**Specification for** **Reviewing the latest methods and research for valuing the costs and benefits of climate change risk and adaptation policy**

Tender Reference Number: DJ-0123

**Specification of Requirements**

Invitation to Tender for: **Reviewing the latest methods and research for valuing the costs and benefits of climate change risk and adaptation policy**

Tender Reference Number: DJ-0123

Deadline for Tender Responses: **25th January 2023**

**Contents**

1. Introduction and summary of requirements / Preamble

2. Background

3. Aims and Objectives

4. Methodology

5. Outputs Required

6. Ownership and Publication

7. Quality Assurance

8. Timetable

9. Challenges

10. Ethics

11. Working Arrangements

12. Required Skills

13. Consortium Bids

14. Budget

15. Evaluation of Tenders

# 1 Introduction and summary of requirements / Preamble

The Climate Change Committee is starting work on the 4th UK Climate Change Risk Assessment due to be published in 2026. To inform this, the CCC is tendering a project to understand the most up-to-date methodologies for valuing 1) the risk to the UK from climate change and 2) adaptation policies available to address this risk and 3) identifying the strengths and weaknesses of available approaches and where they would leave gaps.

Given project timescales, the tendered work needs to be delivered by the end of April 2023, at a cost of £50,000 - £80,000 plus VAT.

The CCC’s past reports are available here: <http://www.theccc.org.uk/reports>

The outputs from the 3rd Climate Change Risk assessment are available here: <http://www.ukclimaterisk.org>

# 2 Background

**The Climate Change Committee**

The Climate Change Committee was set up as part of the Climate Change Act. The CCC is an independent body that advises the UK and Devolved Governments on both reducing emissions in the UK and adapting to the impacts of climate changes.

**The UK Climate Change Risk Assessment**

Under the Climate Change Act 2008 (section 57), an assessment of the risks facing the UK from the current and predicted impact of climate change is required every 5 years. The CCC is responsible for providing independent advice to the UK Government to inform that assessment.

The Committee has recently provided its advice to the UK Government on the risks and opportunities facing the UK from current and future climate change as part of the third Climate Change Risk Assessment (CCRA3) – this was summarised in its Independent Assessment of UK Climate Risk which was published in summer 2021.

The CCC’s advice on the fourth UK Climate Change Risk Assessment (CCRA4) is due for completion by June 2026. CCRA4 is aiming to consider different ways of presenting the economic consequences of climate change to the UK economy using a more integrated approach than was possible under the previous Climate Change Risk Assessments. It is also looking to consider how potential adaptation policy packages can be appraised.

To inform this programme of economic analysis, the CCC is seeking to commission a creative and innovative piece of work establishing evidence on the existing methodologies adopted to-date for valuing climate impacts and appraising adaptation policy packages. Most importantly, the CCC are looking to encourage creative and innovative proposals on alternative/new methodologies to help inform the best approach and method design for the economic assessment to be used in CCRA4.

# 3 Aims and Objectives

We are seeking to commission a review of the most up-to-date methods and research valuing the impacts of climate change on the UK and the costs and benefits of policy actions in response. This should include assessing approaches used by other countries, though with an aim to identify approaches that can be used for the UK, including UK-wide and area-specific analysis.

This project will aim to (i) provide a summary of how any developments in the economics of adaptation can be used to add value and fill gaps from the ‘Valuation report’ produced as part of CCRA3 (ii) identify potential methods for appraising hypothetical adaptation policy packages (iii) assessing the strengths and weaknesses of these approaches (iv) suggest ways of presenting the uncertainties involved in valuing climate risk and policy packages. There is also an optional task (v) to review the options for estimating the macroeconomic impact of climate change on the UK economy.

We welcome creative thinking on the best way to approach these tasks, including identifying new approaches to costing risks and estimating adaptation investment needs, even if they have not yet been implemented. In particular, we would like to see examples of methods that have yet to be implemented in practice, have been used internationally but not in the UK, and those already implemented in the UK.

This project is about informing methodological choices and approaches to valuing climate impacts and appraising adaptation options. We do not expect bidders to conduct new valuation or appraisal analysis for any of the tasks in this project.

The key tasks are:

1. Review the existing literature on methods for valuing the costs and benefits of climate change on the UK economy at a sectoral level for each of the sectors covered in the 3rd Climate Change Risk Assessment[[1]](#footnote-2). (10%)
2. Review the existing literature on methods for appraising hypothetical adaptation policy packages. (30%)
3. Identify the strengths and weaknesses of the methods found in tasks 1 and 2 and where there are methodological gaps. (20%)
4. Suggest ways of presenting the uncertainties involved in valuing climate risk and policy packages under different climate and socioeconomic futures. (20%)
5. Optional task:Summarise the options for estimating the macro-economic impact of climate change on the UK economy. This could involve taking the valuation techniques identified in CCRA3 and task 1 and integrating them with macro-economic models or alternative (e.g. econometric) approaches. (20%)

# Methodology

Task 1: *Review of methodologies for valuing risks and opportunities to the UK from climate change*

This task involves reviewing the existing literature on methods for economic valuation of climate risk and opportunities to produce a list of existing methodologies applied across each of the risk sectors used in the CCRA3 Technical Report (see footnote 1). More detail of the risks contained in each sector can be found in the [CCRA3 Technical Report](https://www.ukclimaterisk.org/independent-assessment-ccra3/technical-report/). The priority for this task is to find potential methodologies to address the gaps identified in the [CCRA3 Monetary Valuation of Risks and Opportunities report](https://www.ukclimaterisk.org/wp-content/uploads/2021/06/Monetary-Valuation-of-Risks-and-Opportunities-in-CCRA3.pdf), and to highlight where additional work beyond those highlighted in the CCRA3 Monetary Valuation Report would add the most value to the fourth risk assessment.

The key elements to this task are:

* Conduct a literature review on methods for valuing climate change risks and opportunities in the absence of adaptation. This literature review should result in a summary of the available methodologies for costing potential risks/benefits in each sector (see footnote 1) where gaps currently exist of where the previous methodology was insufficient.
  + The output of this task should explicitly highlight in each sector where there remain gaps in available methodologies to be able to provide a monetary value. It should also suggest if an alternative process (e.g. qualitative evaluation, expert surveys etc.) would be appropriate and the potential implication of not including it in aggregate costings.
  + We ask that the cause of the gap is as a result of scientific / impact evidence, rather than economic valuation.
* The review should not focus solely on UK-based or UK-focused research. Examples of methods only used outside of the UK within the literature should also be considered.
* A systematic literature review method should be proposed to ensure that as many relevant methods are identified as possible.
* It is expected that this review should consider both peer-reviewed academic literature and ‘grey’ literature from reports and other relevant sources.
* The output from this task should be a list of methodologies that are then subsequently assessed in Task 3. This list of methodologies should be broken down by the chapters of the CCRA3 risk assessment covering which methods have been used in that area of climate risk. For this task, it is not expected that a categorisation at the level of the 61 risks and opportunities in CCRA3 is undertaken. Instead, contractors are encouraged to consider the range of risks contained within each chapter when reviewing the relevant valuation methodologies.
* We also ask that consistency is considered when completing this project. We welcome suggestions on how the valuation of risk sectors can a) be improved to achieve greater consistency across the valuations and b) be presented differently to highlight the uncertainties in the exercise and better reflect the methodology of how the valuation outcomes were reached.

Task 2: *Review of methodologies for appraising adaptation policy packages.*

This task involves reviewing the literature and presenting the methods available for valuing adaptation policy packages.

The key elements to this task are:

* Conduct a literature review on the methods of appraising hypothetical adaptation policy packages. These could include (but should not be limited to), cost-benefit analysis, real-option techniques (to account for the cost/benefit of delaying action), multi-criteria decision analysis and non-probabilistic methodologies (i.e. scenario analysis). This should involve looking at which costs, and benefits have previously been included in similar projects. This task should consider what would be defined as a ‘cost’, a ‘benefit’, and what the baseline/counterfactual would be (i.e. what happens in the absence of the hypothetical policy package).
* The review should not focus solely on UK-based or UK-focused research. Examples of methods only used outside of the UK within the literature should also be considered.
* A systematic literature review method should be proposed to ensure that as many relevant methods are identified as possible.
* It is expected that this review should consider both peer-reviewed academic literature and ‘grey’ literature from reports and other relevant sources.
* Where there are gaps in the literature, we welcome creative thinking on suggestions for potential methodologies that could be adopted to appraise adaptation policy packages.
* The output from this task should be a list of methodologies that are then subsequently assessed in Task 3.

Task 3: *Assessment of the methodologies considered in tasks 1 and 2 and identify where there are methodological gaps*

This task involves assessing the methods identified in tasks 1 and 2 regarding their strengths and weaknesses. The assessment should be robust, thoroughly documented and rely on the published literature as well as the expert judgement of the contractors.

The required elements of this assessment are:

1. Identifying the strengths and weaknesses of each methodology proposal. We welcome suggestions on potential ways of assessing the methodologies and have provided some examples below:
   1. **Resource requirements.** Indicative measure of the cost of conducting the analysis (e.g. one that involves raw data collection would be high-cost relative to using an up-to-date estimate from an existing source). Include the degree of technical or sectoral expertise required and whether this might be limited or require a large team of different specialists.
   2. **Time.** An indication of the time it would take to conduct any new analysis at a UK level.
   3. **Inputs.** Would the methodology rely on a specific model and is this open-access or owned by an institution? Are there any key barriers to using these models?
   4. **Is the study ex-post or ex-ante?**
   5. **Accuracy.** How well do the estimates reflect the true cost of climate change on this sector?
   6. **Robustness.** How reliable is the methodology? Has it been used for risk assessment and/or by other governments?
   7. **UK applicability.** If a proposal has yet to be adopted in the UK, how easy would it be to do a similar UK-focussed exercise?
   8. **Usability.** How easy it would be to use the evidence to translate into policy action?
   9. **Communication.** How established is the methodology and how easy would it be to communicate the methodology and outputs to key stakeholders?
   10. **Compatibility with the UK Green Book guidance** for policy impact assessment. It should highlight where they are not consistent, but we would like to include the most up-to-date methodologies so welcome suggestions outside of this framework.
   11. **Ability to track distributional** impacts across different parts of society within the valuation methodology and appraisal techniques. We do not expect detailed data collection/judgement at this stage, just a rough indication is sufficient. The groups to focus this part of the task on can be found in the [socioeconomic dimensions report from CCRA3](https://www.ukclimaterisk.org/wp-content/uploads/2020/07/Socioeconomic-Dimensions-Final-Report_CE.pdf)[[2]](#footnote-3).

*Task 4: Suggest ways of presenting the uncertainties involved in valuing climate risk and policy packages.*

We welcome creative and innovative thinking on this task. Our key aims are to understand how multiple climate and socioeconomic futures, and adaptation policy packages, could be factored into a CCRA economic assessment in a consistent way with coherently presented uncertainties. This task should involve considering different options for presenting uncertain economic estimates (for example, but not limited to, conducting sensitivity analysis, common scenario analysis, probabilistic sensitivity analysis) and providing a clear recommendation for the most appropriate technique. Uncertainties considered should include the following (and any others agreed with the CCC):

* The uncertainties surrounding the physical hazards
* The uncertainties of future socioeconomic scenarios
* The uncertainties in the impact of policy packages
* The uncertainties on interdependencies with other risks and their impacts

Finally, we’d like to consider how the overall uncertainties (i.e. all of those above and any others identified) should be presented for the overall costs and benefits of the climate impacts within each sector.

We welcome reflections on the impact of these uncertainties, and any others you consider to be important, on the utility of valuation estimates and appraisal methodologies.

*Optional task 5: Summarise the options for estimating the macro-economic impact of climate change on the UK economy. This could take these costs / benefits and integrate them with macro-economic models[[3]](#footnote-4) or alternative (e.g. econometric) approaches.*

If you have the relevant expertise, we would like to invite bidders to undertake an optional fifth task to summarise the available options for looking at the macroeconomic impact of climate change on the UK. It should be noted that we are **not expecting the contractors to do any modelling, this is purely a methodology review task.** A key aim for this research would be to understand the impact of climate change at a macro level on (using a range of warming scenarios):

* UK GDP
* UK Consumption and investment
* UK employment/economic activity
* Fiscal impacts (increased revenue required to respond to damages) and where there are gaps in required investment
* International trade
* And then looking at the distributional impacts by household, specifically focussing on:
  + Per-capita real income loss by household income band and geographical area
  + Damage costs by household income band and geographical area
  + Impact on disposable income by household income band and geographical area
  + Groups as set out in the Equalities Act[[4]](#footnote-5).

This task is optional. We welcome suggestions on the best approach for this task and encourage bidders to consider it in the context of the work they complete from tasks 1-4 (i.e. would there be sufficient confidence in any aggregate estimates of costs and opportunities to feed into a macroeconomic model?).

# Outputs Required

The outputs of this work should include:

* **A report** setting out the scope of the work, assumptions, methodology, notes and findings for all tasks. There should be an explicit section on overarching reflections on the Monetary Valuation report for CCRA3 and where additional work may improve this analysis and address some of the gaps.
* **Table 1** in the report clearly labelled and formatting which covers, at a minimum: listing each methodology for valuing climate risks (with references to where this methodology has been adopted elsewhere) with their identified strengths and weaknesses under the different categories.
* **Table 2** in the report clearly labelled and formatting which covers, at a minimum: listing each methodology for appraising potential adaptation policy packages, a summary of potential methodologies (with references to where this methodology has been adopted elsewhere) with their identified strengths and weaknesses, and their link to the UK Government Green/Magenta Book.
* **A list** of all reports/papers used to produce the summary of methodologies.

Bids should clearly set out what outputs would be included.

Where Excel workbooks are used, these should be shared, fully unlocked, and linked to the rest of the Excel workbook sheets where applicable. The CCC should have full capability to update these workbooks.

Bidders will likely have to make use of pre-existing knowledge and / or contacts to deliver the outcomes above, and the CCC welcome this. However, all findings / methodologies used in this project should be made transparent and all findings should be provided in a publishable format. Any limitations on sharing (e.g. external to the CCCC) should be specified as part of the tender.

In addition to the above, we also expect interim deliverables to be required, including slide packs for the purposes of milestone and / or steering group meetings.

# 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.

# Quality Assurance

This project must comply with the ‘CCC – Quality Assurance of Evidence and Analysis’ guidance1 and bidders must set out their approach to quality assurance in their response to this ITT.

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

* Include a quality assurance (QA) plan that they will apply to all of the research tasks and modelling,
* 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, analysis or model development,
* 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),
* Allow for a meeting with CCC staff to run through QA performed.

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.

# Timetable

The proposed timetable for the project is set out in the following table. Ability to start work in early 2023 is highly desirable for this project.

|  |  |
| --- | --- |
| **Date** | **Action** |
| 30th Jan 2023 | Kick-off meeting |
| w/c 6th March 2023 | First interim presentation/report on progress |
| w/c 27th March 2023 | Proposed final report outline delivered for comment and a report on progress |
| By 28th April 2023 | Latest date for delivery of final report, analytical outputs and assumptions log |

In addition to the formal reporting points, the CCC would expect to have regular scheduled discussions (meetings or calls) to ensure the work is progressing as expected. It is expected a more detailed timeline would be proposed in bids documents and agreed with the CCC at the kick-off meeting.

We welcome alternative suggestions for a credible timeline for this project as part of the response to the ITT – under the constraint that a large fraction of the budget for this project must be spent this financial year (to end of March).

# Challenges

The specific challenges that the CCC envisage with this project include:

* Suggesting methodologies where a risk/opportunity has not previously been costed.
* Ensuring consistency across the methodologies as far as possible.
* Identifying the most up-to-date methodologies (even potentially ones in development).
* Suggesting hypothetical valuation methods for policy packages that have not yet been developed.

Bids should set out how these risks will be managed alongside any

other risks and challenges to successfully undertaking this work.

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.

# 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 £50,000 to £80,000 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 20 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 | 15% |
| 2 | MANAGING YOUR RELATIONSHIP WITH THE CCC | 10% |
| 3 | QUALITY ASSURING THE SERVICES YOU PROVIDE | 5% |
| 4 | MANAGEMENT STRUCTURE | 5% |
| 5 | PROJECT TEAM – SKILLS AND KNOWLEDGE | 25% |
| 6 | METHOD, ABILITY AND TECHNICAL CAPACITY – 10% | 25% |
| 7 | UNDERSTANDING OF REQUIREMENTS | 10% |
| 8 | RISK AND CHALLENGES | 5% |
|  |  | 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 12th January. 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. Infrastructure, Business, People and the Built Environment, Natural Environment. [↑](#footnote-ref-2)
2. Age, gender, spatial dimensions, race ethnicity, physical disabilities, education level, type of homeowner, sector, unemployment, income. [↑](#footnote-ref-3)
3. For example, a similar exercise to the Canadian Climate Institute’s recent Damage Control report. Available from: <https://climateinstitute.ca/wp-content/uploads/2022/09/Damage-Control_-EN_0927.pdf> [↑](#footnote-ref-4)
4. These are age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, and sexual orientation. [↑](#footnote-ref-5)