Invitation to Quote

Research Specification for a Landscaping Study into Smart Energy Technologies Available to deliver Scotland's Energy Efficiency Programme

Introduction

ClimateXChange wishes to commission landscaping studies of technologies that can support delivery of Scotland's Energy Efficiency Programme (SEEP). This landscaping study, on smart energy technologies, is one of three being commissioned simultaneously by ClimateXChange; the other focus on energy efficiency (retrofit solutions to buildings) and heat generation.

Together, the three studies will consider technologies against a suite of criteria including Technology Readiness Level (TRL), cost-effectiveness, carbon reduction, economic benefit etc.

The studies will support the work of the Scottish Government's SEEP policy team. In particular, they will inform the SEEP workstream on research and development (R&D). The study reports will be written for a policy audience.

Background

The Scottish Government's Programme for Government "A Plan for Scotland – The Government's Programme for Scotland 2016-17" announced that the new Scotland's Energy Efficiency Programme (SEEP) will commence in 2018 with substantial annual public funding coupled with new powers for the Scottish Parliament over the regulated energy suppliers. SEEP will be a coordinated programme to improve the energy efficiency of homes and buildings in the commercial, public and industrial sectors.

SEEP delivers the Scottish Government's commitment to make energy efficiency a national infrastructure priority, boosting energy efficiency investment in Scotland and decarbonising heat provision over the long term.

SEEP includes:
> • measures to make homes and places of work warmer, promoting more affordable energy for consumers, helping to tackle poverty and improve the competitiveness of the Scottish economy;
> • the opportunity to create a substantial Scottish market and supply chain for energy efficiency services and technologies, with an estimated 4,000 jobs per annum across Scotland, including in remote areas, based on the estimated overall investment of up to £10 billion;
> • measurable health and early years improvements through people living in warmer homes;

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• regeneration of communities through upgraded building stock;
• substantially reduced greenhouse gas emissions contributing to meeting our ambitious climate change targets.

The SEEP research and development workstream is exploring the role of R&D in providing the energy efficiency and heat solutions required to deliver the SEEP's vision, and is looking in particular at:

- New materials and approaches

- Viability of technologies

- Assessment methodologies and measurement

The workstream is also seeking to characterise any relationships between these aspects and to provide recommendations on possible approaches for the 15-20 year timeframe of SEEP.

Project Aim

The three landscaping studies described above are intended to provide the research and development workstream with an understanding of what the short-term technological options are for the SEEP. Ultimately, this will help steer the technological direction of SEEP as a long-term programme of investment.

A Phase 2 of this project may be commissioned separaltely. If commissioned, this will look further ahead and consider longer term options for emerging technologies.

Project Scope

This landscaping study will review the near-term technological options for delivery of smart energy solutions in the commercial, public, industrial and domestic sectors.

As noted above, due to the broad reach of SEEP, this landscaping study is one of three being commissioned by ClimateXChange; the others focus on heat generation and energy efficiency (retrofit solutions to buildings). Proposals are invited for conducting a landscaping study on smart energy solutions in response to this Invitation to Quote. Separate proposals are welcome in response to the two other Invitations to Quote issued by ClimateXChange, which can be found here.

Research objectives

This study will provide a comparative review of 'ready' (Technology Readiness Level - TRL level 8 or 9) smart energy technologies available, against a set of criteria to be agreed with the project steering group (see below). From an initial review, we have identified the following criteria as

likely to be important, but we would expect proposals to elaborate on these as necessary and to demonstrate a clear understanding of the key characteristics of smart energy technologies that are likely to require comparative review:

- **Technological readiness**

- **Likely impact on skills and capacity** (What existing skills and infrastructure (training) could be built upon? Are there any local, geographical or national implications? Are there industry (skills) standards that would apply? If there are barriers, what would help overcome these?).

- **Affordability and economic viability** (What are the capital costs, running costs and savings vs current alternatives? What is the view on investment risk and which investment models (if any) might be most suited to rolling out a particular technology? New technology is generally seen as high risk by investors so the study should consider where the technology is already in use and draw out any information on how it is funded.)

- **Applicability** (Issues of scale, any potential locational issues such as how climate may affect efficiency, any health and wellbeing considerations – e.g. noise, emissions, space requirements.)

- **User friendliness/practicality**

- **Reliability**

- **Efficiency**

- **Low carbon credentials** (Including considering any issues such as life cycle emissions that may impact upon total carbon savings.)

- **Disruption during installation** (And if so what would be the solutions?)

- **Compatibility with regulation**

- **Compatibility with assessment methodologies**

- **Potential for cost reduction (economies of scale) with roll out**

- **Scottish content (including resources – eg. timber) and expertise**

- **Potential for future development/improvements, and any views as to their potential success**

Outputs

This project is commissioned on behalf of the Scottish Government and presentation of the results should be in a form suitable for use by policy specialists who are not expert in this scientific field.

The output will be a short report written in plain English and following the CXC style guide that presents findings against the criteria agreed with the project steering group (likely to be along the lines of the list above). The report should consist of an executive summary of no more than three pages and a narrative that includes a summary table up-front, presenting overall findings from the comparative review. Technical detail should be contained in an annex.

Project Management

A small steering group will be established to support delivery of the project and will include representatives from Scottish Government, Scottish Enterprise, ClimateXChange and the project team. The lead contact for ClimateXChange will be Ciara O'Connor, who will liaise regularly with the Principal Investigator.

Note – regular update calls to be scheduled fortnightly between the principal investigator and the CXC project manager (Ciara O'Connor) to discuss progress, address any issues, escalating to steering group for consideration where necessary.

As one of three studies ebing commissioned in parallel, the report from this study will ultimately be integrated with those from the other two studies. ClimateXChange will produce a synthesis report covering all three studies and the report from this study should be written with this in mind. ClimateXChange may wish to convene a meeting of all three study teams in order to agree a consistent reporting framework that will make the task of synthesising findings easier. Your proposal should include costs for attending this meeting prior to the drafting of the study report.

Project Timetable

Milestone	Completed by (2016)
Project kick-off meeting, to agree • Overall approach • Resolution of any outstanding questions/ exceptions • Agree suite of criteria against which technologies will be reviewed • Roles of steering group members in supporting the contractor	Early February 2017
Submission of draft report	Mid-April 2017
Steering group meeting (incl. presentation of findings), and comments on draft	End April 2017
Submission of final report	May 2017

Submission of proposals

Please send CVs for the proposed team, applicable day rates, a brief outline of the approach you propose, relevant research experience and the number of person-days' work proposed.

Tenders will be judged on the basis of the following award criteria.

Award Criteria

Tenders will be judged on the basis of the following award criteria.

Price		20%
Quality		**80%**
	1. State the team members' names and their role in the team for this project.	Not scored
	2. Understanding of the scoping study specification and the policy environment. • The proposal should include an introduction which demonstrates a clear understanding of the research requirements, including an understanding of the policy environment and the supporting role of this research; the need for this research; the research aim; and how the proposal will address this aim.	12.5
	3. Methodology for selecting assessment criteria. • Outline the approach the proposed team will take to suggesting/selecting criteria against which 'ready' technologies will be assessed for comparative review.	25
	4. Methodology for identifying and reviewing smart energy technologies • Demonstrate the proposed team's technical understanding of 'ready' smart energy technologies; present the methodological approach to identifying 'ready' smart energy technologies; outline the approach to assessing these technologies for comparative review; demonstrate the team's technical and research expertise in applying such methodologies/approaches.	30
	5. Analysis of data and reporting • Demonstrate the proposed team's capability in analysing the characteristics of smart energy technologies. • Present proposed quality control arrangements and demonstrate experience of writing reports for a non-specialist audience.	10
	6. Risk • Present a risk assessment matrix detailing any risks identified in relation to the delivery of this project, and proposed mitigation measures to minimise their probability and impact, focused particularly on risk to completion on time.	2.5

Submitting a proposal

Please send a brief proposal and work plan responding to the award criteria above and with

deadlines, CVs for the proposed delivery team, applicable day rates, relevant research experience and the number of person days' work proposed.

Proposals need to be submitted to lee.callaghan@ed.ac.uk and cc'd to Ciara.o'connor@ed.ac.uk for evaluation **by noon on 27 January 2017.** We aim to notify the successful bidder by 31 January in order for work to commence ASAP in 2017. Please contact Ciara O'Connor on Ciara.o'connor@ed.ac.uk /0131 6514645 if you would like clarification of any of the above.

Proposals are expected to be in the range of £20,000 (including VAT). However, ClimateXChange would welcome proposals for less than this amount.

You should highlight any potential conflicts of interest in your proposal. For queries about what may constitute a potential conflict of interest, please contact Ciara.o'connor@ed.ac.uk.

CXC Secretariat
10 January 2017