**Specification for “Tracking progress in non-residential buildings decarbonisation”**

Tender Reference Number: BN/0422

**Specification of Requirements**

Invitation to Tender for **Tracking progress in non-residential buildings decarbonisation**

Tender Reference Number: BN/0422

Deadline for Tender Responses: 11pm 28th February 2022

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# Introduction and summary of requirements / Preamble

The [Climate Change Committee (CCC)](https://www.theccc.org.uk/carbon-offsets-call-for-evidence/) is an independent, statutory body established under the Climate Change Act 2008. Our purpose is to advise the UK and devolved governments on emissions targets and to report to Parliament on progress made in reducing greenhouse gas emissions and preparing for and adapting to the impacts of climate change.

# Background

Every summer, the CCC publishes the UK Progress Report, assessing UK progress towards Net Zero. For each key sector, we publish a set of indicators to monitor progress. We are currently refreshing our progress monitoring framework, including our indicators for buildings.

In recent years, CCC’s indicators for buildings have focussed on residential buildings. Residential buildings comprise a more significant component of buildings emissions, and data is more readily available to track progress. Given the heterogeneous stock of non-residential buildings, indicators counting roll-out of low carbon heating technologies or insulation measures are less robust than for residential buildings.

Despite these challenges, the CCC plans to develop indicator(s) on non-residential building decarbonisation for the 2022 Progress Report. CCC typically divides non-residential buildings into public and commercial buildings, mirroring classifications in datasets such as [DUKES](https://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes).

The main areas of progress we would like to track are:

* Energy demand reduction due to energy efficiency and behaviour change measures
* Shifts towards a reliance on low-carbon heating for space and water heating in non-domestic buildings

Given the heterogeneous nature of non-residential buildings, in particular their varying size, we have assessed that tracking energy intensity (kWh/m2) would be a useful indicator of progress in energy efficiency measures in non-residential buildings.

Our internal scoping has identified the [ND-NEED dataset](https://www.gov.uk/government/collections/non-domestic-national-energy-efficiency-data-framework-nd-need) as a potential new source of data for an energy intensity indicator. The ND-NEED dataset will be published annually and includes the gas and electricity energy intensity (kWh/m2/year) of non-domestic buildings, broken down into building types (education, health etc). Gas energy intensity is a promising metric for tracking the impact of energy efficiency measures as it addresses the different sizes of non-domestic buildings by taking into account floorspace.

However, the total gas consumption recorded in ND-NEED differs significantly from the total gas consumption in CCC Sixth Carbon Budget (6CB) modelling, even when factories (which aren’t considered within buildings in the 6CB modelling) are removed. This makes it challenging to develop milestones for energy intensity based on ND-NEED data. Unless this difference can be addressed, we will need to identify a different indicator source, or take an alternative approach to setting annual milestones for energy intensity (e.g. - have milestones tracking the % change in energy intensity, or only track certain building types which match up with CCC modelling).

# Aims and Objectives

The key aims of this project will be to help the CCC to decide how to construct an indicator on energy intensity for non-domestic buildings.

Specifically we envisage this involving **focussing on one of the two following research questions:** (A) assessing the possible data sources/approaches for constructing and tracking an energy intensity indicator, and advising on the best available approach for the CCC (B) assessing the causes for the difference in total gas consumption in ND-NEED and 6CB and advising on implications for construction of an indicator using ND-NEED data.

We only require suppliers to address one of the two tasks, as we recognise:

* a supplier may assess it is unlikely to be possible to align baseline energy demand between ND-NEED and 6CB, and so focusses solely on Task A
* a supplier may consider there is a better indicator that can be constructed without using ND-NEED data, and so focus solely on Task A

Our **suggested approach** for these two tasks is set out below.

We welcome bids from suppliers with an alternative approach to answering either of the two tasks, including where:

* a supplier has identified a methodology for Task A or Task B which is robust and swifter (given the tight timelines for this work) than what we have outlined below
* a supplier focussing on Task B focusses on only a few of the particular causes of the different energy consumption baselines listed below
1. **Advise on an approach the CCC can take to setting milestones for, and tracking energy efficiency roll-out in non-residential buildings**
* CCC indicators are typically made up of two components: the ‘milestones’ (annual figures which would be reached if progress was on track) and the ‘out-turn’ (annual measurement of actual performance/progress, which is compared against the milestone).
* The work should include:
	+ A justified decision to focus on specific source(s) of data for the indicator (possibly based on a mapping of existing public and private data sources)
	+ An assessment of the robustness of the chosen source(s), including the key assumptions that need to be made for the source to be used to track non-residential building energy intensity/energy efficiency roll-out
	+ An outline of how the data/source would be tracked/collected annually to measure out-turn
	+ An outline of how data and Sixth Carbon Budget data could be drawn on to construct a set of milestone/expected pathway for the indicator. If possible, this construction should be carried out by the supplier.
	+ An outline of any methodologies/data cleaning etc that will need to be taken each year in order to track the out-turn/progress against the milestone
* Given the limitations of comprehensive data on non-residential buildings decarbonisation, the recommended approach may involve drawing on proxy indicators, small datasets or qualitative data
* Ideally this indicator would focus on energy intensity, but given limited data we are open to alternative proposals to tracking energy efficiency
1. **(i) Clarify and quantify the drivers of differences between ND-NEED and 6CB baseline energy demand and energy intensity**
2. Drawing on the list below, list the main possible causes for the difference between ND-NEED and 6CB gas and electricity consumption, overall, and for specific building types.
3. For each possible cause, assess the significance in driving the differences in baselines.
4. For each possible cause, assess whether this is likely to overinflate or underinflate (1) total gas consumption (2) total gas consumption minus factories (3) total gas intensity minus factories (4) if possible, gas intensity for each building type (public/commercial buildings at a minimum).
5. For some causes, it may be possible to estimate the size (in a range) of impact on non-domestic gas demand found in ND-NEED as compared to reality/Sixth Carbon Budget. Attach a level of uncertainty to this estimation.

Some of the possible causes considered are listed below:

1. In ND-NEED, buildings that are missing floorspace data in the VOA data are removed. If certain types of buildings (eg – ones with lower energy consumption/intensity) are likely to fall in this category, this could skew the data.
2. In ND-NEED, buildings that are considered unreliable in their floorspace data, due to not being used for business rates have their floorspace removed from the ND-NEED dataset. If certain types of buildings (eg – ones with lower energy consumption/intensity) are likely to fall in this category, this could skew the data.
3. In ND-NEED, a proportion of the 47,000 Unique Property Reference Numbers (UPRNs) that contain multiple Unique Address Reference Numbers (UARNs) may be labelled based on the largest UARN in their grouping, thus being mislabelled. (This would affect total consumption when compared to 6CB if it miscounted factory consumption, as this is removed from the ND-NEED data before being compared to 6CB).
4. The 6CB non-domestic energy baseline may be under-estimating non-domestic gas consumption due to drawing on models with different/incorrect assumptions compared to ND-NEED.
5. In ND-NEED, the weighting approach is not applied to energy intensity (instead it is applied to buildings and energy separately), which may mean certain energy intensities are over/under-represented when the sample is scaled.
6. In ND-NEED, taking data from meter readings and assigning one building type ‘label’ risks attributing all of the gas consumption to one building type, when in fact there are several building types using the meter. In particular, this might explain data differences if energy used from industrial processes is not being separated from the operation of buildings, as then energy that should be labelled as ‘factory’ may be captured under another label.
7. In ND-NEED, BEIS estimate that about 5% of the energy consumption data and UPRN data matches that take place are incorrect. This would mean certain buildings have incorrect energy consumption associated with them. If this is more likely to happen for a certain type of building, then this mismatching could skew the energy consumption across building types, and so skew total consumption when factories are removed.
8. In ND-NEED, the ‘population’ for gas meter consumption only include gas meters under 73,000 kWh per year that are captured in the ND-NEED sample. This may be leaving out a significant number of low non-domestic gas consumption. This would skew median energy intensity to be high, and mean lower energy intensity buildings in the sample are not scaled up enough.
9. In ND-NEED, there is exclusion of buildings due to not being included in VOA data (agricultural buildings etc).
10. Electricity generated on-site is not included in ND-NEED.

**B. (ii) Advise on options for aligning 6CB energy consumption projections with ND-NEED, so that an indicator for energy intensity can be constructed and tracked**

* This may involve recommending specific adjustments to 6CB/ND-NEED data due to the most significant causes of differences identified from Task 1, or it may be a high-level adjusting up or down one of 6CB/ND-NEED based on (ii) and (iii), or simply taking the change in consumption projected by the 6CB and seeing if this is achieved in ND-NEED data
* This may involve advising against using the ND-NEED dataset for an indicator
* This may involve advising an adjustment to CCC modelling assumptions about buildings baseline gas/electricity consumption

# Methodology

The tasks should be approached through a quantitative analysis of existing datasets and methodology notes on non-residential building energy consumption, supplemented by interviews with relevant dataset authors where relevant. Suppliers may draw on their own existing knowledge/data to inform their analysis. Bids should set out in more detail how suppliers would approach the Tasks.

The CCC will provide a workbook with our initial analysis comparing ND-NEED and 6CB non-residential data, which the supplier can use as a starting point if helpful.

The 6CB includes expected total gas and electricity consumption, broken down by usage and public/commercial buildings. This can be used as an input for calculating the milestones for energy intensity.

For Task B it should be noted that while the main findings/summary data from ND-NEED are published online, the full raw dataset is not.

# Outputs Required

The main outputs of this work will vary depending on if the supplier chooses to focus on Task A or Task B:

Task A:

1. A short, written document setting out key resulting advice, methodology for collecting/cleaning the data, and for constructing milestones based on the Sixth Carbon Budget pathway.
2. An Excel workbook clearly showing the key indicators, the calculations that lie behind them, and the calculations which underpin the advice/assessment of the indicator. It should be fully unlocked, allowing future capability to update assumptions. It should be clearly set out and formatted, maximising ease of future use and reference for users not directly involved in the work.

Task B:

1. A written summary of the assessment of each possible driver. As an example, this might be summarised in a table like the one below, which sets out each possible explanation which could account for the differences between 6CB and ND-NEED consumption data, the potential range of impact this would have on differences in the data, the certainty level, and a recommendation, where relevant, for what this means for using ND-NEED as an indicator.

Example table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Possible reason for the difference between ND-NEED and 6CB** | **Potential range of impact** | **Central value of impact**  | **Certainty**  | **Implication for indicator construction/6CB baseline** |
| A | -13TWh --- + 45TwH | 5 TwH | Medium |  |
| …. |  |  |  |  |
| E |  |  |  |  |

1. An Excel workbook clearly showing the key analysis that underpins the advice. It should be fully unlocked, allowing future capability to update assumptions. It should be clearly set out and formatted, maximising ease of future use and reference for users not directly involved in the work.

**For either Task:** In addition to the above, we also expect interim deliverables to be provided – in particular a draft set of findings about halfway through the project. See section 8 for specific dates.

# Ownership and Publication

The key deliverables will be handed over to the CCC. We anticipate we will use the findings to inform indicators used in our future Progress Reports, and may wish to publish spreadsheets provided.

# Quality Assurance

This project must comply with the ‘CCC – Quality Assurance of Evidence and Analysis’ guidance[[1]](#footnote-1) 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. There is flexibility on the specific days, but the ultimate deadline for the final outputs is mid-March, with a maximum of activity costing £5000 applicable in April (with the rest needing to take place in March).

|  |  |
| --- | --- |
| **Date** | **Action** |
| Wed 2nd March/Thurs 3rd March | Kick-off meeting |
| Mid-March | First interim presentation/draft Excel with initial data findings |
| End of March | Share near-final Excel/written output for CCC review |
| Early April | Delivery of final outputs |

# Challenges

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

* Task A: identifying a useful source of data for an indicator, despite limited data which covers the whole building stock
* Task B: No access to the raw ND-NEED data
* Task B: Quantifying the potential drivers of energy consumption baseline differences accurately

Bids should set out how these risks will be managed alongside any other risks and challenges to successfully undertaking this work.

# 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 £10,000 to £40,000 excluding VAT.

A maximum of £5,000 of costs can be applicable to activity in April (with the rest of the costs needing to apply to activity in March).

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 (5 – suggested 35 pages) 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 | 5% |
| 3 | QUALITY ASSURING THE SERVICES YOU PROVIDE | 10% |
| 4 | PROJECT TEAM – SKILLS AND KNOWLEDGE | 20% |
| 5 | METHODOLOGY/APPROACH  | 50% |
|  |  | 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) | £15,000 | 20 |
| 2 | £20,000 | 15/20 \* 20 = 15 |
| 3 | £25,000 | 15/25 \* 20 = 12 |

**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 28 February. 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. [Quality Assurance (QA) of Evidence and Analysis (theccc.org.uk)](https://www.theccc.org.uk/wp-content/uploads/2020/04/CCC-%E2%80%93-Quality-Assurance-of-Evidence-and-Analysis.pdf) [↑](#footnote-ref-1)