



# NORTH ENERGY CASE STUDY

## Cost modelling for biomass ESCO



biomass district heating systems so that these issues could be factored into the final development plans

### Specialist work provided by North Energy

- Heat load assessment and local profiling
- Boiler and system sizing
- Estimation of capital costs of heat networks and biomass energy centres
- Meetings with design team to familiarise them with biomass heating
- Advice on fuel supply issues and logistics
- Estimation of footprint of buildings required and circulation space
- Research into local fuel suppliers and estimation of fuel costs
- Detailed research into maintenance and other running costs
- Cost modelling of biomass ESCO over 25 years, with financing options and grant options
- Report and recommendations

## Economics of woodchip heating for new housing developments

### The background

Property developer Banks Developments wanted to know whether it would be economically viable to install woodchip fuelled district heating to new housing developments of various sizes.

### The brief

North Energy was asked to

- assess the size of boiler equipment and pipe work needed for a 100, 300 and 500 unit new build housing schemes
- Estimate the additional capital cost of the district heating network compared to using conventional fossil fuel boilers
- Model the lifetime running costs of the three sizes of project in order to compare viability
- To assess whether any of these schemes would be commercially attractive to an Energy Services Company (ESCO.)

### Work delivered

Using typical housing layouts, a rough pipework layout was planned and costed for each size of scheme, metering equipment and heating exchangers were proposed. Based on the size and SAP rating of the dwellings, typical annual heat and hot water use was estimated. Boiler sizes and ancillary plant were assessed and costed, running costs of the proposed ESCO were researched.

A 25 year cost model was prepared for each size project showing both income from heat sales and costs, fuel, metering, maintenance and administration costs.

Alternatives were prepared for a variety of financing options. All this was pulled together in a report and several meetings were held with the clients that helped their in-house development team to understand the design and operational issues of

### Similar work for other clients

- Middleton in Teesdale community heating for 100 homes and school (Community Energy Solutions)
- Community biomass heat for affordable housing, community hospital and other building (Isle of Mull Wood ESCO)
- Wood heat ESCO for 130 house newbuild housing scheme (Grainger Trust)
- Further work on a specific site with housing and offices (Banks Developments)
- Isle of Rum wood heat for castle and community (Scottish Natural Heritage with Econnect)





# NORTH ENERGY CASE STUDY

## Cost modelling for biomass ESCO

### North Energy capability

#### Designing practical solutions for a sustainable future

- Assistance with grant funding applications for renewable energy
- Biomass energy supply chain development
- Biomass heating and heat networks
- Carbon and energy management
- Carbon footprinting
- Cost modelling for biomass district heating / ESCOs
- Energy efficiency site surveys, advice and savings proposals
- Environmental impact assessments for renewable energy projects
- Evaluation of tenders
- Feasibility studies for on-site renewable energy
- Greenhouse gas life cycle analysis
- Off-grid renewable power systems
- Planning applications for renewable energy projects
- Planning policy development
- Project management
- Preparation of case studies and interpretation materials on biomass heating and fuels
- Public relations and public consultation on renewable energy projects
- Renewable energy options for buildings
- Sustainability strategies for organisations
- Wind site assessment and wind measurement
- Wind monitoring and data analysis of results

