**Specification for identifying the impact of economic conditions and other factors on UK GHG emissions during the first and second carbon budget period**

Tender Reference Number: AS/0219

**Specification of Requirements**

Invitation to Tender for identifying the impact of economic conditions and other factors on UK GHG emissions during the first and second carbon budget period

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Deadline for Tender Responses: 12 noon on 25th February 2019

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# Introduction and summary of requirements

This research is being commissioned by the Committee on Climate Change[[1]](#footnote-1) (the CCC), which was set up as part of the 2008 UK Climate Change Act.[[2]](#footnote-2) It is an independent body tasked with providing advice to government and Parliament on climate change issues, particularly the setting of carbon budgets for the UK and monitoring of progress towards meeting them.

The aim of this research project is to assess the contributions of individual factors driving changes in greenhouse gas (GHG) emissions between 2008 and 2017. In particular, the assessment aims to understand the reasons for emissions being lower than expected at the time of setting the budgets, and below budget levels. This research will inform the CCC’s assessment in its 2019 annual report to Parliament of the UK’s performance in reducing emissions over the second carbon budget period.

# Background

The Climate Change Act sets legally-binding targets for the UK’s GHG emissions. It includes a 2050 target for at least an 80% reduction in emissions by 2050 compared to 1990 levels, and a series of five-yearly carbon budgets on track to the 2050 target.

The CCC has a statutory requirement to report annually to Parliament on the previous year’s GHG emissions and progress towards meeting the UK’s carbon budgets and GHG reduction targets.[[3]](#footnote-3) Following the end of a budget period, the CCC is required to report on how the budget has or has not been met,[[4]](#footnote-4) and to advise on whether any emissions savings exceeding the budget should be carried forwards to future periods.[[5]](#footnote-5)

The level of carbon budgets have been set by Government based on the CCC’s advice.[[6]](#footnote-6) The starting point is a series of reference emissions projections produced by Government, which include the effect of some of the policies already in place when producing our advice. The budgets are then based on a series of further emissions reductions, achievable through a set cost-effective measures as identified in the CCC’s emissions scenarios.

Analysis we have conducted for our annual Progress Reports over the years suggests that the impact on emissions reduction of new policy measures introduced by Government has been limited compared to changes in the underlying reference projections which were driven by other factors (e.g. due to economic activity being lower than expected).

In 2014, following the end of the first budget period (2008-2012), the CCC produced its assessment on the UK’s performance over the first carbon budget. Emissions were lower than originally anticipated in this period, and below budget levels.

To inform its assessment, in 2013 the Committee commissioned research to understand the contribution of individual factors to a higher than expected reduction in UK emissions.[[7]](#footnote-7) This analysis modelled a counterfactual trajectory for UK energy demand and GHG emissions based on the original 2008 assumptions for factors such as GDP and fossil fuel prices. It also considered other factors such as changes in the emissions inventory. It then compared this to a set of alternative trajectories, based on the latest outturn data for those factors.

Findings from this work fed into the CCC’s assessment of the first carbon budget period, which concluded that the outperformance was mainly due to economic conditions (i.e. the 2008 financial crisis and its aftermath) and other factors not related to government policy. This result informed CCC advice that the Government should not carry forward the surplus emissions to future periods.[[8]](#footnote-8) The Government followed this advice and did not carry forward the outperformance of the first carbon budget.[[9]](#footnote-9)

Emissions over the second budget period (2013-2017) have also been lower than projected in 2008, when the budget was recommended. As the budget has come to an end, the Committee now needs to make a detailed assessment of the UK’s performance over the second budget period to inform their 2019 Progress Report to Parliament.

# Aims and Objectives

The aim of this project is to assess the contributions of individual non-policy factors, such as economic conditions and weather, on emissions reduction between 2008 and 2017 (i.e. covering both the first and second carbon budget periods). To the extent possible, the project should also seek to provide insights on any issues related to the use of the Government’s energy and emissions projections (e.g. uncertainty related to modelling parameters) in advising on budget levels, and on how these issues can be dealt with in the future, drawing on the evaluation of budget outperformance over this period.

The results of this analysis will inform the Committee’s 2019 Progress Report assessment of how the second carbon budget has been met. By providing a detailed understanding of the reasons for the outperformance of the first and second carbon budget, this project could also inform its work on setting future carbon budgets, including the forthcoming advice on the sixth carbon budget in 2020.

# Methodology and Outputs Required

This section includes a description of the specific tasks for this project and requirements on the methodology to carry out those tasks. It also includes an indication of the relative importance of each task expressed as percentage share of the project. The tasks for this project are as follows:

* **Task 1 -** (60% share). Assess the contribution of individual factors to changes in UK energy demand and emissions for the period 2008-2017.
* **Task 2** - (20% share). Understand any modelling issues relating to the reference projections underpinning our 2008 advice and draw any lessons for future work**.**
* **Task 3 -** (20% share). Write a report explaining the research aims, methodology, key assumptions, and findings.

A detailed task description and requirements on the related methodology can be found below.

### Task 1: Assess the contribution of individual factors to changes in UK energy demand and emissions for the period 2008-2017.

This task should provide a detailed understanding of the key factors explaining the over-performance of the first and second carbon budget.

In assessing the contribution of individual emissions reduction drivers, the analysis should take into account the impacts of the following elements:

* **Conditions.** These are the potential non-policy factors that might have driven changes in energy demand and thus in GHG emissions (e.g. GDP, fossil fuel prices, weather) over the period 2008-17.
  + The CCC will provide assumptions on conditions underpinning their 2008 carbon budget advice, covering the period 2008-2017.
  + Actual levels of such conditions should be suggested by the consultants and agreed with the CCC.
* **Other factors:** are those which might have contributed to differences in emissions compared to our 2008 expectations (e.g. such as modelling changes in the GHG emissions inventory).
  + Consultants are invited to propose an approach to identify **non-policy** sources of error (e.g. modelling errors, changes in the emissions inventory), possibly on a sectoral basis.
* **Measures:** the inclusion of policy measures directed at reducing GHG emissions should be limited to those announced before 2008 (the CCC will provide assumptions on those policy measures). Policies announced and implemented after 2008 should not be modelled explicitly.

There are several possible approaches that the consultants may adopt to carry out this work:

1. Taking a similar approach to the 2013 analysis, the project could model a reference or **‘counterfactual’ trajectory** for UK energy demand and GHG emissions based on 2008 assumptions. The ‘counterfactual’ could then be compared to a set of alternative trajectories based on actual/historical values for the variables under consideration, in order to identify their impact.
2. An alternative approach could be to **directly estimate the impact of ‘conditions’** (as indicated above, e.g. GDP, fossil fuel prices and weather) on emissions, using estimated elasticities of energy demand and emissions to changes in those factors.
3. As an example, the analysis could look at whether there have been industry closures or a change in the number of kilometres driven and in the average size of cars, amongst others.
4. The approach should include an analysis of year-to-year changes to isolate the effect of each of these ‘conditions’ on energy demand each year.
5. In turn, energy demand elasticities could then be used to identify the impact of these changes on emissions over time.
6. Finally, consultants could propose an **alternative approach or a combination of approaches** to understand the reduction in emissions.
   * 1. For instance, they could propose to integrate different statistical approaches (e.g. decomposition analysis).
   1. The proposed approach should still enable a quantification of emissions drivers as per the proposed approaches a) and b) above.

In their bid consultants should propose a method and provide a justification for the chosen approach, alongside details on how the approach will be implemented.

As part of this task, the consultants should also agree with the CCC:

* The relevant conditions significantly affecting the level of UK energy GHG emissions, and establish the actual levels of these conditions for the years 2008-2017. Key **conditions** considered should include **GDP, fossil fuel prices and carbon prices,** amongst others.
* **Weather** should also be taken into account(e.g. byadjusting for changes in temperature over the period compared to the long-term average). This should to identify the extent to which the difference between observed temperatures and the temperatures assumed in 2008 contributed to unexpected changes in emissions, on a sector-by-sector basis.

The analysis should cover emissions from the non-traded sectors (i.e. sectors not covered by the EU ETS), as well as actual emissions in the power and industry sectors that are covered by the EU ETS.

**Task 1 Required Output**

Theexpectedoutput from Task 1includes a detailed analysis decomposing budget outperformance into its key components. This should be provided in spreadsheet form (e.g. as an Excel tool) and be supported by a number of charts. Possible charts include:

A waterfall chart for economy-wide, traded and non-traded sector emissions covering the first and second carbon budget period. This should show the impact of each key emissions driver on budget outperformance.

A set of time series/bar charts for each sector, and in aggregate, showing the change in emissions and energy demand disaggregated by key ‘condition’ (e.g. GDP/ weather) and where relevant by fuel. These should show the impact of each condition on emissions in explaining budget outperformance for each sector. Sectors should be aligned with the CCC’s sector categories.

Consultants should finalise the list of charts to produce in agreement with the CCC team. As the project progresses, consultants are expected to share interim results with the CCC team (e.g. by summarising results in a set of slides).

### Task 2: Understand any modelling issues relating to the reference projections underpinning our 2008 advice and draw any lessons for future work.

Building on the findings from Task 1, this task requires consultants to further analyse non-policy sources of error explaining the outperformance of the first and second carbon budget.

The analysis should focus on any modelling issues related to the use of energy and emissions projections underpinning our budget advice, seeking to draw insights that can be learned from this first decade and be applied to future work.[[10]](#footnote-10)

It should consider further sources of modelling uncertainty in the projections other than known parameters (i.e. the ‘conditions’ and other factors analysed in Task 1). These may include parameter uncertainty (i.e. structural long-term assumptions in the model) and upcoming policy and non-policy trends that were not reflected in the projections and which affected energy demand (e.g. higher switch to cleaner fuels than expected).

The analysis should seek to explain the impact of the above sources on the emissions reductions pathways in our advice, through their impact on the projected energy and emissions baseline and abatement levels.

In doing so, it should seek to identify the impact of **structural changes in the economy** when possible. This may include:

* Impacts of actual conditions that relate to physical measures (e.g. switch to more efficient vehicles) as opposed to impacts that reflect changes in demand more generally (e.g. if vehicles are driven less).
* Impacts of fuel and carbon prices when these have different effects through fuel switching and through investments.

**Task 2 Required Output**

The **analysis** for this task should identify key modelling issues related to the use of the government’s energy and emissions projections as described above. It should quantify their impact where possible and otherwise complement with qualitative analysis, as well as suggest possible options to manage related risks.

Findings should be shared with the CCC in spreadsheet form where relevant, to be supported by charts and slides as for Task 1 above.

Insights from the analysis should be used to draw **recommendations** for future work which may be relevant to our forthcoming advice on the level of the sixth carbon budget, to be reflected in the report (Task 3).

### Task 3: Write a report explaining the research aims, methodology, key assumptions and findings

Write a report explaining the research aims, methodology, key assumptions, and findings for Tasks 1-2, with a comprehensive analysis of any modelled trajectories, including:

* The outputs listed under Task 1 and 2;
* Any modelled trajectories for energy demand and emissions (e.g. based on actual economic conditions versus 2008 assumptions) should distinguish between the traded (ETS) and non-traded (non-ETS) sectors;
* A view and supporting data on which sectors (e.g. industry versus transport) of the economy were most sensitive to changes in identified key drivers, in terms of emissions and energy demand, and for which fuels;
* A view on which *conditions* had the biggest effects on emissions. This should be illustrated drawing on results from the analysis (e.g. with a discussion of elasticities).

**Task 3 required output**

A written report on setting out methodology and findings from Tasks 1 and 2 above, following the specific requirements outlined in the Tasks description above. The structure of the report should be agreed in advance with the CCC team.

# Quality Assurance

This project must comply with the ‘CCC – Quality Assurance of Evidence and Analysis’ guidance 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 in their response to this ITT that they will apply to all of the research tasks and modelling.
* Specify who will be responsible for quality assurance in their response to this ITT and ensure that this is done by individuals who were not directly involved in the research, analysis or model development.
* Provide QA log in the final report to demonstrate the QA undertaken, including who undertook the QA and the scope, type and level of QA that has been undertaken.

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 reserve 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, including the key deliverables and meetings, is set out in the table below.

The project will be overseen by the CCC Project Manager and where relevant by other CCC Senior Management. In addition to the milestone meetings set out below, the CCC expects to have regular scheduled discussions (weekly or fortnightly meetings or calls) with the contractor to ensure the work is progressing as expected.

Prior to each project meeting we will require the relevant items and outputs for discussion to be circulated in advance by consultants.

We will agree the specific deadlines as part of the kick-off meeting.

|  |  |
| --- | --- |
| **Date (2019)** | **Actions** |
| 6 February | Publication of ITT |
| 12 noon 25  February | Deadline for response to ITT |
| 25 February - 8 March | Interviews, award contract and kick-off meeting (to agree project plan and methodology) |
| 29 March | Deliverable: interim results |
| Week c/ 1 April | First meeting: interim results |
| 29 April | Deliverable: final results & draft report |
| Week c/ 6 May | Second meeting: final results and draft report |
| 17 May | Contract ends. Deliverable: final report addressing comments by the CCC and supporting spreadsheets |

# Challenges

Tenderers should highlight any challenges or risks that they envisage in delivering all the outputs of the project, whether in terms of scope of the work, resources or timelines. Alternative suggestions will be considered if the risks are such that the project is unlikely to be able to be delivered in its current form.

# 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 available for this project is a maximum of £40,000 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.

Payments will be linked to the delivery of finalised versions of the key deliverables outlined in the table in the above section (i.e. output from Tasks 1-3). Deliverables will not be considered finalised until agreed with the CCC Project Manager. 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 30 pages, excluding declarations. 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** | 5% |
| 3 | **QUALITY ASSURING THE SERVICES YOU PROVIDE** | 10% |
| 4 | **MANAGEMENT STRUCTURE** | 5% |
| 5 | **PROJECT TEAM – SKILLS AND KNOWLEDGE** | 10% |
| 6 | **METHOD, ABILITY AND TECHNICAL CAPACITY** | 35% |
| 7 | **UNDERSTANDING OF REQUIREMENTS** | 15% |
| 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 |

**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 week commencing on 25th February 2019. 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. https://www.theccc.org.uk/ [↑](#footnote-ref-1)
2. <https://www.legislation.gov.uk/ukpga/2008/27/contents> [↑](#footnote-ref-2)
3. As per Section 16 of the Act: ‘Annual statement of UK emissions’ [↑](#footnote-ref-3)
4. As per Section 18 of the Act: ‘Final statement for budgetary period’ [↑](#footnote-ref-4)
5. As per Section 17 of the Act: ‘Powers to carry amounts from one budgetary period to another’, Paragraph 4.b [↑](#footnote-ref-5)
6. This was published in 2008 for the first three carbon budgets: <https://www.theccc.org.uk/publication/building-a-low-carbon-economy-the-uks-contribution-to-tackling-climate-change-2/> [↑](#footnote-ref-6)
7. Available at <https://www.theccc.org.uk/wp-content/uploads/2014/04/The-impact-of-conditions-on-the-first-UK-carbon-budget-Final.pdf> [↑](#footnote-ref-7)
8. Available at: <https://www.theccc.org.uk/wp-content/uploads/2014/04/20140414-CCC-advice.pdf> [↑](#footnote-ref-8)
9. Available at: <https://www.theccc.org.uk/wp-content/uploads/2015/03/150310-SoS-to-Deben-re-carbon-budgets.pdf> [↑](#footnote-ref-9)
10. See previous work carried out for the CCC by Cambridge Econometrics: <https://www.theccc.org.uk/wp-content/uploads/2015/12/Quantifying-Uncertainty-over-Baseline-Emissions-Projections.pdf> [↑](#footnote-ref-10)