PRACTITIONER INSIGHTS

Shetland Islands Council: Rural Energy Hub

OVERVIEW

The Shetland Rural Energy Hub (SREH) project is a place-based collaboration between Shetland Islands Council (SIC), Aquatera Ltd and Community Energy Scotland (CES) that has been funded by Innovate UK's 'Net Zero Living: Pathfinder Places (NZLPP) Programme'.

The SREH strive to be locations for electric vehicle charging, centres for technology and information, self-sustaining in terms of energy production, and be easily accessible for the general public, be that by private vehicle of public transport.

SIC aims to use a pilot hub in Shetland to develop a model for establishing a wider network of rural energy hubs across Orkney and Shetland, and to demonstrate how decarbonisation can be developed, embedded and accelerated locally.

DRIVERS BEHIND THE PROJECT

In 2023, SIC was awarded a grant of £52,648 from Innovate UK's 'Net Zero Living Pathfinder Places' Programme. With this, SIC led the SREH project in collaboration with Aquatera Ltd and CES between the 1st April to the 30th June 2023. This project aimed to identify ways to decarbonise key sectors in Shetland, and reach net zero through an integrated energy and transport hub.

The project built on Shetland's Net Zero Route Maps (NZRM) and conducted a feasibility study that investigated the non-technical barriers of decarbonisation in 4 key areas, which mirrored categories seen in the NZRM. These included 'Transport', 'Energy Use', 'Reuse, Recycling and Waste', and 'Business and Industry'.

SIC used this feasibility study to identify a location for the development of a potential hub that would address identified decarbonisation barriers. In order to find the most optimal location for the pilot hub, SIC set a list of requirements for the hubs relating to;

- Proximity to a population centre
- On an existing bus route
- Suitable surrounding land for renewable energy installations
- Proximity to 3-phase grid supply

With these requirements in mind, Aquatera utilised their in-house 'Resource Analysis and Digital Mapping Application' (RADMApp) to map Shetland's key infrastructure. This encompassed bus routes and timetables, roads, grid infrastructure, offsite hydrogen production, ferries and airports, populations and residences, land gradient, typography, wind capacity, community amenities and 3-phase supply. Once mapped, this captured the suitability of areas around Shetland for the potential development of such community hubs. From this, a total of 13 potential hub locations were identified (4 major and 9 minor).

Eventually, Brae was selected as the location of the pilot hub due to its high levels of suitability. This was linked to its strong transport connections, large population size (being the second largest settlement in Shetland and homing many workers from the nearby oil and gas terminal) and connectivity to Mossbank (Shetland's most deprived area). Selecting this location could not only serve the north of the mainland but support the realisation of Just Transition aims through the engagement of Mossbank's residents with the hub. Confidence in Brae as a hub location was strengthened by a strong base of qualitative information about the community following a Scottish Futures Trust project implemented there previously.

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IMPLEMENTING THE HUB

SIC was successful in securing an additional £4.9 million in funding under Phase 2 of the programme. Beginning on the 1st February 2024, a 20-month long project will explore a place-based approach of implementing this pilot hub in Brae and understand how the integration of transport and service provision across the area could encourage behaviour change and further decarbonisation, and maximise both social and economic benefits to the community.
To do this, SIC plans to implement a variety of strategies to enhance the community's experience of the hub. For instance:

• HUB BUILDING

SIC wanted to ensure that the building selected for the hub is fit for purpose and meets the needs of the community. Brae Community Centre was selected as the hub building as it is an integral part of the community.

• ENERGY EFFICIENCY

Brae Community Centre is a council-owned building that is currently being leased to the community, who struggle to pay its annual energy bills of £12,000. In order to support the community, SIC will implement energy efficiency measures including renewable energy generation with display pods of real time generation and electricity use.

• INNOVATION AND TECHNOLOGY

SIC will be introducing desks and high-speed internet for co-working spaces.

• LEISURE FACILITIES

The community hub will offer a café space for the community to gather, socialise and enjoy local offerings.

• SUSTAINABLE TRANSPORT

Aligning to Scottish Government transport policies (including a 20% reduction in car km and the phasing out of petrol vehicles) is particularly challenging for Shetland. This is because there is a lack of data on how to do this in a location with similar typography, climate, public transport coverage, reliance on private cars and km traveled as Shetland.

With respects to public transport, Shetland only has a small number of bus operators. The council acknowledges the risks and complexities of these small companies decarbonising their fleet and a lack of confidence in current technology. With this in mind, a number of place-based measures are being implemented to meet Scottish Government targets. For instance;

1. Electric Bus Service

Following transport modelling, it was revealed that it would not make economic sense for these small bus companies to invest in electric vehicles given the limited number of buses, bus routes and charging infrastructure. Instead, SIC is trialling a council-funded electric bus that offers numerous routes. The aim is to gather evidence on whether electric buses are an appropriate form of public transport for Shetland, and if so, explore how it can be built in to council contracts.

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2. Community Car Club

SIC are partnering with NHS Shetland to launch a 'use-it or lose-it' car club made up of NHS Shetland's fleet. Car club services include providing second-hand lease of electric vehicles and provide community members with the opportunity to test electric vehicles. This can both reduce barriers to behaviour change and technological adoption, and support emissions reductions targets.

3. Tech-informed advanced

Technological innovation will be essential to the delivery and success of the electric bus service and community car club. An app will be used to communicate all available transport times and service offerings in Brae. Meanwhile, the use of AI and algorithms can track who is going where and when to help better understand desired travel patterns, frequencies and journey lengths. This data can inform more efficient scheduling of NHS appointments and provide low-carbon routes to necessary trips.

- **COMMUNITY WEALTH BUILDING**

It is vital to SIC that any profit generated in the community is kept there and that the rural energy hub is a sustainable community asset for many generations to come.

- **SUSTAINABLE ENERGY SYSTEMS**

SIC have secured funding to conduct a feasibility study that will explore the business case for a district heating scheme on the island. Currently, when the grid is at capacity, energy production is curtailed, however, under a district heating system, waste energy could be utilised for community networks.

One notable drawback of this is the unappealing price point to the consumer. With policy developments, the price point could be made more accessible and affordable to the community.

NEXT STEPS

SIC will continue to rollout the pilot hub and monitor its impact and value until the end of the project on the 31st of October 2025. The Council's experience will be used to explore the benefits of a rural energy hub and, if successful, provide justification for the implementation of additional interconnected hubs across Shetland and Orkney.

Under the core deliverables of this project, SIC will explore the replicability of this model and develop a handbook on how to implement and manage similar models. This report is due to be published at the end of the project on 31st of October 2025.

WANT TO KNOW MORE?

Click here to read more about Shetland Islands Council's Rural Energy Hub.

To learn more about this case study, please get in touch with Shetland Islands Council's Climate Change Strategy Team at climatechange@shetland.gov.uk