

Biomass District Heating Networks workshop



Background

- Plan LoCaL videos:
 - [Biomass an Introduction](#)
 - [Things to consider before starting a biomass district heating project](#)
 - Case study – [Biomass district heating for a small community in Sussex](#)
 - Case study – [Biomass district heating on a Barnsley estate](#)

Why Biomass?

- Carbon neutral and sustainable energy source
- Can be sourced locally avoiding commodity price shocks
- Cheaper than some fuels – especially oil and LPG
- Potential eligibility for RHI
- Brings woodland into management
- Keeps money in the local economy
- Improves local employment and business opportunities

Why a heat network?

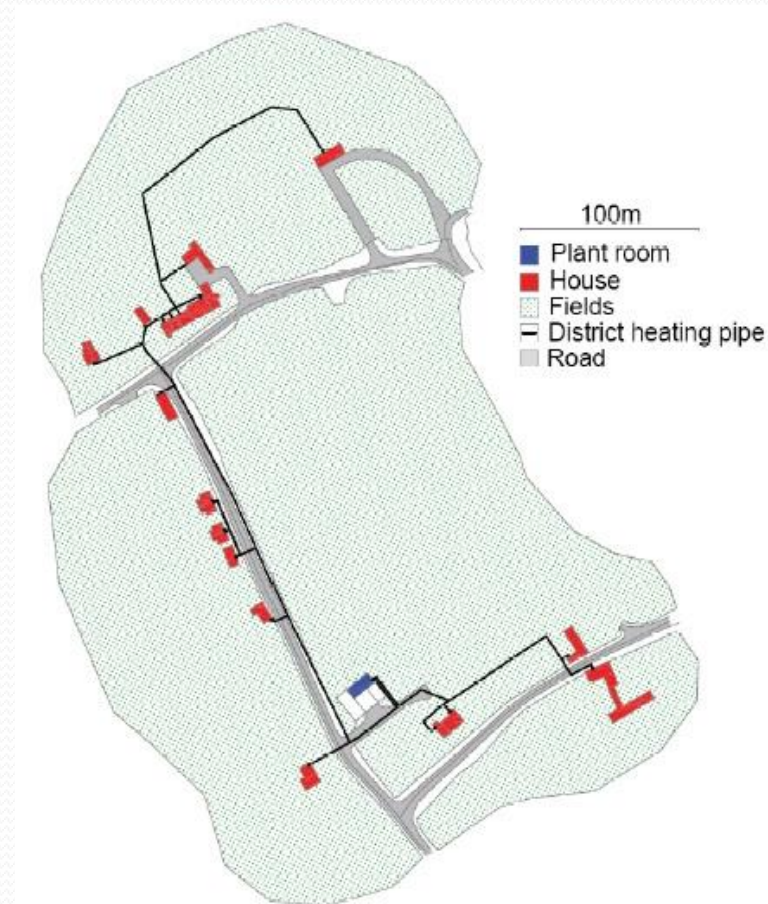
- Not new – plenty of examples on industrial type sites
- Lots of examples abroad – often near thermal power stations
- Heat source can be from a wide range of technologies including waste and geothermal
- Heat source can also be changed when needed without redoing whole network
- Allows economies of scale to be realised
- Allows economic delivery of woodchip biomass sourced heat to numbers of smaller properties

Factors to consider

- Optimising heat load – exercises to follow
- Actual heat use
- Eligibility for RHI
- Ownership and access issues for network pipes
- Central site for energy centre to house boiler, heat store and fuel store/handling arrangements.
- Access for bulk delivery of wood fuel
- Ownership of plant and responsibility for fuel – combine via an ESCO?

Case study – South Carlton

- Burton Estates wanted to replace oil fired system and use biomass from the estate to provide revenue stream
- 23 different properties with 1200m of network length
- Woodchip fuel from coppiced willow for 250kW boiler
- Installed 2009



Case study – South Carlton

Assessed costs etc

Annual fuel used (wood chip at 30%)	200 tonnes
Annual heat production	550 MW hrs
Current gross capital cost	£350,000
Income from selling heat PA	£27,500
Potential RHI income PA (3p/kWhr)	£16,500
Payback period (Current energy costs)	12 years

Case study – Hoathly Hill

- High Weald Community with 27 units from flats to 4 bed detached
- Daytime use including kindergarden and educational
- Previous heating about 75% LPG rest electric storage
- New boiler house and wood store
- Installed 2007



Case study – Hoathly Hill

- Cost £400,000 about £160,000 grants
- Rest from householders plus loan
- 300 kW Binder woodchip boiler and 2 4000l heat buffers to allow up to 420kW peak load
- 300 tons wood fuel annual consumption for 750,000 kWh
- Annual costs about £30K
- £14.5K being wood
- About 1.4km piping
- Video Disc 1



Case Study: Appleton – le Moors

- Study in 2007
- 78 houses along main street surveyed – about 60% in favour
- CG study funded by NYMNP SDF
- Ground fairly stony possibly contributing £1M of £2.5M cost
- Cost vs savings not viable at the time so not taken further
- Would RHI change things?

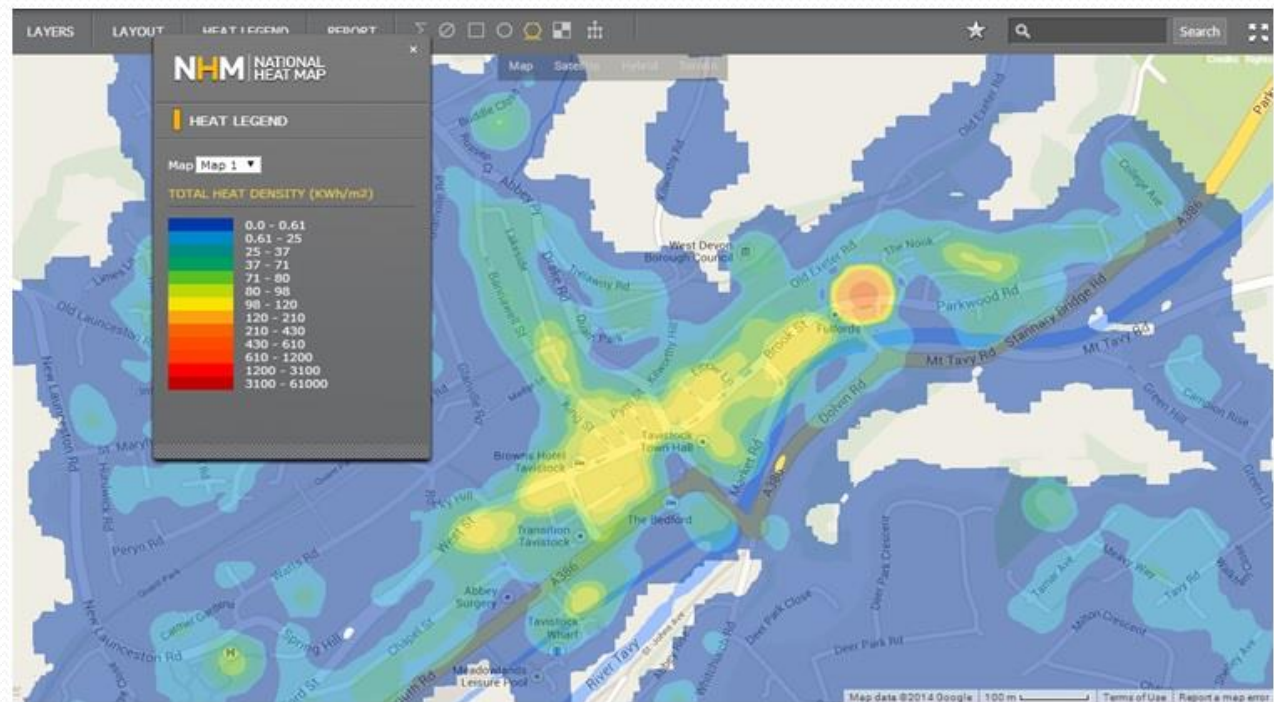


More case studies - RegenSW

- Witherington Estate
- Brimpts Farm and Dartmoor Woodfuel Cooperative
- Good examples across Europe
- Cranbrook versus Sherford

National Heat Map

- Originally trialled by Regen SW as the SW Heat map
- Modelled data at address level
- Metered actual data has data protection issues
- Only as good as the assumptions used
- Opportunity for community group to characterize local heat load better?



Further help

[Biomass Energy Centre](#)

[FOREST European programme](#)

[Centre for Sustainable Energy – The Source](#)

[Forest Fuels Heat Supply Contracts](#)

[Lessons learned from Regen SW's low carbon development programme](#)

[District Heating good practice – Learning from the Low Carbon Infrastructure Fund](#)

[EST Rural biomass heating case study](#)

[TRECO – Biomass district heating](#)

[Diocese of Oxford – Your church and woodfuel](#)