The University of Edinburgh

Energy Efficient Scotland pilots: experiences and lessons from phase 1 & 2

11th October 2018

The Melting Pot, Edinburgh

HEAT AND THE CITY

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Scotland's centre of expertise connecting climate change research and policy

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energy saving trust

Agenda

09.30: Welcome and introduction
10.00: Phase 1 local authority examples

11.00: BREAK
11.20: Phase 1 monitoring and evaluation
12.00: Discussion Phase 1

12.45: LUNCH
13.30: Phase 2 local authority examples
14.30: Discussion Phase 2

15.00: BREAK
15.15: Panel discussion
15.45: Wrap up & Close

Welcome

Lynn Forsyth,
Scottish Government

Phase 1 examples

Fife Council
SEEP 1 Pilot

Dunfermline Business Centre - Summary

P D'Arcy
Climate Change and Zero Waste Team

11th October 2018

www.refsol.co.uk

Resource Efficient Solutions

- Resource management company based in Fife
  - Owned by Fife Council
- Operate two resource management sites and deliver all the associated services and compliance
- Consultancy services in waste, climate change, energy and compliance – previous contracts with:-
  - Other LAs
  - Zero Waste Scotland
  - SGN
  - SGov

resource efficient solutions
a Fife Council Company

Contents

- Building Background
- Scope of Works
- Financial Model
- Engagement & Feedback
- Overall SEEP Lessons Learned

resource efficient solutions
a Fife Council Company

Dunfermline Business Centre

Helping deliver a sustainable future

Dunfermline Business Centre

- Built as Dunfermline Maternity Hospital in 1937
- Converted circa 1990 into a managed Business Centre by Fife Council
- 36 business units ranging from 300 sqft to 2,000 sqft with meeting room space
- Energy performance rating E
- Occupancy is currently 95%
- There had been complaints for years with regards to the in-efficiency and lack of control of the storage heaters

resource efficient solutions
a Fife Council Company

Scope of Works

- Removal of existing electric storage heaters and install a 'wet' Low Temperature Hot Water (LTHW) heating system with radiators
- Extending the biomass boiler system which was installed approx. 4 years ago and serviced 8 units to service all units
- Lighting upgrades to LED in communal areas
- Energy efficiency advice for business tenants

Financial Model

- Blend of SEEP funding, and Council investment:
  - Commercial Property maintenance funding
  - Energy Management Revolving Fund
- Lease agreements unchanged
- Billed for meter reading plus additional minimal standing charge
- The ability to 'call' for heat when required is something the tenants didn't have control over previously – early indication of at least 20% savings

Engagement & Feedback

Engagement

- Tenants were engaged in a 12 month process:
  - Letters, tenant meetings, stand, monthly e-mail, flyers
  - Re-assurance on cost and disruption
- Heating Contractor on site and FC building coordinator available

Feedback

- Far more control of heating and lighting
- Condensation and ventilation issues improved overall
- Lighting improvements in utility and comfort, including communal areas
- Increased awareness of overall building energy efficiency and environmental impact
- Reduced costs expected to help business overheads

SEEP Lessons Learned 1

- EPC recommendations for application, corrected by post-award surveys, impacted works, timescales and budgets
- Domestic and non-domestic synchronisation required compromises at application stage - challenges for capacity during implementation
- Inability to collaborate between domestic and non-domestic in implementation, so no economies of scale
- Private sector inclusion was challenging – needed more resource for engagement & implementation, lead-in time and technical capacity
- Access to install monitoring was challenging – expensive resource, business interruptions

SEEP Lessons Learned 2

- Delays specifying the monitoring kit impacted desired 3 month data monitoring period, delayed stages & key resource availability
- Under-estimated resources for enabling efforts and grant reporting
- Small project overheads - could we have gone for larger value projects in the same timescales?
- Some works were possible with SEEP funding that would not otherwise have been scheduled

Thank You

Paul D'Arcy

Programme Advisor

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Scotland's Energy Efficiency Programme (SEEP)

Phase 1 pilot projects - Evaluation

Glasgow City Council

Debbie Gardiner

Scotland's Energy Efficiency Programme Phase 1

Two case studies:

- Yoker Housing Association
- Greater Easterhouse Supporting Hands (GESH) community centre

Scotland's Energy Efficiency Programme Phase 1

Yoker Housing Association: A hybrid external and internal wall insulation project on pre-1919 tenements including the shop units below the flats

- Flats - 106
  - 38 O/O
  - 68 RSL
- Shop Units -13

Replication of previous HEEPS project in completed in 13/14

Scotland's Energy Efficiency Programme

Yoker Housing Association project – Challenges:

- HEEPS / ECO Funding levels had changed from 13/14
- Added repairs element
- Timings
  - SEEP award announcement
  - Committee approvals – Council and Yoker
  - Procurement of contractor
  - Building warrant application
  - Title deeds
  - Owners meetings (& then subsequent deadline to pay shares)
  - Funding deadlines
- Payment issues
- Association unable to "forward fund" the works
- Had to take the decision NOT to proceed with the project at this time

Scotland's Energy Efficiency Programme Phase 1

Greater Easterhouse Supporting Hands (GESH): Installation of external wall insulation t the community facility

- Non Domestic Building
- Third Sector
- Established in 1979
- 500-600 service users per week

Scotland's Energy Efficiency Programme

GESH – Challenges:

- SEEP award announcement
- Building ownership issues
- Legal agreements
- Suitable design solution
- Funding levels
- Delivery timescales

- Granted extension by Scottish Government
- Completed at the end of March 2018

Scotland's Energy Efficiency Programme Phase 1

LESSONS LEARNED:

- Application timescales – 6 week turnaround!!
- Funding levels
- Delivery timescales – complex projects
- Legal and procurement issues
- Building ownership issues

Thank you for listening.

Any questions?

BREAK

Phase 1 Monitoring and Evaluation

The University of Edinburgh

Evaluating Energy Efficient Scotland pilots

Prof Jan Webb, Dr Faye Wade, Dr Ruth Bush, Prof David McCrone, University of Edinburgh

Ms Debbie Sagar, Scottish Government

And all participating Local Authority Officials, Project Partners, Households, Non-residential Building Managers….

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Energy Efficient Scotland

Designated national infrastructure priority

Critical for achieving emissions reductions in buildings

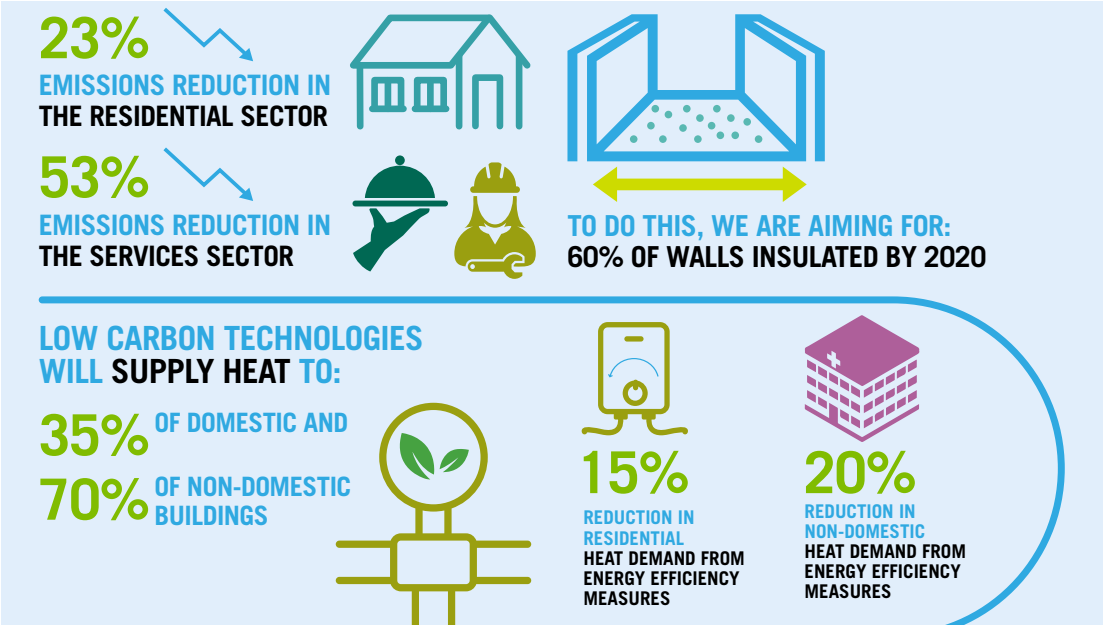
Essential for meeting 2050 climate goals

Energy Efficient Scotland is a very ambitious programme, with challenging targets. But we know that it can deliver significant economic, social, environmental and health benefits and create a fairer greener Scotland.

Ministerial Foreword 2018

Dual Focus – Energy Efficiency in All Buildings & Low Carbon Heat Where Appropriate

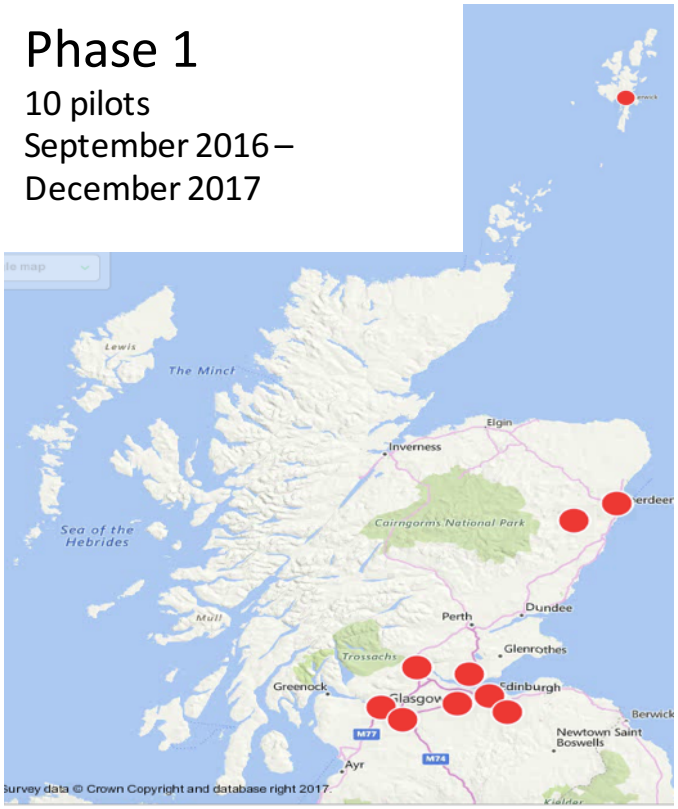
Climate Change Plan – 2032 commitments



The Energy Efficient Scotland Pilots

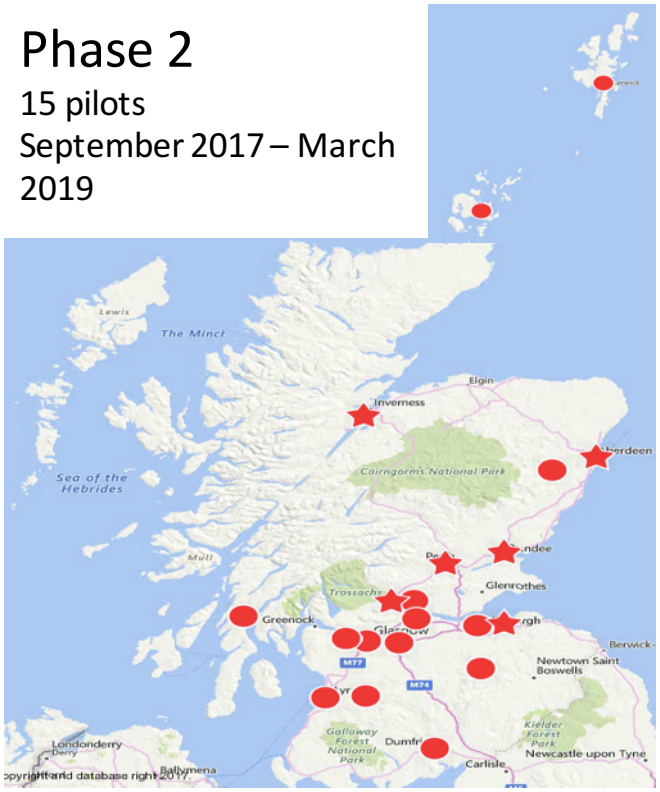
Phase 1

10 pilots
September 2016 – December 2017



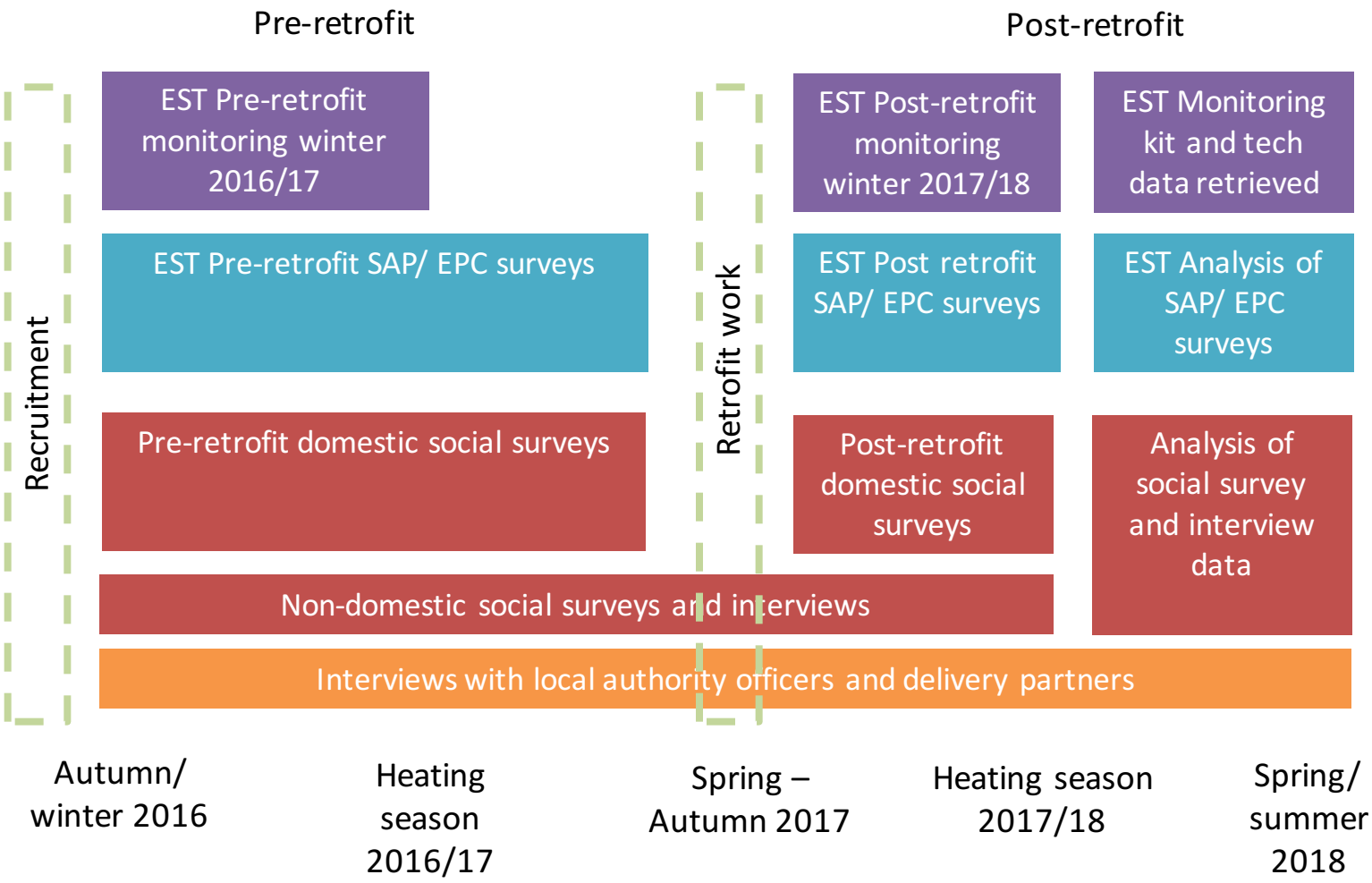
Phase 2

15 pilots
September 2017 – March 2019

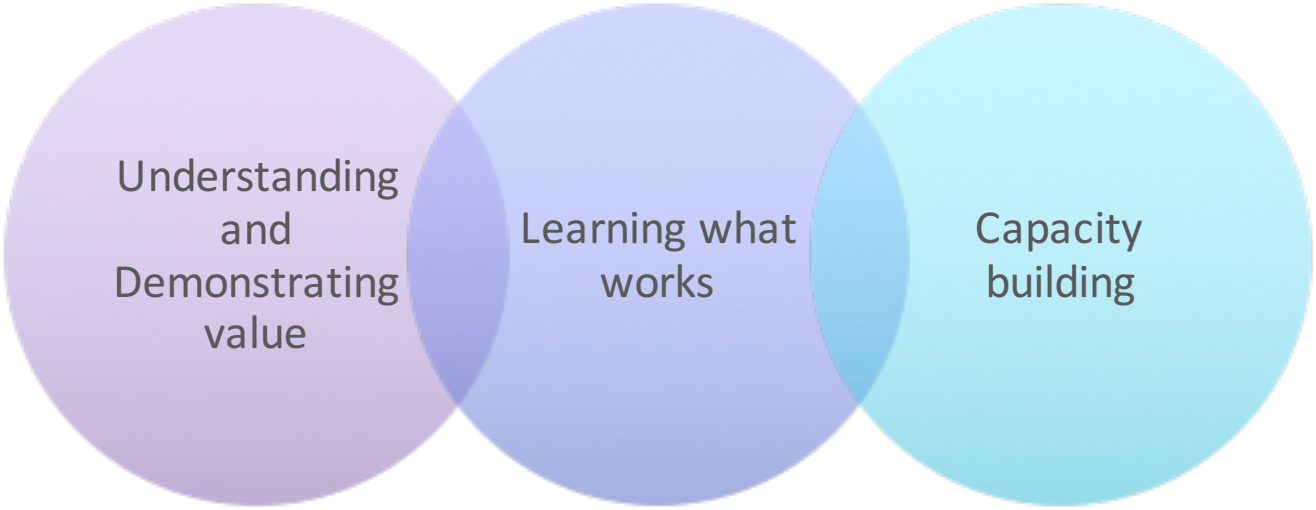


★ Local Heat and Energy Efficiency Strategies – multi-LA collaboration

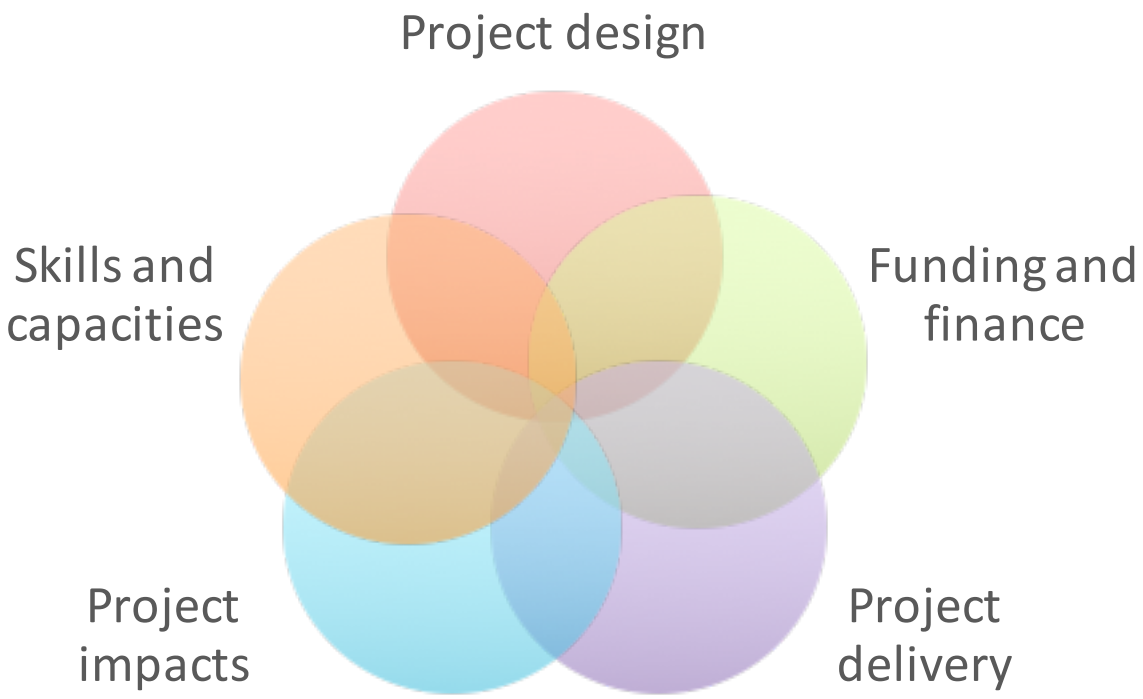
Evaluating Phase 1 Pilots



How pilots contribute to Energy Efficient Scotland Programme



Key findings



Project design

Longer timeframes are needed for more ambitious retrofit and larger projects

Non-domestic:

"We just can't keep doing the same thing over and over […] you know we're doing what we can wi' controls and BMS but yes we're getting to the end of what has been a really exciting period of constant investment and yes we definitely need to be a bit more innovative." *(Pilot coordinator)*

Domestic:

Project managers noted the following benefits of using established procedures for prioritising domestic projects:

- Pilots could be designed in the short timeframe.
- It allowed flexibility in combining the domestic and non-domestic elements of the pilots in an area-based approach.
- The pilot could be integrated into the council's existing energy efficiency housing strategy.

Project design: data

Critical gaps in detail and accuracy of available data mean that unified up-to-date database is required

- Short timescales for project completion
- EPCs useful for project specification, but not always recent/ accurate
- Most detailed information for council-owned and ex-council-owned stock
- LA building logs sometimes available, but not always up to date; information held informally by site-managers

Funding and finance

Mechanisms for financing beyond existing HEEPS ABS, ECO and LCITP schemes need to be established.

Challenges in financing outside of existing schemes:

- Lack of consistency in calculating **domestic** owner contributions
- Communities unfamiliar with HEEPS ABS needed more time for **domestic** owner engagement
- Perceived lack of 'affordability' in the **non-domestic** sector led to reluctance to take out loans and development of alternatives: pay *through other means*; '*spend to save*' funds
- Costs of remedial work currently unsupported by financial mechanisms in both **domestic & non-domestic** sectors.

Project delivery: contractors

Procurement frameworks and funding timescales need to ensure that retrofit works are open to a variety of contractors

"Because that's the timescales imposed on us as well do you know what I mean to … get something tae happen and to go through, and rather than going through a long tendering process … to meet the timescales … it's like how can we get this on board you know and working wi' [the Housing Association] and other groups." (pilot coordinator)

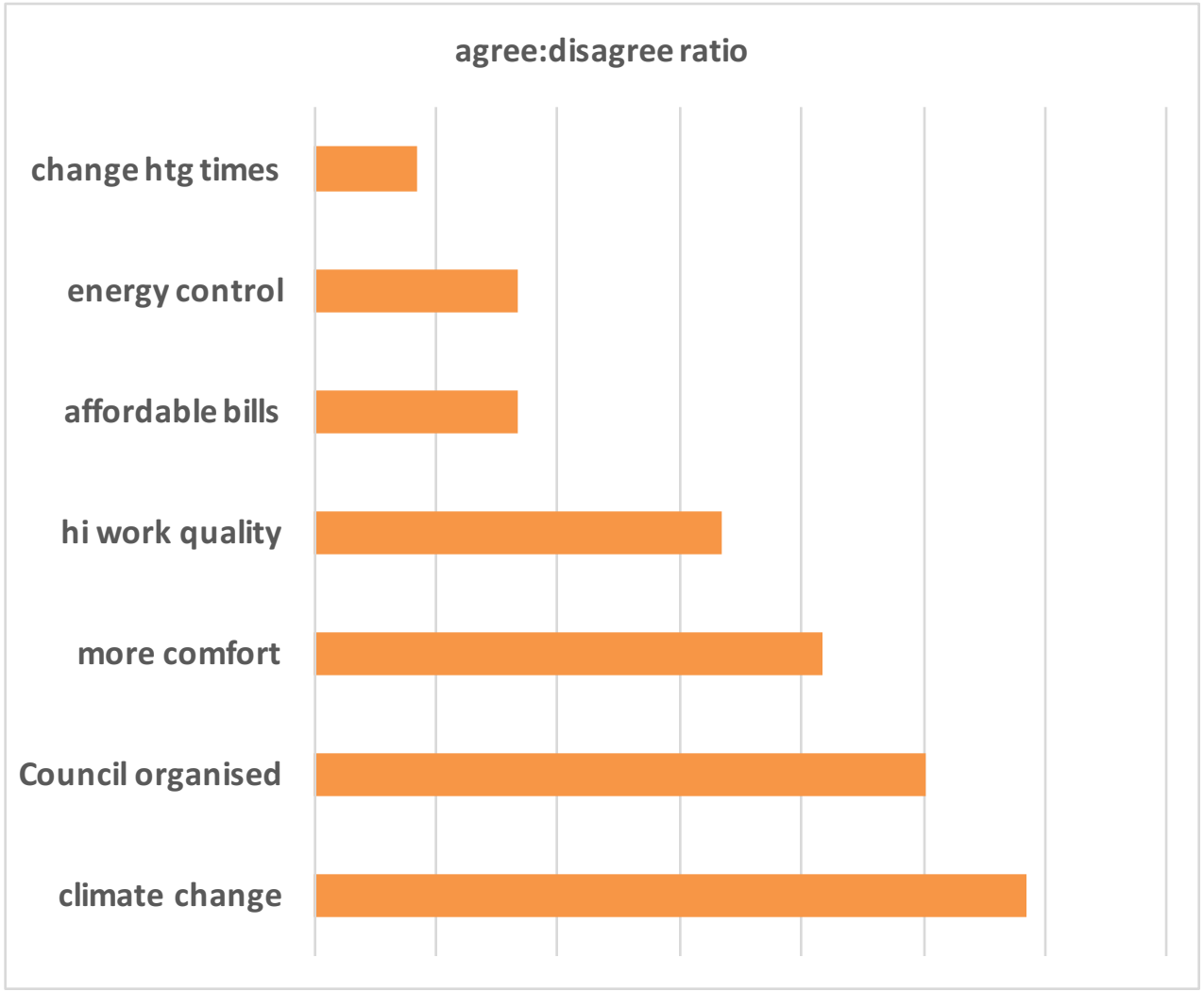
- Short timeframes can lead to rushed work
- Short timescales lend themselves to larger contractors, potentially excluding the local workforce
- Work at the end of the financial year impacts on job security for contractors
- Offering contractors higher certainty in the number of installations can achieve lower prices

Skills and capacities

There is a need for additional long-term staff resources and clarity of roles and responsibilities to deliver scaled up Energy Efficient Scotland programme

- There is an on-going negotiation between local authorities, their delivery partners and Scottish Government about where and how key responsibilities, skills, resources, contractual structures, and project timetables will be distributed for delivering EES.
- Establishing clear roles and responsibilities will ensure that the essential capacity building investments are made by all parties
- Cooperation and coordination across local and national levels will be critical to enabling the successful scaling up of EES to meet ambitions.

Project impacts: domestic



Project impacts: non-domestic

- Short project timescales restricted measures installed and resulting emissions reductions
- Installing measures provides a trigger point to review current provisions and potentially provides an opportunity for additional works to be completed; be it remedial work, increased fixtures and fittings or additional systems that would increase energy consumption.
- Building occupants saw value in the works beyond carbon emission reductions and energy savings.
- Visible improvements were valued highly: e.g. LED lighting improved the atmosphere of a space, and external wall insulation improved the aesthetics of the buildings.

Non-domestic lessons

- Non-domestic projects require significant lead-in time. There is a need for better understanding of organisations' circumstances and timescales in advance of setting project plans and commencing work
- Long-term clarity and flexibility on the funding regime for EES would support planning and delivery of more ambitious projects.
- There is a need to develop a greater understanding of what is affordable for different types of commercial and community organisations and consider options for financial support mechanisms.
- Procurement structures for non-domestic sector need on-going development as programmes are established and opportunities for shared procurement become apparent.
- Establishing channels for sharing best practice in this new area of work will be important.

Domestic lessons

- As Energy Efficient Scotland scales up target households beyond council tax bands A – C, there is a need for more detailed and accurate data, including access to smart meter data.

- Longer project and funding timescales would support higher recognition and domestic uptake of energy efficiency programmes by building a positive reputation and gaining momentum within communities.

- More information and education is needed at the point when people are adjusting to energy efficiency changes in their home or heating system, to ensure that households can feel comfortable as well as maximising energy savings.

Conclusions

- Evaluation & review can only proceed from what is actually tested in pilots
  - Important to understand influences on pilot design & management

- Phase 1 did not support the testing of "innovation":
  - Too little time for bid writing & programme delivery
  - Many projects were based on pre-established need/ existing feasibility studies
  - Funding specifications limited flexibility - had to deliver on what was in the bid
  - Limited staff resource
  - Hesitance to announce projects to community & local politicians if they aren't going to go ahead

- Pilots building on established processes within local authorities
- Learning, coordination and collaboration between LAs, government and supply chain critical
- Need for innovation, and 'space to fail', in pilots and national programme

Energy Efficient Scotland Phase 1 Pilots Technical Evaluation

- No uniform trends
- Limited data available BUT highlighted key evaluation barriers
- Ability for buildings to retain heat generally increased. However this didn't always equate into energy savings

Energy Efficient Scotland Phase 1 Pilots Technical Evaluation

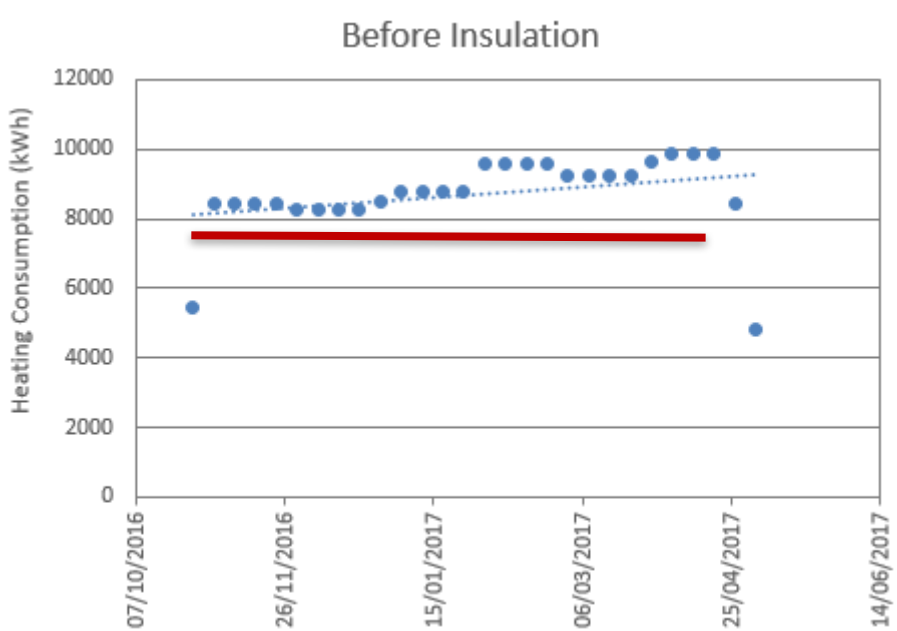
- 29 properties were analysed and found to have enough usable data
- 52% had external solid wall insulation
- 10% had LEDs
- The remaining were a mix of measures

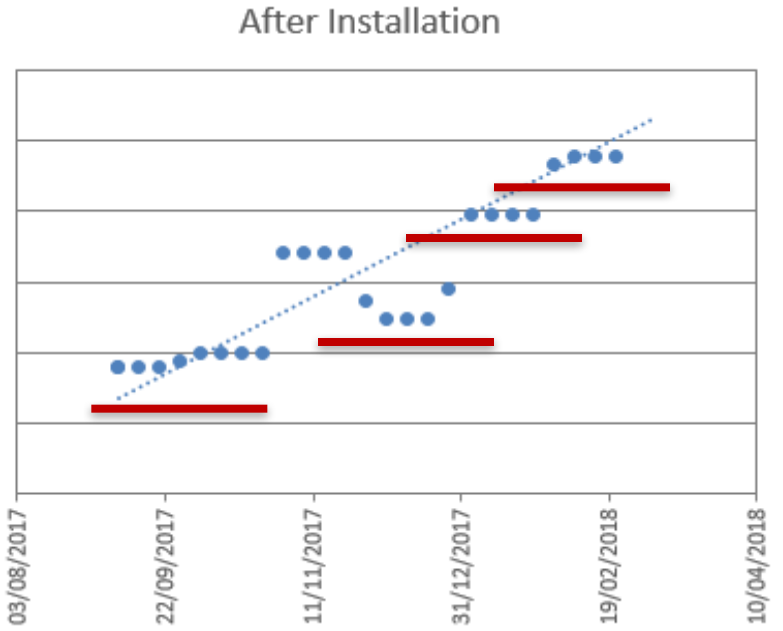
- Only 55% of the properties experience a saving
- Of which 38% were significant

School, Shetland Islands, TRVs

energy saving trust

Gas/Electricity Analysis Results								Internal Temperature Analysis Results					
Sample Size	Heating Degree Day Difference		T.Test	Correlation		Energy Consumption		Sample Size	T.Test	Temperature			Standard Deviation
Weeks Before and After Measure	Total (HDD)	Per Day (HDD/day)	95% Significance	R^2	Desciption	Change (kWh)	Change (%)	Weeks Before and After Measure	95% Significance	Before Installation (°C)	After Installation (°C)	Change (%)	Change (%)
28	31	0.16	Yes	0.6118	Moderate Correlation	-59929	-25%	8	No	19.6	17.0	-13%	+154%





South Lanarkshire, Domestic, ESWI

energy saving trust

Insignificant difference in HDD

No change to heating regime

Small changes in internal temperature

	Gas/Electricity Analysis Results								Internal Temperature Analysis Results					
	Sample Size	Heating Degree Day Difference		T.Test	Correlation		Energy Consumption		Sample Size	T.Test	Temperature			Standard Deviation
Property	Weeks Before and After Measure	Total (HDD)	Per Day (HDD/day)	95% Significance	R^2	Desciption	Change (kWh)	Change (%)	Weeks Before and After Measure	95% Significance	Before Installation (°C)	After Installation (°C)	Change (%)	Change (%)
D	15	37	0.35	No	0.887	Strong Correlation	+522	+22%	16	No	19.0	18.9	0%	-57%
E	15	2	0.02	Yes	0.893	Strong Correlation	+3	+0.1%	15	Yes	20.3	21.1	+4%	-36%
G	15	7	0.07	No	0.741	Strong Correlation	-79	-4%	15	No	18.8	18.5	-2%	+27%

Only E has a significant change in consumption

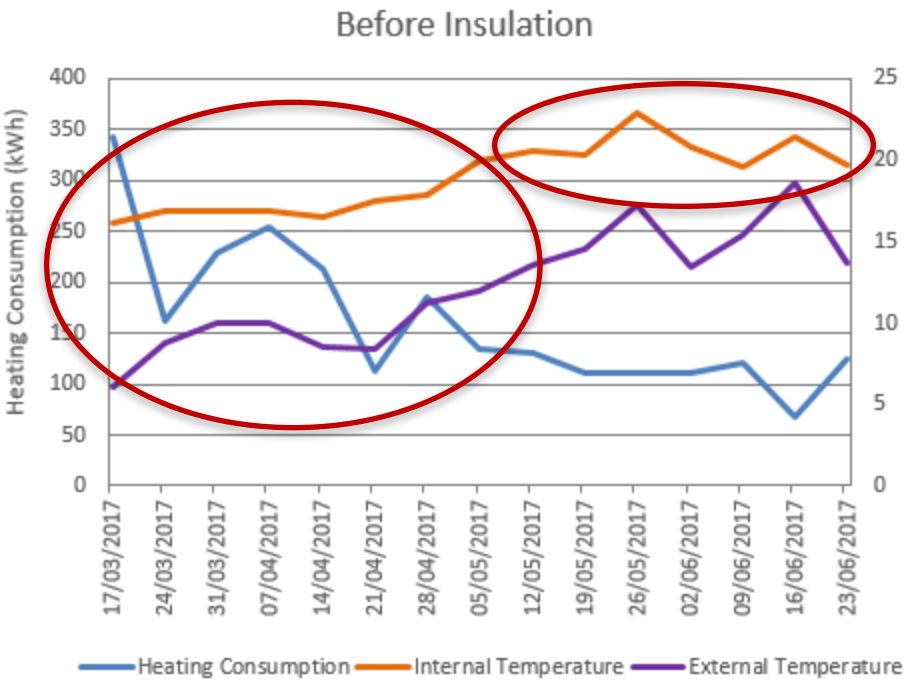
Yet varying changes in heating consumption

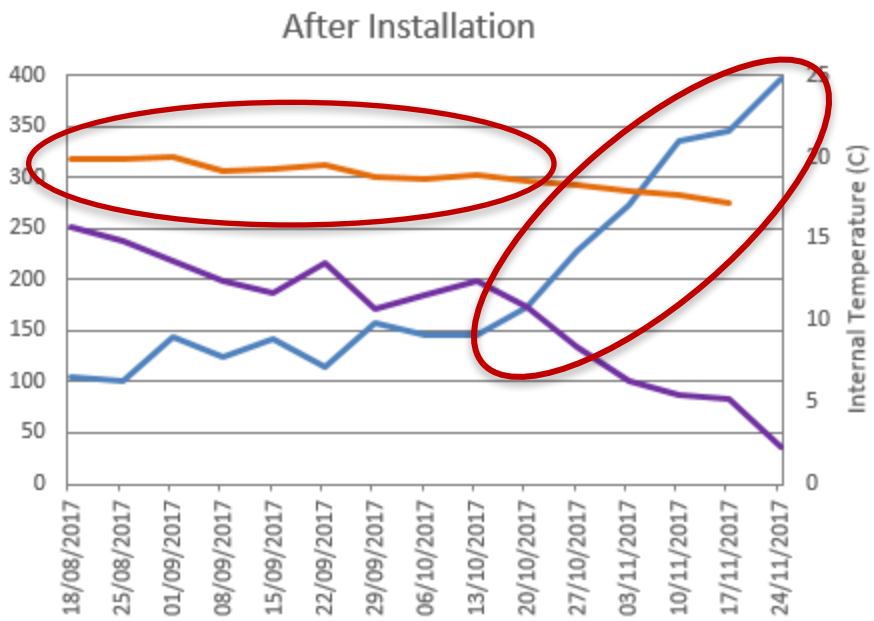
Large changes in the building's ability to retain heat

Property D – South Lanarkshire, Domestic, ESWI

57% reduction in internal temperature variability

22% increase in heating consumption

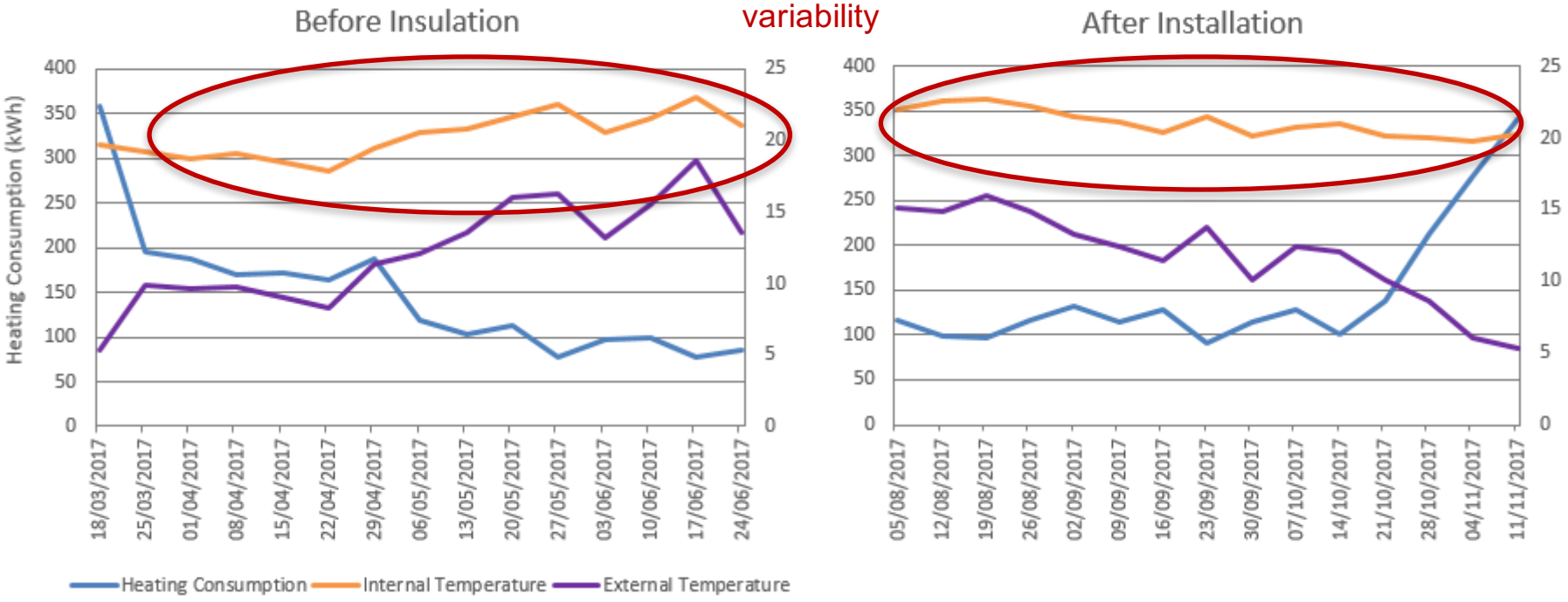




Perception of the cold

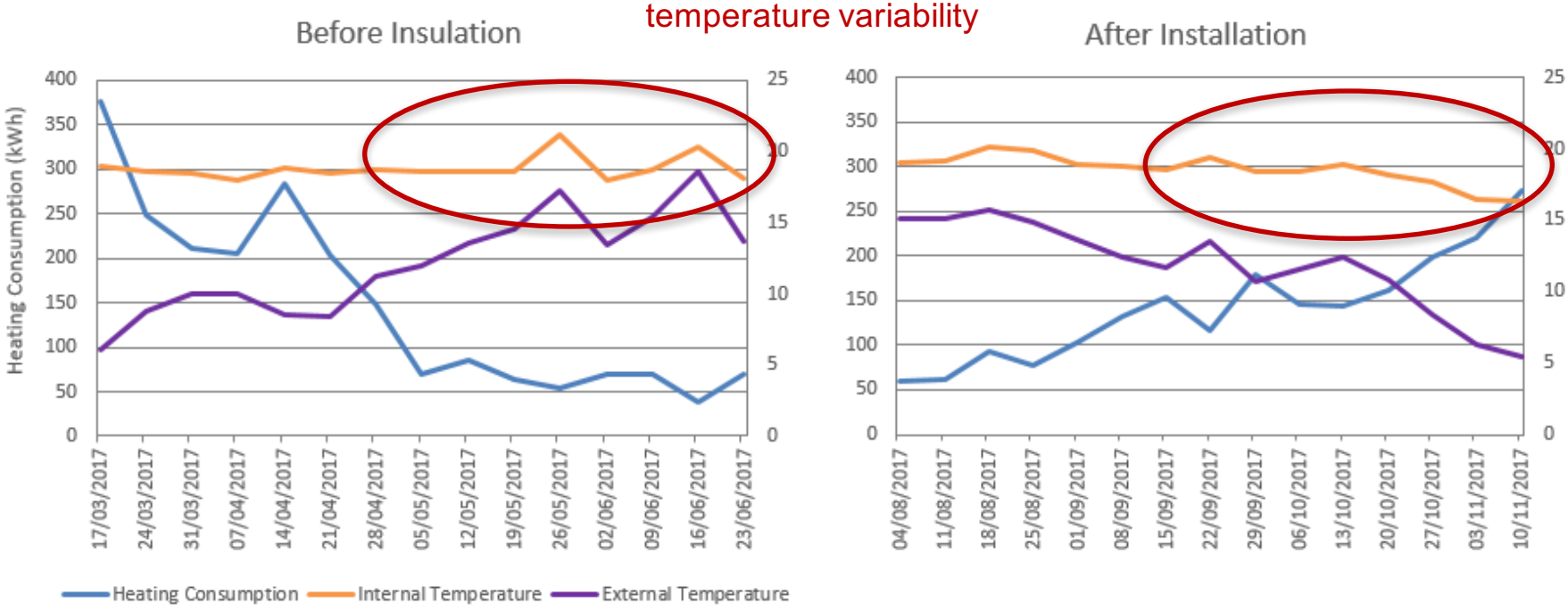
Property E - South Lanarkshire, Domestic, ESWI

36% reduction in internal temperature variability



Property F - South Lanarkshire, Domestic, ESWI

27% increase in internal temperature variability



In summary

Questions?

DISCUSSION 1

What are the key lessons learned for local authorities and partners through the pilots?

What are the challenges in resourcing a national retrofit programme of this nature?

LUNCH

Phase 2 examples

CHANGEWORKS

Peebles & Tweeddale Energy Efficient Scotland Project

Activities & some lessons learned

Donna Marshall, Senior Project Manager

Project Background

CHANGEWORKS

- Joint Scottish Borders Council and Changeworks bid
- Original bid for Change Works in Peebles project
- Now extended EES funding for Tweeddale area (Local Area Partnership)
- Runs through to March 2020
- Looking to develop model for other local area partnership areas in Borders

Change Works in Peebles

Project Proposal

CHANGEWORKS

- Peebles energy use 14% higher than national avg
- Population - 21,000, 70% in Peebles, Innerleithen, West Linton, Cardrona and Walkerburn plus rural
- Focus on domestic and non-domestic
- Use of Change Works in Peebles hub as a base for delivery with added events based engagement
- Adopting lessons learned approach

Change Works in Peebles

Project Base

- Centre of High Street
- Eye catching
- Prominent visual location
- Rent benefits Peebles Common Good
- Empty shop back to life

Partnership

- Funded by Scottish Government
- Coordinated by Changeworks
- Operating in close partnership with Home Energy Scotland, Resource Efficient Scotland and Business Gateway
- Clear referral routes and joint working

Engagement strategies

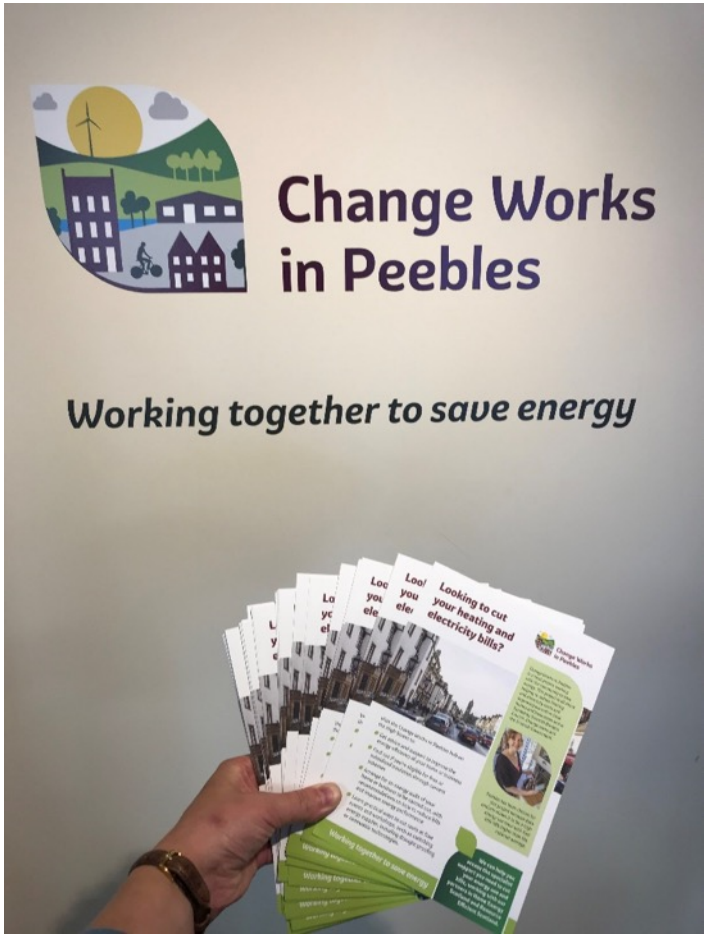
CHANGEWORKS

- Local media
- Social media
- Part of the community
- Monthly newsletter
- Events with partners
- Family events
- Competitions

Change Works in Peebles

Engagement strategies

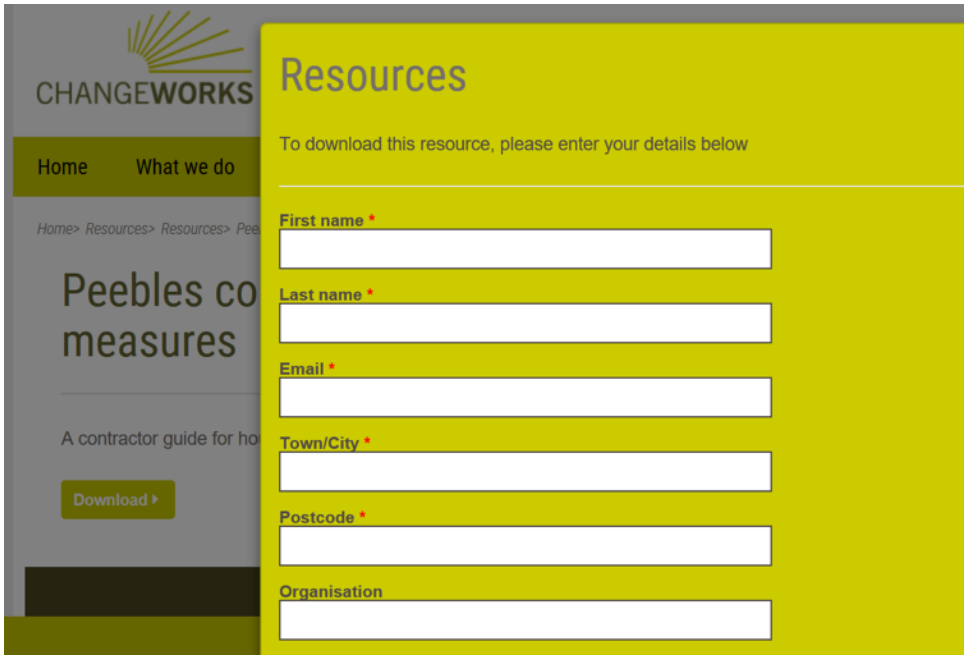
- Working with local groups/stakeholders
- Specific larger specialist events
- School engagement
- Leaflet inserts in local paper



Change Works
in Peebles

Self funding support

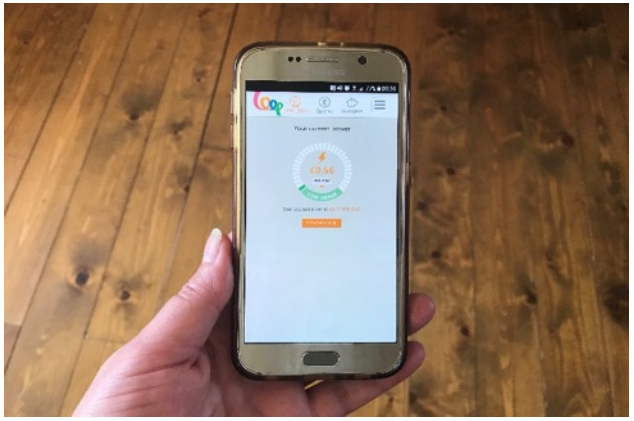
- Contractor Guide
- HES Tech Team referral
- Handholding support
- Free quality assurance
- Case studies

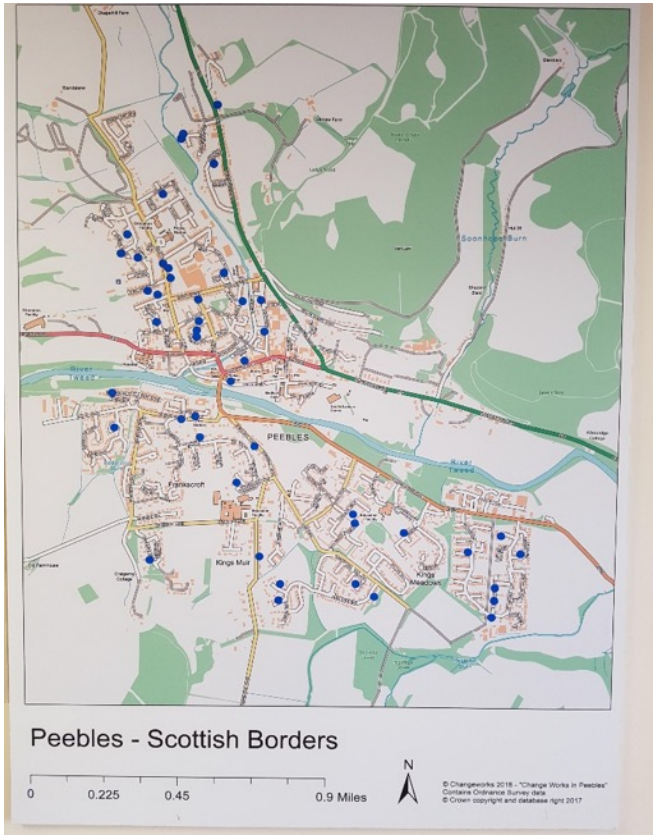


Change Works in Peebles

Tweeddale Energy Challenge

CHANGEWORKS

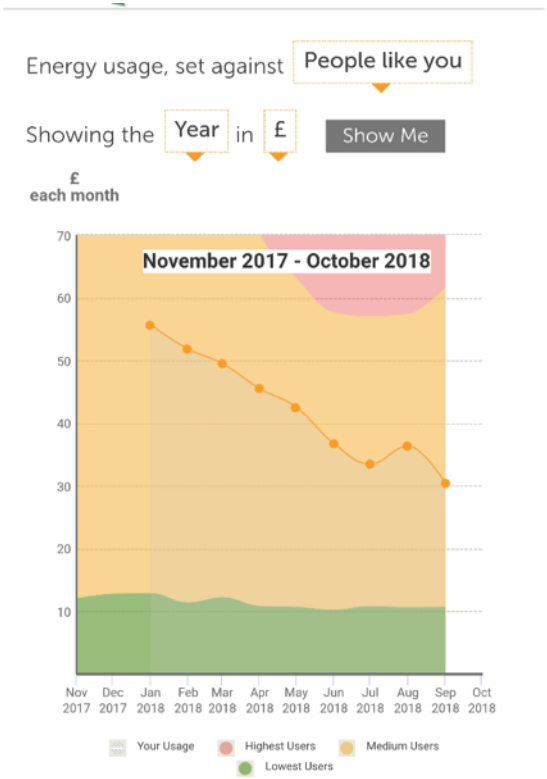


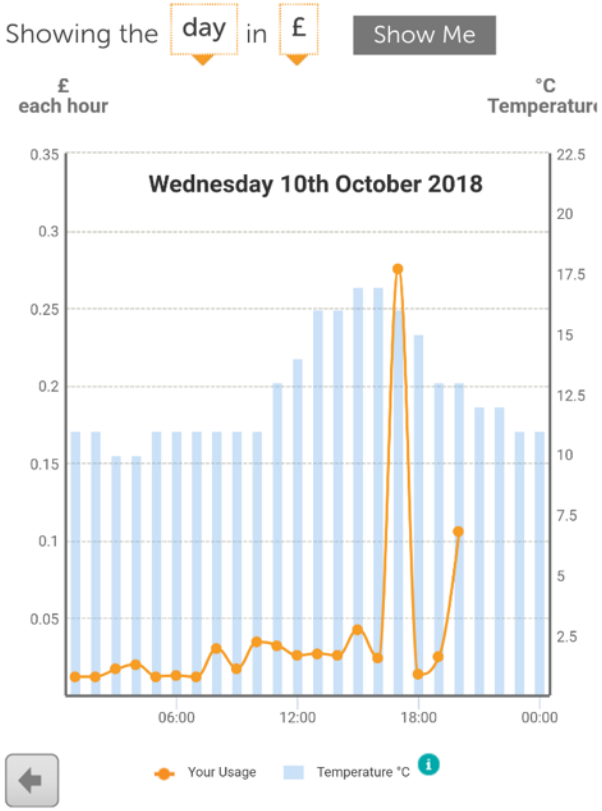


Change Works in Peebles

Tweeddale Energy Challenge

CHANGEWORKS





Change Works in Peebles

Lessons learned (so far)

CHANGEWORKS

- Data protection concerns and GDPR
- Market is cluttered/confusing and tainted by door to door pressure sales/free offers
- Local supply chain lacking
- Lack of knowledge on potential solutions
- Don’t know where/how to start and lack time
- Worries of disruption – combine with other wk
- Householders want to know “what’s available?”

Change Works in Peebles

Lessons learned (so far)

CHANGEWORKS

- Enquiries may be technical and complex
- Community engagement and trust takes time to build
- Regular events – easier to communicate
- Personal and local recommendation valuable
- Lack of confidence in potential savings
- Loan funding complex – funding up front
- How to encourage ple to value EE measures?

Change Works in Peebles

Project report

CHANGEWORKS

Nos visiting hub to date	957
Additional event engagement	511
Nos participating in Tweeddale Energy Challenge	82
Nos referred to appropriate agencies	183
Nos on self funding pipeline	40
Nos on non-Dom pipeline	13

New projects through to 2020

CHANGEWORKS

- Burntisland
- Penicuik
- Tweeddale extension
- Lomondside, Arrochar and Tarbet
- City of Edinburgh (advisory role – M&E, QA and customer journeys)

Change Works in Peebles

CHANGEWORKS

Change Works in Peebles

Old Corn Exchange

High Street

Peebles EH45 8AN

01721 722810

peebles@changeworks.org.uk

www.facebook.com/ChangeWorksinPeebles

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Sir Basil Spence Canongate Housing Energy Efficiency & Conservation Project

Energy Efficient Scotland (EES)

11th October 2018

EDINBURGH WORLD HERITAGE

United Nations Educational, Scientific and Cultural Organization · Old and New Towns of Edinburgh inscribed on the World Heritage List in 1995

Edinburgh World Heritage Trust

- Independent charity
- Vision: Our world heritage status is a dynamic force that benefits everyone
- Edinburgh World Heritage Site
- Conservation Funding Programme
- Energy efficiency and conservation projects

Well Court – Dean Village

EDINBURGH WORLD HERITAGE

United Nations Educational, Scientific and Cultural Organization · Old and New Towns of Edinburgh inscribed on the World Heritage List in 1995

Project's context

- EES - Phase 2
- Partnership with the City of Edinburgh Council
- Help owners to upgrade their building
- Roles: - EWH is a facilitator
  - Owners are the client
- Start in November 2017
- Currently in design process

Project's Objectives

- Establishing an integrated/replicable delivery model
- Targeting listed post-war buildings
- Encompassing :
    - Energy efficiency/conservation measures
    - Financing model
    - Community engagement
    - Social and technical monitoring

Canongate Housing Development

© Canmore

- Post-war (1969)
- Design by Sir Basil Spence
- B-listed building
- Multi-ownership tenement building: 12 flats / 2 commercial units
- Main features: concrete elements and windows

EDINBURGH WORLD HERITAGE

United Nations Educational, Scientific and Cultural Organization · Old and New Towns of Edinburgh inscribed on the World Heritage List in 1995

Current issues

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- Energy efficiency
  - Insignificant/no insulation!
  - Single glazing!
  - Thermal bridging
  - Inefficient/no heating systems
  - Mould/ventilation issues
- Conservation
  - Global deterioration of the fabric
  - Lost of original features

Energy Efficiency and Conservation

© Canmore

- Good balance between energy efficiency and conservation
  - Improve energy efficiency
  - Preserve/reinstate original features
- Main measures
  - Efficient windows (bespoke)
  - Insulation: CWI vs IWI
  - Renewables

EDINBURGH WORLD HERITAGE

United Nations Educational, Scientific and Cultural Organization · Old and New Towns of Edinburgh inscribed on the World Heritage List in 1995

Energy Efficiency and Conservation - Challenges

- Technical complexity: existed building
- Energy efficiency and conservation can be antagonistic
- Planning process can be challenging
- Technology or technical solutions not available/ready
- Existing building defects MUST be understood and addressed

Energy Efficiency and Conservation - Lessons

- Design team with relevant experience and qualifications
- Establish a Conservation Statement: significance of the building
- Holistic and evidenced based approach (surveys, original drawings)
- Allow enough time for the design phase
- Anticipate planning issues – dialogue with planning authorities
- Sustainability and conservation should work hand-in-hand

Community Engagement

- December 2017: first meeting
- January: choice of block 2
- March 2018 : creation of the Owners' Committee
- April 2018: appointment of 3 Property Managers
- August 2018 : all on board (14/14)
- Organizational, legal, technical and financial support
- Regular meetings (11 so far)

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Community Engagement - Challenges

- No legal entity for owners to manage the building
- Getting and maintaining flat/business owners' involvement
- Legal complexity (title deeds, communal decisions)
- Complex and time consuming decision-making process
- Deadlines pushed back due to design team not receiving feedback

Community Engagement – Lessons

- Clear project objectives, requirements and outline of roles
- Address project according to owners needs/concerns
- Be clear in funding process - key
- Success of property managers legitimizing project : leaders
- Appropriate resources (staff)
- Time is needed but a short timeframe can help !

Social and Technical Monitoring

- Recruitment:
  - Owners volunteered
  - Project requirement but can opt-out
- 5 flats and 2 commercial units + communal areas
- Social monitoring: questionnaires done face to face
- Technical monitoring :
  - Tiny Tag (T°/H): 26
  - LOOP (Elec./Gas): 9
  - OWL (Elec./Gas): 3

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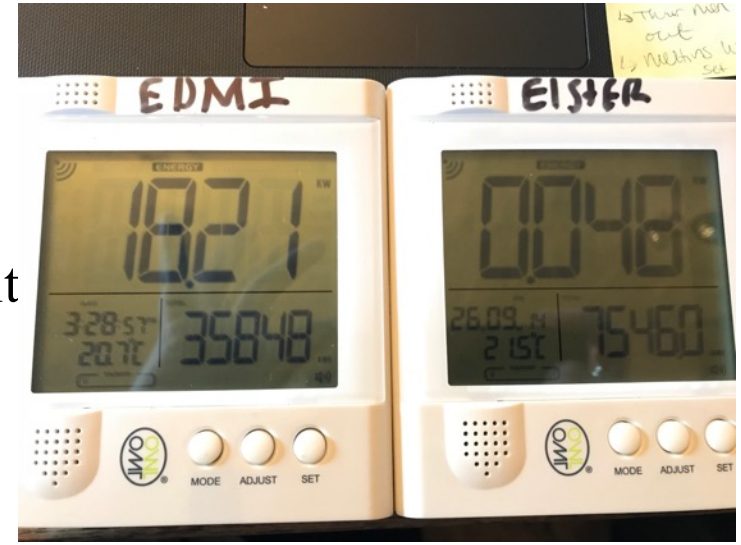
Social and Technical Monitoring - Challenges

- Professional installation needed for some devices
- Access to flats
- Online access- limits device placement
- Potential to be disturbed
- Change in tenancy could alter data



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Social and Technical Monitoring - Lessons

- LOOP not intended for large scale use
- Keep detailed accounts of incidents/changes (interrupted/offline)
- Collect data regularly to ensure devices working properly
- Plan ahead before installation (identify potential issues)
- Place devices accordingly with configuration of property to be able to gain correct readings

Lessons for EES – Next priorities

- Funding issues – already lack of maintenance
- Multi-ownership tenements - legal 'tools'
- Development of new and accessible technologies
- Raise awareness about energy efficiency
- Pilot projects for continuous feedback

Thank you !

Happy to share our experience !

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Callendar Park District Heat Network Extension and Private Wire Project

Energy Efficient Scotland Phase 2 Pilot Project Workshop

11th October 2018

Adekoyejo Olugbile
Home Energy Strategy Officer

Falkirk Council

Agenda

- Background
- SEEP Pilot 2 Project Summary
- Project Achievements
- Project Challenges
- Project Plans
- Lessons for LHEES

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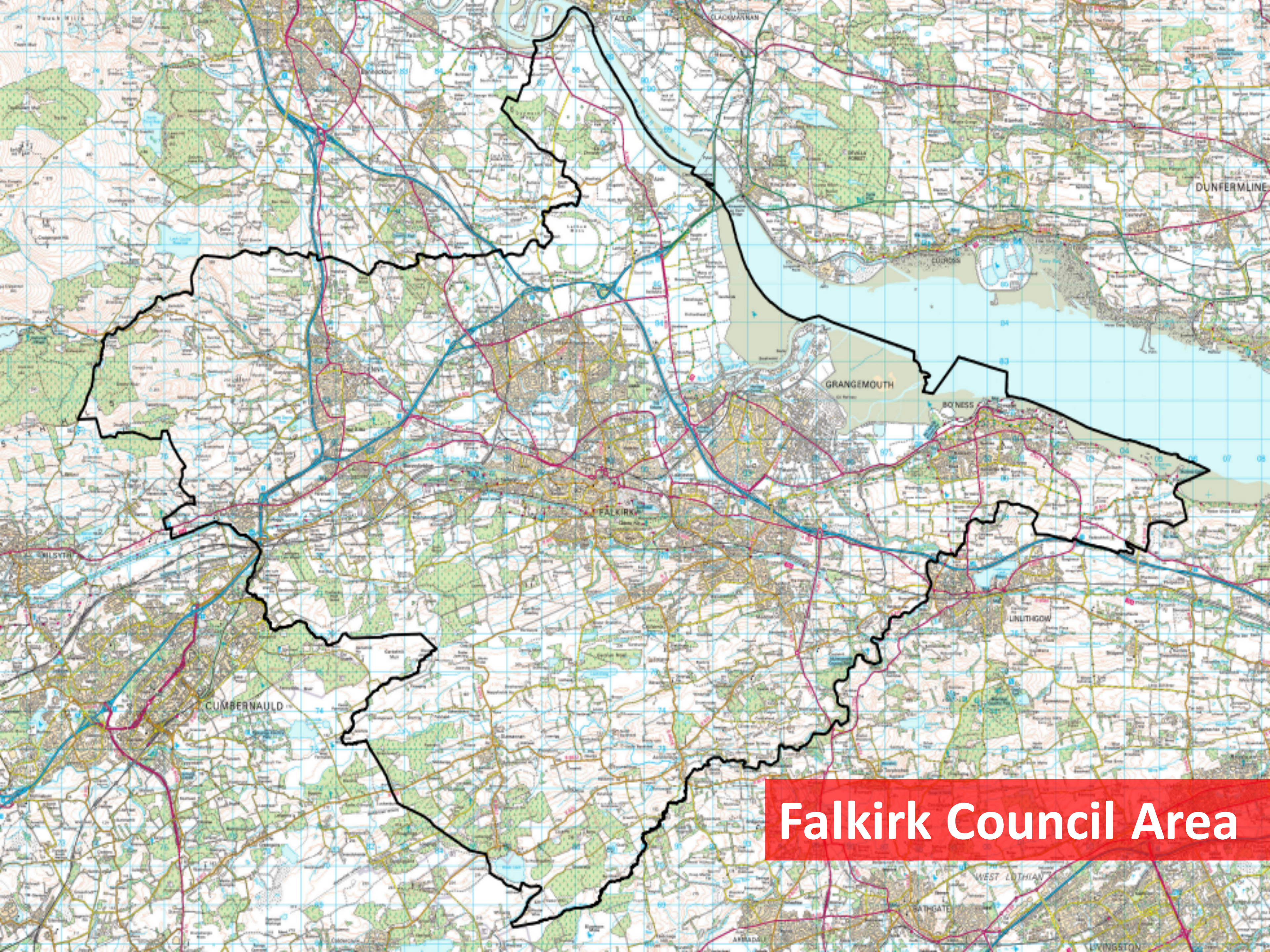
Falkirk Council Area
DUNFERMLINE
GRANGEMOUTH
FALKIRK
CUMBERNAULD
LINLITHGOW
KILSYTH
BO'NESS
WEST LOTHIAN
BATHGATE
CLACKMANNAN

Background

- Callendar Park Combined Heat & Power District Heat Network
- Grangemouth Energy Project
- District Heat Network Partnership
- Local Heat Energy Efficiency Strategy (LHEES)

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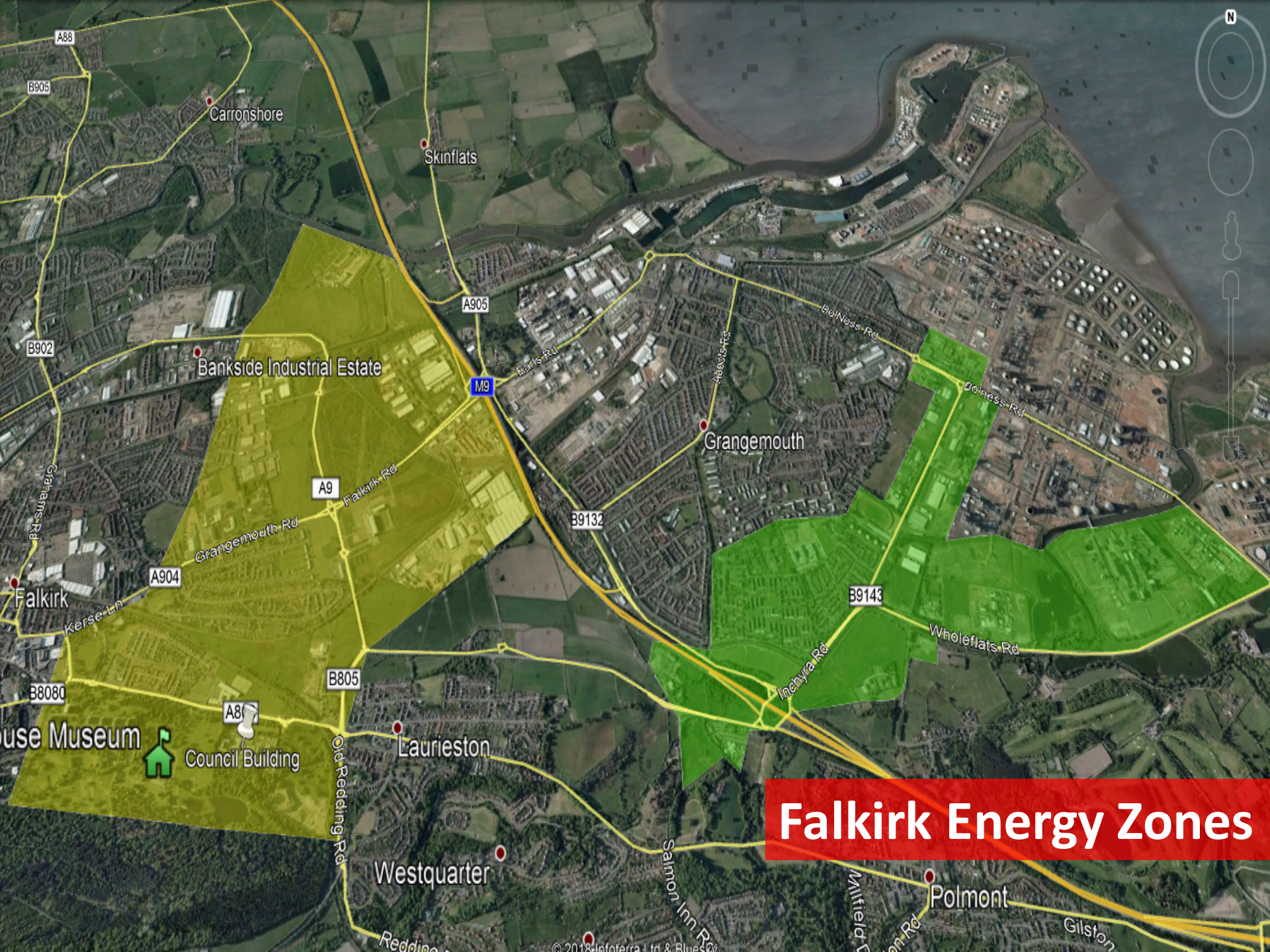
Falkirk Energy Zones
Carronshore
Skinflats
Bankside Industrial Estate
Grangemouth
Falkirk
Laurieston
Westquarter
Polmont
Council Building
A88
B905
B902
A905
M9
A9
A904
B8080
B805
B9132
B9143
Falkirk Rd
Grangemouth Rd
Kerse Ln
Graham's Rd
Old Redding Rd
Salmon Inn Rd
Inchyra Rd
Wholeflats Rd
Bo'ness Rd
Earls Rd
Abbotsford
N

SEEP Pilot 2 Project Summary

- Extension of Callendar Park Combined Heat & Power District Heat Network to 3 further tower blocks (Western Zone)
- Private Wire to 9 High-rise blocks; 3 schools and 1 council office
- Energy Efficiency upgrade works to:

✓ Council Office

✓ St Andrew's and Laurieston Primary Schools

✓ Graeme High School

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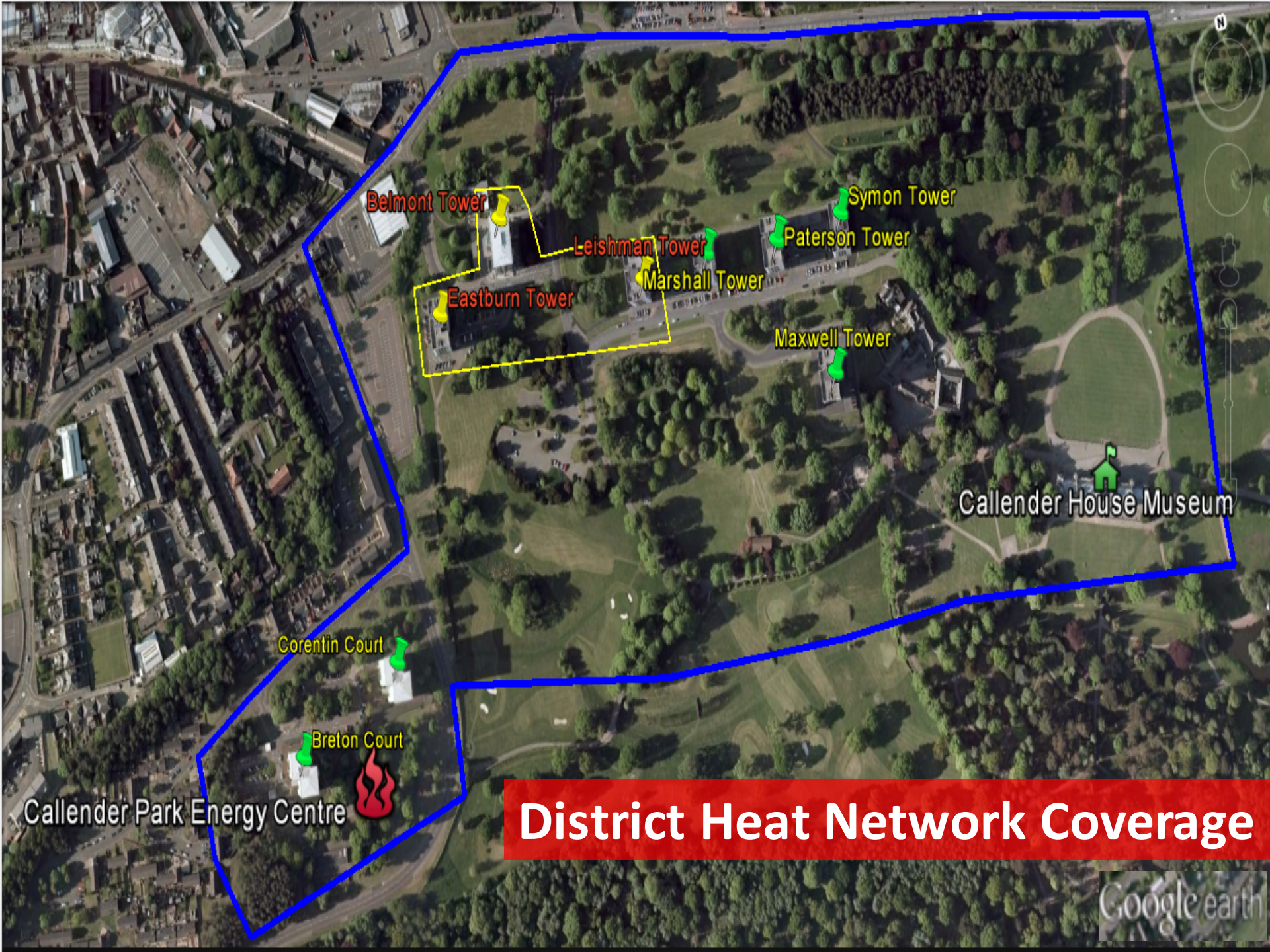
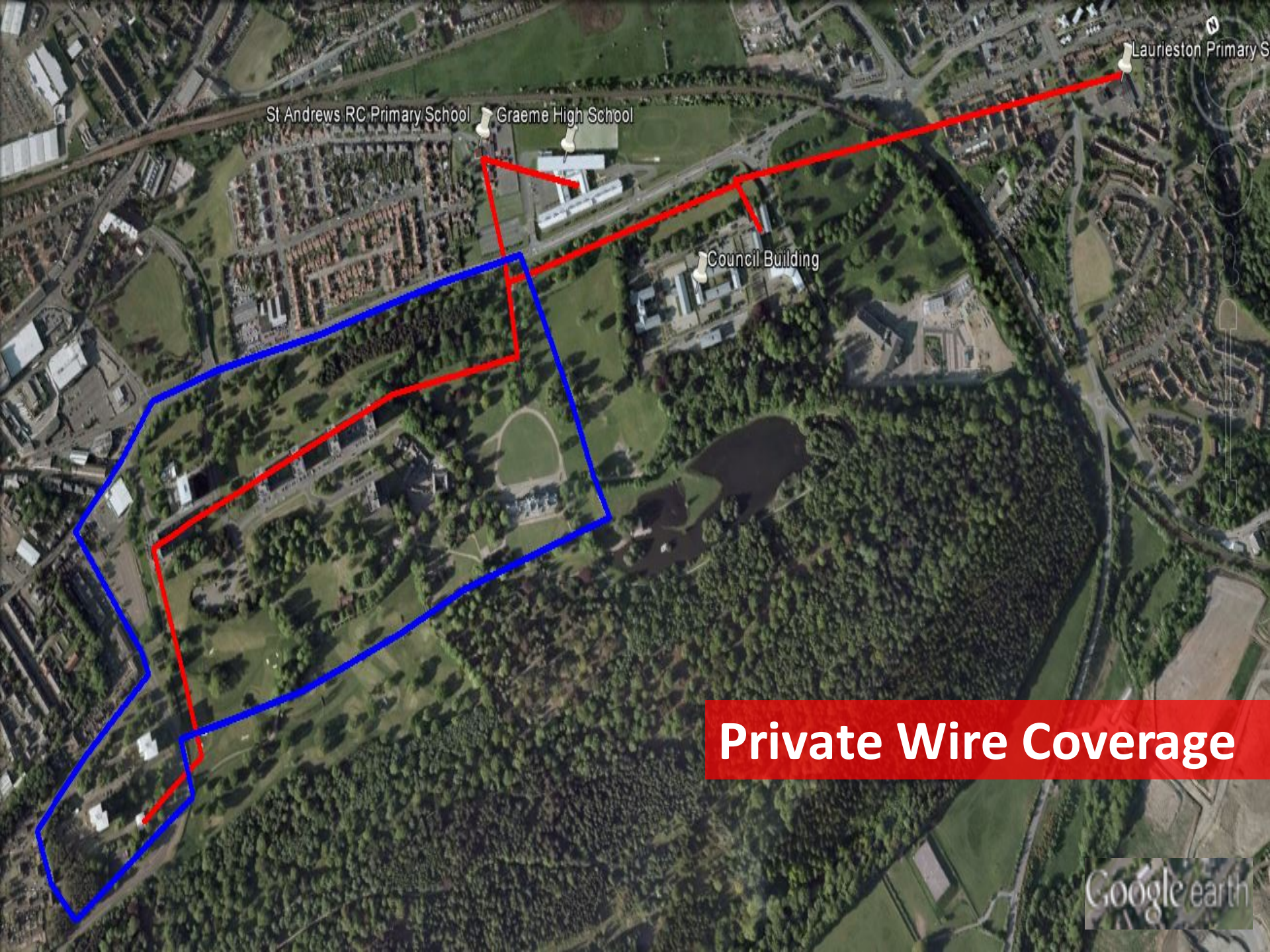

Belmont Tower
Leishman Tower
Eastburn Tower
Marshall Tower
Symon Tower
Paterson Tower
Maxwell Tower
Callender House Museum
Corentin Court
Breton Court
Callender Park Energy Centre
District Heat Network Coverage
Google earth


St Andrews RC Primary School
Graeme High School
Council Building
Laurieston Primary S
Private Wire Coverage
Google earth

Project Achievements

- LED Light Upgrade for Non-Domestics sites -100% complete
- Resident Consultation Events have concluded
- Feasibility Study & Detail Design Complete
- D&B Construction Tender in Process
- Completed Social survey of Non-Domestic sites
- Reduced energy use across Non-domestic sites
- Registered staff to be a Certified CIBSE Heat Network Consultant
- Use of CIBSE Heat Network Code of Practice in assessing every stage of the heat network project

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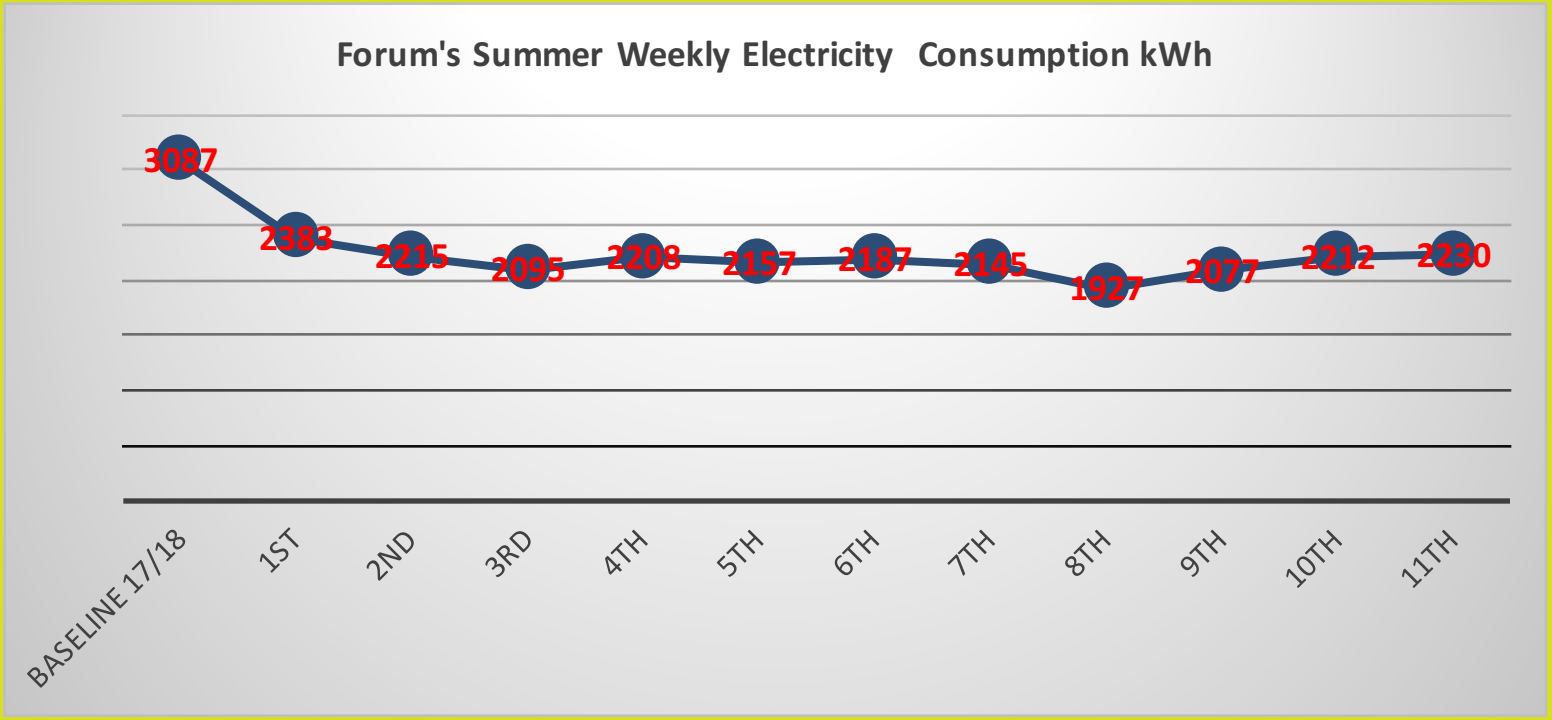
OFFICE LED LIGHT UPGRADE



- 30% of Electricity consumption saved monthly
- 1.44 Tonnes of CO2 saved between June and end of September
- £360 saved monthly on Energy cost

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Estimated Impact of LED Light Upgrade in the Schools

Sites	No of Fittings	Annual Energy Savings kWh	Annual CO_2 Emissions Savings	Annual Energy Cost Savings
St Andrews Primary	353	50,000	19.76	£5,400
Laurieston Primary	144	32,000	12.65	£3,300
Graeme High	2007	324,000	128.06	£37,000

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Project Challenges

- Block level monitoring of Gas - Disallowed in 1996 – **Uniform Network code - Transportation Principal Document Section G – Supply Points1**
- Limited experience to drive project
- Unforeseen delays in concluding the Feasibility study to meet all project parameters
- Sourcing wireless battery powered electricity and gas sensors with data loggers
- Extended timescale to conclude specification & design issues, exacerbated by time constraint

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Project Plans

- Secure Approval to extend project
- Complete Tender exercise
- Procure and install Internal Monitoring Equipment
- Gather reliable and useful data over the monitoring period
- Conduct Social surveys of domestic properties

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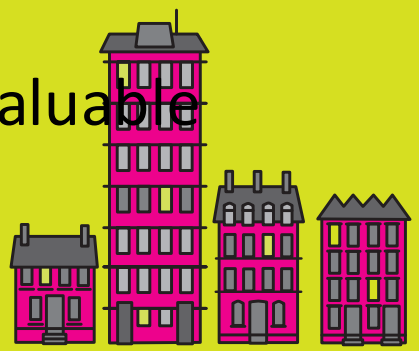
Lessons for EES

Lessons learnt from project and its implication on future delivery of Heat Networks:

- Limited experience or skills within Local Government to deliver projects of this scale needs to be addressed
- Restrained timescale impacts on availability of experienced consultants and contractors
- Long lead in times required for detailed tender and design process
- Financial restraint
- CIBSE Heat Networks Code of Practice – invaluable resource for council officials



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DISCUSSION 2

Where are the critical capacity building requirements?
For local authorities? Delivery partners? Government?

What is the best division of responsibility between national and local levels?

BREAK

PANEL DISCUSSION

Implications for the Transition Programme and next steps

CLOSE

FEEDBACK