

SBRI Delivering a Sustainable Utilisation of Livestock Slurry (SULS) solution for Northern Ireland – Phase 2



• SBRI

Total Fund Available: £12 million

Opening date: 05 July 2024

Closing date: 15:00 on 16 August 2024

1. Introduction

The Department of Agriculture, Environment and Rural Affairs (DAERA) is seeking applications to establish, at scale, practical and self-sufficient centralised demonstrator projects, which must address the core aim of nutrient separation, processing and valorisation of livestock slurry (particularly from cattle and pigs) and anaerobic digestate to reduce surplus phosphorus (P) within NI agriculture and ensure efficient export and recycling of organic nutrients.

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The aim of SULS Phase 2 is to build on the proof of concepts demonstrated in Sustainable Utilisation of Livestock Slurry (SULS Phase 1). Further research and development is required to prove the feasibility of demonstration plants and associated pre- and post-process nutrient separation equipment to valorise outputs following biogas and biomethane production.

2. Proposals

Successful solutions will demonstrate, to a wide range of stakeholders, environmentally sustainable solutions which are practical and economically viable at scale, where livestock slurry from multiple farms could be separated with minimal nitrogen and methane losses to produce feedstock, in a biosecure manner, for energy production and subsequently how the digestate will be processed for recycling or export.

The SULS Phase 2 project seeks to, by the end of year 3, remove 1,000 tonnes per year of phosphorus loading from livestock manures that are currently applied to the agricultural land base in NI. The competition seeks applications to demonstrate how they will contribute to this goal.

- Applicants must outline how potential issues which may arise as part of the processing of slurry and digestate on farm and centrally, such as fugitive ammonia and Greenhouse Gas (GHG) emissions and biosecurity risks will be addressed.
- Applicants will be expected to demonstrate how they will source, secure and utilise export markets, for P containing material, in their application and the associated timelines including estimated volumes per year.
- Applicants should aim to demonstrate a synergistic link connecting stakeholders along the value chain and creating new partnerships with potential for sustained growth, economic development and climate resilience.
- Applications will be expected to outline how they would also maximise other outputs, such as biogenic carbon dioxide (CO₂), fugitive nitrogen and waste energy.
- Applicants will be expected to outline the biosecurity measures they will put in place to mitigate the risk of disease spread between farms and how they will deal with a potential notifiable disease outbreak on a farm.
- Applicants should demonstrate how they will enable knowledge transfer that could benefit relevant sectors to further support the development and scaling-up of innovative solutions that work in practice.

Demonstration plants must be based in Northern Ireland and only manure-based feedstock produced in Northern Ireland will count towards the 1,000 tonnes of P loading from livestock manures removed from the NI land base by the end of year 3.

Funding for SULS Phase 2 will be available over a period of 3 years and applicants are asked to clearly identify what the funding is required for and a pathway of when the funding will be required.

3. Phase 2 Deliverables

By the end of Phase 2 Demonstrator projects must provide:

- a) Practical, at scale demonstrations of nutrient separation of slurry and manure (particularly P) from multiple farms and digestate from AD plants to address the core aim of nutrient processing of cattle and/or pig slurry to reduce surplus phosphorus being spread on the NI land base. The proposal will ensure efficient recycling of organic nutrients.
- b) Evidence of a mechanism whereby farmers and AD plants will provide a secure long-term supply of livestock slurry/digestate feedstock for processing, energy production and standardised production of organic/organo mineral fertiliser, soil conditioners and other carbon outputs.
- c) Independently verified evidence of potential issues which are likely to arise as part of the processing of slurry and digestate, such as fugitive ammonia, GHG emissions and how they have been mitigated/managed to reduce the impact.
- d) Independently verified evidence of how they mitigate the risks of disease spread, including notifiable diseases, between farms.
- e) A practical solution to manage any post-energy production nutrient rich material whereby it is valorised into constituents, for onward use such as chemical fertiliser replacement either in NI or for export; Particular focus is on reducing phosphorus loadings on NI agricultural land and the phosphorus surplus in NI agriculture.
- f) Projects must be able to demonstrate the reduction in the amount of P in slurry left on individual farms either on an individual farm or slurry tank basis. They must also provide evidence of how their project has contributed to the overall SULS Phase 2 target of 1,000 tonnes of P removed from agricultural slurry by the end of year 3.
- g) Must accurately provide independent evidence of the nutrient, energy and carbon flows throughout the process i.e. amount of nutrients removed from a farm or AD plant and the amount of nutrients and carbon directed to each output post centralised processing.
- h) Evidence from Life Cycle Analysis (LCA) and NI Ammonia and GHG Inventory analysis* to demonstrate the overall impact on carbon and nutrient balances on farms and across the Northern Ireland agriculture sector of the end-to-end demonstrator projects. This may be achieved in collaboration with a third-party knowledge provider.

* DAERA can provide access to/assistance with Northern Ireland Ammonia and GHG Inventory analysis of carbon and nitrogen flows using the ADAS Scenario Modelling Tool.

4. Other requirements

- **Strategic** - Proposals must outline how they contribute to key NICS strategic objectives resulting from drivers such as the Climate Change Act (NI) 2022¹, draft Green Growth Strategy², Energy Strategy³, draft Circular Economy Strategy⁴, DfE's Economic Mission⁵, draft Environment Strategy⁶ and draft Ammonia Strategy⁷.
- **Stakeholder engagement** - proposals must outline how and when they will engage with stakeholders throughout the process to ensure effective buy in.
- **Engagement with DAERA/NICS** - Proposals must also outline the input required, from DAERA and other NICS Departments, Agencies or Non-Departmental Public Bodies.
- **Energy production** - Produce low carbon energy or carbon neutral fuel/outputs as part of the process.
- **Risk mitigation** – outline key risk factors and mitigations related to project management, key staff, delays in procurement, permissions/permits, biosecurity.
- **Barriers** - proposals are also expected to outline the potential regulatory, legislative and financial barriers to commercial implementation of their solution in NI and outline the suggested measures to overcome them. This includes what is required for their proposal to be viable in the long term and outline an assessment of the costs (monetary and non-monetary) and benefits from implementation of the solution.
- **Timeframes** – indicative timeframes and milestones for implementation should be provided along with any barriers to progress.

¹ <https://www.legislation.gov.uk/nia/2022/31/contents/enacted>

² [A Green Growth Strategy for Northern Ireland - Balancing our climate, environment and economy | Department of Agriculture, Environment and Rural Affairs \(daera-ni.gov.uk\)](#)

³ <https://www.economy-ni.gov.uk/sites/default/files/publications/economy/Energy-Strategy-for-Northern-Ireland-path-to-net-zero.pdf>

⁴ [Circular Economy | Department for the Economy \(economy-ni.gov.uk\)](#)

⁵ [Statement from Minister Murphy - economic vision | Department for the Economy \(economy-ni.gov.uk\)](#)

⁶ [Poets approves finalised Environment Strategy | Department of Agriculture, Environment and Rural Affairs \(daera-ni.gov.uk\)](#)

⁷ [DAERA launches consultation on draft Ammonia Strategy | Department of Agriculture, Environment and Rural Affairs \(daera-ni.gov.uk\)](#)

- **Independent verification** – applications will need to detail the monitoring and independent verification that will be carried out as required by the project. The applicant shall maintain records of all monitoring taken or carried out.
- **Financial** – suppliers will be required to maintain detailed financial records to clearly show how funding has been spent which will be audited during the project. Equipment funded by the project must be clearly labelled as such.
- **Teams** – sub-contractors and consortia are welcome; however, applications must be submitted by a lead company from SULS Phase 1.

5. Measurements of success:

- Success will primarily be measured by the verifiable reduction of the P surplus from livestock slurry in NI agriculture through the mass of P intercepted from multiple farms and AD plants and diverted from land spreading in NI, e.g. by exportation.
- The amount of P intercepted that is used to replace imported chemical P fertiliser.
- The extent/volume of additional marketable outputs from the suggested solution e.g. fertilisers, soil conditioners, biochar, biogenic CO₂.
- Minimising fugitive emissions of methane, ammonia and CO₂ throughout the process.
- The number of farms and AD plants that livestock slurry/digestate is removed from.
- A demonstration that there hasn't been an additional disease burden to both the farmer and DAERA, as part of this process.

It is expected that these measures of success will be open for independent scrutiny during and post project working with a third-party knowledge provider. The projects should demonstrate environmental and economic sustainability and the potential for wider implementation on multiple sites across NI.

6. Funding available

This SBRI SULS Phase 2 competition is funded by the DAERA, the contracting body. The competition process is being managed on behalf of DAERA by the Strategic Investment Board (SIB).

This competition has a total budget of £12,000,000 ex VAT. Each of the successful bidders will receive an amount in accordance with their bid, but subject to an overall maximum amount per bidder of **£4,000,000** (exclusive of VAT).

Bids will be expected to include a detailed financial proposal setting out the allocation of funding against specific project workstreams and capital expenditure. Applicants will also be expected to declare any other sources of public funding relevant to the project, throughout the life of the project, to ensure there is no duplication of public funding.

Payments will be linked to milestones outlined in the applicant's original SULLS SBRI Phase 2 application.

Note that this competition will not fund the construction of AD plants, buildings, gas grid or electricity connections, tractors, planning or feasibility studies (this ineligible list is not exhaustive and will be at the discretion of the contracting body). The focus of SULLS Phase 2 is on nutrient separation from multiple farms and AD plants, and the facilitation of the production of commercially viable outputs such as energy, standardised fertiliser for export, biogenic CO₂ and other carbon outputs.

The period of SULLS Phase 2 is expected to last from September 2024 to September 2027 with the possibility of a 1-year extension (note should the project timescale be extended there will be no additional capital support available).

7. Governance

The contract will be managed by the SBRI Phase 2 Senior Responsible Officer, overseen by the Project Manager. A Project Sub-group will report to the Project Board to ensure delivery of the project and outputs of the contract. Regular monitoring of the project's progress will be undertaken by the Project Board, which will include officials from DAERA, DfE, AFBI, CAFRE and representatives from SIB. Online reporting, and evaluation will be undertaken every six months during the project life and final reporting stage. Successful applications are also asked to provide ongoing data and updates for up to 3 years post project completion.

8. Interviews

This competition will involve an application form and interview. Each of the successful applicants will be invited for interview on 27 August 2024.