

# Midlothian's Energy Services Company



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# Agenda



- Background
  - Zero Waste: Edinburgh and Midlothian
  - Business Case for district heating at Millerhill
  - Procurement of a long term energy partner
- Midlothian Energy Ltd
  - Governance Structure
  - 5 Year Business Plan
  - Benefits of a JV

# Zero Waste Project: Residual Waste





# Zero Waste Project: Residual Waste



- Joint Project with Edinburgh
- 25 Year Contract EfW (Competitive Dialogue)
- FCC Environment
- Min 135k tonnes per year
- Commissioning Complete 2019
- Electricity production 13 MWe
- Heat potential 20MWth

# Energy from Waste Facility Heating Requirement



- SEPA Permit- Heat Plan Requirements
  - Annual Plan and Efficiency Levels (7 years)
- Planning Policy- Presumption to connect
- Planning Consents- District Heating Proposals
- Project Agreement- Heat Offtake clauses

# Zero Waste Project: Food Waste



Midlothian



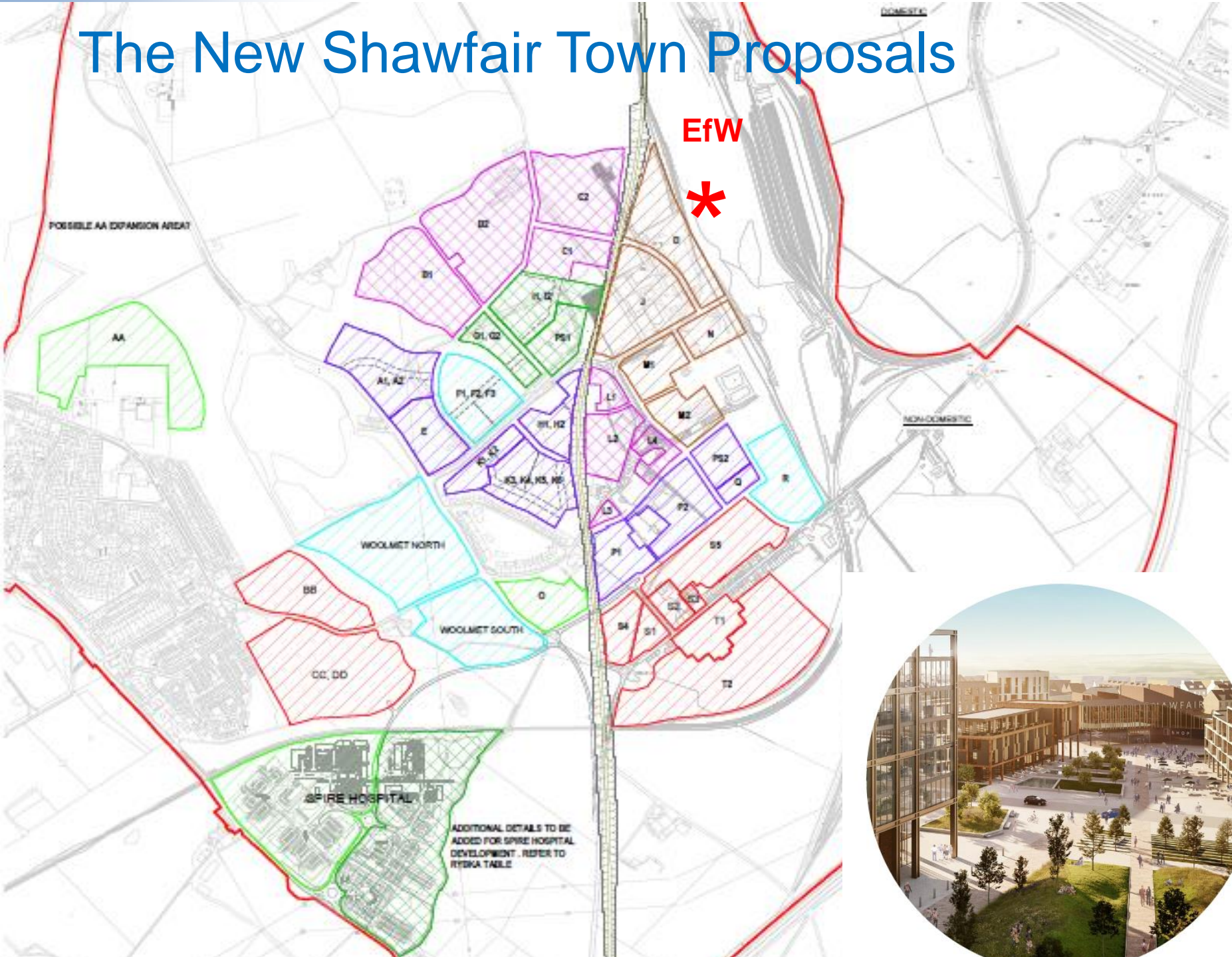
# Zero Waste Project: Food Waste



- Joint Project with Edinburgh
- 20 Year Contract procured through Competitive Dialogue
- Anaerobic Digestion: Biogen
- 30k tonnes per year
- Commissioning Complete 2015
- Products: Electricity and Digestate
- Limited heat availability



# The New Shawfair Town Proposals



# The Business Case for District Heating



2018: Low Carbon Infrastructure Transition Programme  
Funding (£50k funding)

- Scope: District Heating from the FCC Energy from Waste Plant
- Joint project with Edinburgh- Led by Midlothian
- Edinburgh BioQuarter and new Shawfair town
- Output: Future Development Plan and Business Case for a Day One Project

# LCITP District Heating Business Case Conclusions



## Conclusions

- The EfW Plant provides a convincing primary source of low carbon heat
- c. £24m first project- Shawfair Town
- There is no viable project without 50% grant funding on capital (£7.3m assumed)
- Internal Rates of Return too low to support a fully private sector investment
- Preferred Option: Council Owned delivery Vehicle

# Governance



## **Midlothian Council Steering Group**

- Concern about Risk and Investment
- Joint Venture Option not investigated sufficiently
- Market Sounding and Risk Appraisal
- Content to recommend a JV Approach be adopted as the preferred option

# Why set up and ESCo?



- Sounds like a good idea!
- What do you want it to do?
- Do you have projects?
- Is it the right structure?
- Clear Business Case?

# Timetable to Procurement



- April 2018- Business Case
- June 2018- Market Sounding
- July 2018- Heads of terms agreed for heat
- August 2018- Capital application submitted (£7.3M)
- February 2019- Successful grant application and Council agreement of procurement of a JV Partner
- March 2019- Advisers appointed
- Procurement Commenced June 2019

# Procurement of an Energy Partner



- Long term Energy Partner rather than a contractor for one project
- Not just district heating – climate emergency
- Not just Midlothian – 7 Public Bodies
- Competitive Dialogue
- Vattenfall Heat UK appointed PB 2020
- Midlothian Energy Limited established on 13 November 2020

# Vattenfall



- Vattenfall AB, parent company, 100% owned by Swedish Government;
- Vast heat networks in mainland Europe including Denmark, Netherlands, Sweden and Germany;
- Joint ventures with major cities including Amsterdam;
- UK for last 12 years mostly in wind power



# Vattenfall



Midlothian

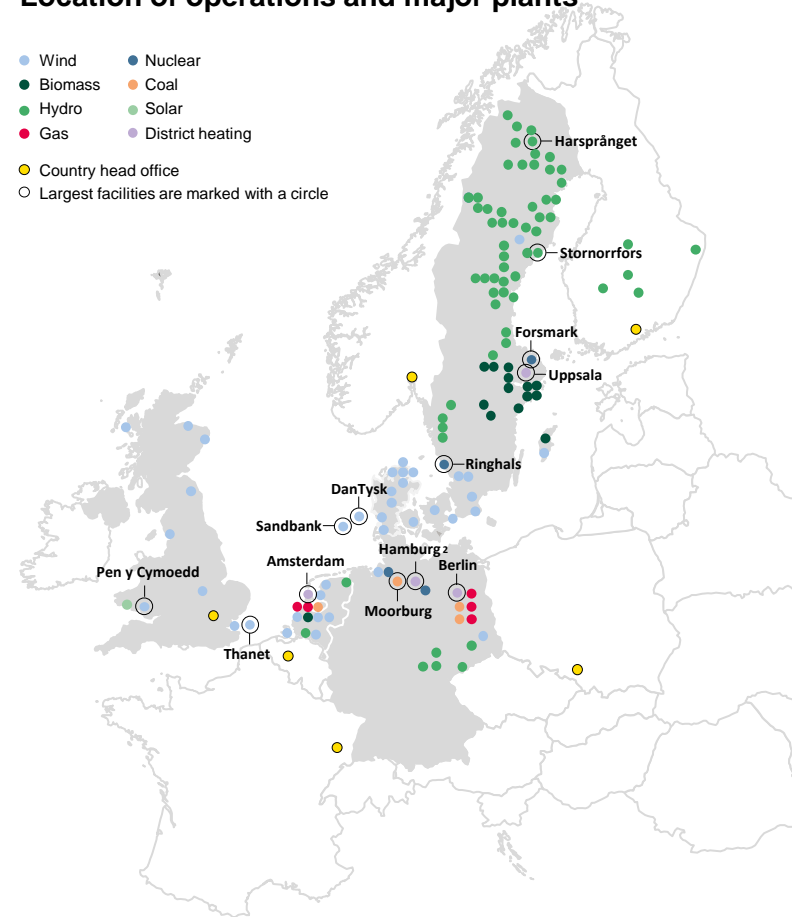
## Basic Facts

- One of Europe's largest producers of electricity and heat
- Main products: electricity, heat, gas and energy services
- Main markets: Sweden, Germany, Netherlands, Denmark and the UK
- About 22,000 employees
- 100% owned by the Swedish state



## Location of operations and major plants

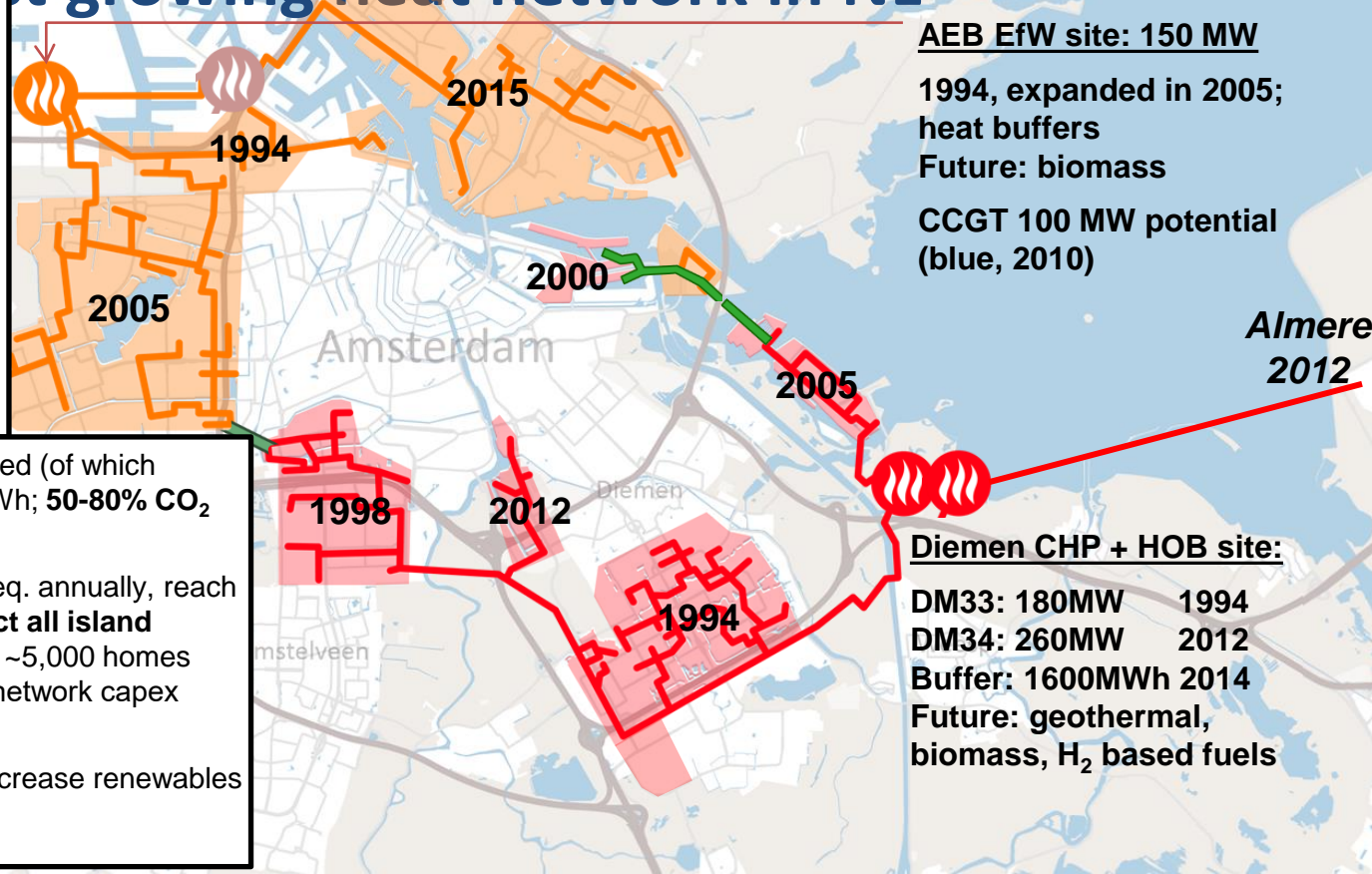
- Wind
- Nuclear
- Biomass
- Coal
- Hydro
- Solar
- Gas
- District heating
- Country head office
- Largest facilities are marked with a circle



# Case study: Amsterdam (pop: ~800,000) fastest growing heat network in NL

- **Inception in 1994:** co-location of heat generation and large scale city development; JV created (orange area)
- **Scale-up from 2005:** 'district heating unless' policy enabling network investment ahead of need
- **From 2012:** housing market recovery lead to new connections; new CHP & buffer at Diemen; Almere link to replace ageing plant

- **Today:** ~140,000 homes eq. connected (of which ~70,000 in Amsterdam), total ~1.5 TWh; **50-80% CO<sub>2</sub> reduction compared to gas boilers**
- **2020 plan:** connect >8,000 homes eq. annually, reach ~170,000 homes eq. in 2020; **connect all island networks** (remove small gas CHPs); ~5,000 homes converted from gas to DH; 100M€ network capex program; start 3<sup>rd</sup> party feed-in
- **2040 vision:** ~50% market share; increase renewables share to **reach zero carbon <2050**



# Midlothian Energy Ltd (Nov 2020)



- Shareholders Agreement 50/50 Joint Venture
- 4 Directors: 2 Vattenfall, 2 Midlothian
- ME Board Meetings
- ME Committees
  - Project Origination Committee
  - Finance Committee
  - Various Project Committees
- ME/MC Concession Agreement
- Management Services Agreements
- No Employees

# Project 1: Shawfair Council Objectives



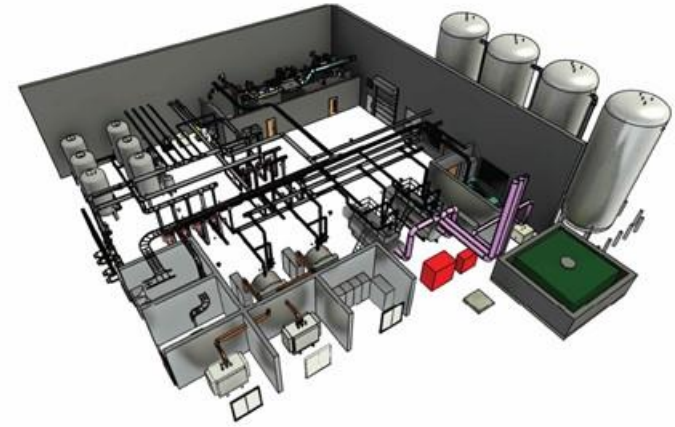
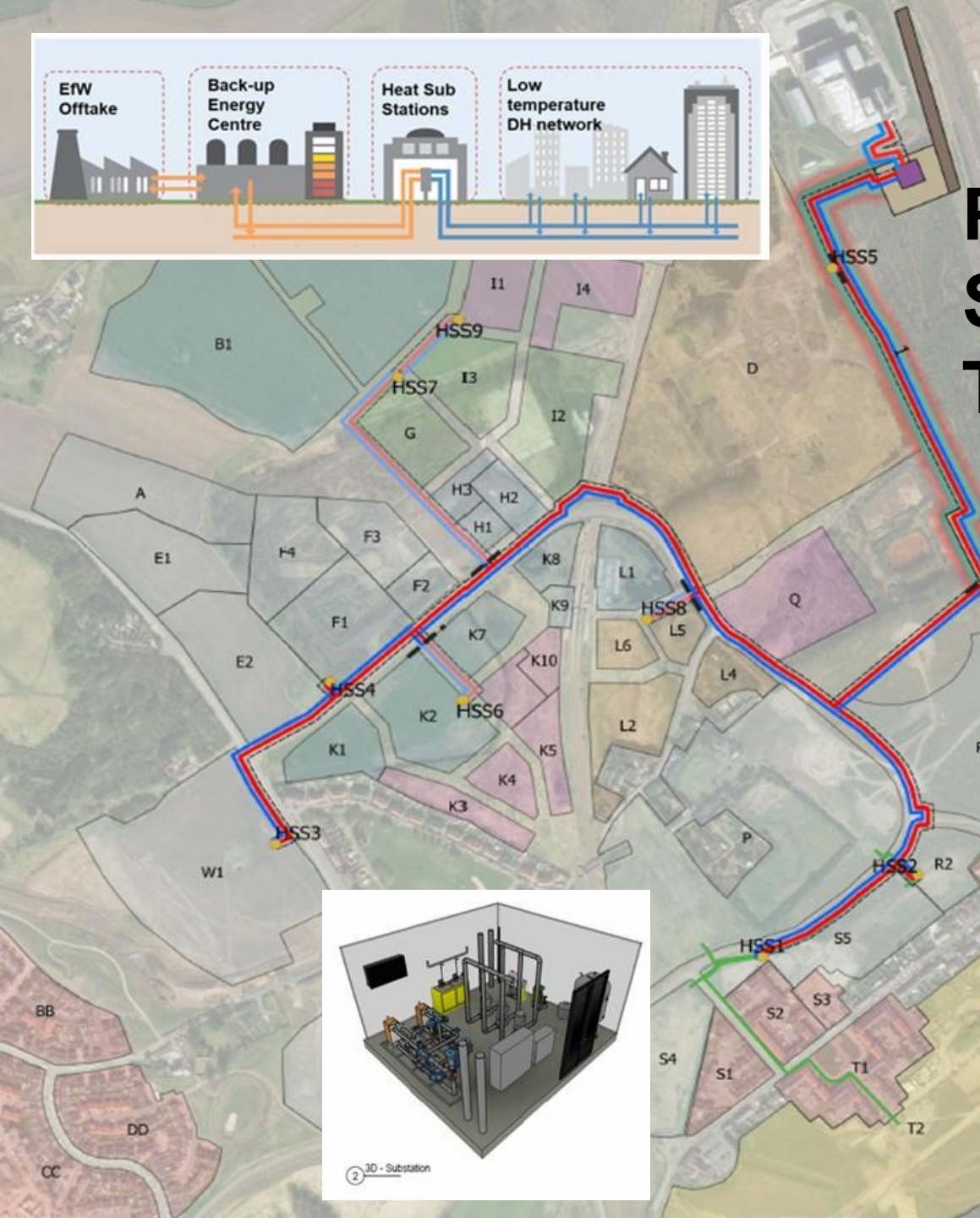
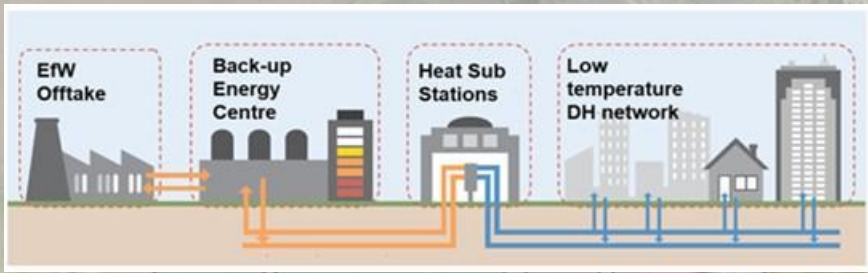
## Priority objectives:

- ✓ Provide a facilitation role and element of control in the delivery and development of the project, including identifying opportunities for public sector investment;
- ✓ Provide an efficient, secure and reliable supply of low-carbon heat energy to the new Shawfair town; and
- ✓ Help alleviate fuel poverty, particularly amongst tenants of social housing in the area and ensure lower energy costs than other available tariffs;
- ✓ **Other objectives:**
- ✓ Create jobs and new skills associated with the construction, commissioning and ongoing operation and maintenance of the network, as well as associated economic, social and community benefits;
- ✓ Contribute towards the Scottish Government and Partner Councils' sustainability policies and carbon reduction targets;
- ✓ Retain scope for expansion of the network where there is a business opportunity; and
- ✓ Assist the operators of the Energy from Waste Plant at Millerhill to achieve high energy efficiency levels and ensure regulatory compliance.

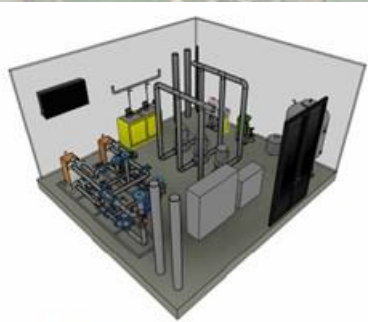


Midlothian

# Project 1: Shawfair Town

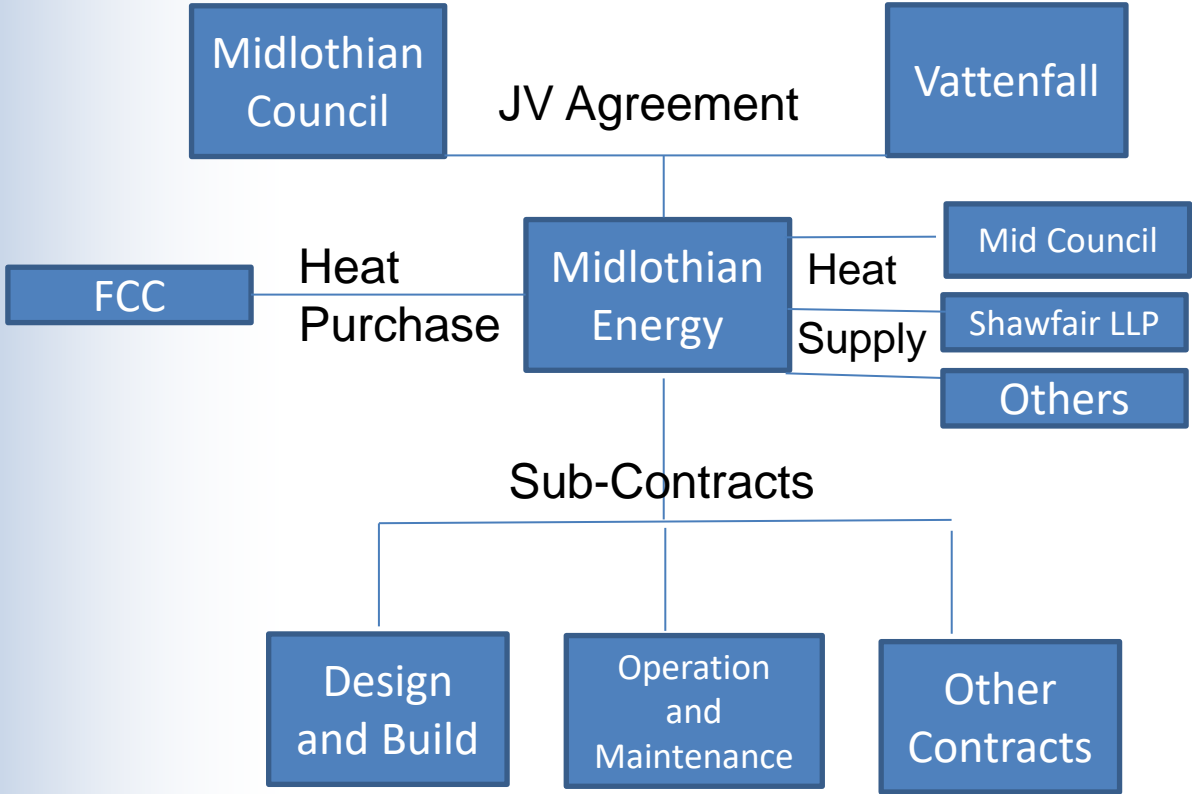


② Energy Centre - 3D, Overview

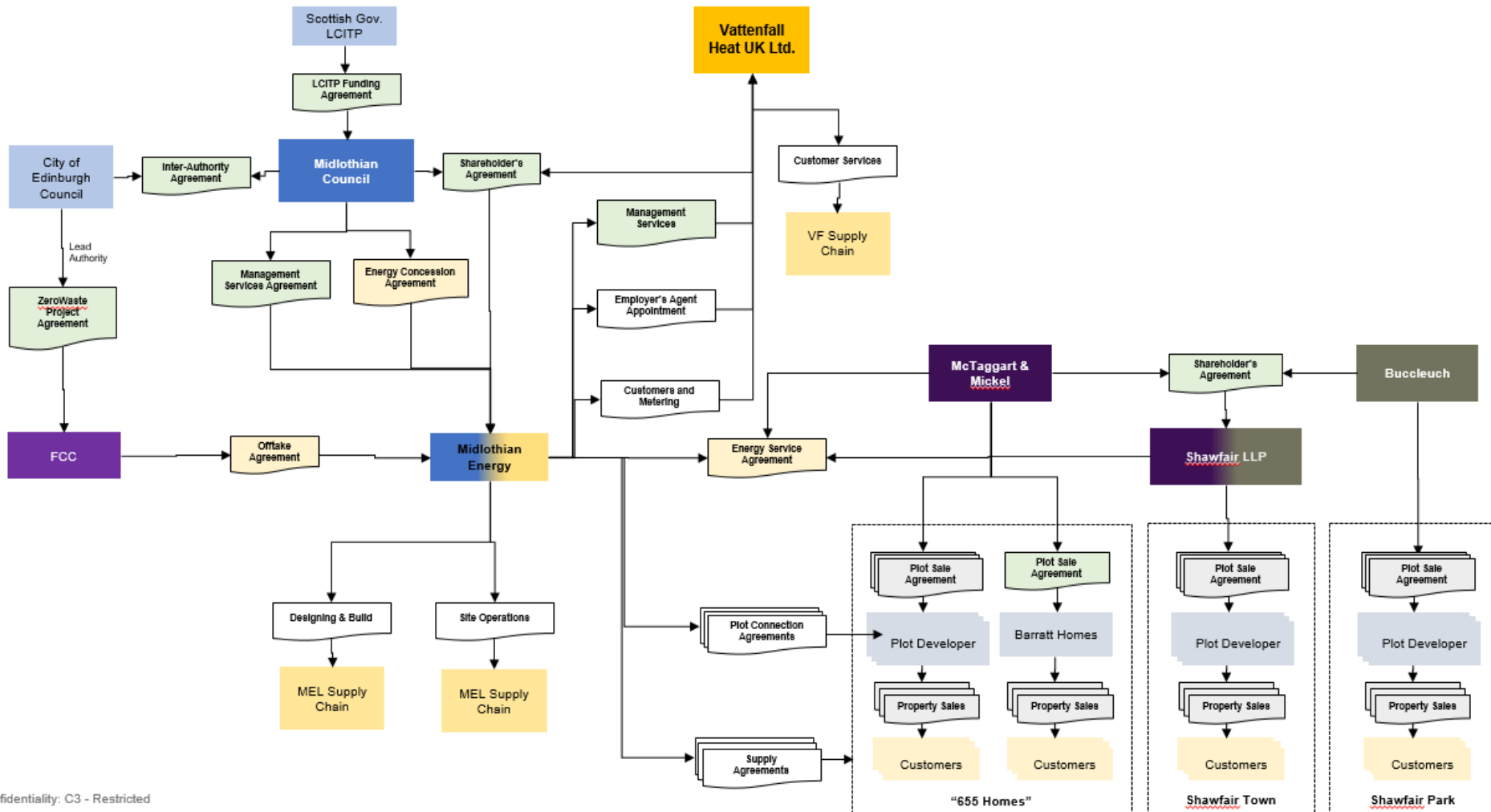


② 3D - Substation

# Midlothian Energy Structure for Project 1



# Expanded Contract Structure



# FUNDING



- ESCO
  - 50/50 Equity
  
- Project 1 c. £50m gross
  - LCITP £7.3m
  - Connection Charges
  - Remaining:
    - Shareholder 1 – 50%
    - Shareholder 2 – 50%



# Midlothian Energy Business Plan Opportunities



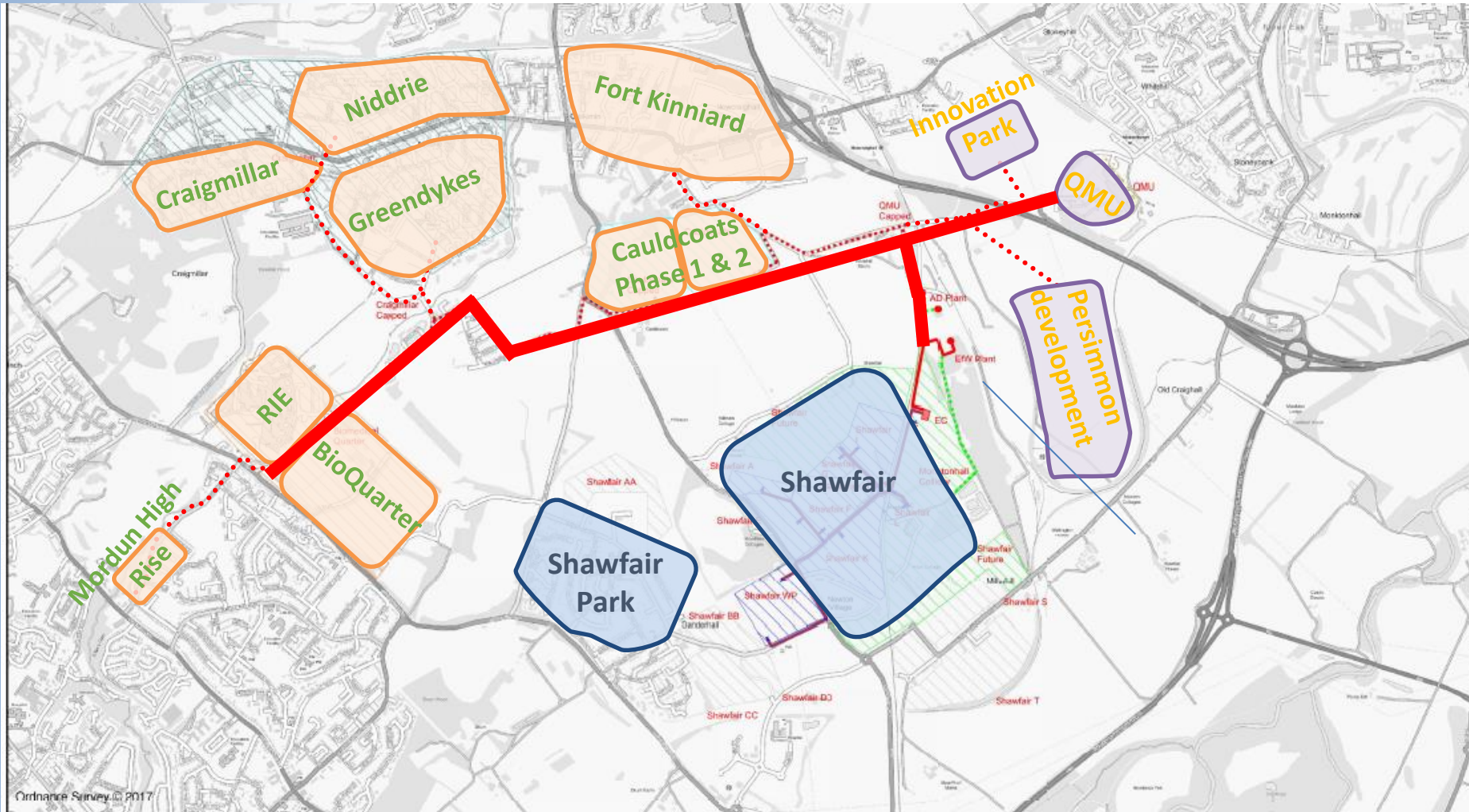
**£90-100m**  
**5 Years**

- ✓ Heat Networks
  - ✓ Expansion of Millerhill
  - ✓ Decentralised DH
- ✓ Heat Storage
  - ✓ Monktonhall Colliery
- ✓ Solar PV
- ✓ Electric Vehicle Charging
- ✓ Direct Wire Electricity
- ✓ NDEE
- ✓ Social Housing EESSH2
- ✓ Council Estate
- ✓ Hyrdo
- ✓ Hydrogen

# Business Planning

## Millerhill Expansion Potential

### Initial Focus





# Cross Boundary Cooperation

## MC/CEC/ELC



- Midlothian Energy
  - Engagement with Strategic Planners on policy;
  - Engagement with Various Council Departments on potential projects in Edinburgh South and east East Lothian;
  - Buro Happold support Opportunity
    - Joint cross boundary working on LHEES Heat Network Zones

# JV Structure Benefits



- Council has a highly experienced commercial partner
- Council has existing relationships, land and resources
- Shared risks
- Ability to progress multiple projects smoothly without internal Council resource constraints
- Structure ensures partners interests are aligned
- Commercial knowledge transfer to public sector

# Economic Benefits



- Contribution to the wider development of a new sustainable town and local and national energy and climate change policy
- Construction, operation and maintenance jobs
- Higher cost certainty for heat price and security of supply to local businesses and public buildings
- Future expansion opportunities for ESCo
- Income stream for Council

# QUESTIONS?

