



Focus Group 'Innovative on-farm energy production systems'

Dublin, Ireland
12-13 November 2025

Small Biogas Demonstration EIP Project

Seán Finan
Chief Executive officer
Irish Bioenergy Association (IrBEA)

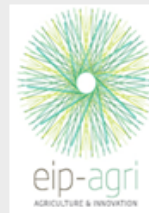
The IrBEA Small Biogas Demonstration EIP Project

- This European Innovation Partnership (EIP) project was delivered by the Irish Bioenergy Association (IrBEA) with Teagasc as project partner. The aims and objectives were to:
 - › Stimulate the deployment of innovative on farm biogas solutions by providing capital support for demonstration and technical advisory support
 - › Raise awareness of this scale of biogas plant
 - › Demonstrate how farm scale biogas can complement existing farming operations
 - › Develop the capacity of technology providers in delivery of farm scale biogas production solutions
 - › Quantify the capital cost to develop this scale of production on Irish farms
 - › Quantify the environmental emissions reduction, nutrient recycling and other broader benefits of this scale of production
 - › Demonstrate that the results are widely deployable
 - › Identify the technical, operational, policy and regulatory challenges at this scale of production
 - › Assess and quantify the benefits, the challenges and the barriers for this scale of biogas plant

Kindly funded by the Department
of Agriculture, Food and Marine
through European Innovation
Partnership



An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine



What is Farm – Scale Biogas Production

- › Use only materials already on the farm: slurry, manure, bedding, and leftover feedstuff
- › Department of Agriculture, Food and the Marine Animal byproducts (ABP) Regulation Type 9 Biogas Plant which requires no pasteurisation
- › No imported feedstocks used in the plant
- › Closely integrated with the daily running of the farm
- › Plant is owned and operated by the farmer
- › The by-product, called digestate, is used as a valuable organic fertiliser on the farm
- › A farm-scale biogas plant is designed to fit into the farmyard and complement the current food production or farming operation — not replace it.
- › This means no loss of farmland for crops or grazing, only smarter use of existing resources



EIP Project Information

- › 7 Information workshops for farmers held with 461 attendees in 2019
- › Expressions of interest for demo capital grants – 260 farmers completed an expression of interest
- › 10 times the expected farmer response received which placed huge admin burden on the project
- › All applicants initially assessed in 2020 based on feedstock available and energy demand and divided into 3 categories as follows:

› Category 1 (No potential – No Feedstock)	130 farms identified
› Category 2 (Medium Potential – Some feedstock & energy demand)	100 farms identified
› Category 3 (High Potential – Both Feedstock & energy demand)	30 farms identified
- › Note: If the assessment of all applications was done now (compared to late 2019/early 2020 when completed) many more category 3 farms would emerge due to the increase in energy costs in the interim period which would make many of the category 2 projects economically and technically viable.
- › Project team engaged with category 3 farmers in late 2020, 2021 and into 2022 to develop proposals, feasibility studies and select demo sites.
- › There was regular engagement with technology providers and innovative solution providers.



EIP Demonstration Site Summary

- › Of the 30 Category 3 farmers – Detailed feasibility studies were done for 8 project following further analysis and determination of potential viability of all 30.
- › Of these 8 project there were 3 pig & poultry enterprise-based projects which were excluded at this stage due to a variety of reasons including:
 - › Batch system with poultry and associated fluctuation in energy demand
 - › Current contracted cleaning process for poultry houses and removal off site
 - › Biosecurity concerns if feedstock was left on the farms when removed from poultry houses
 - › Solid biomass through the Support Scheme for Renewable Heat (SSRH) being a more cost-effective decarbonisation measure on these farms where nutrient recycling was not a priority
 - › Slurry infrastructure on the pig farms was not generally not conducive to harvesting of slurry fresh
- › 5 Projects progress to next stage (offered technical and financial assistance with planning permission process) including:
 - › Laois Project – Dairy farmer – robotic milking and cows housed - didn't progress to the planning stage due to the investment required
 - › Cork Project – Dairy and Poultry – farmer didn't progress to the planning stage due to the investment required and also concerns about energy demand
 - › Tipperary Project – Dairy farmer with cheese production - 661m³ Biogas Plant – Heat only project – Offsetting 130,000 Litres of Kerosene – Failed to secure planning permission
 - › West Cork Project – Dairy and Pigs on straw with cheese and bacon production facility on site. A 424m³ Biogas Plant – CHP plant– Offsetting 18,000 Litres Kerosene and 61mwh of Electricity – Got planning permission, tendered project but then didn't proceed due to tight timelines from funders and delays in getting a electricity grid connection offer
 - › Galway Project – Riverview Farm - Details in the next few slides

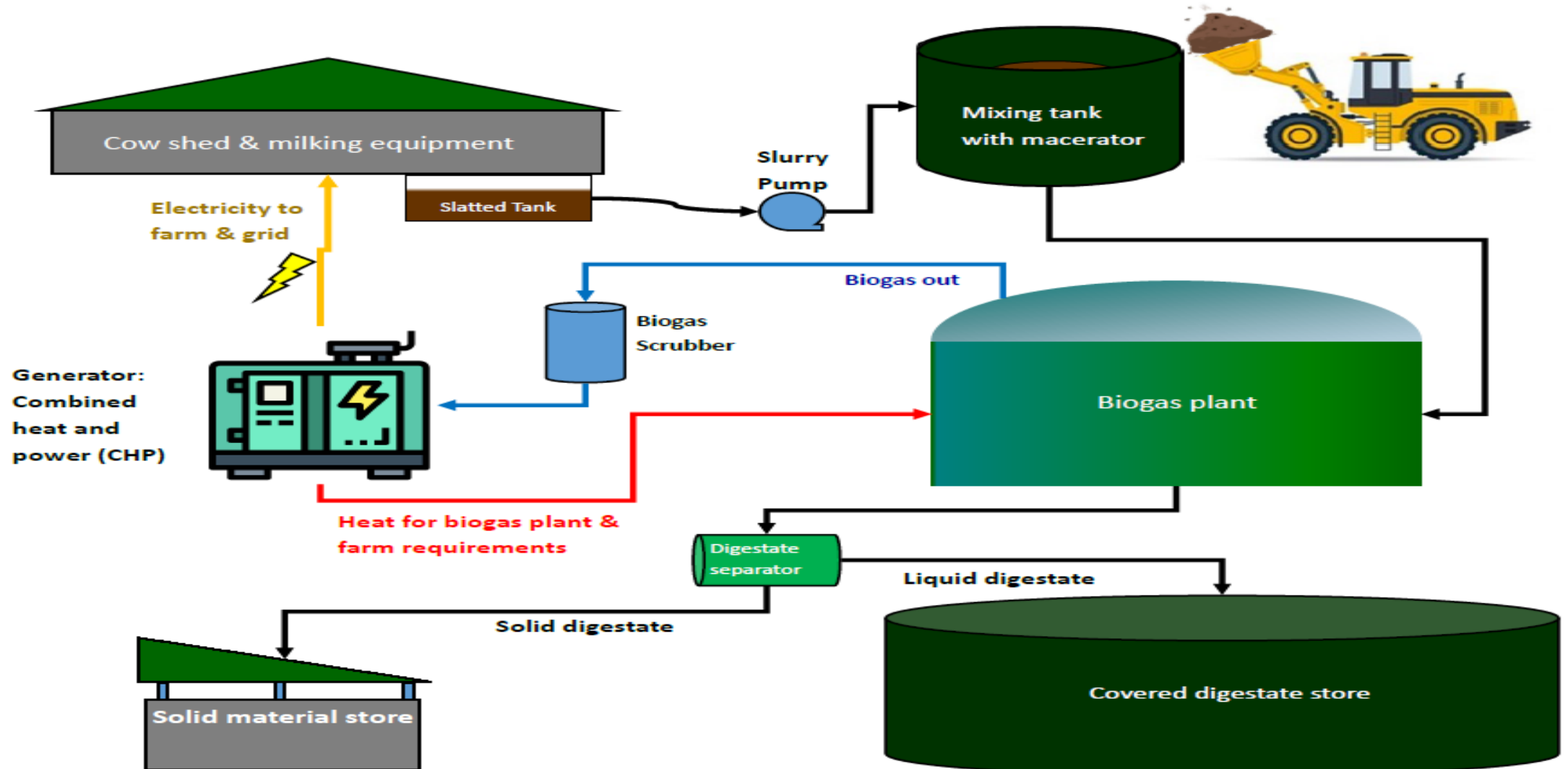


Riverview Farm - Details

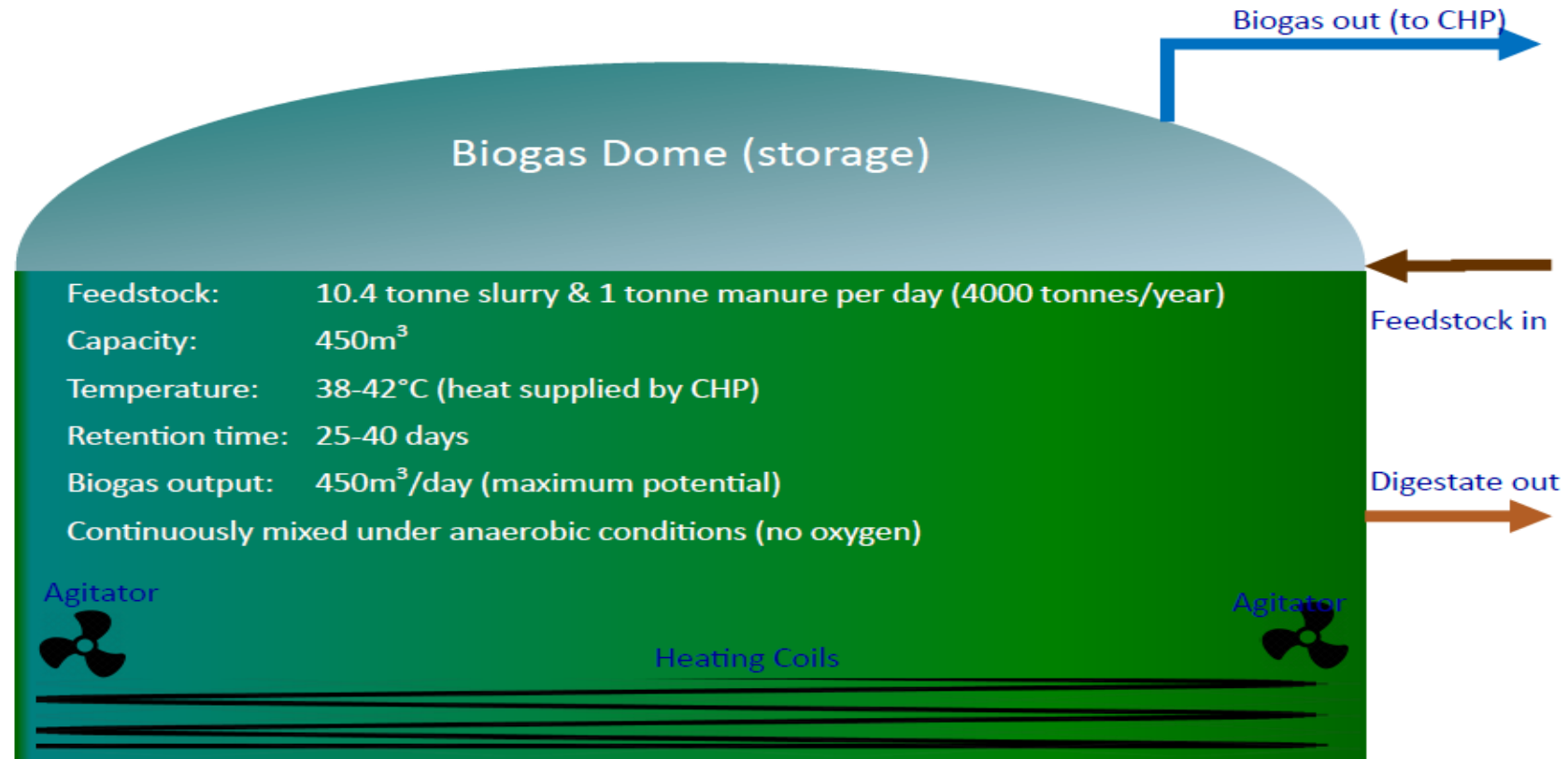
- › Organic dairy farm operated by the Gildea Family at Dunmore, Co. Galway
- › Liquid milk supplier
- › All animal feed is grown on the farm including peas, beans, cereals, red clover and silage
- › 230 dairy cows + young stock followers
- › Robotic milking all year round
- › Cows housed at night all year round and grazed by day during the grazing season
- › 3 generations of the family involved in running the farm



Riverview Farm – Biogas Process



Riverview Farm – Biogas Plant Technical Details



Technology Designer and Provider: Tank Storage Systems Ltd. Kildare – Ben Sage.

CHP Unit output: 49kW electrical

55kW thermal (heat)



Riverview Farm Biogas Plant – Energy and Environmental Information

- Electricity generated on this farm will replace €30,000+ worth of purchased energy each year
- Electricity output: CHP currently generating 24-28kW since commissioning to meet onsite needs. Maximum design output potential of 49kW is subject to purchase agreement following the installation of a 3 phase smart meter
- Heat displaces approximately 5,000 litres of heating oil annually
- Digestate: solids and liquids separated , 3,800 tonnes produced
- Increased growing plant nutrient availability of the digestate made possible by the AD process
- On farm carbon savings: approximately 202 tonnes CO2 equivalent avoided each year through fossil energy displacement and reduction of stored slurry emissions



Riverview Farm Biogas Plant – Financial and Economic Information

- Investment cost: €452,000 (ex-VAT), including cover on existing overground slurry store and excluding digestate solid storage shed (TAMS grant secured)
- Planning costs, grid connection fee and environmental assessments costs are in addition to the investment cost above (approximately €10,000)
- 50% capital grant on the investment cost, from the Department of Agriculture, Food & Marine, through the IrBEA EIP project, for development of the biogas plant and ancillary equipment : €226,000
- Farmer investment cost: €226,000
- Return on investment through displacement of energy costs using biogas to generate renewable electricity and renewable heat
- Payback period: 7–7.5 years, potentially shorter if excess renewable electricity can be sold - current feedstocks available on farm are capable of producing 70% more biogas than the farm's energy requirements
- Minimum 50% Government capital support is vital to make these projects viable at farm level



EIP Project Lessons Learned and Conclusions

- › Farm-scale biogas is technically and economically feasible in Ireland
- › Huge opportunity and interest from farmers for this scale of production
- › This scale offers farmers energy security, reduced costs, and new income potential
- › Full feedstock analysis should be a basic first step to inform plant design and feasibility
- › Significant variation in biogas potential yield of different feedstocks e.g. silage, FYM, slurry
- › Even the same feedstocks across and within farms can vary in biogas potential yield
- › Gas output is optimised with fresh slurry, harvesting of which is dependent on farm infrastructure
- › On farm storage capacity of digestate should be maximised to ensure land spreading takes place during optimum growing periods
- › Farm infrastructure development should be future-proofed for potential farm scale biogas production i.e. increased use of scrapper systems, overground storage where possible
- › Planning permission was a long process, with varying levels of understanding and requirements across different local authorities
- › ESB approval process for generation and smart metering, to enable the export of power to the grid, needs streamlining for smaller scale generation connections
- › **Key conclusions** : Capital grant(50% minimum), simplify planning, expand digestate research, future-proof farm infrastructure, and credit emissions savings to agriculture



EIP Project Recommendations and Actions to Carry Forward

- **Information, knowledge and awareness:** There is a need for an ongoing information, knowledge and awareness campaign about the different scales of biogas production
- **Capital Support:** Government are encouraged to introduce a minimum 50% capital support grant for this scale of production. This scale is not suitable for all farms and only undertaken following a detailed feasibility assessment
- **Future proofing farm infrastructural development for potential farm -scale biogas production:** All future farm slurry infrastructure should be future-proofed for the harvesting of fresh slurry
- **Government energy policy and connections:** Support schemes such as the Micro Generation Support Scheme (MSS) and the Small-Scale Renewable Electricity Support Scheme (SRESS), should accommodate farm scale biogas plants. The roll out of 3 phase smart metering must be prioritised to enable farmers maximise the return on excess energy produced
- **Planning approval process:** The planning requirements for this scale of biogas plants need to be proportionate to the size and scale of the development. There is a need for consistency of approach on technical aspects across local authority planning departments, to inform planning application decision making.
- **Environmental Documentation:** Environmental assessment screening reports of varying complexity depending on location and the cost for these should be factored into their project financial planning
- **Attributing agricultural and energy emissions savings generated on Irish farms:** Recognition for farm generated renewable energy contribution needs to be acknowledged and accounted for in the farm agricultural inventory
- **Research and development:** The Government are encouraged to increase the funding for research and development work in the areas of farm scale biogas production.





Project Photographs

IrBEA and Tank Storage Systems showcasing the project to the Minister for Agriculture, Food and the Marine, Martin Heydon T.D.



4 Generations of the Gildea Family with Minister for Agriculture, Food and the Marine, Martin Heydon T.D. during a visit to the farm



The Riverview Farm Biogas Plant



For Further Information Please Contact

Sean Finan IrBEA CEO

seanfinan@irbea.org

+353 87 4146480

Project website: <https://irbea.org/farmbiogas/>



EU CAP Network Focus Group 'Innovative on-farm energy production systems'

1st meeting | 12-13 November 2025 | **Dublin, Ireland**

All information on the Focus Group is available on the webpage:

<https://eu-cap-network.ec.europa.eu/focus-groups-innovation-knowledge-exchange-and-eip-agri/focus-group-innovative-farm-energy-production-systems>

