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Community Renewable Energy Project







CoRE Project Background

- ***Ayrshire Growth Deal:*** *£251m regional investment strategy between Ayrshire Councils, UK & Scottish Government aimed at revitalising Ayrshire's economy.*

- **CoRE Vision:** *Showcase how a green recovery can transform our rural towns and villages, make our communities better connected, healthier and improve standard of living, supporting a just transition and creation of long-term sustainable jobs.*

- **CoRE Funding:**
  - UK Government and EAC Funding - £19.5m
  - External Match-funding to date: £2.7m

- **Focus area: Cumnock and Doon Valley:**
  - Economic and population decline, since closure of coal mining industry.
  - Renewable production not reflected in local employment within sector.

- **Challenges facing rural and remote communities:**
  - Limited transport and geographical access challenges.
  - High levels of fuel poverty and multiple deprivation.
  - Youth migration: 10% decrease in its working age population.



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CoRE Scope

- **Deliverables:**
  - **Phase 1:** *Pathfinder demonstrator projects (in-delivery).*
  - **Phase 2:** *Legacy renewable energy infrastructure projects.*
  - **Phase 3:** *Design of Centre of Excellence –Vocational Training Academies.*

- **Strategic Priorities:**
  - **Fuel poverty:** *Build community resilience to the energy crisis.*
  - **Skills:** *Address skills shortages, raise aspiration, drive: innovation, growth & investment.*
  - **Community regeneration:** *Holistic approach- create attractive, low-carbon communities.*
  - **Well-being & Connectivity:** *Prioritise support for vulnerable and disadvantaged*. Improved *sustainable transport and digital connectivity.*



- **Demonstrator Projects -** Tools for change:
  - **Building Retrofit–** Warm, healthy and affordable homes and buildings.
  - **Renewable energy –** Local generation and storage to support energy self-sufficiency.
  - **Sustainable transport –** Improve connectivity and reduce emissions.
  - **Active travel –** Improve physical and mental health. Reduce reliance on fossil fuel vehicles.

Meagher Court

- **Meagher Court:**
  - Three blocks of mid-rise flats - 36 flats in total - all Council owned.
  - Mid 1960's construction:
    - Cavity walls with failed EWI, flat roof & concrete floors.
  - High-levels of fuel poverty and multiple deprivation:
    - History of social issues and area stigma leading to low-housing demand.
- **Project Objectives:**
  - Reduce fuel poverty and carbon emissions through whole-house retrofit.
  - Develop a scalable retrofit pathway to inform a strategic retrofit approach.
  - Improve health and well-being through warm, dry and energy efficient homes.
  - Support regeneration of Barshare, through repopulation of a vacant block of flats.
  - Decarbonise heating using an affordable system for our tenants.
  - Support development of retrofit supply chain and employment pathways.
- **Contract and Funding:**
  - Managing Agent: Energy Agency – Ayrshire-based Energy Efficiency charity.
  - Contract: SBCC Design & Building – Procast Principal Contractor & JGA Architects.
  - D&B construction for block one and PCS design for blocks two and three.
- **Why the project matters:** *Demonstrate how local authorities can decarbonise hard-to-treat flats while tackling fuel poverty, improving wellbeing and informing future retrofit models.*





Scope of Works

- **Retrofit Approach:** Test & evaluate performance & impact of tiered whole-house retrofit:
  - Block One - 60% heat demand reduction.
  - Block Two - 70% thermal heat demand reduction.
  - Block Three - 80% thermal heat demand reduction.
- *Ambition: Find optimum balance between thermal performance, cost and scalability.*

- **Fabric Measures:**
  - Walls: Hybrid External and Cavity Wall Insulation system.
  - Roof: Lightweight pitched roofing system with rigid insulation boards.
  - Windows, Floors, Doors: Triple-Glazing, under floor insulation and efficient doors.

- **Heating and Renewables:**
  - Ground source network with shared borehole array.
    - Lowest running cost system and stable year-round heat source.
  - SolarPV array, battery storage and SolarShare system.

- **Community Well-Being & Future Proofed Homes:**
  - External modernisations: Pitched roofing, external façade, landscaping.
  - Internal modernisations: New kitchens & bathrooms, enhanced communal areas.
  - Health and Well-Being: Secure and defined garden space, CCTV and external lighting.
  - Digital: Communal WIFI (Fibre) & communal TV aerial.



Monitoring & Evaluation

- **Pre and post installation monitoring (continuous assessments):**
  - Air quality and energy consumption:
    - Internal temperatures, relative humidity, CO_2 levels, indoor air quality and internal to external heat loss.
    - Energy consumption levels – CT clamps.
  - Technical performance:
    - U-value testing and thermal performance verification.
    - Air-tightness testing and thermal imaging surveys.
    - EPC and SAP improvement analysis.
  - Resident Impact (through feedback):
    - Installation experience and disruption.
    - Perceived internal comfort, property conditions and perceived aesthetic improvements.
    - Health, wellbeing and quality of life outcomes, including chronic health assessment improvements.

- **Retrofit Performance vs Cost Evaluation:**
  - Assessment of impact and performance of retrofit approaches using above matrix, against capital cost to identify the most effective & scalable retrofit pathway.



Academic Support

- **UKRI: Centre for Net-Zero High Density Buildings (CENZ HDB):**
  - Pre-installation modelling of fabric & heating solutions to inform selection & specification.
  - Enhanced monitoring, data analysis and independent evaluation.
  - Resident surveys, behavioural analysis and social impact assessment.

- **EPSRC Impact Accelerator:**
  - Evaluation of retrofit delivery, procurement and funding models.
  - Assessment of workforce development and green skills pathways.
  - Analysis of routes to scale and replication across other communities.

- **Community & Educational Engagement:**
  - Resident co-design workshops to support community-led decision making and project buy-in.
  - STEM and retrofit education workshops delivered within local schools.
  - Site visits showcasing career opportunities within the construction and energy sectors.

- **Added Value of Academic Support:**
  - End of project case study evaluation incorporating a wide range of outcomes/recommendations:
    - Retrofit pathways, community engagement strategies, career pathways & delivery models.

University of Strathclyde Glasgow

The University of Edinburgh

University of the West of Scotland UWS

CeNZ-HighDB

Progress and Timelines

✅ Progress to Date:

- Project mobilisation and resident engagement completed.
- Retrofit designs and baseline monitoring completed.
- External Wall Insulation (boarding), Cavity Wall Insulation, window replacements & internal refurbishment works completed.
- SPEN network connection and enabling works completed.

🔄 Current Focus:

- Borehole drilling for GSHP infrastructure.
- Installation of pitched roof.
- Continued resident engagement and project monitoring.
- Retrofit designs for blocks two and three.

🗓️ Forward Programme:

- Block 1:
  - Practical Completion of Block One: February 2027.
  - Tenant decant from Block Two: February 2027.
- Blocks 2 & 3:
  - Block 2: Construction programme: March 2027 - October 2027.
  - Block 3: Construction completion target: Spring 2028.



Successes & Lessons Learned (To Date)

✅ Successes:

- **Strong partnership model:** Established a cross-sector partnership bringing together local authority, academic, managing agent and industry expertise, supporting enhanced project delivery, community benefits and research outcomes.
- **Leveraging external funding:** £1.3m secured: Social Housing Net-Zero fund and academic research projects.
- **Early market engagement:** Engagement with frameworks and contractors helped identify delivery partners with the experience and capacity required for a complex retrofit project.
- **Resident-centred approach:** Early and ongoing tenant engagement helped shape project scope, align delivery with resident priorities and secure community buy-in.
- **Focus on the wider benefits:** Outcomes such as warm homes, reduced fuel poverty, improved wellbeing and place-based regeneration are often more meaningful to residents than carbon savings alone.

📖 Key Lessons Learned:

- **Balance innovation with deliverability:** Innovative solutions must be tested against market capacity, affordability and programme constraints, as demonstrated by the unviability of the off-site modular solution.
- **Undertake building surveys early:** Comprehensive condition surveys are critical to identifying hidden defects and reducing construction-stage variations.
- **Future-proofing older buildings can be challenging:** Ambitions around accessibility, decarbonisation and modernisation must be balanced against cost and technical feasibility.
- **Secure the right mix of expertise:** Complex retrofit projects require a blend of energy, construction and building design expertise from the outset.
- **Balancing decarbonisation & affordability remains challenging:** Technical solutions exist, but capital cost remains high.

Retrofit Expansion through CoRE

- **Barshare Phase Two:**
  - Priority area to due to high-levels of deprivation and fuel poverty.
  - Area contains x14 property archetypes, including non-traditional build properties.
  - Archetypes are representative of wide range of ex-Local Authority built properties.
  - Project scope: Test tiered levels of whole-building retrofit to range of property types to develop scalable pathway for each archetype.
  - Feasibility study in progress to develop whole-building retrofit solution for cross-wall construction properties.



- **Rankinston:**
  - Objective: *Create an energy self-sufficient future for a rural off-gas community:*
    - *Retrofit: Informed by Meagher Court pathfinder, with blended funding model to enable mixed-tenure and community building retrofit.*
    - *Renewable Energy: Wind energy for sustainable energy & heat electrification.*
    - *Sustainable Transport: Expand the CoRE EV car club and enhanced active travel.*
    - *Employment & Skills: Leverage local wind farms and demonstrator projects.*



  - **Learnings from Meagher Court is shaping development of the next phase of CoRE project.**

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