necessary. Each Respondent will be deemed to have examined all the documents enclosed with this Request for Proposals and by its own independent observations and enquiries will be held to have fully informed itself as to the nature and extent of the requirements of the RfP. Each Respondent must rely on its own enquiries and on the terms and conditions contained in any agreement, when and if finally executed, subject to such limitations and restrictions as may be specified therein.
- h) Respondents shall be wholly responsible for the costs they incur in the preparation and submission of their responses to the RfP. The ETI shall not be responsible for, and shall not pay, any costs and expenses which may be incurred by the Respondent in connection with its participation in the Project Commissioning Process, including but not limited to any costs or expenses incurred up to and including the execution of the Project Contract.
- i) The ETI may, at its discretion, shortlist Respondents for the next stage (Project Shaping and Contract Negotiation Stage). The ETI does not undertake to accept the lowest bid or to accept part or all of any Proposal and the acknowledgement of receipt of any Proposal (and / or any invitation to any Respondent(s) to proceed to the next stage) shall not constitute any actual or implied agreement between the ETI and the Respondent.
- j) The copyright in the documentation and any other materials supplied by the ETI and/or its advisers in this Project Commissioning Process, in whatever format, belongs to the ETI or its appointed advisers. Such documentation and materials may not, either in whole or in part, be copied, reproduced, distributed or otherwise made available to any other third party or used without the prior written consent of the ETI, except in relation to the preparation of the Proposal in the course of the Project Commissioning Process. All documentation supplied by the ETI in relation to this Project Commissioning Process must be returned on demand, without any copies being retained by the Respondent.

- k) In this RfP, any phrase introduced by the term "include", "including", "in particular", "for example" or similar expression shall be construed as illustrative and shall not limit the sense of the words preceding that term.
- This RfP, and any dispute or claim arising out of or in connection with it (including any dispute or claim relating to non-contractual obligations), shall be governed by and construed in all respects in accordance with the laws of England and Wales and the parties agree that the Courts of England and Wales shall have exclusive jurisdiction to settle any dispute or claim arising out of or in connection with this document (including any non-contractual disputes or claims).
- m) The submission of a Proposal will confirm acceptance of the foregoing provisions by the Respondent without qualification. Any attempt to qualify any of the foregoing provisions in these Important Notices, either expressly or impliedly, may result in a Respondent being disqualified.

# 8. ANNEXES

	Additional documents
1.	Project Commercial and Legal Requirements
2.	Annex A1 – Due Diligence Information Requirements
3.	Annex A2 – General Due Diligence Requirements
4.	Annex A3 – Statement of Compliance
5.	IP Due Diligence for Proposal form for IP Due Diligence

# APPENDIX A – GLOSSARY OF TERMS

Term	Definition
Arising IP	Any intellectual property which is created by or for any Participant during the Project or for the purposes of the Project.
Background IP	Any intellectual property which existed prior to any Participant's commencement of the Project and which was created by or for the Participant.
ccs	Carbon Capture and Storage
Chief Technologist	The individual as described in <b>Section 3.4</b> .
Commercial and Legal Requirements	The separate document published with the RfP setting out the ETI's commercial and legal requirements for ETI Projects.
Company Registration Number	Company number as registered at Companies House. Universities should enter their Royal Charter (RC) number in place of the Company Registration Number.
Consortium	The group of organisations which contract with the ETI to perform the Project. This will not include the ETI itself or any Subcontractors.
Consortium Member	An organisation which forms part of the Consortium.
Consortium Agreement	The agreement to be entered into between the organisations together forming a Consortium, which governs the execution of the Project within the Consortium.
Due Diligence Information Requirements	Due Diligence Information Requirements are provided in <b>Annex A1</b> .
dLUC	Direct Land Use Change, the effect of growing energy crops on agricultural land and displace existing food-crop production, causing land use change.
ETI	The Energy Technologies Institute LLP, a limited liability partnership (Company no. OC333553) whose registered office is at Holywell Building, Holywell Way, Loughborough, Leicestershire LE11 3UZ.
Her Majesty's Government	Her Majesty's Government, including but not limited to all of its departments and executive agencies and the devolved administrations of Scotland, Wales and Northern Ireland.
General Due Diligence Requirements	General Due Diligence Requirements are provided in <b>Annex A2</b> .
GHG	Green House Gas
iLUC	Indirect Land Use Change, the effect of growing energy crops on agricultural land may displace existing food-crop production, causing land use change in another location.
IP	Intellectual property
IP Due Diligence	Separate form as described at <b>Section 8</b> .
Je-S System	Joint Electronic Submission System, the Research Councils' web- based system used for grant applications and award administration.
Lead Coordinator	The organisation which is a Consortium Member, 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.
LCA	Life Cycle Assessment

Own Funds	Funding sourced by the Respondent's own resources and not dependent in any way on third party lending to either the Respondent or member of the Respondent's group.		
Member	The ETI's industry members (as identified on the ETI's website) and Her Majesty's Government (including but not limited to those public sector members identified on the ETI's website (above) from time to time).		
NI	National Insurance		
Non-Disclosure Agreement	A non-disclosure agreement in the form provided at <b>Appendix C</b> .		
Participant	Either the Prime Contractor or a Consortium Member.		
Payment Milestone	A contract milestone with defined constituent deliverables, associated deliverable acceptance criteria, deliverable value and milestone value (all to be detailed in the Respondent's Proposal and agreed in the 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.		
Prime Contractor	A sole organisation which contracts with the ETI to perform the Project, on its own or (subject to ETI approval) together with Subcontractors.		
Programme	The ETI Bioenergy Programme that includes the Project.		
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 ETI project for which the purpose, scope of work and other details are described in this Request for Proposals.		
Project Commissioning Process	The ETI's process for procuring the Project, as described at <b>Section 6</b> .		
Project Contract	The contract to be entered into between the ETI and the Participants (whether between the Consortium Members or a Prime Contractor), further details of which are set out in the Commercial and Legal Requirements document.		
Project Manager	The individual as described in <b>Section 3.4</b> .		
Project Shaping and Contract Negotiation Stage	The project/contract negotiation stage of the Project Commissioning Process, as described at <b>Section 6</b> .		
Project Organisation	The entity or group of entities / organisations, and the contracting and management structure which they adopt, which together will carry out the Project if commissioned by the ETI and includes any Consortium Members or Prime Contractor and any Subcontractors.		
Proposal	The proposal for the Project submitted to the ETI, in response to this Request for Proposals.		
Public Funding	Any funding provided by a public authority or agency.		
RfP	This Request for Proposals.		
Respondent	The organisations submitting a Proposal to the ETI.		
Review Point	A Project review involving Project Participants and ETI representatives at which the overall progress in Project or a specific Work Package will be critically reviewed and following which a formal decision will made on the future Project programme.		
Stage Gate	A major Project Review Point involving Project Participants and ETI representatives at which the overall performance and business case		

	for the Project will be critically reviewed and following which a formal decision will be made whether to continue with the Project, based on whether agreed Stage Gate Criteria have been met.
Selection Panel	A group of technical specialists who will assess the offer and presentation against the Project objectives.
SRC	Short Rotation Coppice
Statement of Compliance	The statement of compliance required by the ETI, as described at <b>Annex A3</b> .
Subcontract	A contractual arrangement between a Participant and another organisation to which work for the Project has been subcontracted.
Subcontractor	An organisation which has a Subcontract.
Submission	Respondent's Proposal submitted by the Respondent in response to this Request for Proposals.
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.
TWh	Terawatt Hours
Value Return	The value to be delivered by the Project to the ETI, the Members and the UK economy in return for the ETI's investment in the Project.
Work Package (WP)	A major section of the Project scope of work, which may be identified in this Request for Proposals 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.

# **APPENDIX B - NOTIFICATION OF INTENTION TO SUBMIT A PROPOSAL**

The following form is to be completed and received at the address (postal or email) on the front cover no later than the date defined on the front cover and in Section 6.1 of this RfP.

Respondent Name: [Legal Name]	
Address: [Registered Office Address]	
Contact:	
Email/telephone:	
	of its intention to submit a Proposal in response to the ssessment Evidence Analysis, issued on 10 <sup>th</sup> Decembe
The Respondent submits this notification on its o Subcontractors:	wn behalf and o n behalf of the following proposed
Please list below the legal names of the organisations	/ entities proposed to deliver the Project.
1. [Enter Name]	
2. [Enter Name]	
3. [Enter Name]	
4. [Enter Name]	
5. [Enter Name]	
6. [Enter Name]	
7. [Enter Name]	
8. [Enter Name]	
9. [Enter Name]	
10. [Enter Name]	
Signed: For and on behalf of the Respondent(s).	-
Name:	-
Date:	-

Notification of Intention to Submit a Proposal

#### APPENDIX C - NON-DISCLOSURE AGREEMENT EXECUTION INSTRUCTIONS

The Non-Disclosure Agreement (NDA) protects the confidential information of the Respondents and the ETI during the period of the Project Commissioning Process. This specifically includes protection of a Respondent's technology information which will be required to enable the ETI to undertake its independent techno-economic assessment should a Respondent be invited to enter Project Shaping, Due Diligence and Contract Negotiation. For the successful Respondent(s), the confidentiality provisions in the Project Contract will supersede this NDA.

#### **Notes**

In order to ensure parity across different groups of Respondents, the ETI will not enter into negotiations on the terms of this NDA.

#### **NDA Execution Process / Instructions**

A separate electronic version of the NDA is available on the ETI Website <u>here</u> for completion and signature by Respondents in accordance with the following instructions:

- The Prime Contractor should complete Schedule 1 of a single electronic NDA with its company (legal) details and a postal address for return by the ETI of a fully executed NDA.
- The Prime Contractor should print and sign TWO paper copies of the NDA. The NDA must not be dated on the front page.
- The Prime Contractor should scan a copy of a signed and undated NDA and email it to the ETI at the address on the front of the RfP.
- The Prime Contractor should post both original signed and undated copies to the ETI.
- On receipt, the ETI will countersign and date the two original copies of the NDA. The ETI will retain
  one of these copies and post the other to the Prime Contractor at the address provided by the Prime
  Contractor at Schedule 1 of the completed NDA.

#### APPENDIX D - PROPOSAL CONTENT AND FORMAT

The Proposal shall be arranged according to the structure defined below and shall explicitly include all the information listed. Proposals will, ideally, be a maximum of 25 pages. Appendices are in addition to this stipulation.

#### **Executive Summary**

[no more than 2 pages]

This should briefly describe:

- your organisation and the Project Organisation structure;
- your relevant experience and expertise;
- summary of the predicted cost of outcomes, approaches taken and key deliverables; and
- confirmation of compliance with RfP requirements, including the Contract, and any material exceptions/deviations.

#### **Background to Proposed Participants and Structure**

[no more than 3 pages plus appendices, if required]

This should include:

- Project Participants including any subcontractors, partners and suppliers of goods/services who
  have key roles to play in the Project;
- Key individuals and roles identify all key roles and all key individuals, in addition to key technical and
  other specialists. It must specifically include the detail of the nominated Project Manager and Chief
  Technologist. The estimated proportion of each individual's time to be dedicated to the Project should
  be identified and their skills and expertise in relation to the Project's deliverables should be
  summarised. CVs should be included as an Appendix; and
- Project Organisation include an organisation diagram showing the organisation(s) and their principal roles, complete with key personnel and their roles

#### **Project Description**

[no more than 3-4 of pages, plus appendices if required]

This should include:

- Programme of work;
- Project Schedules;
- Deliverables and Payment Milestones;
- Risk Management; and
- Health & Safety Management

# **Intellectual Property**

This should set out the following

Respondents should fully familiarise themselves with Section 2 and the Commercial and Legal Requirements the RfP before completing this section.

#### **Background IP and Third Party IP**

Respondents should describe any Background IP (e.g. copyright in reports, proprietary data, computer algorithms, know how or other IP) and Third Party IP (including specifically reports, data or software models) which is needed during the Project or by the ETI in using the outputs of the Project by completing the IP due diligence form enclosed with this RFP.

# **Arising IP**

Respondents should confirm that they accept the key concept that the ETI should own the Arising IP. If any other proposal is to be made, early discussion with the ETI should be held to see whether any alternative proposal is capable of meeting the Project objectives.

Respondents should set out any requirements that they may have for a licence of the Arising IP and whether this is for internal use, commercial use, or for academic institutions, for academic teaching and research

It is expected that the primary route for dissemination of the Project Results will be through the ETI. However, the ETI welcomes any proposals for active dissemination from any Respondents and these should be set out, including specifically the areas of the Project outputs that Respondents would seek to disseminate and the strategy. The Project Contract will set out the ETI's publication process.

[no more than 2 pages]

#### **Project Costs**

[no more than 2 pages]

The Respondent should provide a breakdown of the total fixed price contract value as set out in the following table. If there are any assumptions or limitations to this price, these should be clearly stated.

#### Respondents should provide:

- a figure for the proposed total Project cost;
- a figure for the proposed maximum ETI investment;
- figures for any proposed Participant funding and/or Third Party funding (as appropriate); and
- a breakdown of total Project cost (a) between Milestones, and (b) between Participants and cost categories in the form shown in the tables below.

#### Notes on Category Breakdown table

Base Labour should include direct add-ons (eg NI, pension etc).

If a Prime Contractor/Subcontractor project structure is proposed, major Subcontractors should be considered as Participants and fill in a column in the table.

Participants will be required to provide justification of overhead calculations during the Project Detailing and Contract Negotiation stage. ETI can provide a spreadsheet to calculate overheads on request.

Participants should note that under state aid rules profit cannot be paid to Participants if they wish to receive a licence for Arising IP.

Academic Consortium Members should determine their costs using the Je-S System. Note that ETI funds Academic Consortium Members at 100% Full Economic Cost.

Note that during Project detailing and Contract negotiation (prior to contract signature) the ETI will require more detailed cost breakdowns, including a schedule of payments against the Payment Milestones. This will require completion of ETI's financial monitoring forms. Whilst not compulsory, it is strongly recommended that Participants use these forms in support of this proposal to produce the Project costings. These forms are available from the ETI on request.

# Project Costs – Table 1

	Finish Date	Participant 1	Participant 2	Participant 3	Participant 4 etc.	Total
		(Lead Coordinator or Prime Contractor)				
Milestone 1						
Milestone 2						
Milestone 3						
TOTALS						

# Project Costs – Table 2

	Participant 1 (Lead Coordinator or Prime Contractor)	Participant/ Major Subcontractor 2	Participant/ Major Subcontractor 3	Participant/ Major Subcontractor 4 etc.	Total
Number of Person- days					
Materials Consumed					
Capital Equipment					
Sub-contracts; Consultancy; Fees including fees for Trial and Testing					
Travel and Subsistence					
Other Costs					
Labour Costs					
Profit					
Overheads					
TOTAL PROJECT COSTS (ELIGIBLE COSTS)					

# Project Costs – Table 3

	Participant 1 (Lead Coordinator or Prime Contractor)	Participant/ Major Subcontractor 2	Participant/ Major Subcontractor 3	Participant/ Major Subcontractor 4 etc.	Total
ETI Investment (Project Contract)					
ETI Investment (%)					
Own Funds (Participant Funding)					
Third Party Funding (Private Funding)					
Third Party Funding (Public Funding)					
ETI Equity Investment (if applicable)					

# **Risk Management**

[no more than 2 pages, plus Risk Register]

Explain which risks will be managed exclusively by the Participant, which risks will be managed by ETI and which risks will be jointly managed between the Participant and ETI.

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