Project title: Energy efficient animal by-product processing

Main applicant: Agritec Systems Limited

Technology developer: Agritec Systems Limited

Industry partners: Edge Close Green Energy Limited (ECGE)

Demonstration capital cost: £1,604,393.19

Funding awarded: £644,085.81

Project timeline: September 2019 to February 2021

Photo:

Project description: This project aims to demonstrate Agritec Systems Limited's (ASL) innovative low temperature animal by-product processing technology at Edge Close Green Energy Limited's animal processing facility at Edge Close Farm in Buxton, UK. This technology will enable abattoirs, knackeries and meat processing plants to process residual animal carcasses and therefore derive revenue from valuable by-products such as bone meal and tallow/oil and therefore mitigate operational costs. Otherwise, the animal carcasses must be sent off-site to 3rd party animal by-product (ABP) processing facilities for rendering, which is a high temperature, energy intensive process.

This project aims to demonstrate that ASL's technology enables lower temperature processing of high protein content animal by-products using 'tricanter' centrifuges. The system will achieve energy savings in the following ways:

- Lower temperature requirement versus traditional rendering resulting in a thermal energy saving.
- Reduced equipment loads for separation and drying resulting in an electrical energy saving.

This project aims to demonstrate that the predicted energy savings can be achieved in practice and prove that the ASL system can cope with the higher dry solids content of the processing streams typically found in the industry. It will also demonstrate that the technology can be successfully applied to industrial scale operations.

Size of target market: The immediate target market is the animal by-products industry which includes knackeries, abattoirs, and meat processing plants. In the UK and Ireland there are currently more than 800 such plants. In addition, rendering and fish by-product processing plants could benefit from the adoption of this technology.

Barrier to market: The technology is currently unproven and is unlikely to be adopted by the market until demonstrated. To date the technology has not been applied at the high dry solid content of the process streams typically found in the knackeries industry. This project will demonstrate that the technology can be applied to the process conditions and at the scale found in the animal by-products processing sector.

Initial TRL: TRL 6/7

Targeted final TRL: TRL 8/9

Estimated energy and carbon savings: The project expects to demonstrate a reduction of more than 40% in the thermal energy requirement of traditional high temperature rendering processes. In addition, it is expected that the electrical energy required for separation, drying and handling of process streams will be reduced by nearly two-thirds.

Why IEEA funding was important to this project:

The IEEA funding has allowed the consortium to successfully demonstrate a novel technology at an industrial scale. The risks to the consortium of building the demonstration plant would have been too high without the IEEA funding and the investment is unlikely to have gone ahead. In addition, the involvement of the IEEA has added significant credibility to the project, which should encourage quicker acceptance and adoption of the technology by the wider industry.