H2AD - Innovative and scalable biotechnology using Microbial Fuel Cell and Anaerobic Digestion for the treatment of micro-scale industrial and agriculture effluents to recover energy from waste

Fact Sheet

Project Information

H2AD-aFDPI

Grant agreement ID: 698374

Project website

DOI
10.3030/698374

Project closed

EC signature date
27 October 2015

Start date
1 November 2015

End date
31 October 2017

Funded under
INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies – Biotechnology

Total cost
€ 3 054 205,75

EU contribution
€ 2 137 944,00

Coordinated by
LINDHURST ENGINEERING LIMITED
United Kingdom

This project is featured in...

Objective

Lindhurst Innovation Engineering (LIE) have developed H2AD - a novel micro-scale technology for the rapid and safe disposal of organic effluent. A hybrid of microbial fuel cells (MFC) and conventional anaerobic digestion (AD), H2AD is based on a patented bioreactor and electrode architecture. H2AD enables a 10x reduction in the time required to reduce the organic content of waste, and recover the energy via conversion to a hydrogen/methane rich biogas.
Effluent disposal has been identified by LIE as a key restriction on the productivity and profitability of the EU agri-food and drink processing industry (a-FDPI), which is the largest EU manufacturing industry but includes 271,000 micro and small enterprises (µSE). No viable micro-scale technology currently exists for disposal of effluents from µSE, or is able to recover energy from these waste volumes. However, currently at TRL6/7 through extensive testing on cattle slurry, H2AD can also directly address the challenge of waste management in the a-FDPI, recovering some of the 288TWh of potential energy lost in effluent from the EU a-FDPI annually.
The overall aim of the Phase 2 project is to undertake the experimental development and field trials required to confirm predicted H2AD performance/payback for new feedstocks, derived from the a-FDPI. LIE seek to prove commercial viability for efficient removal of organic content from key process waste streams; slurry; and post-AD liquors, with biogas utilisation strategies for optimum payback. The project seeks to develop sensing for automated/remote control of system operation and optimised biogas yields through process performance.
Strong collaboration with EU industrial and academic bodies directly open opportunities for the placement of 600 units in the a-FDPI, as well as a further 14,000 applications in primary agriculture and waste management, in line with LIE's commercial strategy for H2AD to address the €34 billion global market for waste-to-energy equipment.

Fields of science (EuroSciVoc)

engineering and technology > environmental biotechnology > bioremediation > **bioreactors**

engineering and technology > **industrial biotechnology**

engineering and technology > environmental engineering > **waste management**

social sciences > economics and business > economics > **sustainable economy**

engineering and technology > environmental engineering > energy and fuels > **fuel cells**

Programme(s)

H2020-EU.2.1.4. - INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies – Biotechnology MAIN PROGRAMME

H2020-EU.2.3.1. - Mainstreaming SME support, especially through a dedicated instrument

Topic(s)

BIOTEC-5b-2015 - SME boosting biotechnology-based industrial processes driving competitiveness and sustainability

Call for proposal

H2020-SMEInst-2014-2015

See other projects for this call

Sub call

H2020-SMEINST-2-2015

Funding Scheme

SME-2 - SME instrument phase 2

Coordinator

LINDHURST ENGINEERING LIMITED

Net EU contribution

€ 2 137 944,00

Total cost

€ 3 054 205,75

Address

MIDLAND ROAD
NG17 5GS SUTTON IN ASHFIELD
United Kingdom

SME

Yes

Region

East Midlands (England) > Derbyshire and Nottinghamshire > North Nottinghamshire

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Last update: 6 September 2024

Permalink: https://cordis.europa.eu/project/id/698374