



Stirling Renewable Heat Project

Overview

- ❖ Partner Introductions
- ❖ LCITP Overview
- ❖ Funding Overview
- ❖ Project Overview
- ❖ Local Benefits
- ❖ Opportunities & Impacts
- ❖ Challenges & Risks
- ❖ Future Expansion
- ❖ Transferability & Replication Opportunities
- ❖ LCITP ILES Funding Call



1. Partner Introductions

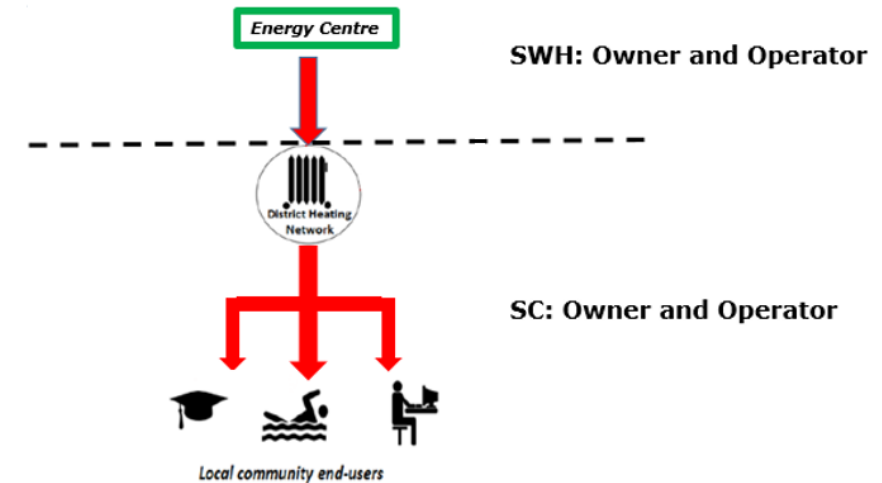
Collaborative partnership with aligned vision towards decarbonisation of heat, waste management and delivery of decentralised energy solutions which do not compromise air quality.



- ❖ Commercial subsidiary of Scottish Water aimed at developing opportunities and the sustainable development of Scottish Water assets
- ❖ Vast experience in delivery of renewable energy projects across Scottish Water estate: includes investment in solar, wind, hydro, biomass and biogas
- ❖ **Owner and operator of energy centre**



- ❖ Project Lead: Local Authority which provides and ensures delivery of high quality public services
- ❖ Energy strategy (LHEES) focused on providing direct benefits to residents, communities and to businesses through low cost, renewable and low carbon energy as well as income generation/savings generation to the Council
- ❖ **Owner and operator of district heating network**



2. LCITP Overview

Project was initially included in City Development Framework

- ❖ Low Carbon Infrastructure Transition Programme - Capital funding call for demonstrator projects, aligns directly with Scottish Government's Energy Strategy
- ❖ Joint EU and Scottish Government Fund which provides up to 50% total project capex
- ❖ Partnership bid with Scottish Water Horizons – Stirling Council lead bid partner
- ❖ Match funding of 56% has been secured by Stirling Council and Scottish Water Horizons
- ❖ 3 stage technical and financial assessment panel, followed by independent due diligence process prior to grant award
- ❖ September 2018 deadline due to being EU funding

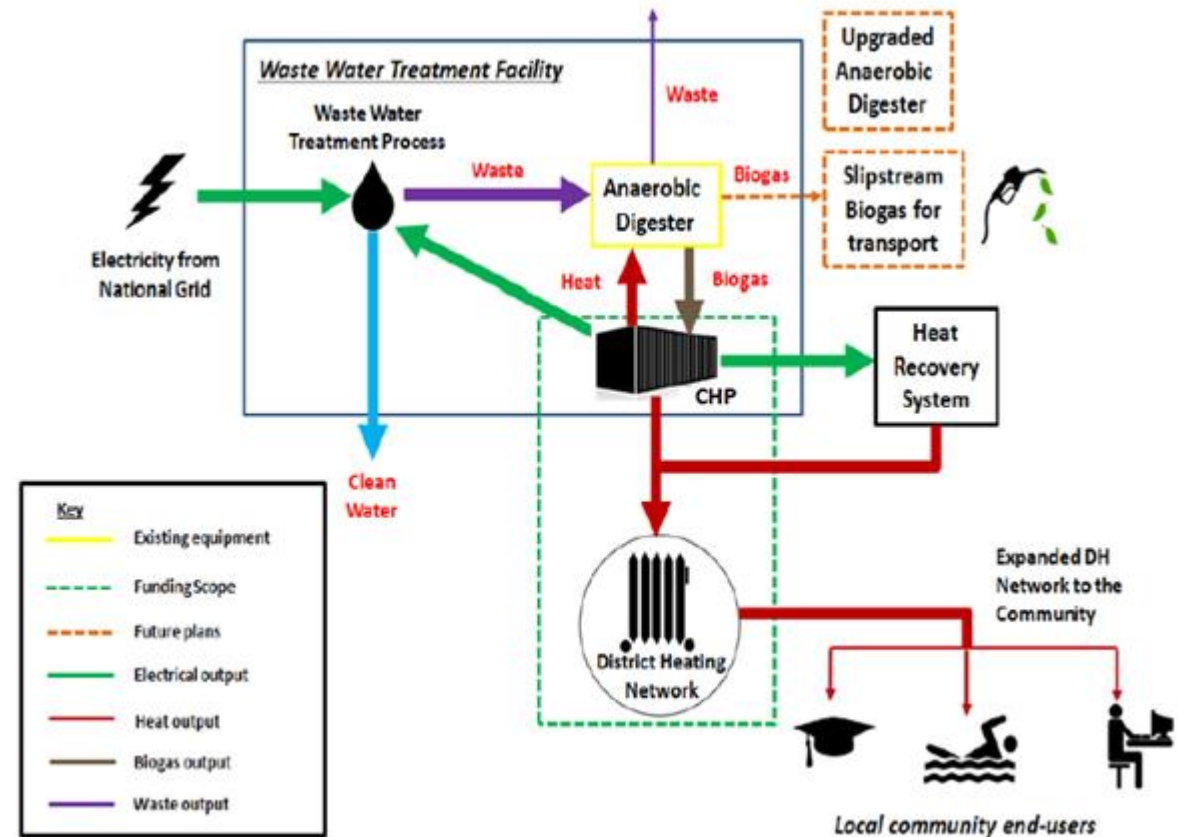


3. Funding Overview

Match Funding Secured by Stirling Council and Scottish Water Horizons March Formal Offer of Grant Received 30th March 2017

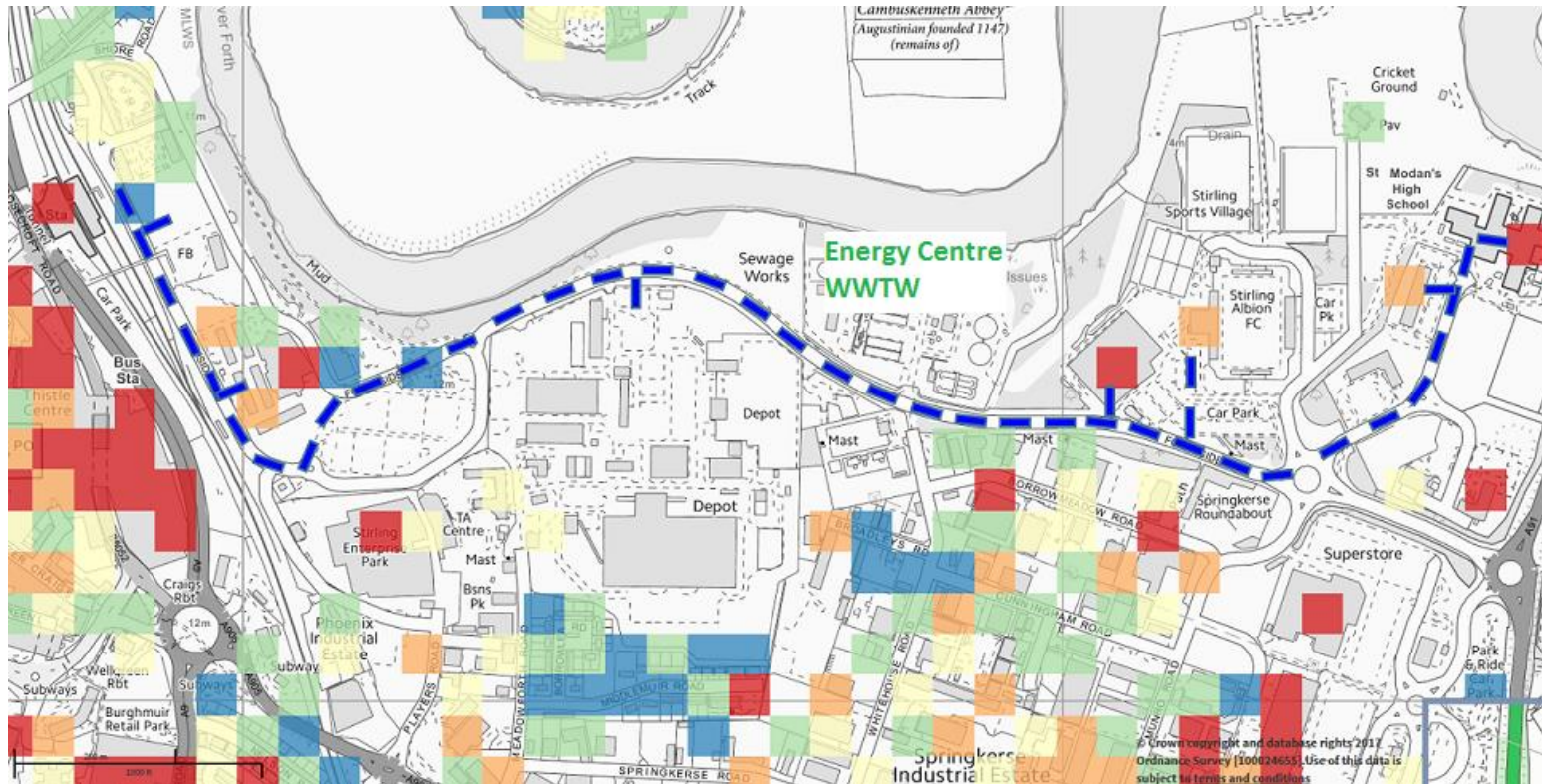
Total Project Capex: £4,557,442

- ❖ LCITP Funded Portion: £1,995,331.50
- ❖ SHARC system not included in total ask due to RHI – cannot claim incentives if receiving grant offer)



4. Project Overview

Innovative Demonstration of Harnessing Energy from Waste and Carbon Neutral Biogas to Deliver Low Carbon & Renewable Affordable Heat with Negligible Air Quality Impact for the Local Community



Proposed End Users:

- ❖ St. Modan's HS (PPP)
- ❖ Enterprise House
- ❖ Forthbank Stadium and Conference Facilities
- ❖ The Peak Leisure Centre
- ❖ Library HQ
- ❖ The Barracks
- ❖ Civic Hub Development



5. Local Benefits

Detailed Techno-Economic Engineering Feasibility Analysis Carried Out to Identify Local Financial & Environmental Benefits Resulting from Project



Investing in Infrastructure that Brings Direct Benefits to End Users:

- ~10% energy savings for end users
- Income generation - investment in future network and/or community projects
- Added resilience for each end user – no removal of existing systems
- Carbon reductions and associated CRC benefits; reputational benefits

Local Opportunities:

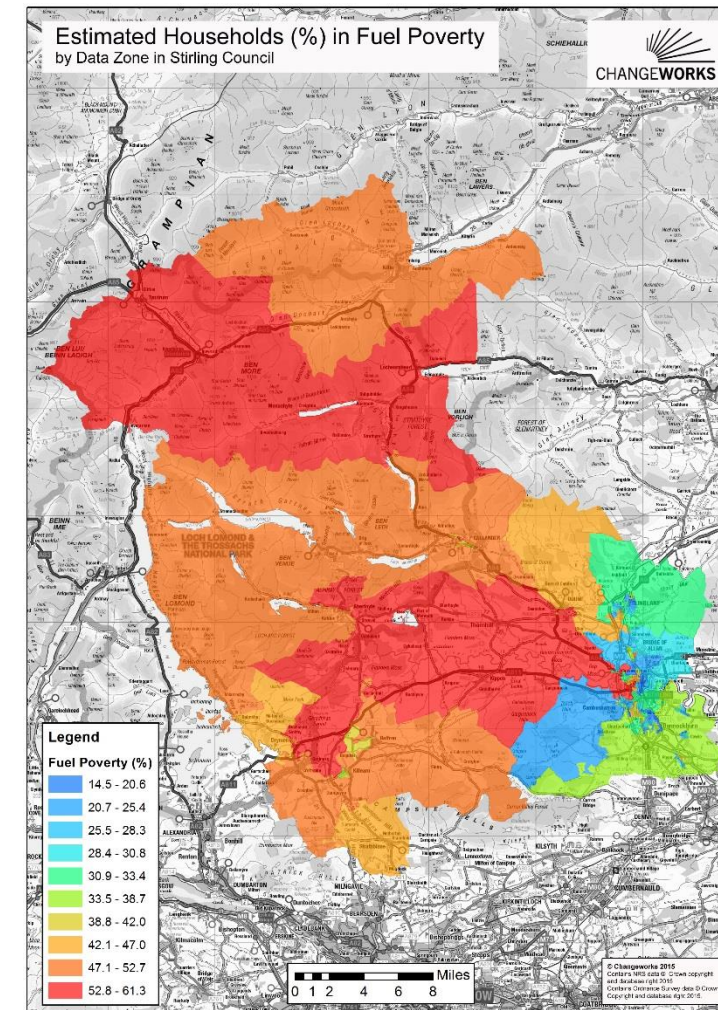


- Opportunity for job creation and upskilling of local workers in low carbon and renewables – a growing industry which Scotland has world leading targets in
- Potential for safeguarding jobs through regeneration and economic development of area
- Potential for replication across the Council area & Scotland to help target fuel poverty

Local Area Enhancement:



- Opportunity for energy system in community environments without impacting air quality
- Key in economic development and regeneration of area (with Forthside earmarked as new business “grow on space”)



6. Opportunities & Impacts

Detailed Techno-Economic Engineering Feasibility Analysis Carried Out to Identify Local Financial & Environmental Benefits Resulting from Project



Cost Savings

- ❖ Increase in efficiency and security of supply
- ❖ Reduced energy costs to end users predicted at 10%
- ❖ Reduced O&M costs to end users



CO₂ Reduction

- ❖ Total of 1,030 tonnes CO₂ saved annually (reduction of 30%)
 - 54% due to decarbonisation of heat (going to the district heating network)
 - 46% due to decarbonisation of electricity (powering the Waste Water Treatment Works)
- ❖ Suitable for urban environments/settlement areas



Waste Reduction

- ❖ Overall over 5GWh of waste energy recovered
- ❖ 3GWh amount of waste converted to low carbon heat; 4GWh electricity
- ❖ 2.6GWh amount of excess biogas used as fuel for heat and electricity generation



Energy Saving Technologies

- ❖ Heat provided from decarbonised heat instead of carbon intense existing systems
- ❖ Overall energy consumption reduction – 2.5GWh annual reduction from whole scheme



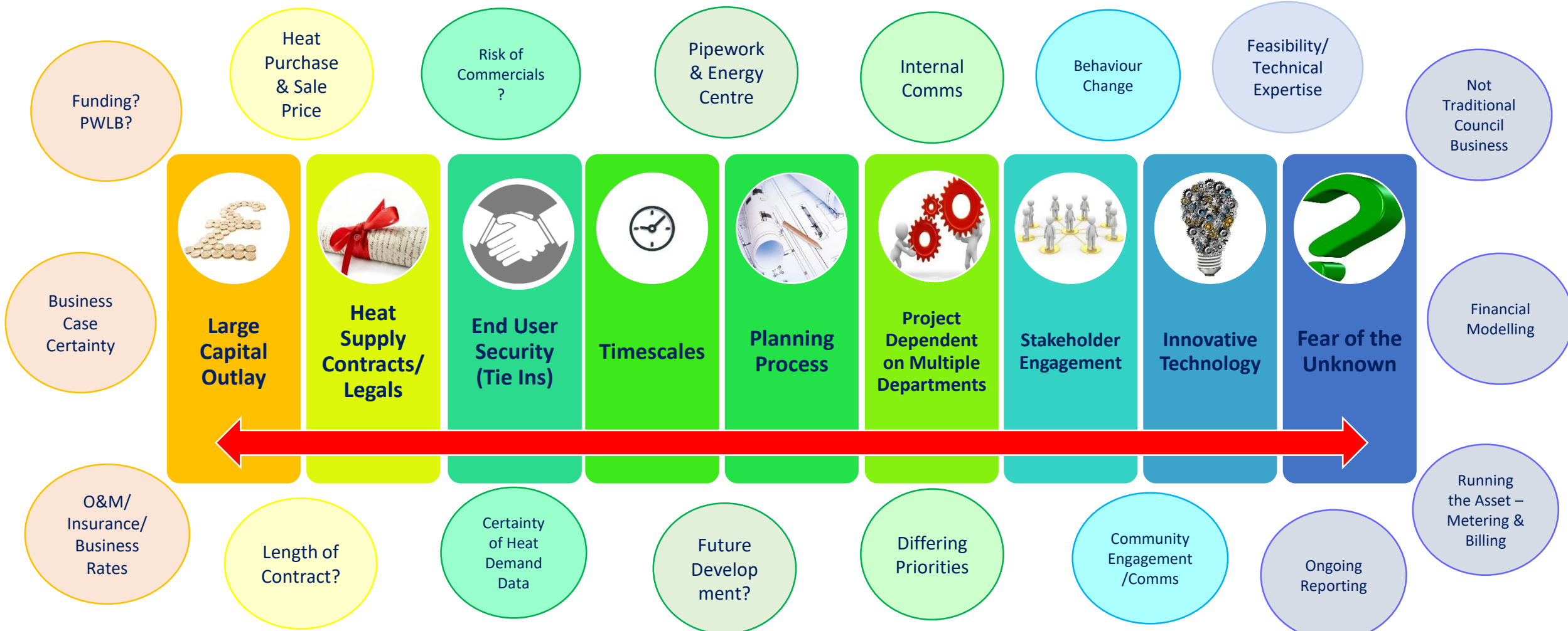
Renewable Technologies

- ❖ Use of biogas (currently a waste product) as fuel to provide heat and power
- ❖ Aligns with Scottish Government Circular Economy vision and classed as renewable heat



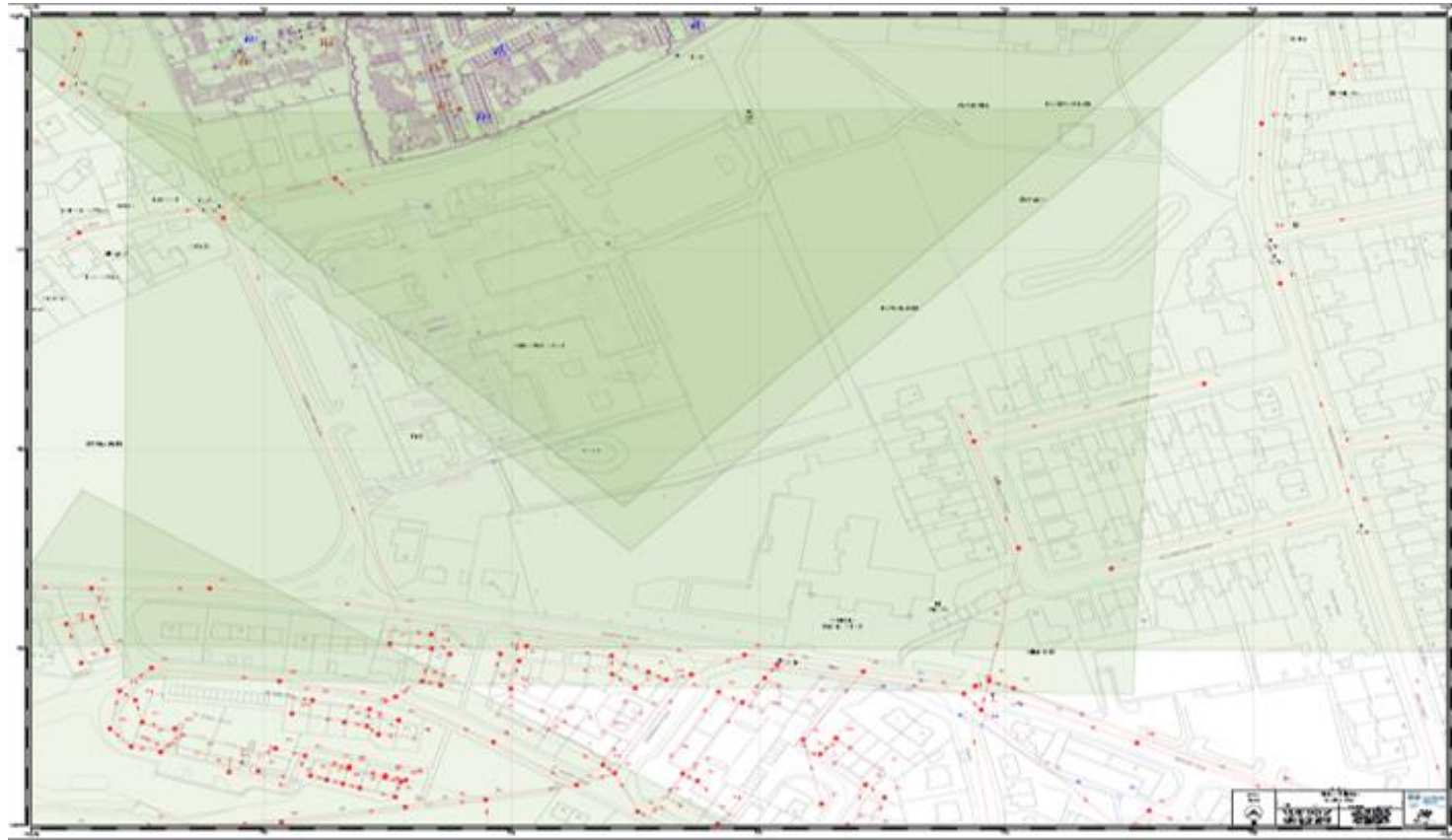
7. Challenges & Risks

Steep learning curve but knowledge sharing and lessons learned will be key



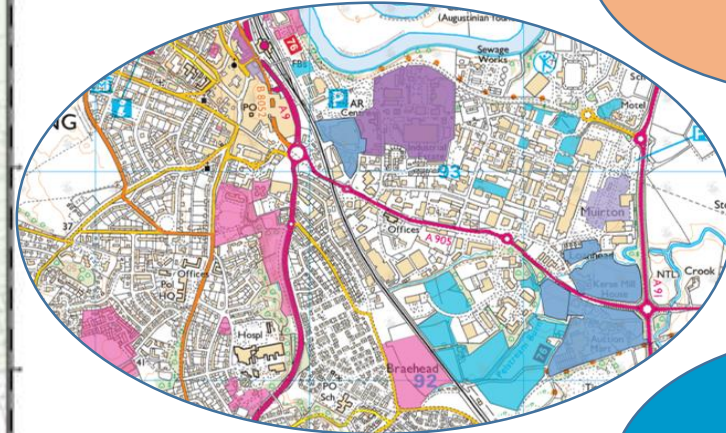
8. Future Expansion

Opportunities both around the existing network and heat demand within the area as well as future development



Opportunities at development stage – key site requirement?

Local Heat & Energy Efficiency Strategy (LHEES)



Planning Policy – Energy Templates? All avenues considered



9. Transferability & Replicability

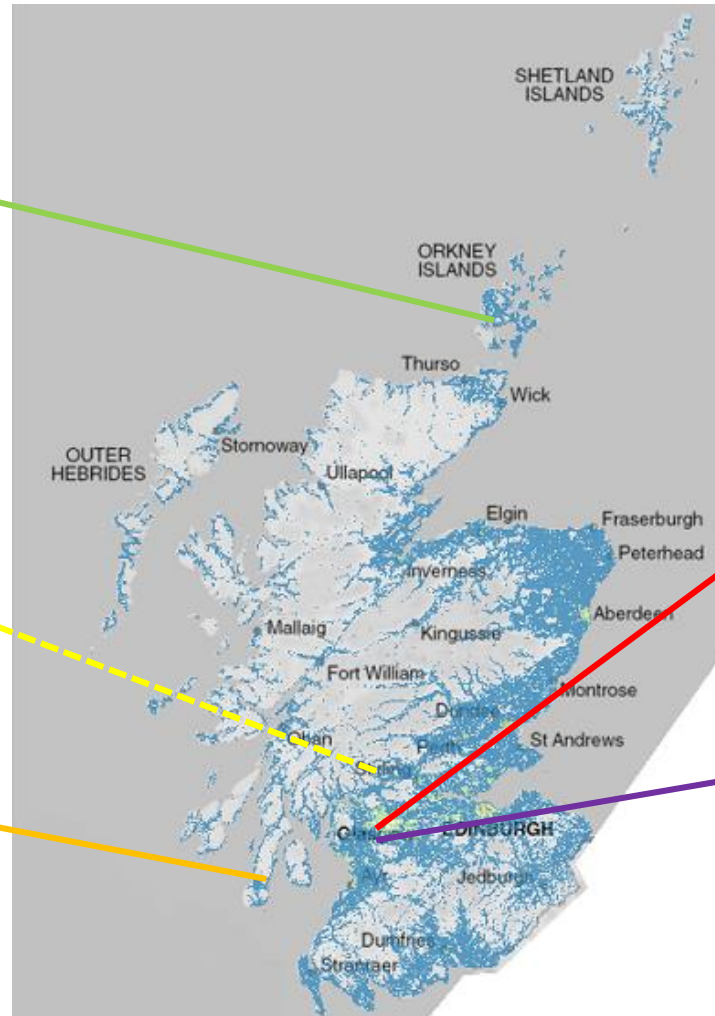
Potential across Scotland – both urban and rural as seen in range of LCITP projects: Bandwidth (Kelvingrove; Aqualibrium; Pickaquoy Centre) and Clyde Gateway Regeneration Area



Pickaquoy Centre
Kirkwall, Orkney



Aqualibrium Centre
Campbeltown



Kelvingrove Museum
Glasgow



Clyde Gateway

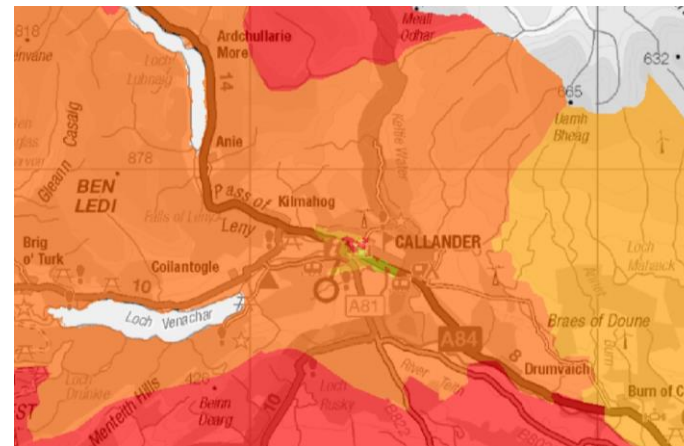
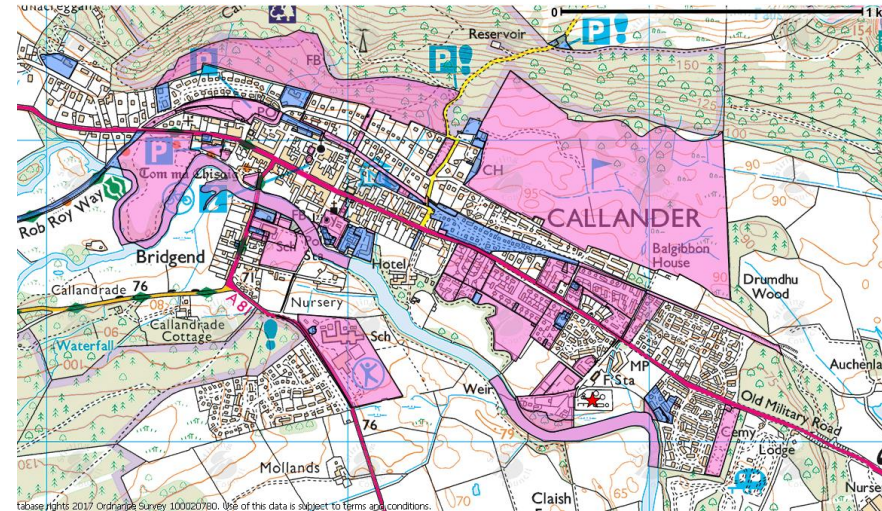


11. LCITP ILES – The Solution?

Innovative Local Energy Solutions aimed at remote, rural and off gas grid communities – Callander Local Energy Opportunity (CLEO) partnership project

Why Callander?:

- ❖ Rural community
- ❖ Within the National Park
- ❖ High levels of fuel poverty
- ❖ Concentrated areas of social housing
- ❖ Good pilot size
- ❖ Pro-active community (already got a community energy project) and had been looking into district heating project
- ❖ Council assets for heat load (High School, Leisure Centre, Primary School, depot)



The Project:

- ❖ Highlights rural scale of heat recovery using waste heat from WWTW process – existing infrastructure
- ❖ Potential to produce ~2.6GWh heat annually
- ❖ Opportunities for storage
- ❖ Resources – time and money (50% match funded with staff time)
- ❖ Community element – training opportunities & encourage businesses
- ❖ Investment Grade Business Case Proposal





Thank You

