THE HYBRID ENERGY SYSTEMS FOR REMOTE COMMUNITIES IN THE ARCTIC (HYBES)

Project Lead: Bjarne Lindeløv, Nordland Research Institute
Timeframe: 1 February 2023-31 January 2026
Funded by the Northern Periphery and Arctic Programme

HYBES is an international development and research project exploring hybrid energy systems integrating renewable energy sources and energy storage technologies to provide sustainable energy solutions for Arctic communities.

LOCAL ENGAGEMENT

The Arctic is a unique and challenging environment for energy systems due to its extreme weather conditions, long periods of darkness, and limited infrastructure. Local communities still rely on fossil fuels, which are environmentally unsustainable for their energy needs. The HYBES project aims to develop, implement and promote more sustainable energy solutions for Arctic communities.

HYBES project will identify and engage relevant stakeholders, including local communities, policymakers, and industry stakeholders, to ensure that the project results are aligned with their needs and interests.

PROJECT PARTNERS

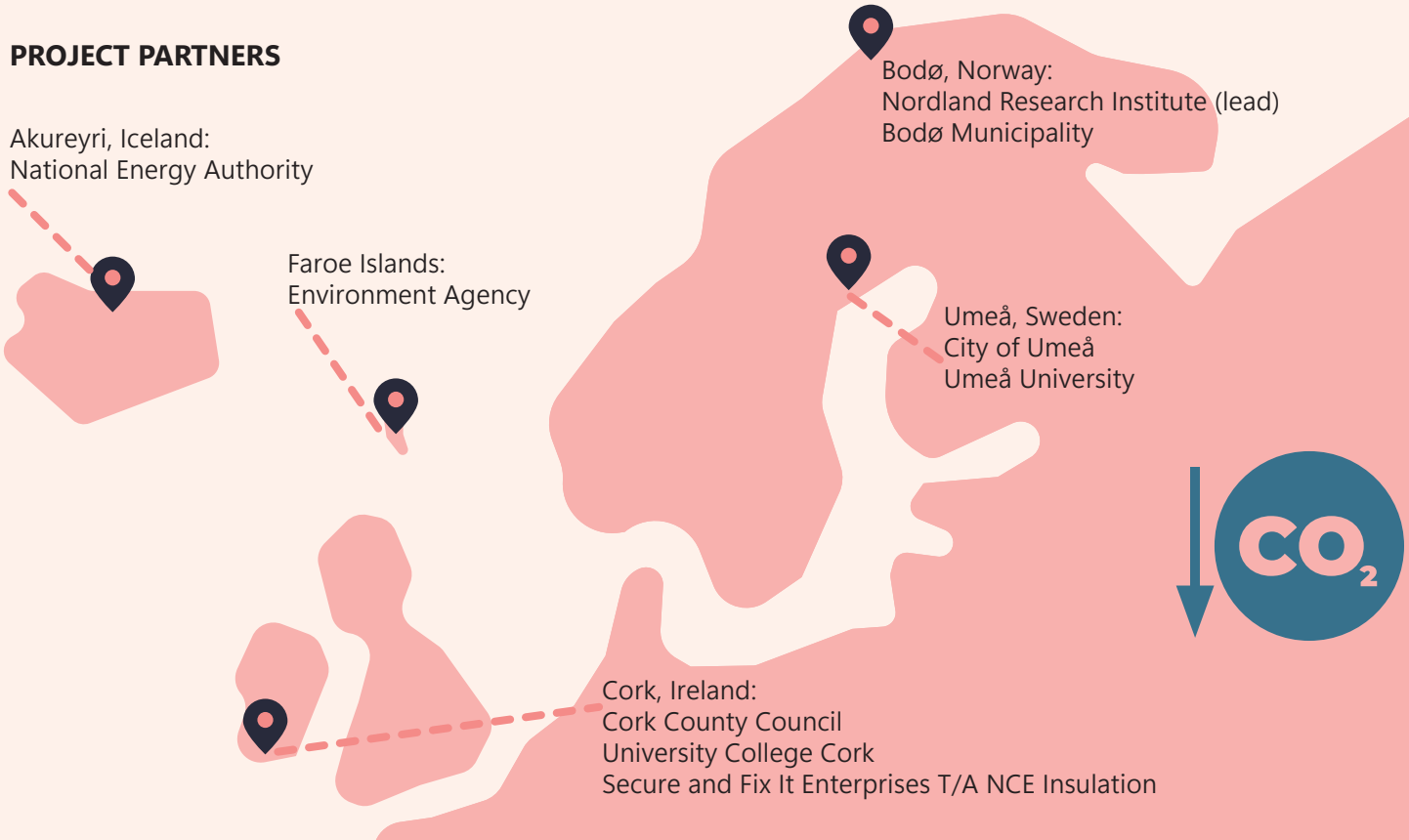
Akureyri, Iceland:
National Energy Authority

Faroe Islands:
Environment Agency

Bodø, Norway:
Nordland Research Institute (lead)
Bodø Municipality

Umeå, Sweden:
City of Umeå
Umeå University

Cork, Ireland:
Cork County Council
University College Cork
Secure and Fix It Enterprises T/A NCE Insulation



HYBES

Northern Periphery and Arctic Programme 2014–2020

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HYBES AIMS TO STRENGTHEN THE CAPACITY FOR CLIMATE CHANGE ADAPTATION AND RESOURCE SUFFICIENCY IN NORTHERN PERIPHERY AREA, PROMOTE ENERGY EFFICIENCY, AND REDUCE GREENHOUSE GAS EMISSIONS.

HYBES will demonstrate how decarbonisation measures can benefit communities and individual households financially and environmentally using existing best practices and novel innovations. We will show this through tangible outputs and education on the value of decarbonisation.

CHANGING CITIZEN BEHAVIOUR: LIVING LAB FOR CO-CREATION AND CAPITALISATION FOR DECARBONISATION:

To facilitate societal impact using citizen-centred and participatory design principles, allowing co-creation of innovative solutions for decarbonisation, and developing the living lab to achieve behavioural change.

IDENTIFYING POTENTIAL HYBRID ENERGY SYSTEMS AND THEIR IMPACT:

To analyse how buildings in the area can use locally produced RES to facilitate upscaling of best practices and energy-efficient models and to pilot monitoring of social and rural housing energy systems.

FLEXIBLE RENEWABLE SOLUTIONS FOR THE NORTHERN PENINSULA AREA:

To demonstrate how solar and geothermal energy and intelligent energy solutions can help achieve Near Zero Energy Buildings in remote and Arctic communities and how flexible RES in districts create storage and sharing systems for EV.

THE PROJECT WILL:

- Refine 5 ‘living labs’ in regions to promote and develop dedicated Decarbonisation Zones in rural and peripheral areas, which can be replicated across the NPA region & beyond.
- Identify good practices and techniques to address decarbonisation challenges and help achieve carbon neutrality.
- Facilitate co-creation and citizen engagement to build citizen knowledge around the benefits of decarbonisation.
- Offer interaction with communities and stakeholders within the NPA region.
- Develop a ‘carbon school’ initiative to enable children to see the benefits of decarbonisation initiatives to develop curriculum change.

“In HYBES, we will develop energy solutions that contribute to buildings producing as much energy as they consume. This is to enable cities to reach their climate and energy targets. We need organised, flexible solutions, so the system does not break down. The project will investigate how to build up an infrastructure of renewable energy sources and storage that provides a stable system and focuses mainly on challenges in arctic areas.”
Bjarne Lindeløv, project manager