



# Co-Benefits to Decarbonisation

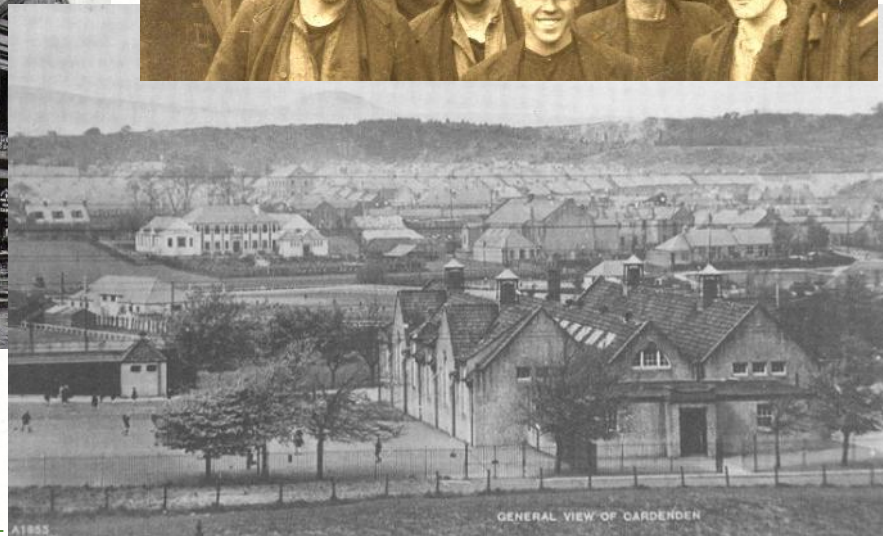


**Ruxandra Cazan**  
**Enterprise and Sustainability Officer**  
**Ore Valley Housing Association**

# Ore Valley Housing Association

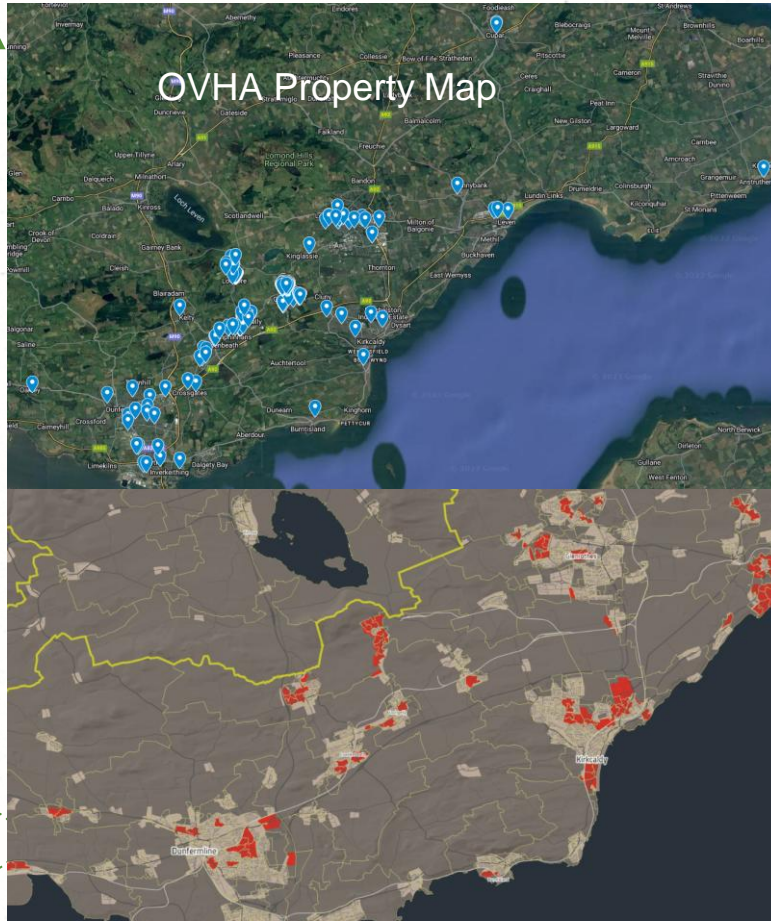
- Formed in April 1991
- Community-led organisation.
- Stock transfer, new build, acquisition and 'mortgage to rent'.
- 802 houses for social and mid-market rent.
- Cardenden, Lochgelly, Benarty, Glenrothes and Levenmouth.
- Primarily former mining towns.
- Previously enjoyed high levels of employment.

# Fife's Mining Heartland



# Current Challenges in these communities

- High levels of poverty, fuel poverty and unemployment.
- Poor Scottish Index of Multiple Deprivation levels.
- Below average educational attainment.
- Below average income levels.
- Inadequate transportation options.
- Little inward investment since coal mining industry decline.
- Impact from continued loss of local services.
- Ongoing 'Cost of Living' crisis.
- Fife Council and Scottish Government declaring Housing emergencies



# Compounding housing challenges

- Net Zero warrant and related national targets
- Challenges of retrofitting the oldest and most inefficient housing stock in Europe
- Fuel poverty- experienced by an estimated 38% of households in Scotland
- Increased prevalence of damp and mold issues
- Unintended consequences of retrofit projects
- Increased housing adaptations of age-related needs
- Climate change adaptation needs

**Complex problems require complex solutions**

## To meet these challenges, we need:

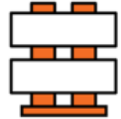
- Robust national and local policies that consider all such aspects
- Financial instruments that are fit for purpose
- Adequate financial recourses
- A skilled labour workforce – particularly construction industry
- Mitigated exposure to supply chain risks
- A mainstream understanding of the complexities and possibilities offered by Net Zero agenda
- More proactive approaches
- Long term commitments from all stakeholders

**We need integrated approaches that deliver co-benefits.**

# The UK Co-Benefits Atlas





Climate actions lower greenhouse gas (GHG) emissions but the gains for society reach further. Specific interventions were selected to estimate their social benefits:

- Dampness reduction
- Excess cold
- Excess heat
- Air quality
- Noise reduction
- Hassle costs
- Congestion reduction
- Road repairs
- Road safety
- Dietary change
- Physical activity



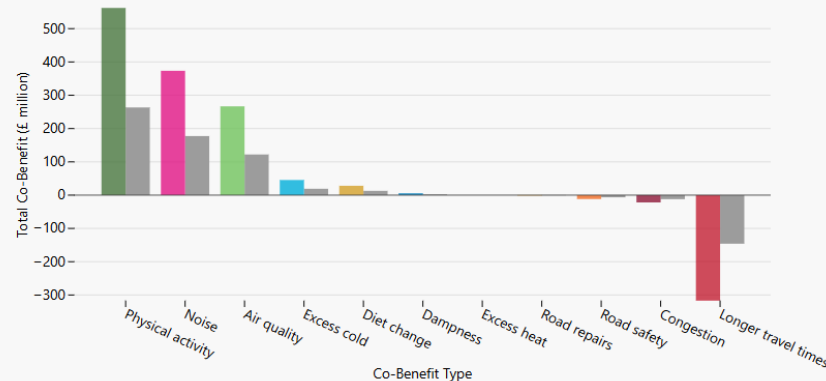
# The UK Co- Benefits Atlas

- 32 Local authorities in Scotland selected to explore how each will benefit from achieving Net Zero and learn about the characteristics of its households.
- Fife's local authority report shows:

 £0.929 billion  
 Local area benefits  
 £2439.4  
 Per capita benefits

## 11 types of co-benefit values (vs. Scotland Average)

Co-benefit values for Fife compared to average value of benefits received across all local authorities in Scotland (grey).



## Co-benefit gain/loss for Fife over 5 year intervals

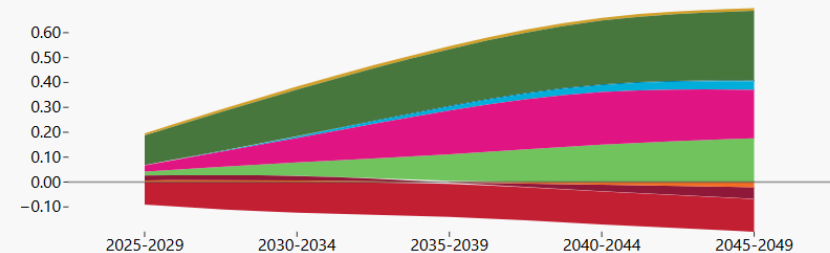
Total gains and losses are shown at five-year intervals for each co-benefit. The curve between points is smoothed to show the general trends.

### Co-benefits:

Expand for detailed explanation

- Air quality improvements ▼
- Noise reduction ▼
- Excess cold reduction ▼
- Excess heat reduction ▼
- Dampness reduction ▼
- Congestion impact ▼
- Longer travel times ▼
- Road repairs impact ▼
- Road safety impact ▼
- Physical activity increase ▼
- Dietary improvements ▼

£billion



Source: The UK Co-Benefits Atlas

# Scottish Research Alliance for Energy Homes and Livelihoods

- The Alliance brings together scholars from various disciplines and institutions, alongside industry professionals, businesses, government bodies, charities, and local communities.
- Their focus is on collaboration, sharing knowledge and expertise across sectors to help break down silos and accelerate Scotland's transition to net zero in Scotland by 2045
- They identified that the major challenges facing the transition to greater sustainability and net zero by 2045 sit across three broad themes



University of  
St Andrews



University of  
**Strathclyde**  
Glasgow



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# Scottish Research Alliance for Energy Homes and Livelihoods

- Decarbonising Heat with initiatives such as the Decarbonising Heat Crucible
- Financial Pathways hosting the Financial Pathways to Net Zero incubator
- Sustainable Housing with projects including Emerging and Sustaining Infrastructures of Care



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St Andrews



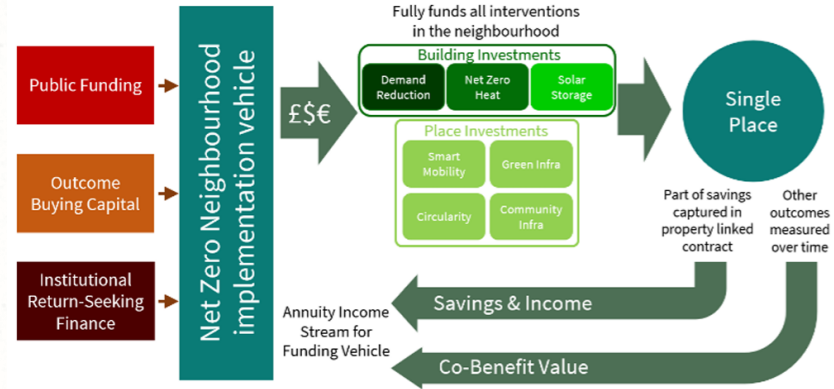
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# Living Places

- Focuses on developing innovative solutions to deliver and fund place-based decarbonization
- They bring together communities, local & national government, business, social landlords, development banks, institutional finance, industry bodies and charities to collaborate on neighborhood scale projects



Source: Living Places



Source: Living Places

## **Results achieved so far**

- Showcasing the successful work done already
- Quantifying the benefits achieved beyond the initial scope of the project ( social as well as economical)
- Encourages scale up efforts by finding support to deliver these
- Integration of Co-Benefits model in Local Heat and Energy Efficiency Standards

**Case study: Ore Valley Housing Association  
Previous and Current projects**

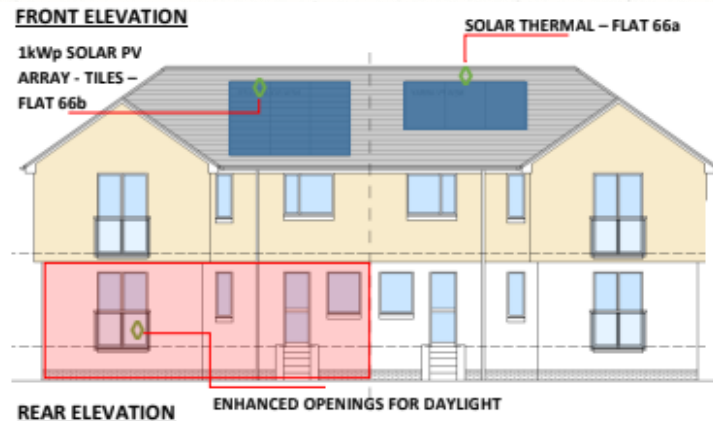
# Existing Stock Improvements

- Programme of improvements over many years.
- Focus on fabric efficiency works.
- Cavity Wall insulation, External Wall insulation and draughtproofing.
- Replacement roofs, doors, windows and solar p.v.
- Boiler replacement works ongoing.
- Challenge of balancing kitchen and bathroom replacements with fabric improvements.
- Affordability is growing in importance for tenants.
- Money is always a factor for all parties!



# Stock Improvement Testing

- Rosewell Drive in Lochore.
- A four-in-a-block property.
- Utilised a combination of test technologies.
- This included solar p.v., solar thermal, triple glazing, underfloor heating, underfloor insulation, heat recovery and external insulation.
- Air quality solutions also tested.
- Test bed for finding the most effective combination of solutions.
- Developed in partnership with Napier University in 2015



# Future Heating Solutions

- 44 Whitehall Drive in Cardenden.
- Property matches our most common archetype.
- Very old storage heating system.
- Replacing with modern high-heat retention storage heaters.
- Solar photovoltaics, underfloor insulation and new smart controls.
- Ventilation solutions also being installed.
- IoT sensors also being installed to monitor comfort, energy use and air quality.
- Testing of new zero emission heating system.



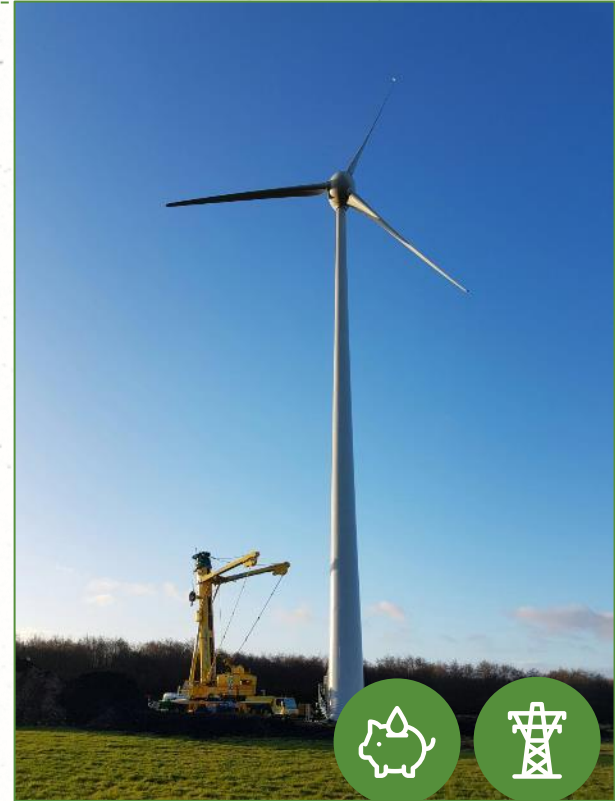
# New Housing – Bowhill Institute

- Historic Miners Institute in Cardenden
- Culturally significant building in heart of the community.
- Unused for 25+ years.
- Symbol of neglect and an eyesore.
- Project focused on façade retention.
- Very challenging development.
- Expanded to integrate space for 10 homes for social rent.
- Energy efficient design including Solar PV, high insulation levels etc.
- Won 2024 Green Apple Environment Award for Regeneration.
- Shortlisted for further awards.



# Wind Turbine & Community Investment Fund

- 500kW commercial 99.5m wind turbine.
- 1800MW of power produced per year.
- Equivalent to demand of 470 homes.
- All power sold to grid via PPA.
- c.£350,000 revenue p.a. / c.400tC/p.a.
- Funded by OVHA, EU and ScotGov.
- Owned by Ore Valley Energy and CHAP.
- Profits split between OVHA and Community
- Community Wind Investment Fund distributes grant funding in support of local projects.
- Won 'Best Community Project' at Scottish Green Energy Awards 2018.
- Shortlisted for St. Andrews Prize for the Environment 2023.



# Ore Valley Business Centre

- Opened in 2011.
- Business and meeting space.
- Home to 21 business spaces.
- Designed to be low carbon.
- TermoDeck thermal energy storage & heat recovery system.
- 24 hour facility.
- Owned by subsidiary Ore Valley Community Initiatives.
- Former derelict bingo hall.
- Supports business growth, job creation and economic activity in local community.
- Other projects on-site.



TermoDeck



# Electric Car Charging Network

- 11 x Charging points in Lochgelly and Cardenden.
- More coming soon.



## LOCHGELLY AND CARDENDEN

### Get up and go with green energy



Business development manager Nick Clark, board chairwoman Susan McDonald and CEO Andrew Saunders.

Ore Valley Group has installed four electric vehicle charging points in Cardenden and Lochgelly, in a first for the towns.

It fills a significant gap between Cowdenbeath and Glenrothes where no public charging facilities were previously available.

The charging points, funded with Scottish Government support, are free for public use for the first 12 months to encourage uptake.



# OVHA Electric Car Club project

- 10 cars at 5 locations across Fife,
- All electric vehicles,
- App controlled, free to join,
- In partnership with Enterprise,
- Heavily used during Covid,
- Now self-sustaining,



# Ore Vall-E-Bikes

- 4 folding electric bikes.
- Free use for registered users.
- 2 located in Cardenden.
- 2 located in Lochgelly.
- Helmets and other protective gear provided.
- Alternative to car, bus and train travel for local journeys.
- Many users have gone on to buy their own e-bikes.
- Project linked with Fife-wide Climate Action Fife project.



# Future Project: District Heating Cardenden

- District heating project to provide heat and hot water to 1200+ social homes and 10 public buildings
- Spare heat from local energy from waste plant
- Key local partners involved inc. Council and RSLs.
- Builds on previous CHP effort
- Aligns with ScotGov & LHEES strategic aims
- Help address cost-of-living and EESSH/SHNZS
- Aspiration of 'Scandinavian model' of community-ownership.



DISTRICT HEATING  
CARDENDEN



## Next steps

Full integration of the Co-Benefits model in National and Local Policies, Strategies and Delivery Models

- Heat In Building Bill
- Social Housing Net Zero Standard
- Scotland's Energy Standards Review outcomes
- A coordinated un-siloed delivery approach from all stakeholders
- Facilitating new collaborations to deliver compounding benefits and mutual value, delivering a sustainable, equitable and climate friendly Net Zero for the Housing Sector