**Specification for Archetypes for transforming rural UK land-use to high-carbon, climate resilient, nature rich and economically productive systems**

Tender Reference Number: IT-1222

**Specification of Requirements**

**Invitation to Tender for Archetypes for transforming rural UK land-use to high-carbon, climate resilient, nature rich and economically productive systems**

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Deadline for Tender Responses: 9th January 2023

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**1 Introduction**

The Committee on Climate Change (CCC) is an independent, statutory body established under the 2008 Climate Change Act. The Adaptation Sub-Committee (ASC), which is part of the CCC, is also established under the Act to advise and report on progress on adaptation to climate change. The CCC and ASC are tasked with:

* Providing independent advice to Government on setting and meeting carbon budgets in line with the UK’s longer-term target to reduce greenhouse gas (GHG) emissions by at least 80% by 2050 compared with 1990 levels, and reporting to Parliament on the progress made.
* Providing independent advice to the Government on risks and opportunities to the UK from climate change, in part through the UK Climate Change Risk Assessment, and reporting to Parliament on progress in adapting to climate change.

To do this the CCC and ASC conduct independent analysis into climate change science, economics and policy, and engage with a wide range of organisations and individuals to share evidence and analysis. The CCC and ASC’s past reports are available from <http://www.theccc.org.uk/publications/>

# 2 Background and overall aim of the project

The CCC’s advice on the level of Sixth Carbon Budget in the 2030s was accepted by Government in 2021[[1]](#footnote-1). Meeting the Sixth Carbon Budget and the longer-term Net Zero target by 2050 requires contribution from all sectors of the economy, including the agriculture and land use, land use change and forestry (LULUCF) sectors. This will require a transformation in how land is used in the UK, with land released out of agricultural production for alternative uses such as afforestation, peatland restoration and bioenergy crops. Under the Balanced Pathway, we estimated that 9% of agricultural land would be needed to deliver these measures, rising to a fifth by 2050.

In addition to climate change mitigation, transforming land use can deliver other multiple objectives, including adapting to climate change, biodiversity, and other environmental goals. The CCC’s third Independent Assessment of UK Climate Risk (CCRA3)[[2]](#footnote-2) identified eight priority risk areas that the Committee identified as being critical for adaptation in the next two years, four of which relate to the natural environment and the use of land. Effective action to change land use before projected climate change impacts occur must be investigated to enable land managers to protect and enhance the land’s ability to maintain the delivery of essential ecosystem services.

Our analysis to date has focused on estimating the impact of land use change and management on carbon and GHG emissions at the national level (i.e. England and each of the devolved administrations (DAs)). In practice, the changes that are needed to mitigate and prepare for climate change will vary across different locations according to a range of climatic, economic, social and environmental factors, at the farm, catchment and landscape level.

The aim of this project therefore is to identify and quantify the impact of a set of plausible land use transitions for a number of representative rural land use ‘archetypes’ in England and the UK’s DAs out to 2035 and 2050. The transitions should focus on changes in land use and management that deliver increased carbon sequestration and GHG emissions reductions, and which can also contribute to climate resilience, maintenance of food production, increased biodiversity and deliver co-benefits such as access to nature. In some cases, there may be trade-offs, and these should also be identified.

In future, the CCC expect to develop full spatial scenarios for UK land-use change that deliver across the multiple objectives. This project does not aim to develop these spatial scenarios, but it will be used to inform any such future work.

# 3 Project specification (including methodology)

We propose that the aims of this project are met by undertaking two main tasks, with an option to deliver a third task:

1. Develop a set of archetypes that are representative of current UK rural land-use and land-management.
2. Quantify the impact of plausible future land use transitions for each archetype.
3. Case studies of current to future archetype transition (optional)

***Task 1:*** ***Develop a set of archetypes that are representative of current UK rural land-use and land-management[[3]](#footnote-3)***

This task involves two parts: (a) identifying a suitable set of archetypes, (b) quantitatively describing those archetypes as a basis for further analysis in task 2.

1. *Identify a set of representative land-use archetypes*
* The bid should draw-up a long-list of at least twenty archetypes that are representative of the range of different rural land-uses that currently exist in England and the DAs. As a starter, a list of illustrative archetypes that could be considered is set out in the annex, and we would welcome your additions and amendments to the list as part of the bid. Consideration should be given to selecting at least two archetypes that are characteristic of extensive and intensive land use in each of the DAs.
* The archetypes should be able to pick up key differences across a range of different parameters:
* Geography (e.g. soil types, elevation, incline, climatic differences across the UK etc).
* Land cover type/condition (e.g. UK NEA broad habitats).
* Land-use (e.g. arable farming, grazing land, woodland etc) and land-management (e.g. mixed farming, intensive farming etc).
* The spatial scale for each defined land archetype (e.g. farm, catchment and landscape-scale) and reasoning behind the judgement.
* Consideration should be given to how each archetype could be mapped to spatial approaches (e.g. the Land Cover Map[[4]](#footnote-4)) that could be used to inform future application of the outputs.
* Where possible, we encourage using framings building on/aligning to other existing efforts in this sector (for example [here](https://iopscience.iop.org/article/10.1088/1748-9326/ac810e#back-to-top-target)[[5]](#footnote-5)).
* The final set of archetypes to be quantified and used in task 2, of up to twelve, will be jointly agreed with the CCC at the start of the project.
1. *Quantify a baseline for 2020, 2035 and 2050 for the chosen land-use archetypes.*

For each archetype, quantify a baseline (or business as usual) of metrics based on a continuation of current land use and management and current trends (e.g. policy landscape and productivity improvements). The baseline should also take account of the impact of climate change and how it impacts the biophysical properties of the land. This will allow us to compare how land use and the accompanying outputs changes for each archetype following the transition in Task 2 relative to the baseline for 2035 and 2050.

* Each archetype should be mapped to a land-use category (or categories) used in the current UK LULUCF inventory (Grassland, Cropland, Forest Land, Settlements and Other Land[[6]](#footnote-6). This categorisation should enable current and future GHG emissions and carbon content changes to be calculated consistent with the current GHG methodology. However, it is expected that the archetypes produced here will be more specific and numerous than these categories, and there may be land use transitions that are not currently captured in the GHG Inventory such as natural regeneration/re-wilding.
* Identify a set of key metrics to quantitatively describe each archetype. The metrics should include, at a minimum, carbon content and flux, non-CO2 emissions, biodiversity metrics aligned to those used to determine the proposed statutory targets under the Environment Act, and metrics of resilience to current and future climate and weather extremes. (see annex).
* For each chosen archetype, quantify the key metrics for the reference year of 2020 (the most recent year for GHG emissions estimates from the UK agriculture and LULUCF GHG Inventories), 2035 and 2050. Where possible, uncertainty ranges should be given. Where it is not possible to quantify (e.g. biodiversity), a qualitative assessment or expert judgement should be included.
* Consideration should also be given to metrics that fall outside the land area of the archetype, but where there may be opportunities to improve resilience from measures deployed within the archetype under Task 2. For example, alleviating flooding downstream of an upland hill farm by restoring peat on farm.
* Quantification of the metrics should be done robustly and transparently, drawing on published estimates elsewhere in the literature and with references provided.
* For each archetype, the analysis should allow for expected changes in the biophysical properties of the land due to projected climate change[[7]](#footnote-7) that may constrain what the land can be used for, with either positive or negative consequences for reducing emissions. For example, potential risks associated with aridity of arable land for crop production may lead to conversion to perennial energy crops, which would reduce GHG emissions. Conversely, warmer and drier conditions in the future may restrict the benefits of rewetting degraded peat resulting in on-going carbon emissions. Where the impacts are highly uncertain, a range or qualitative assessment should be provided.

***Task 2: Quantify the impact of plausible future land use transitions for each archetype.***

For each archetype quantified in Task 1,apply a set of land use change and land management ‘measures’ that will deliver increased carbon sequestration, GHG emissions reductions, and which can contribute to climate resilience and increased biodiversity.

* As a starter, the type of land use and land management ‘measures’ should be consistent with those used for the CCC’s Sixth Carbon Budget analysis (see annex).
* In addition to the Sixth Carbon Budget measures, consideration should also be given to other measures that can help deliver the 25 Year Environment goals (e.g. agroecological farming measures, natural regeneration for biodiversity and habitat restoration) where there is robust evidence to support their inclusion; and wider trends in diversification, such as hosting solar/wind farms[[8]](#footnote-8).
* The winning contractor must consider that for some baseline archetypes, it may be possible to apply more than one future land use transition[[9]](#footnote-9). A menu of potential changes that could be applied to each archetype should be developed and agreed with the CCC early in the project.
* The impact of the transition should be quantified using the same metrics set out in Task 1. This will identify benefits for carbon, biodiversity and resilience together with potential trade-offs e.g. food production. Your bid should give some indication of what outputs you are able to quantify, and where you are unable to, what qualitative assessment you propose to use.
* The transitional outputs should be generated for 2035 and 2050, allowing for comparison against the baseline outputs generated in Task 1.
* It is expected that evidence to support transitional outcomes will come from a range of sources, with both quantitative and qualitative evidence used. In the bid, contractors should set out their approach to synthesising the evidence. For example, it may be considered appropriate to apply a hierarchy of evidence ranging from data specific to the UK to that in a global context. In final outputs where evidence is unavailable or unknown this should be highlighted, and future work suggested on how to meet such evidence needs.
* Your bid should set out any challenges in meeting the specifications of this project and to the timeline set out below. The uncertainties and gaps in knowledge, inputs, data etc, to meet our specification, and how you intend to address this in the time required.

***Task 3 (optional) Case studies of current to future archetype transitions***

* Provide real case examples of land use and management transitions that have taken place in the UK. Where possible, assess the changes for carbon sequestration, GHG emissions, climate resilience and biodiversity, and any potential trade-offs resulting from each transition.
* Your bid should indicate whether you have the capability to undertake this Task.
* This is an optional Task and as such, a separate costing should be provided to that given for Tasks 1 and 2. The overall budget for this project is around £75,000 (excluding VAT).

Please note that award of the contract for the overall tender will be based solely on the strength of bids for Tasks 1 and 2 only.

# Outputs Required

* A report setting out the findings of Tasks 1 and 2. detailing archetypes, quantification of outputs, qualitative assessment of outputs, judgements involved, and identification of evidence gaps and priorities for future work.
* Transparent excel spreadsheets with comprehensive quantification for each archetype for all metrics with sources fully documented:
	+ Baseline 2020, 2035 and 2050 results for Task 1.
	+ Results for 2035 and 2050 for Task 2
* Presentation of the interim and final results to the CCC, and other interested parties.

# Ownership and Publication

The key deliverables will be handed over to the CCC, who may choose to publish these as supporting evidence on their website. Spreadsheets should be open access and unrestricted, to enable full QA of results and assumptions. The spreadsheet will be the property of the CCC.

# Quality Assurance

All tasks must be quality assured and documented. Contractors should:

* Include a quality assurance (QA) plan that they will apply to all of the tasks.
* Specify who will take lead responsibility for ensuring quality assurance and ensure that this responsibility rests with an individual not directly involved in the research and analysis.
* Provide QA log to demonstrate the QA undertaken, including who undertook the QA and the scope, type and level of QA that has been undertaken (e.g. a log entry only stating ‘the data was checked’ will not be sufficient).
* Sign-off for the quality assurance must be done by someone of sufficient seniority within the contractor organisation to be able take responsibility for the work done. Acceptance of the work by the CCC will take this into consideration. The CCC reserves the right to refuse to sign off outputs which do not meet the required standard specified in this invitation to tender.
* The successful bidder will be responsible for any work supplied by sub-contractors and should therefore provide assurance that all work in the contract is undertaken in accordance with the quality assurance expectation agreed at the beginning of the project.
* The consultant must demonstrate their ability to produce deliverables of quality, in particular following best practice regarding economic analysis and presentation of results.

To this end, the CCC expects that:

* The analysis must be delivered in a simple, transparent Excel spreadsheet. All assumptions and figures etc should be adequately referenced, and include any supporting workings. This spreadsheet will be the property of the CCC.
* Analysis should appropriately reflect uncertainty, where applicable by specifying ranges on uncertain outputs. Where appropriate, a sensitivity analysis of key parameters should be conducted.

# Timetable

The proposed timetable for the project is set out in the following table:

* At least 40% of the project should be completed by end March 2023, with the remainder to be completed by the end of July.
* Final results and report by end July 2023.

In addition to the formal reporting points, the CCC would expect to have weekly scheduled discussions to ensure the work is progressing as expected.

|  |
| --- |
| **Deliverables and timetable** |
| **Date** | **Action/Deliverable** |
| 15/12/22 | Engagement call with the CCC for interested suppliers |
| 9/1/23 | Deadline for response to ITT |
| 16/1/23 or 17/1/23 | Interviews |
| wc 23/1/23 | Kick-off meeting  |
| Late March | 1st Interim meeting (presentation on progress and initial results) |
| July 2022 tbd | Final meeting (present and discuss results and findings) |
| End July | Circulate write-up of final report, and delivery of the spreadsheet  |

# Challenges

Your bid should set out any challenges in meeting the specifications of this project and to the timeline set out above. The uncertainties and gaps in knowledge, inputs, data etc, to meet our specification, and how you intend to address this in the time required.

# Ethics

All applicants will need to identify and propose arrangements for initial scrutiny and on-going monitoring of ethical issues. The appropriate handling of ethical issues is part of the tender assessment exercise and proposals will be evaluated on this as part of the ‘addressing challenges and risks’ criterion.

We expect contractors to adhere to the following GSR Principals:

1. Sound application and conduct of social research methods and appropriate dissemination and utilisation of findings
2. Participation based on valid consent
3. Enabling participation
4. Avoidance of personal harm
5. Non-disclosure of identity and personal information

# Working Arrangements

The successful contractor will be expected to identify one named point of contract through whom all enquiries can be filtered. A CCC project manager will be assigned to the project and will be the central point of contact.

# Skills and experience

 CCC would like you to demonstrate that you have the experience and capabilities to undertake the project. Your tender response should include a summary of each proposed team members experience and capabilities.

 Contractors should propose named members of the project team, and include the tasks and responsibilities of each team member. This should be clearly linked to the work programme, indicating the grade/ seniority of staff and number of days allocated to specific tasks.

Contractors should identify the individual(s) who will be responsible for managing the project.

# Consortium Bids

In the case of a consortium tender, only one submission covering all of the partners is required but consortia are advised to make clear the proposed role that each partner will play in performing the contract as per the requirements of the technical specification. We expect the bidder to indicate who in the consortium will be the lead contact for this project, and the organisation and governance associated with the consortia.

Contractors must provide details as to how they will manage any sub-contractors and what percentage of the tendered activity (in terms of monetary value) will be sub-contracted.

If a consortium is not proposing to form a corporate entity, full details of alternative proposed arrangements should be provided. However, please note CCC reserves the right to require a successful consortium to form a single legal entity in accordance with Regulation 28 of the Public Contracts Regulations 2006.

CCC recognises that arrangements in relation to consortia may (within limits) be subject to future change. Potential Providers should therefore respond in the light of the arrangements as currently envisaged. Potential Providers are reminded that any future proposed change in relation to consortia must be notified to CCC so that it can make a further assessment by applying the selection criteria to the new information provided.

# Budget

The budget for this project is around £75,000 excluding VAT.

Contractors should provide a full and detailed breakdown of costs (including options where appropriate). This should include staff (and day rate) allocated to specific tasks.

Cost will be a criterion against which bids which will be assessed.

Payments will be linked to delivery of key milestones. The indicative milestones and phasing of payments can be adjusted and agreed with the contractor and Project Manager. Please advise in your tender response how this breakdown reflects your usual payment processes:

In submitting full tenders, contractors confirm in writing that the price offered will be held for a minimum of 60 calendar days from the date of submission. Any payment conditions applicable to the prime contractor must also be replicated with sub-contractors.

The Committee on Climate Change aims to pay all correctly submitted invoices as soon as possible with a target of 10 days from the date of receipt and within 30 days at the latest in line with standard terms and conditions of contract.

# Evaluation of Tenders

Contractors are invited to submit full tenders of no more than 35 pages, excluding declarations and CV’s. Tenders will be evaluated by at least three CCC staff.

CCC will select the bidder that scores highest against the criteria and weighting listed below, see the ITT for further information.

**EVALUATION CRITERIA AND SCORING METHODOLOGY**

|  |  |  |
| --- | --- | --- |
| Criterion | Description | Weighting  |
| 1 | RELEVANT EXPERIENCE / DEMONSTRATION OF CABABILITY | 20% |
| 2 | MANAGING YOUR RELATIONSHIP WITH THE CCC | 10% |
| 3 | QUALITY ASSURING THE SERVICES YOU PROVIDE | 10% |
| 4 | MANAGEMENT STRUCTURE | 10% |
| 5 | PROJECT TEAM – SKILLS AND KNOWLEDGE | 20% |
| 6 | METHOD, ABILITY AND TECHNICAL CAPACITY – 10% | 10% |
| 7 | UNDERSTANDING OF REQUIREMENTS | 10% |
| 8 | RISK AND CHALLENGES | 10% |
|  |  | 100% |

**Scoring Method**

Tenders will be scored against each of the criteria above, according to the extent to which they meet the requirements of the tender. The meaning of each score is outlined in the table below.

The total score will be calculated by applying the weighting set against each criterion, outlined above; the maximum number of marks possible will be 100. Should any contractor score 1 in any of the criteria, they will be excluded from the tender competition.

|  |  |
| --- | --- |
| **Score** | **Description** |
| 1 | Not Satisfactory: Proposal contains significant shortcomings and does not meet the required standard |
| 2 | Partially Satisfactory: Proposal partially meets the required standard, with one or more moderate weaknesses or gaps  |
| 3 | Satisfactory: Proposal mostly meets the required standard, with one or more minor weaknesses or gaps. |
| 4 | Good: Proposal meets the required standard, with moderate levels of assurance |
| 5 | Excellent: Proposal fully meets the required standard with high levels of assurance |

**Scoring for Pricing Evaluation**

Price will be marked using proportionate pricing. Please see the example below.

Marking proportionate to the lowest price.

Price will be scored as set out below.

There will be a maximum of e.g. 20 marks

The lowest priced bid will receive the full 20 marks, all other bids will then be marked as set out below.

Proportionate Pricing scoring example

If 20% = 20 marks

|  |  |  |
| --- | --- | --- |
| Supplier | Price | Marks |
| 1 (lowest bid) | £50,000 | 20 |
| 2 | £60,000 | 50/60 \* 20 = 16.7 |
| 3 | £75,000 | 50/75 \* 20 = 13.3 |

**Structure of Tenders**

Contractors are strongly advised to structure their tender submissions to cover each of the criteria above and supply a price schedule specifying the daily rates (ex-VAT) you will charge for each level of your staff.

**Evaluation for Interviews, if held**

CCC reserves the right to award the contract based on applicants’ written evaluation only if one candidate emerges from the evaluation stage as significantly stronger than the others.

Should interviews go ahead, CCC will shortlist the top three suppliers with the highest marks from the written proposals. Interviews are provisionally expected to be held on the 16th or 17th January 2023. If this date changes, CCC will notify applicants.

The areas to be covered in the interview, and markings allocated to each topic area will be sent to the shortlisted supplier prior to interview.

Further details of interviews will be sent to successful applicants on selection.

**Feedback**

Feedback will be given in the unsuccessful letters or emails.

1. [Sixth Carbon Budget - Climate Change Committee (theccc.org.uk)](https://www.theccc.org.uk/publication/sixth-carbon-budget/) [↑](#footnote-ref-1)
2. [Independent Assessment of UK Climate Risk - Climate Change Committee (theccc.org.uk)](https://www.theccc.org.uk/publication/independent-assessment-of-uk-climate-risk/) [↑](#footnote-ref-2)
3. The archetypes should focus on rural land only, and as such land for settlement is excluded from this project. [↑](#footnote-ref-3)
4. <https://www.ceh.ac.uk/data/ukceh-land-cover-maps> [↑](#footnote-ref-4)
5. [Multi-tier archetypes to characterise British landscapes, farmland and farming practices - Cecily E D Goodwin et al](https://iopscience.iop.org/article/10.1088/1748-9326/ac810e#back-to-top-target) [↑](#footnote-ref-5)
6. [UK Greenhouse Gas Inventory, 1990 to 2020 (BEIS.gov.uk)](https://uk-air.defra.gov.uk/assets/documents/reports/cat09/2206220830_ukghgi-90-20_Main_Issue1.pdf) [↑](#footnote-ref-6)
7. Utilising UKCP18 projections [↑](#footnote-ref-7)
8. Blue carbon measures lie outside the scope of this project. [↑](#footnote-ref-8)
9. For example, land use change via afforestation could follow a pathway that prioritises semi-natural woodland or conifer plantations, or a mix of the two. [↑](#footnote-ref-9)