



Department
of Energy &
Climate Change



Opportunities for heat linking

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CHP for Buildings (likely)

- Hospitals
- Universities
- Hotels - large
- Leisure facilities with swimming pools
- Multi-residential blocks.



CHP for Buildings (less likely)

- Cottage hospitals, doctor's surgeries
- Schools
- Hotels - small
- Leisure facilities without swimming pools
- Low-rise housing
- Offices
- Retail.



Individual site CHP

- Maybe just one building (hotel)
- Or maybe many buildings (campus university)
- More than one building: need connecting pipes
- Heat linking of buildings therefore not uncommon
- Heat linking beyond the site boundary is less common but may offer significant benefits.



CHP at single building – Arnold leisure centre





CHP at campus university – East Anglia





Heat linking to other organisations

- Higher overall demand
- Smoother aggregate load profile
- Higher heat sales, stronger economic case
- Connection of individual buildings that could not justify CHP on their own
- No need for heating (or chilling) plant in buildings...
- Less items of plant to buy and maintain
- Perhaps a larger CHP.



Complementary profiles

- Each building has its own characteristic heat demand profile
- Generically, some buildings have higher demand during 'office hours': offices, schools...
- ... while homes tend to have higher demand out of office hours...
- ... and hospitals have significant demand 24/7
- Together the profiles tend to be complementary – where there is a lot of heat linking this 'load diversity' can be substantial.



Why don't more do it?

- Carrying on with the status quo
- Existing CHP (or other) plant already working well
- Desire to keep decision making at site level
- Fears about reliability
- Lack of obvious adjacent sites to link with
- Adjacent sites may be reluctant or already have new plant
- (Lack of) awareness of heat linking and CHP
- Not core business: who will take the initiative, who will devote the resource?
- Who will take ownership and responsibility?



Who has done it?

- Our site visit!
- Tachbrook triangle – new-build apartments and some office space linked to CHP at Pimlico District Heating Undertaking
- Aberdeen Heat & Power: several multi-residential blocks supplied from one CHP engine.



Tachbrook triangle



- Newly built private and affordable apartments with some commercial office space for the Westminster Primary Care Trust
- Connected to the Pimlico District Heating Undertaking (PDHU).



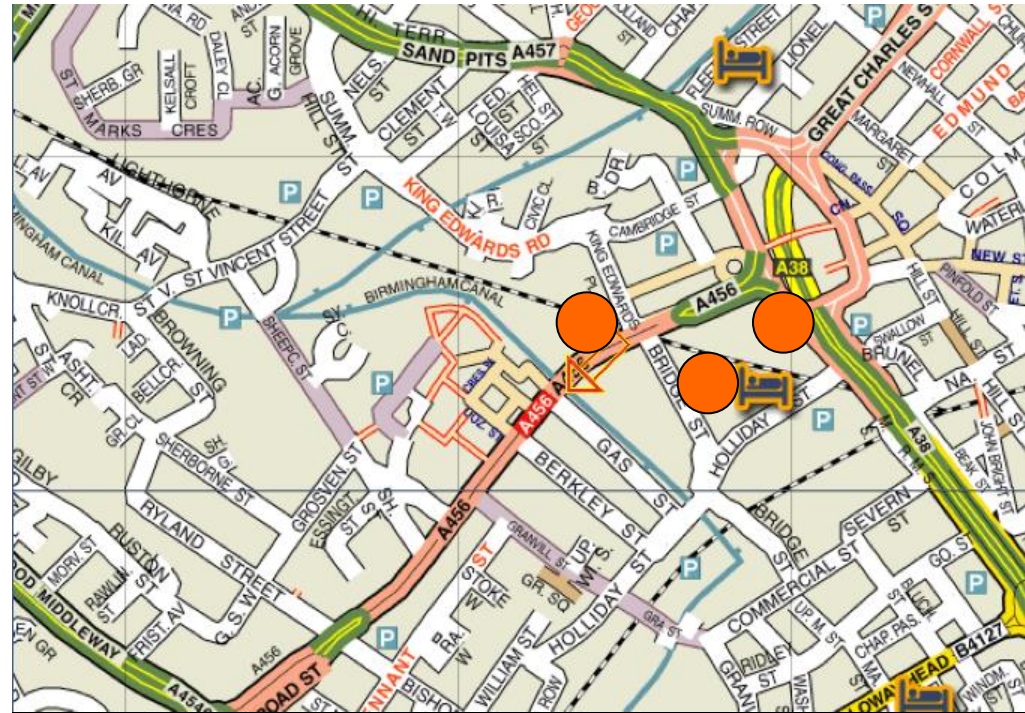
Seaton, Aberdeen



- 1 MWe gas-fired CHP
- Linking 740 flats in 8 tower blocks
- Has already linked to other non-domestic buildings in the vicinity.

Extending CHP supply with heat linking

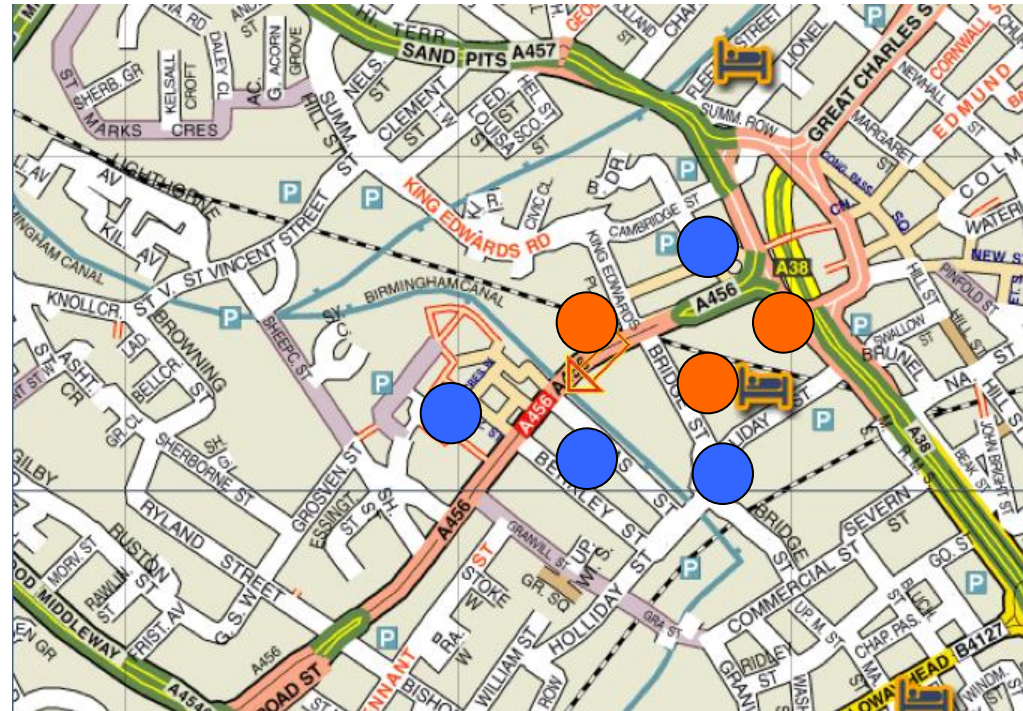
- Local authority owned buildings are often significant consumers of heat that can be used as anchor loads for heat linking.



LA authority buildings as anchor loads

Extending CHP supply with heat linking

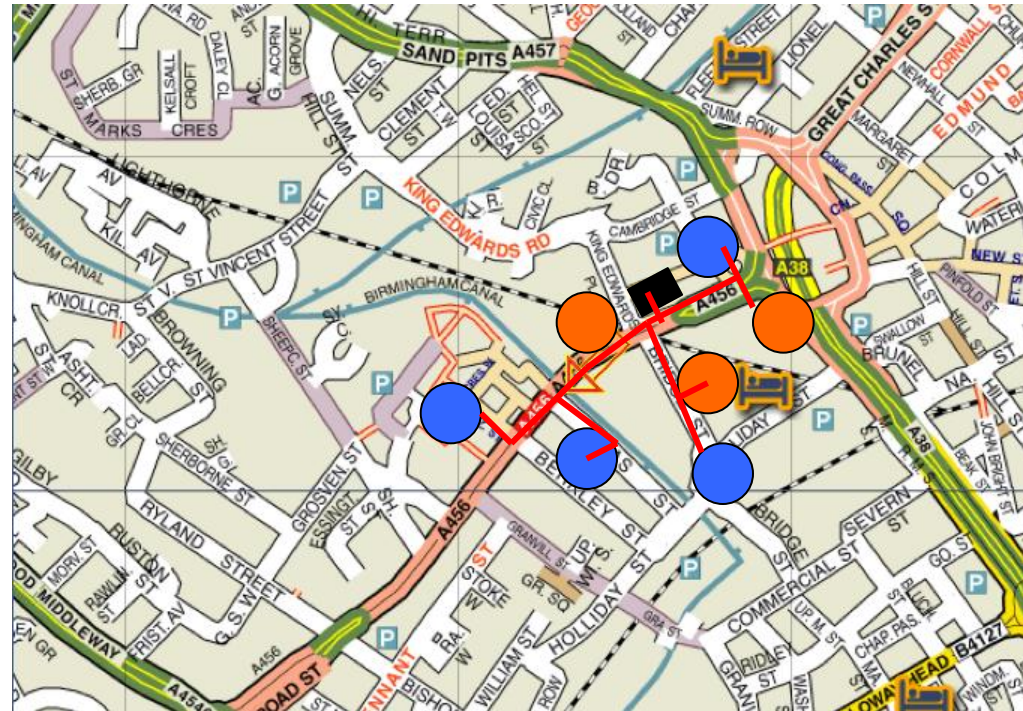
- Heat contract agreements can also be sought with other public and private single users of heat ...
- ...adding to the business case.



LA owned buildings plus other private single heat user

Extending CHP supply with heat linking

- Now with the connections in place the buildings are linked and receiving heat from the CHP at the energy centre.

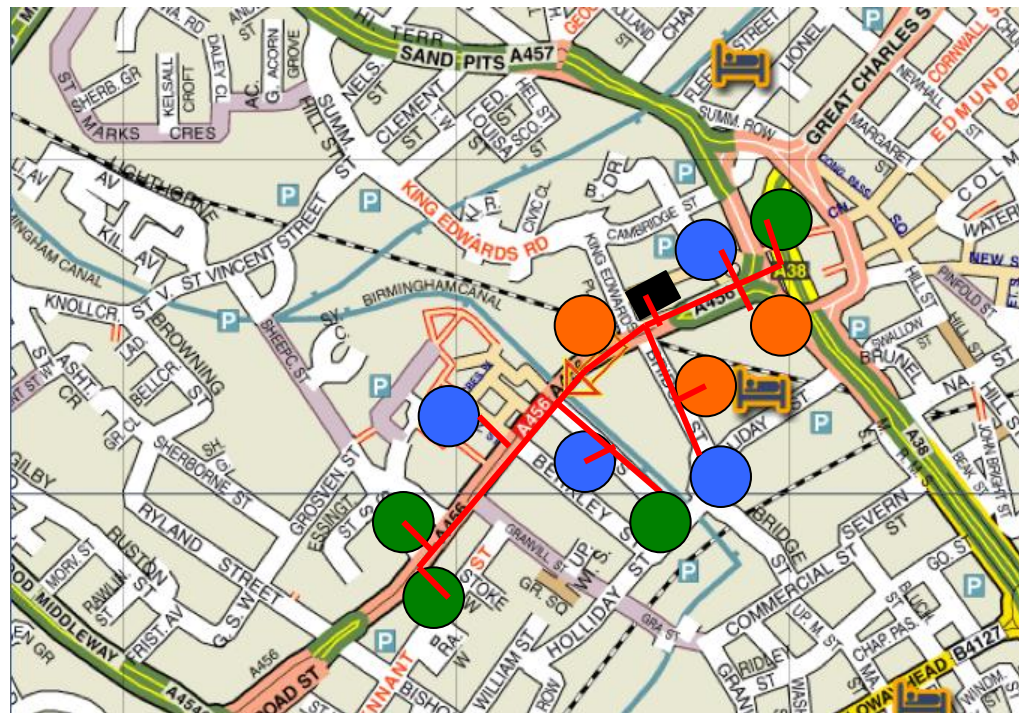


LA owned buildings plus other private single heat user and energy centre



Extending CHP supply with heat linking

- Further heat linking can also take place...
- by connecting to other existing buildings and also new build developments
- All connected buildings are therefore receiving heat from the CHP at the energy centre.



LA owned buildings plus other private single heat user, energy centre and expansion of DH network