

Big Projects, Little Community Benefit? How Low Carbon Pilot Projects Can Help Tackle Fuel and Transport Poverty.

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Introduction

Scottish islands have been identified as potential hubs for renewable energy production, as they have continuously participated in sustainable energy and environmental management projects and networks since at least 1993, many of which have been supported through EU funds and domestic match-funding (e.g., Clean Energy for EU Islands secretariat [1], ISLANDER [2], BIG HIT [3]). Through the recent Islands Growth Deal [4], the Islands Centre for Net Zero [5] will also support the Scottish Islands in becoming lighthouse communities in the energy transition.

Orkney in particular has become a European leader in the testing and application of new energy technologies [2], having won the 2019 EU Responsible Island prize [6] for producing over 100% of its electricity from renewable sources for nearly a decade. Despite this, petrol/diesel is still utilised in Orkney [7] and the level of fuel and transport poverty is relatively high [2]. This raises questions about the translatable benefits on communities in a context of increased cost of living [8], and relates to post-Brexit debates as Orkney has significantly relied on EU funds [9], especially in regards to its energy transition.

This study aimed to examine funding impact in enabling a just transition to low carbon heat and mobility in Orkney, by assessing the effectiveness of existing government-funded projects and analysing community perception and engagement, lessons learned, and good practice.

The objectives of this study were:

- To understand if and how Orkney communities have been involved in the design and implementation of innovative low carbon solutions.
- To assess the benefits of these low carbon projects, from the community perspective.
- To identify and analyse lessons learned, potential interventions and good practice, from a citizens' perspective, to ensure equitable outcomes and sustained impacts from these low carbon initiatives.

Findings suggest that despite the multiple innovative low-carbon initiatives being realised in Orkney, direct community benefits are few and/or difficult to access or measure. Community engagement is also prevalent across several projects, but mode of involvement tends to be a punctual or one-off consultation with only the 'usual subjects', whereas available research points to the benefits of more developmental and inclusive approaches. A community-centric approach is thus recommended for policymakers and initiative leaders. Moreover, infrastructure and resource constraints are highlighted as important factors to be addressed for tackling fuel and transport poverty in the islands and ensuring an equitable and just transition.

Methods

The core activity within this research project was citizen engagement, in line with the project goals of gaining an understanding of past and present engagement of local communities with net zero

projects and gauging residents' opinions on their usefulness and effectiveness. To obtain in-depth insights into participants' knowledge, perceptions, and attitudes, qualitative methods are most appropriate [10]; in this study, small group discussions were considered to be suitable as the topic was not of a particularly sensitive nature, and interactions between participants were thought to further deepen the insights to be gained by sparking discussions between participants with differing experiences and opinions.

Two focus groups were facilitated through collaboration with local organisation THAW Orkney [11] and the Island Centre for Net Zero [5], and they were held in May 2023 in Stromness and Kirkwall, the two main towns on the Orkney mainland. Participants were invited through newsletters, flyers in the local library, local radio ad, and word-of-mouth; every interested adult (18 years of age or older) with sufficient understanding of the English language was eligible to attend. At the start of each event, the researchers gave a brief overview of the topic area and introduced the study, its methodology, and the envisaged outcomes. Subsequently, participants were invited to read the participant information sheet and were then required to sign an informed consent form. Participants were also asked to complete a short questionnaire to collect basic demographic details. To guide discussions, three questions were posed to participants by the facilitator in turn:

1. How familiar are you with past and current low carbon projects in Orkney?
2. To what extent have you been involved in the design and/or development of low carbon energy projects?
3. To what extent have you and/or your community benefitted from low carbon projects in Orkney?

Discussions were recorded following additional verbal consent from all participants; recordings were transcribed (intelligent verbatim) using a professional transcript service. Transcripts were analysed using inductive content analysis [12]. In the first step, two researchers independently coded small text units (words or sentences) into themes and grouped themes expressing similar concepts into categories. Afterwards, both researchers discussed the emerging themes and categories, redefined where required, and organised the categories in a structured framework. Finally, a third researcher validated the developed framework by assessing the underlying coding and cross-checking the emerging themes and categories. Disagreements were resolved through discussion. Data analysis was supported using Miro, NVivo and MS Excel (ref).

The study has obtained approval from the Research Ethics and Governance Manager, University of Strathclyde, reference number UEC23/38.

Results

Preliminary results of the transcript analysis show that certain concepts and themes are emerging from the workshop discussions, relating to technologies and types of energy projects (e.g. wind turbines, low carbon, electric vehicles, etc.), the role of European and UK Government funding, the type and extent of community engagement and perceived benefits from these projects, and the links with fuel and transport poverty.

Figure 1 shows 'word clouds' representing the most mentioned concepts in the form of bigrams (i.e. two adjacent words, used together), where the size of the words represent the frequency in which those concepts appear in the transcripts. These word clouds provide a 'flavour' of the topics and type of discussion that took place. However, we will develop a more comprehensive content analysis, to further refine and formalise the themes and findings from the workshops, and provide policy recommendations.

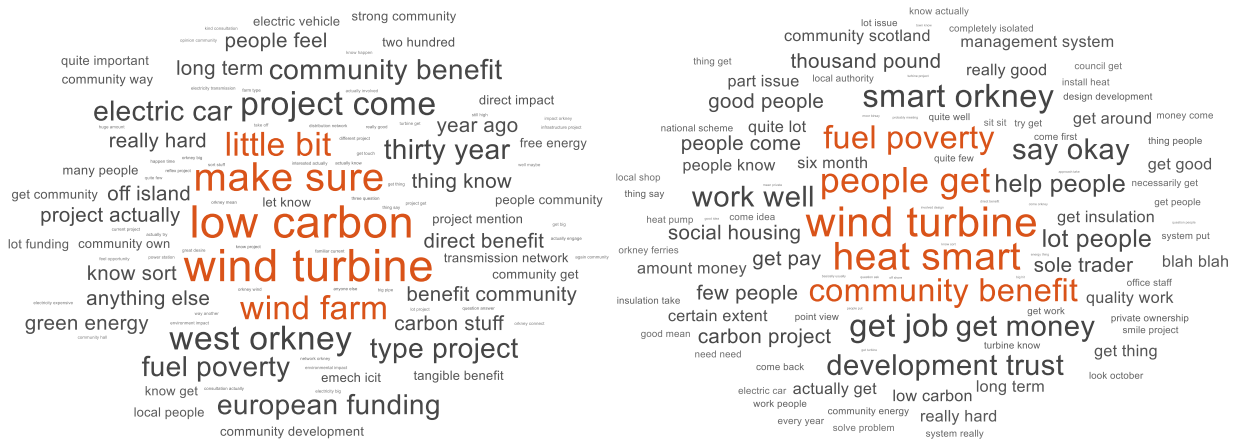


Figure 1. Word clouds (bigrams) from workshop transcripts from Stromness (left) and Kirkwall (right).

Workshop findings and desk-based research also demonstrate there is a thriving landscape of innovative low-carbon initiatives within the Orkney Islands, generally well-known to residents. While these endeavours have been argued by workshop participants to have made significant strides in promoting low-carbon solutions, direct benefits to the community are not as evident. Our findings underscore several areas of concern:

1. **Community Engagement and Direct Benefits:** Participants expressed that despite the abundance of low-carbon projects, meaningful engagement and direct benefits for community members remain elusive. Accessibility and affordability to engage with projects or initiatives emerged as key challenges, particularly for the most vulnerable segments of the population.
2. **Improved Approach to Community Engagement:** Participants emphasised the need for a more developmental, inclusive, and benefit-oriented approach to community engagement in low-carbon projects. This shift would focus on fostering long-term involvement throughout the several stages of a project, and generating tangible advantages for community members.

Several challenges were also discussed in the workshops, affecting the local community:

- **Grid Connections:** The limitations in grid connections were identified as a constraining factor for the implementation of new low-carbon projects.
- **Limited Local Services:** Participants highlighted the scarcity of essential services, such as limited access to NHS services within the locality, as a pressing issue.
- **Housing Shortage:** A shortage of housing, affecting both residents and incoming workers, emerged as a concern that intersects with the broader sustainability and liveability of the region, and the potential deployment of low carbon solutions.
- **Skilled Workforce Gap:** The lack of a skilled workforce poses a challenge to the successful execution of low-carbon projects and the overall economic viability of the Orkney Islands (e.g. not enough skilled labour to implement energy efficiency measures or installing heat pumps).

Conclusions

Our initial analysis highlights key insights and challenges relating to the level of engagement and benefits perceived by island communities from low carbon projects. We will continue developing our analysis of qualitative data through content or thematic analysis or similar techniques, as appropriate, that will allow us to identify relationships between emerging themes and define or refine academic knowledge and generate broader practical lessons. We will also present our findings and engage with stakeholders to develop policy recommendations and good practice on how to better engage with communities and maximise potential community benefits, while addressing the commercial and environmental objectives from private, government and/or community funded projects.

Given the preliminary research findings, the following recommendations are suggested for both policymakers and managers or heads of low-carbon projects for a more effective adoption and integration of their (transition) initiatives that ensures community benefits:

Table 1: Key policy recommendations based on initial research findings.

For policymakers	For low-carbon project managers
<p>Foster inclusive community engagement:</p> <ul style="list-style-type: none"> • Prioritise policies and initiatives that facilitate inclusive community engagement in low-carbon projects. • Create platforms for ongoing dialogue and collaboration between policymakers, project leaders, and community members to ensure their voices are heard and valued. 	<p>Community-Centric Approach:</p> <ul style="list-style-type: none"> • Adopt a community-centric approach that focuses on generating tangible benefits for residents rather than simply seeking their participation. • Consider long-term and sustained engagement with the community rather than one-off interactions.

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