

PROJECT SPECIFICATION

COMPARATIVE ANALYSIS OF NITROGEN ACCOUNTING MODELS WITH PARTICULAR REFERENCE TO AGRICULTURE

What do we want?

[ClimateXChange](#)¹ wishes to commission a comparative analysis of existing input-output models for the accounting of nitrogen in the atmosphere. We want to understand how different approaches compare in terms of their strengths and weaknesses and their relative potential for application to Scottish farm businesses.

Why do we want it?

The Climate Change Plan sets a target outcome that “emissions from nitrogen fertiliser will have fallen through a combination of improved understanding, efficient application and improved soil condition. The second policy identified to help deliver this outcome gives a commitment to work with the agriculture and science sectors regarding the feasibility and development of a SMART (specific, measurable, achievable, relevant and time bound) target for reducing Scotland’s emissions from nitrogen fertiliser.” (2018, 198).

This research is being commissioned to explore how a nitrogen budgeting approach might support delivery of emissions reductions in practice, including the nature of the available data, the underlying assumptions and the potential accounting boundaries that might be set. It will also consider the practical potential for application for farm business in Scotland.

Background

The Scottish Government have set statutory targets for the reduction of GHG emissions in Scotland through [the Climate Change \(Scotland\) Act 2009](#). Planning for how these targets will be met are produced periodically, with the most recent report on proposals and policies being published in the [Climate Change Plan](#) in February 2018.

The 2009 Act requires the publication and regular revision of a Land Use Strategy to deliver a more strategic and integrated approach to land use in Scotland. The [second strategy](#) was published in March 2016, and reaffirms the Scottish Government’s commitment to an ecosystems approach to natural resource management.

¹ For more information on ClimateXChange, the Scottish Government-funded Centre of Expertise on Climate Change, see www.climatexchange.org.uk

Agriculture contributes just under one-quarter of Scotland's greenhouse gas emissions (GHG) and is the second-largest emitting sector behind energy and transport.

Project Aim

To review the existing input-output models for N (e.g. UN, Sutton, and others), and carry out a comparative analysis. This should examine strengths and weaknesses, identifying gaps and explore what might be required to bring each model to a point where it can provide a useful tool for managing the reduction of nitrogen emissions in Scottish agriculture, either on farm, or at a national level.

Project Scope

The research will examine existing input-output models for nitrogen, and address for each:

1. its potential application to Scottish agriculture, including
 - a. identification of available data,
 - b. data gaps, and
 - c. strengths and weaknesses
 - d. underlying assumptions
 - e. issues/challenges at a Scotland-scale,
2. this will include a SWOT analysis of practical potential, presented in table form, and with concise analytical narrative
3. suggest the practical potential for a pilot scheme (i.e. what action would be required to trial an approach, over what time period)

Outputs

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

The outputs will comprise:

- 1) A project report, written in plain English and following the CXC house style². It should comprise:
 - 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
 - b) a full report of the project, to include:
 - i) a narrative discussion of the comparative analysis, discussing strengths and weaknesses, and the strategic feasibility of deploying input-output tools
 - ii) a SWOT analysis, summarised in a table, and with concise analytical narrative
 - iii) any recommended actions (illustrated with an outline timeframe) for development of a pilot phase, and an assessment of its feasibility
 - iv) conclusions on practical feasibility for the reduction of GHG emissions in agriculture

² http://www.climatexchange.org.uk/files/6214/6539/3614/CXC_report_writing_guide_2016_v2.docx.pdf

- v) Appendices to include
- (1) methodology
 - (2) details for each of the models studied, including origin, date, purpose, supporting data, strengths and weaknesses
 - (3) and any references, if appropriate

Project steering group

A small group, likely to include leading researchers, ClimateXChange representatives and other stakeholder representatives, will meet with the successful bidder for project kick-off and provide feedback on draft paper.

The successful contractor will be expected to participate in at least 1 stakeholder meeting.

Day-to-day communication will be between the contractor and CXC's project manager Sarah Govan, and is likely to involve short catch-up phone calls either fortnightly or as agreed.

Project Timetable

Milestone	Completed by
Project kick-off meeting, to agree <ul style="list-style-type: none"> • models to be included • Scope of SWOT analysis • Boundaries • timeframe 	15 th February 2019
Report on progress (Principal investigator and CXC Project Manager)	Fortnightly
Submission of draft report	12 th April 2019
Steering group meeting (incl presentation to client), and comments on draft	3 rd May 2019
Submission of final report	31 st May 2019

Award criteria

Your response will cover the following (within the word limits identified):

PRICE	20%	
QUALITY	80%	
Technical Criteria	Weight	Descriptor
1. Understanding the research specification and the policy environment 500 words	15%	Please demonstrate your understanding of <ol style="list-style-type: none"> 1. the research requirements, including the Scottish policy context (with particular reference to climate change); 2. the cross-sectoral nature of the project and the need for this research 3. the research aim and how your proposal will address this need.
2. Research methodology 1000 words	25%	Please demonstrate how you would approach this project, addressing <ol style="list-style-type: none"> 1. selection of relevant input-output models 2. how your proposed approach will address the research objectives 3. the suitability, robustness and limitations of the proposed methodology.
3. Project management and staff resource 500 words	10%	How will your proposed approach demonstrate <ol style="list-style-type: none"> 1. A timetable, project milestones and management arrangements required to deliver the desired outputs within scope and to time? 2. compliance with regulations (e.g. GDPR) 3. research capacity in terms of <ul style="list-style-type: none"> - specific experience & expertise in the evidence review topic; - experience and expertise in inter-disciplinary team-working
4. Communication and report writing	10%	Please describe your approach to writing the report (to be published on the ClimateXChange website), including: <ol style="list-style-type: none"> 1. Management responsibility for communicating the results of the project, for report-writing and overall report quality. 2. Please include examples of your previously published research reports produced for a non-technical audience
5. Quality control and assurance	10%	Please demonstrate your approach to quality assurance, including <ol style="list-style-type: none"> 1. your quality assurance procedures to demonstrate how the contract will be continuously delivered to a high standard, to time and within budget. 2. quality control at different stages of the project, including evidence gathering, analysis and report writing.
6. Risk	10%	Please demonstrate how you will manage any risks from this project, including: <ol style="list-style-type: none"> 1. a risk assessment matrix detailing any risks identified in relation to the delivery of <u>this</u> contract, and 2. proposed mitigation measures to minimise their probability and impact.

Submitting a proposal

Please send a brief work plan (maximum 8 pages excluding CVs) 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 sarah.govan@ed.ac.uk for evaluation **by noon on Thursday 24th January**. Please contact Sarah Govan (Sarah.Govan@ed.ac.uk, 0131 651 4322) if you would like clarification of any of the above.

The costs of proposals for this project are expected to be in the range of £30,000 (including VAT). However, ClimateXChange would welcome proposals for less than this amount. We welcome consortium bids. CXC reserves the right not to appoint a suitable contractor.

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

CXC Secretariat

4th January 2019