



An Roinn Breisoideachais agus Ardoideachais,
Taighde, Nuálaíochta agus Eolaíochta
Department of Further and Higher Education,
Research, Innovation and Science

SFI Public Service Fellowship 2023

1. Name of Governmental Department or Agency
Department of Further and Higher Education, Research, Innovation and Science
2. Title of the Project
DFHERIS3 Assessment of rapid decarbonisation solutions for commercial/public sector buildings needed to meet the goals of the Climate Action Legislation
3. Description of the Project
The purpose of the research project is to provide the Department and its stakeholders with an analysis of potential rapid decarbonisation solutions. The typical approach to decarbonisation of buildings follows a fabric-first principle. The project would assess if rapid decarbonisation “plug and play” measures are suitable for the building stock in the further and higher education sector. The project would analyse the available renewable heating technologies and report on their suitability for the tertiary estate. The project would aim to analyse if a rapid decarbonisation approach in lieu of a fabric-first approach would help to accelerate progress towards the achievement of Climate Action Plan emissions targets for the further and higher education sector.
4. Project Scope
<ol style="list-style-type: none"> 1) Analysis of available renewable heating technologies 2) Analysis of potential bivalent systems consisting of renewable heating technologies only 3) Use datasets to identify typical building archetypes across the further and higher education estate. 4) Assess suitability of the renewable heating technologies (including bivalent systems) against the identified building archetypes. 5) Research into the use of Modern Methods of Construction (MMC) to develop a series of modular, off-site manufactured, low- or zero-carbon packaged plantrooms, which would contain the renewable heating technologies. 6) Using dynamic simulation modelling or other appropriate tools determine the potential savings/increase in emissions as a result of the solution as well as the increase/decrease in operational costs associated for each of the identified building archetypes.

5. Skills/Expertise Required

- 1) Expertise in engineering, architecture, energy systems or related subject area.
- 2) Understanding of data analysis or statistics, with an awareness and understanding of economic analysis methods desirable.
- 3) Strong interpersonal, oral communication and written skills in order to liaise with stakeholders including building owners and private sector specialist suppliers.
- 4) Familiarity with the identification of suitable secondary data sets, extracting relevant information and calculating estimates whilst controlling for extraneous variables.
- 5) Understanding of the design and analysis of primary data sets, including the ability to use an analysis package would be desirable.
- 6) Familiarity with dynamic simulation modelling.

6. Expected Outputs of Project

- An assessment of the tertiary sector estate in terms of its suitability for modularised rapid decarbonisation solutions and identification of opportunities and limitations.
- An assessment of the feasibility of adopting a rapid decarbonisation approach using plug and play type heating technologies in lieu of the fabric-first approach to advance the attainment of emissions targets.
- Review of rapid decarbonisation solutions, including off-site manufactured low-or zero carbon plantrooms and methodologies.
- Potential for further aligned technologies and opportunities/efficiencies, benefitting both private sector/industry and the public sector/building owners maximising the use of existing structures and sites.
- Analysis of the potential reductions or increases in both operational emissions and operational costs.
- Recommendations on key decarbonisation solutions to accelerate the achievement of Climate Action Plan targets.

7. Working Arrangements

The placement would be in the Department of Further and Higher Education, Research, Innovation and Science (DFHERIS), Tullamore or Dublin.

Flexible and remote working arrangements will be accommodated. However, the researcher may be required to engage significantly with stakeholders, many of whom would be in Dublin, therefore being Dublin based would be an advantage.

8. Expected Timeline

This project should take 9-12 months of full-time work. Part-time working is also a possibility.
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9. Contact Details

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