Expanding Scottish Energy Data – Methodological Development

1.   Introduction

On behalf of the Scottish Government, ClimateXChange wishes to commission research that will enable a more detailed understanding of several aspects of Scottish energy data.

2.   The need for this research

The Scottish Government has committed to achieving net-zero emissions by 2045, and has a separate target to reduce emissions by 75% by 2030. Achieving these targets will require a wholesale change to Scotland's energy system. The Scottish Government has set ambitious targets for Scotland's energy future; in the Energy Strategy, there is a target for the equivalent of 50% of the energy for Scotland's electricity, heat and transport consumption to come from renewable sources by 2030. Having access to high quality reliable energy data is critical in providing an evidence base to inform decisions associated with the development and implementation of energy policy and track progress.

In assessing the data availability for Scotland, the Scottish Government has identified a number of areas where the development of new, or improved, methodologies or approaches would provide a stronger evidence base.

3.   Project aims and scope

Drawing on analytical expertise the project seeks to derive:

1) A methodology that can be applied to estimate an annual time series of electricity use for heating and for non-heating purposes for electrically heated properties. This would be at an individual building level, or comprise a methodology that could be extrapolated to an individual building level based on building type. This methodology should be applied to data that Scottish Government has available to demonstrate its use.

2) A methodology to estimate an annual time series electricity use of heat pumps. Again, this should be able to be extrapolated to an individual building level depending on heat pump and building type, and the methodology should be applied to available Scottish Government data as an example of its use.

3) An annual time series of low carbon transport energy use in Scotland, separating out electricity consumption of electric vehicles (EVs), electrified rail, hydrogen and electric buses and biofuels used in transport across Scotland as a whole.

4) A suitable method to weather correct heat demand for non-gas heated buildings in Scotland. This should be applied to available Scottish Government data as an example of its use.

5) A time series of annual heat end use for various fuels and sectors in Scotland (coal, manufactured fuels, petroleum products, gas, electricity, bioenergy and wastes across the industrial, commercial and domestic sectors), and an estimate of space heating, water heating and cooking in domestic buildings, and process heating and drying in non-domestic buildings. This may take the form of the BEIS Energy Consumption in the UK analysis, table U2 here.

6) Scottish specific emissions factors for different heating fuels and sectors (as above) in order to assist in calculating the carbon intensity of heat.

We are seeking responses that address all the research questions posed and welcome consortium bids in order to do this.

4.   Methodology

Proposals should set out a clear methodology that will address each research question and derive appropriate Scottish data. Proposals should highlight particular limitations or assumptions associated with the proposed methodologies.

Building level data and building archetypes data is available from Scottish Government if this is helpful to derive estimations.

5.   Audience

The work is commissioned on behalf of the Scottish Government, and of particular interest to colleagues in the Office of the Chief Economic Advisor and Energy and Climate Change Directorate.

The results must be presented in a format and language that can be easily understood by readers without an academic background. Written outputs must be well presented and written in Plain English and follow the CXC house style.

6.   Outputs

We expect the outputs to include:

a) an executive summary of no more than two pages, detailing the key findings, the aim of the project and the value to a policy audience; and

b) a full report of the project, of no more than 25 pages to include:

i) A narrative that outlines the approach taken to deriving a response to each of the research questions, any key limitations or assumptions associated with each of these and, where appropriate, how the methodologies can be applied to building level data.

ii) Annexes providing any further detail on the methodologies used and underlying assumptions

iv) References

iv) A glossary if needed.

c) An Excel workbook that includes relevant datasets and data tables where appropriate.

The ownership of the research material including the final report and any data produced as a result of the research lies with ClimateXChange on behalf of Scottish Ministers. The research may be published on the ClimateXChange website, the date and format of which will be determined by the Scottish Government and ClimateXChange. One or more drafts are likely to be required before a final version is agreed.

7.   Project governance

A small steering group will be established to support delivery of the project. It will include representatives from Scottish Government, ClimateXChange, and the project team. External members will be considered depending on the methodology/approach.

The lead contact for ClimateXChange will be the CXC Programme Manager, who will liaise with the contractor. Regular update calls will be scheduled fortnightly between the principal investigator and the CXC Programme Manager to discuss progress and address any issues, escalating to steering group for consideration where necessary.

8.   Project timetable

Milestone	Completed by
Project kick-off meeting, to agree • Terms of reference • Scope • Boundaries • Timeframe	W/beginning 12th October
Report on progress (Principal investigator and CXC Project Manager)	Fortnightly
Steering group meeting (incl presentation of interim findings to client)	W/beginning 16th November
Submission of draft report	W/beginning 30 November 2020
Submission of final report	18th December 2020

9.   Award criteria

Price   20%

Quality   80%

Quality Criteria	Descriptor	Weight
Understanding the research	The proposal should include an introduction which demonstrates a clear understanding of the research requirements. This should include an	15%

Quality Criteria	Descriptor	Weight
specification and the policy environment	understanding of the policy environment and the supporting role of research; the need for this research; the research aim; and how the proposal will address this need.	
Research methodology	The proposal should demonstrate a high quality and workable research methodology which will address each research objective and produce the outputs in the timescales required. It should explain the suitability, robustness and limitations of the proposed methodologies.	25%

Project management and staff resource	The proposal should
	
	• Include a clear project plan, that captures the key steps required to deliver the desired output within scope and to time; this should include reference – where relevant – to mechanisms for compliance with regulations (e.g. GDPR)
	
	• provide details of individual staff members who will work on this project and demonstrate how they will meet the project requirements, specifically:
	
	    - general research experience and expertise;
	
	    - specific analytical experience & expertise in this area;
	
	    - experience and expertise in inter-disciplinary team-working
	
	• provide a commitment that named staff members will be available to work on the contract if the bid is successful.
	
	• set out the management arrangements for the project.
		15%

Communication and report writing	The proposal should describe the approach to writing the report, which will be published on the ClimateXChange website. It should detail who will take lead responsibility for report-writing and overall report quality. It should provide examples of previously published analysis or evidence reviews in which they have been involved.	10%
Quality control and assurance	The proposal should provide details of quality assurance procedures to demonstrate how the contract will be continuously delivered to a high standard. It should specifically address issues of quality control at different stages of the project, including evidence gathering, analysis and report writing. It should include a timetable for delivery of tasks, project milestones and allocation of staff and staff time against each task, covering the duration of the contract.	10%
Risk	The proposal should provide a risk assessment matrix detailing any risks identified in relation to the delivery of this contract, and proposed mitigation measures to minimise their probability and impact. This must include risks and impacts due to COVID-19 crisis.	5%

10. Submitting a proposal

Please send a brief work plan (no more than eight pages excluding CVs) responding to the award criteria above and with deadlines, CVs for the proposed delivery team, applicable day rates, relevant research experience, examples of previous work and the number of person days' work proposed.

You should highlight any potential conflicts of interest in your proposal.

Proposals need to be submitted to lee.callaghan@ed.ac.uk and cc'd to Dan.Barlow@ed.ac.uk for evaluation by **noon on 5th October**. We expect to contact the successful bidder by 10th October.

The costs of proposals for this project are expected to be between £30,000 and £35,000 (including VAT). However, ClimateXChange would welcome proposals for less than this amount. We welcome consortium bids.

Depending on the quality of proposals received, CXC may chose not to appoint any contractor.

CXC Secretariat

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Scotland's centre of expertise connecting climate change research and policy

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