

## SUCCESS: Sustainable Use of Carbon Contributes to Environmentally Sustainable Systems

Demonstrate how existing fossil fuels can be substituted with alternative green fuel technology

### Read About:

- So, the challenge and opportunity for the food industry is how do we produce food in a circular & environmentally sustainable manner for our ever-increasing world population.
- Meat and bone meal (MBM) is a product derived from approx. 300,000 tons of by-product from the Irish food industry. It's currently exported without harnessing its full energy potential. As part of this project Dawn Meats want to add value by extracting and utilising the green energy potential of this product.
- EU Regulation 735 of 2020 allows for MBM to be reused as fuel and that is the context for the project. So, the reuse of the available energy in the MBM has the capacity to service the energy requirements of our primary processing and by-products recovery business. Furthermore, in a circular manner we have identified a mechanism to recapture the waste energy and re-use it to provide the thermal energy requirements of a primary processing plant 1km away.

### Background

The industry and business for this project is within the boundaries of the EU Green Deal, which has presented agriculture and food with many challenges. The EU has set an objective of net zero by 2050 and wants to transform into a modern, resource-efficient and competitive economy. The industry itself as agriculture wants to and can be the solution to climate change rather than the problem. We, as a business, have a commitment with others to address societal challenges and we need to collaborate at scale in to achieve that.

### Circular Demo Pilot

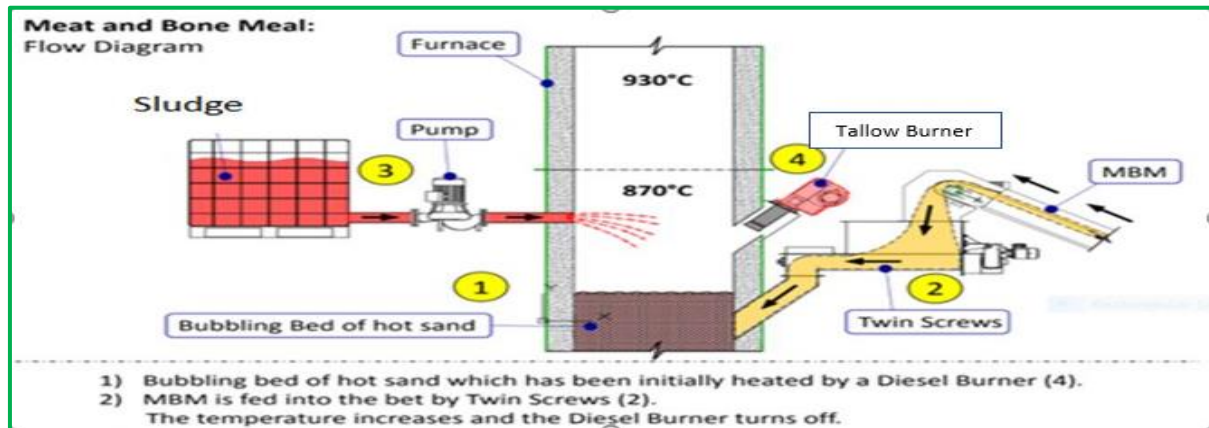
The SUCCESS project aims to marry CIRCULÉIRE'S mission to explore system innovation opportunities deriving from a leading Irish food company (Dawn Meats), with a leading Irish technology innovation company (BHSL) and well-researched technologies and processes (University of Limerick) to deliver a green, circular and sustainable solution that would become a European first under the new Regulation 735/2020. The pilot demonstrated a circular manufacturing model, whereby a by-product of the food business could be used in Ireland rather than being exported. It measured energy can be used to meet the thermal energy requirements of the by-product recovery process and by

The SUCCESS Innovation Demonstration Project has been delivered in collaboration by: Dawn Meats, BHSL and UL

utilising secondary recovered heat to meet the thermal needs of the nearby primary processing plant 1km away.

## Key Lessons Learnt

- SUCCESS confirms Category 1 Meat and Bone Meal is a very high Calorific Value source of energy.



## Key Impacts

- Usage of a valuable green energy source at home in Ireland, demonstrating circularity and supporting indigenous industry.
- If Cat 1 MBM is used as fuel, there is a potential Irish CO2 saving of 80,000 tonnes per annum, inclusive of transport.
- Democratisation of technology to allow utilisation of MBM and other food-based product / biomass as a fuel on-site in Irish MBM facilities rather than export to other countries at both a fiscal and transport carbon cost.
- Market leadership, using EU legislation pioneered by an Irish SME, and suitable equipment developed by the same company.
- EU legislation is in place to allow its use as fuel.
- SUCCESS has demonstrated the potential for P, K and Ca trace element recovery from the residual ash.
- We have identified that secondary use of this energy is possible in another process fulfilling some circular challenges.
- BHSL-FBC process capable of combusting the MBM.
- The SUCCESS demonstrator points strongly to the potential of FBC technology to combust Cat 1 MBM in a safe and efficient manner.
- Dawn Meats can use the recovered heat from stage one of the operation to supply the thermal energy requirements of a second site, which is currently being demonstrated live at the plant.

CIRCULÉIRE – The National Platform for Circular Manufacturing has a €1.5m ring-fenced innovation fund supporting circular innovation demonstration projects over 2020-2022. See [www.circuleire.ie](http://www.circuleire.ie)