Rural Community Energy Fund (RCEF)

Stage 1 Feasibility Report

Thurlestone Community Renewable Energy Feasibility Study

Submitted by:

Devon Association for Renewable Energy

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Contents

1. EXECUTIVE SUMMARY

1.1 BACKGROUND TO THE PROJECT

This report is the principal output of a feasibility study undertaken during 2017 into the biomass heat network opportunities in the parish of Thurlestone (see Figures 1 and 2 respectively for the parish's location and extent), including options for community ownership. The study was commissioned by Thurlestone Parish Council, and funded by the Rural Community Energy Fund (RCEF), administered by WRAP.

Figure 1: Location of Thurlestone within South Devon (Google Maps)

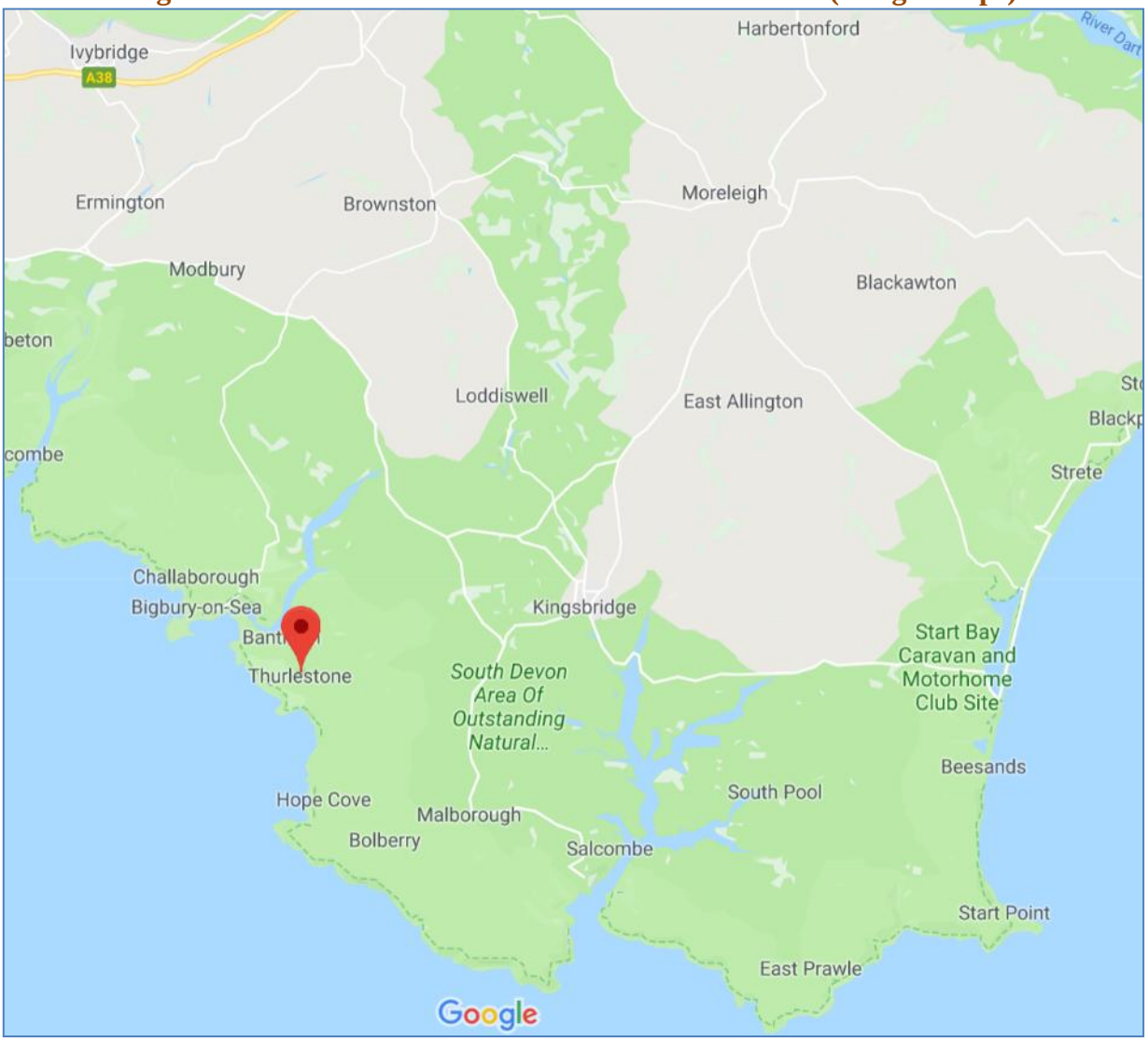
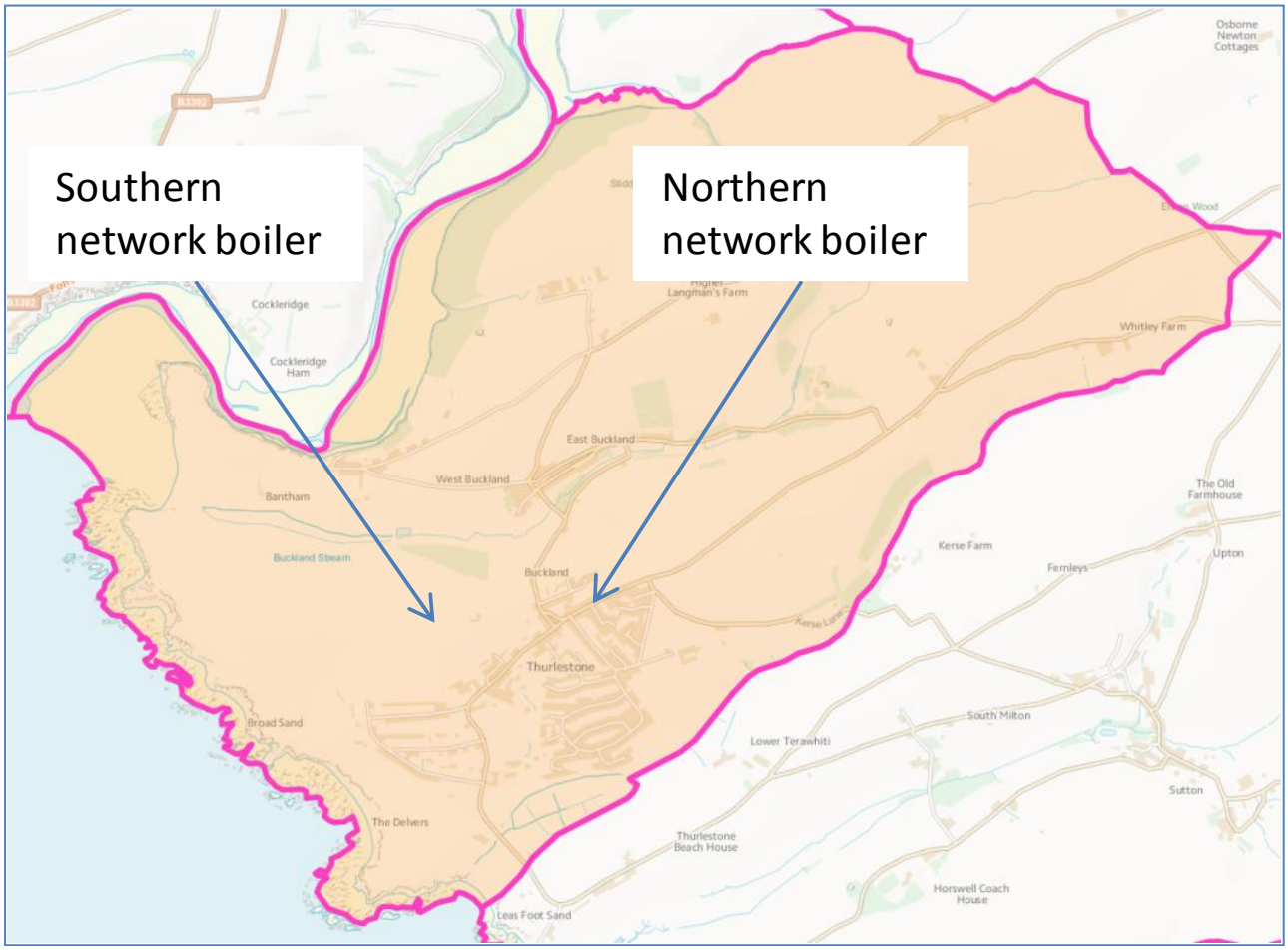


Figure 2: Thurlestone Parish, showing location of principal sites (Ordnance Survey Election Maps)



Key: Parish boundary is edged red.

The community involved in the study is composed of residents, workers and businesses in the parish of Thurlestone. The proposed legal structure is a community benefit society.

The key stakeholders involved would be Thurlestone Parish Council, a community benefit society partner, the potential site owners and heat purchasers, the Environment Agency, highway authority and planning authority and neighbours likely to be affected by the development. The roles of key players are described in section 2.2. The technology explored was biomass heat networks, and the two principal study sites were:

- A southern network –-Connecting church rooms, church and hotel.
- A northern network –Connecting parish hall, primary school and care home.

CASE STUDY: BANKING BIOMASS HEAT NETWORK OPPORTUNITIES

One of the challenges for community-owned biomass heat network schemes is that they are very expensive to install, and, while they receive a level of support through the Renewable Heat Incentive, the low cost of fossil fuels, such as heating oil, means that many schemes are not currently financially viable.

This may well change. Heating oil prices are at historically low levels (in real terms), and it is likely that they will return to an upward trend. This may make biomass installations more competitive (though this will depend how closely wood chip and pellet prices track fossil fuel prices). It is worth assessing the viability of potential biomass heat networks now, and providing a way to identify the point at which they will become competitive.

DARE examined the feasibility of two biomass heat networks for Thurlestone Parish Council, funded by the RCEF. While it became clear that neither was currently feasible, the consultants provided a technical analysis and land ownership survey, and undertook community engagement. DARE created a detailed financial model, which will allow the council to examine the effect of any changes in capital or operating costs, and on income.

As this approach is replicated across other communities, a bank of potential schemes can be developed, ready for implementation when the financial conditions sufficiently improve.

1.2 SUMMARY OF FINDINGS

Biomass heat networks are a technically suitable technology in Thurlestone. There would be, however, high costs associated with either of the two modelled systems, arising from the length of heat mains required, and their need to travel along or across highways. A further challenge is that the heat demand of potential purchasers is limited. Overall, the combination of high capital costs and low demand, coupled with historically low heating oil prices, means that neither of the assessed installations is currently viable.

The consultants identified that:

1. There were two potential sites for biomass boilers, being the church car park for the southern network, and the parish hall for the northern network. The trustees of the parish hall are very open to hosting a containerised installation in principle. The freehold owner of the church car park has not yet been contacted because the site is under a 21 year lease to the church authorities. It may be necessary to talk to both once a financially viable model is available.
2. It would be feasible to supply blown, or bagged wood pellet fuel to either installation.
3. Some site owners were keen to buy biomass heat if it would produce a worthwhile financial saving.

The following significant limitations to networked heat were identified:

1. Regarding the southern network:
    a. The Thurlestone Hotel, previously understood to be a high heat user, operated their existing heating systems on a schedule which meant that heat was delivered where and when needed extremely efficiently. Consequently, there was little unmet demand, and supplying the hotel through a heat main is not financially feasible.
    b. The village shop would require the installation of a wet system to accept heat from the biomass network. This would not be justified by the level of likely savings.
2. Regarding the northern network:
    a. While there was only one property between the parish hall, where the boiler would be sited, and All Saints C of E Primary School, the main potential networked customer, it was unlikely to be possible to route the heat main through that property. This is because it is a private house, whose owners had confirmed, during the community engagement work, that they would not be interested in being part of a community heat network.
    b. This meant that the heat main would need to travel along the main road. It would be difficult, and very expensive, to lay a heat main along this route. Again, the cost is not likely to be met from heat sales.

Should the financial position change, then a scheme would have the following non-financial advantages:

1. A strong level of community support for biomass in principle.
2. A community which, while small in population, is comparatively wealthy, and so able to invest.
3. Existing community benefit societies in South Devon which might well be interested in managing the share issue, membership, RHI claims and invoicing for any scheme.

The study recommends that:

1. Thurlestone Parish Council or others interested in biomass heat networks in the village revisit the financial model, entering revised figures, every three years, or when there is a significant change in circumstances. Such a change would include a large heat user commencing business close to a proposed network.

2. If the model then shows a financially feasible model, then a brief assessment is undertaken to assess whether users are interested, and whether wayleaves can be obtained and other requirements met for a heat network.
3. If the brief assessment shows that a network is viable, then the group can collaborate with an existing community benefit society partner to create a Thurlestone Community Benefit Society which would finance, install, own and operate the network or networks.

2. COMMUNITY ENGAGEMENT AND SUPPORT

The community engagement undertaken during the study was designed to keep people informed of progress, gain information on overall levels of support, and obtain contact details of people wishing to be updated, or to volunteer. It is not appropriate to seek investment until a financially feasible proposal has been established, and the potential return on investment identified. This is unlikely in the near future, but once this has been done, a public meeting should be held, and other engagement activities undertaken, to identify who would be willing to invest, or volunteer.

The answers to the question in the RCEF template are shown in the next table.

TABLE 1: COMMUNITY ENGAGEMENT KEY QUESTIONS AND RESPONSES

a. How much support is there for the proposed installation within the community?	The community engagement activities listed in 2.1 have shown overall support in the community for biomass heat networks.
b. How many members of the community have indicated that they would invest in, purchase energy from or otherwise support the proposed installation?	No formal indications of investment have been sought or received. The community is comparatively wealthy, and would be able to invest, should a financially feasible proposal be forthcoming.
c. What methods of community engagement have been undertaken? Please attach minutes of community meetings, surveys, petitions etc.	See list of activities in section 2.1.
d. Have there been any strong objections raised, either by members of the community or those outside of it?	No.
e. Have you identified the key stakeholders within the community (for example Local Authority, building owners etc.)? If so, please list them here.	Yes. The building owners, and owners of the land over which different heat main permutations would pass, have been identified (see Appendix 1). The local authority is South Hams District Council.
f. How have you engaged with local stakeholders and what support do you have?	See section 2.2.

2.1 COMMUNITY ENGAGEMENT

The community engagement strategy for this project has included the following:

1. Local circulation of details of the project, a call for new members of the working group and also a call for potential sites via:
    a. A parish email circulation list
    b. The parish website
    c. The Parish Newsletter, *The Village Voice,* distributed to all households
    d. A project Facebook page was created
    e. An article in the paper and online edition of the Kingsbridge Gazette, which has a high readership in the parish

2. The DARE consultants attended a village quiz, giving a brief presentation to over 60 local residents in attendance, distributing information sheets about the project and providing an energy-themed round to the quiz.

3. Project information has been shared with the Parish Council through the working party representative Chris White, therefore engaging with the wider community representatives and members of the general public.

4. Meetings have been held with representatives of potential site owners including the Parish Hall, All Saints Parish Church, the church rooms, All Saints Primary School and the Thurlestone Hotel. Telephone calls and emails were exchanged with Thurlestone Court Care Home.

5. Individual letters were sent to domestic properties near the proposed community heat networks. They asked the property owners if they would be interested in benefiting from a district heating scheme. A DARE consultant distributed the letters and was available to answer any questions on the project (SAE's were provided for responses). Twenty letters were distributed, four responses were received: three were not interested in joining a heat distribution network but one property owner at the church farm estate was interested.

6. DARE provided information on the feasibility study and project to the Neighbourhood Development Plan group for inclusion in their consultation statement and Regulation 14/15 community consultation.

2.2 STAKEHOLDER ENGAGEMENT

The key stakeholders in respect of possible biomass heat networks are:

1. The site owners and primary heat users, being:
    a. Southern network: The Bantham Estate (church car park freeholder) and Diocesan Board of Finance (car park leaseholder), and the unregistered owners of the church rooms, assumed to be the Diocesan Board of Finance as Trustee for the All Saints Parochial Church Council (PCC).
    b. Northern network: The Thurlestone Parish Hall Trust (parish hall freeholder).
2. The potential secondary heat purchasers, being:
    a. Southern network: All Saints Church, vested in the incumbent, Revd Daniel Hartley, who would take advice from both the Diocesan Board of Finance and the PCC; The Church Meeting Rooms owned by the PCC.
    b. Northern network: Norfolk Property Services (NPS), being the managers of the current boiler at All Saints Primary School, Devon County Council (which contracts the

management to NPS), the governors, head and business manager of the primary school, and the Diocesan Board of Finance (which owns it).

3. Thurlestone Parish Council, whose support is likely to be important in encouraging local people to invest.
4. The Environment Agency, which issues environmental permits.
5. Devon County Council, the highways authority, whose permission is required to lay heat mains under public roads.
6. South Hams District Council, the planning authority.
7. Neighbours, who may be concerned about noise and particulate pollution.

3. COMMUNITY BENEFITS

The most likely benefits to the community if the project is installed are:

1. Reduced energy bills for the church meeting rooms, church, parish hall and primary school.
2. Financial benefits to local investors, as interest.
3. Increased community cohesion and engagement, as people take part in the initiative, as investors or directors.
4. Potentially, sustaining local employment by providing work for a local installation company and fuel supply company.
5. Providing local work in ongoing operations and maintenance.

The population of Thurlestone civil parish in 2011 was 863[1], and this is unlikely to have changed significantly. The number benefiting will be less than this, but will include investors and users of the church rooms, church, parish hall and school.

The scheme is most unlikely to be able to finance a community fund

[1] Office for National Statistics (2013) *Census 2011* (Eo4003182 Usual resident population).

4. TECHNOLOGY

TABLE 2: SUMMARY OF RESPONSES TO STRUCTURE TECHNOLOGY QUESTIONS

Question from structure document	Response
a. What is the preferred energy generating technology of the community?	Biomass installations, delivering networked heat.
b. What investigations have been carried out into the suitability of the technology to the proposed location?	Detailed site inspections, assessment of heat use (where available and appropriate) and examination of current boilers and heat delivery systems has been undertaken at the church rooms, church, village shop, hotel, parish hall and school.
c. How feasible is it to export the energy to the national grid or to local users?	It is technically feasible to export heat at the southern site, where heat mains could feed the church rooms and the church without laying heat mains on third party land. It is also technically feasible at the northern site, where the heat main would need to travel along the main road into the village. Both heat mains would be expensive.
d. What is the cost of a grid connection?	N/A
e. Have any alternative technologies to the preferred option been considered?	Other than a biomass heat network, no other technologies were considered, nor did they form part of the study brief.
f. What limitations to the technology have been identified (e.g. Potentially limited times of operation, seasonality of operation, seasonality of energy requirements, etc.)?	Limitations relate to the need to specify and maintain the boiler correctly.

5. FINANCIAL PROJECTIONS

The financial projections are shown in Appendix 3, and a summary of the projected profit and loss account forms Table 6. Both show that the biomass heat networks are not financially feasible at present. For this reason, Appendix 3 has been designed as a financial model, with the key variables highlighted and changeable by the user. When such changes are made, it is easy to see the effect on profitability, and on the benefits to investors and heat purchasers.

The model can be used to enter updated values for different variables, and will show whether the project has moved to financial feasibility. It would be appropriate to revisit the model every three years, or when a significant circumstance has changed, such as a new potential heat user becoming available.

Table 3 provides answers to the finance questions in the WRAP structure document for a combined development of both installations and their shortest networks.

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TABLE 3: SUMMARY OF RESPONSES TO STRUCTURE FINANCE QUESTIONS

Question from structure document	Response
a) What is the estimated development cost of the installation?	£146,000 subject to quotes.
b) What sources of funding have been explored?	100% share issue.
c) Has any research been carried out into the possibility of community share issue?	Yes, it forms part of the model.
d) What is the potential income from FITS, non-domestic RHI, selling energy etc?	See Appendix 3.
e) What is the potential income from the community, customers etc?	These can be modelled once a financially viable projection can be made.
f) What are the likely running costs of the installation over its lifetime?	See Appendix 3
g) What are the likely outgoings including loan repayments, staffing, insurance etc. over the lifetime of the installation?	See Appendix 3
h) What is the estimated surplus per annum which can be spent on community benefits?	This can be modelled once a financially viable projection can be made.

5.1 FINANCIAL PROJECTIONS: ASSUMPTIONS

The financial projections' narrative and quantitative assumptions are shown in the Tables 4 and 5.

TABLE 4: NARRATIVE ASSUMPTIONS APPLIED IN FINANCIAL PROJECTIONS

A Installation cost

This is based on the best informal price information available without submitting a request for a site-specific quote. It is unreasonable to expect such a quote without a likelihood that the project will go ahead, because it is expensive to prepare.

B Inflation-related

1 The inflation rate for each year will be as shown.

2 Interest is applied to the average deposit (taken as opening + closing balances divided by 2), and will change in line with RPI. While this relationship is not strong, and may involve considerable time-lag, the effect on income is not significant, because deposits are small and inflation is always below 5%.

C Sales-related

1 That local sales will be maintained at the initial level.

3 The installation will be eligible for a replacement for, or extension to, the RHI.

D Benefit- related

The NPV discount rate is the average RPI over the term.

E Generation-related

Generation will be maintained at the initial level over the whole term.

F Risk-related

Unexpected and uninsurable costs will be met from any contingency reserve.

G Operating cost-related

Business rates will not be chargeable.

H Finance-related

1 No interest will be payable on shares in early years, and no capital repaid during that time.

2 Share investors will be repaid at the stated rate over the term once repayments commence, with all remaining shares being repaid into final year.

3 The interest rate will be sufficient to attract the required investment.

4 The project can obtain any cashflow financing to cover VAT on installation without charge.

I Site-related

Lease preparation costs will be minimised by using existing templates, such as those prepared by Foot Anstey, which form part of the Community Energy Legal Toolkit.

TABLE 5: QUANTITATIVE ASSUMPTIONS APPLIED IN FINANCIAL PROJECTIONS

A. Key Variables		
Term	20	years
RHI rate (year 1)	2.96	£ p kWh
Share interest rate	3.00%	
Proportion of shares repaid each year (from year repayments commence)	5.00%	
Proportion of net profit after tax to community pot	0%	no community pot.
B. Other input data		
1. Pre-development and commissioning costs		
Total predevelopment costs	£3,700	
2. Installation costs	148,920	
3. Operating costs		
Fuel costs	£7,056	Year 1
System operating costs	£912	Year 1
Pump replacement reserve	£200	Year 1
Contribution to CBS operating costs	£4,000	Year 1
4. Generation and sales		
Expected net supplied heat	147,000	kWh Year 1
Local sales	£5,880	Year 1
RHI payable	£4,351	Year 1
5. Tax and rates		
Annual Write Down Capital Allowance (% of previous year)	8%	
Business rates	£0	100% SBRR

The profit and loss projection is summarised in Table 6.

TABLE 6: THURLESTONE BIOMASS HEAT NETWORKS PROJECTED PROFIT AND LOSS

Figures shown in £000s									
Project Year	1	2	3	4	5	6-10	11-15	16-20	Total
Sales									
RHI	4	4	5	5	5	27	31	36	117
Local sales	6	6	6	7	7	40	50	62	184
Total Annual Sales	10	11	11	11	12	67	81	98	301
Cost of sales									
Fuel costs	7	8	8	8	9	52	66	85	243
System operating costs	1	8	9	9	9	51	59	68	213
Major items replacement reserve						1	1	1	4
Contribution to CBS operating costs	4	2	2	2	2	12	14	17	56
Total cost of sales	12	18	19	20	21	115	140	171	516
EBIT	- 2	- 8	- 8	- 8	- 9	- 49	- 59	- 72	-215
Share Interest		5	5	5	5	23	23	23	87
Net profit before tax	- 2	-12	-13	-13	-13	-71	-82	-95	-302
Corporation tax									
Net profit after tax	- 2	-12	-13	-13	-13	-71	-82	-95	-302

5.2 FINANCING OPTIONS

Should the scheme become potentially financially feasible, the capital cost could be financed through a community share issue, community or commercial loans or bonds, or a combination of these. The financial model shows all the money being raised through a community share issue.

A community share issue is undertaken through a community benefit society (CBS), and is a very good way of raising some low cost finance, while providing a return to local people and allowing them a substantial level of control in the society which owns the installations. Community investors may accept a comparatively limited financial return in exchange for the community benefit arising from the project's success.

All CBS investors have one vote in general meetings, whatever the size of their investment, and to this extent such shares are democratic. Shares cannot be traded, but may be withdrawn by the issuing CBS, which will normally repay their initial price (shares cannot appreciate in value, but may decline, if the value of the underlying CBS assets falls).

Bonds are a particular form of loan. They are issued for a fixed period, usually between two and five years (which may mean the CBS has to raise further finance to replace them). They are transferable

(unlike community shares), though there is not always a market to facilitate this.[2] An example of a community bond issue is Bath & West community energy solar offer here.

6. PLANNING AND PERMITTING

An environmental permit will be required for each biomass installation. At the time of writing, secondary legislation was about to be laid which would require all biomass installations to have any necessary environmental permits in place in order to be eligible for the non-domestic RHI.[3]

Planning permission will be required for each containerised boiler and flue, and consents will be required for laying heat mains along the public highway. Wayleaves will be required from all landowners whose property a heat main passes through.

TABLE 7: SUMMARY OF RESPONSES TO STRUCTURE PLANNING AND PERMITTING QUESTIONS

Question from structure document	Response
a) Have discussions taken place with the relevant planning authority?	No. This should only be done once the project is financially viable.
b) Have discussions been held with the Environment Agency?	No. This should only be done once the project is financially viable.
c) What is the initial view on the likelihood of achieving planning?	That it is likely provided Environment Agency, screening and similar requirements are met, and neighbours do not object.
d) Have any precedents been set?	Many biomass heat networks have been installed nationally, and one large one is in place at the Thurlestone Hotel. A containerised wood pellet boiler has been installed at another church in Devon, please see case study here
e) Does the community organisation understand the legal requirements, e.g., Environmental Permitting Regulations, Duty of Care, etc?	No, but it can obtain professional assistance to address these issues when the project is financially viable.
f. What permits will be required?	Highways authority consent to carry out works on a public road; environmental permits.
g. Will an Environmental Impact Assessment be required	No.

[2] An exception is Mongoose Crowd, which matches buyers and sellers.

[3] See here para. 6.1.2 There will also be an obligation for installation owners to hold permits for the lifetime of their participation in the scheme.

7. SITE

The next table summarises the responses to the specific questions in the WRAP guidelines.

TABLE 8: SUMMARY OF RESPONSES TO SITE-RELATED QUESTIONS

Question from structure document	Response
a. Has a suitable site been identified? (If so, please provide plans with details of placements and access requirements).	Yes, the church car park for the southern route, and the parish hall grounds for the northern route.
b. Is the site available to purchase or lease?	The car park is currently under a short lease (21 years), and unless this is extended, a lease from the freeholder will be required. The parish hall is held under freehold, and so a lease is likely to be possible once the financial benefits to the hall justify the installation.
c. Has the site been tested for suitability to the proposed technology e.g. is it windy/sunny? If hydro, is there access to a weir?	No, but the sites are both flat, and appear sufficiently solid to take a container.
d. Are there any restrictions on the site's usage (e.g., SSI protection, AONB, National Park)?	No.
e. Are there any neighbouring land owners who could object to the use of the site?	Yes, particularly in the case of the northern site, where a house adjoins one side of the parish hall site. The other side is currently occupied by a garage, but could possibly be sold for housing. It would be important to demonstrate very low smell, particulate and other pollutant emissions, and low noise, from the sites.
f. Is it currently possible to export electricity and/or heat from the site to the community/grid? If not, what is required to ensure the feasibility of this in the future (e.g., heat distribution networks, National Grid connection, heat boosters, etc)?	Heat cannot currently be exported but the model relies on this being possible in the future.
g. Who will be responsible for management of the site/installation on a day to day basis?	The preferred option is for a community benefit society to own and operate the installation. It is likely that they would subcontract day to day operation to a local supplier.

8. OPERATIONS AND GOVERNANCE

TABLE 9: SUMMARY OF RESPONSES TO STRUCTURE OPERATION AND GOVERNANCE QUESTIONS

Question from structure document	Response
a) What legal entity (e.g. CIC/IPS etc.) will be used to manage the delivery of the project, raise finance and oversee the ongoing delivery of the facility once built?	A Thurlestone Community Benefit Society could be formed, which would undertake all these roles. It might do this in partnership with an existing CBS such as Totnes Renewable Energy Society.
b) Is this legal entity suited to your chosen method of raising finance and distributing income?	Yes.
c) Identify the key people responsible for managing the delivery of the project, raising finance and overseeing the ongoing delivery of the facility once built.	The key people required to undertake all these activities have not been identified yet, because it is first necessary to confirm there is a financially viable project.
d) What suitable experience do these key people have?	Not applicable at this stage, see response to c).
e) What succession plans are in place to ensure the project/facility remains actively managed over its lifetime?	The project would be managed by a CBS for the projected term. It is possible that many CBSs will find it difficult to operate independently for this period, and might merge, reducing overheads.

8.1 THE COMMUNITY BENEFIT SOCIETY PARTNER

It is very likely that some of the finance for the networks will need to be raised through a community share issue made by a community benefit society (CBS). This is because the cost of capital is likely to be lower than from commercial sources, and only a CBS can undertake a public share issue[4] without the need for approval by an FCA authorised person. It is also an appropriate way of ensuring local people share in the ownership of, and receive financial benefit from, the installation.

The community of Thurlestone could form a new CBS. This would have the advantage of clearly demonstrating that the project belonged to, and was being developed for, residents and others in the parish. This, in turn, would have a marketing benefit when raising community finance. On the other hand, creating such a society takes a great deal of commitment and resource. A set of active and committed directors must be found, who will need to develop the skills and knowledge to manage a CBS. A great deal of time will be needed while the project is being developed, to write a business plan and share invitation, and put together a financial package, while at the same time overseeing the installation process. The CBS would also need to cover all its overheads (such as accounting, and managing its membership) from the income of a single installation, and continue to operate for at least 20 years.

[4] Of withdrawable, rather than transferable, shares.

One way of addressing this would be to work closely with an existing CBS such as Totnes Renewable Energy Society (Tresoc). Tresoc is based in Totnes, which is sixteen miles from Thurlestone. It is well established, has a large and varied roof-top solar PV portfolio, and has biomass network expertise on its board. Another nearby CBS is Yealm Community Energy , which would also be a potential partner.

9. SCHEDULING

While it is not possible to provide a timeline at this early stage, once a potential financially feasible model has been established, it might be possible to deliver the networks within eighteen months.

10. CONCLUSIONS

This study concludes that:

1. Biomass heat networks form a technically suitable technology in Thurlestone.
2. There were two potential sites for biomass boilers, being the church car park for the southern network, and the parish hall for the northern network, and owners of both were open to hosting a containerised installation in principle.
3. It would be feasible to supply blown wood pellet fuel to either installation.
4. Some site owners were keen to buy biomass heat if it would produce a worthwhile financial saving.
5. Should the financial position change, then a scheme would have the following non-financial advantages:
    - A strong level of community support for biomass in principle.
    - A community which, while small in population, was comparative wealthy, and so able to invest.
    - Existing community benefit societies in South Devon which might well be interested in managing the share issue, membership, RHI claims and invoicing for any scheme.

Despite these positive findings, however:

6. There would be high costs associated with either of the two modelled systems, arising from the length of heat mains required, and their need to travel along or across highways.
7. Overall, the combination of high capital costs and low demand, coupled with the limited savings on historically low heating oil prices, means that neither of the assessed installations are currently viable.
8. While fossil fuel prices are likely to rise, they would need to increase very considerably to make an installation worthwhile, even if biomass prices do not track fossil fuel prices.

Further, the following significant limitations to networked heat were identified:

1. Regarding the southern network:
    a. The Thurlestone Hotel, previously understood to be a high heat user, operated their existing heating systems on a schedule which meant that heat was delivered where and when needed extremely efficiently. Consequently, there was little unmet demand, and supplying the hotel through a heat main is not financially feasible.
    b. The village shop would require the installation of a wet system to accept heat from the biomass network. This would not be justified by the level of likely savings.
    c. There was no interest from the surrounding domestic properties at the Church Farm estate to be connected to a potential community district heat network.
2. Regarding the northern network:
    a. While there was only one property between the parish hall, where the boiler would be sited, and All Saints Primary School, the main potential networked customer, it was not likely to be possible to route the heat main through that property. This is because it is a private house, whose owners had confirmed, during the community engagement work, that they would not be interested in being part of a community heat network.
    b. This meant that the heat main would need to travel along the main road leading into Thurlestone. It would be difficult, and very expensive, to lay a heat main along this route. Again, the cost is not likely to be met from heat sales.

In summary, there is no financially feasible opportunity for a biomass heat network in Thurlestone at present.

11. RECOMMENDATIONS

It may be that circumstances may change, rendering a biomass heat network financially viable at one or both of the surveyed sites. The factors that influence this are:

1. The cost of installation.
2. The cost of biomass fuel.
3. The cost of existing fossil fuel used to heat potential purchasers of networked heat.
4. The discount provided to those purchasers.
5. The amount of heat which those purchasers might buy.
6. The cost of capital.
7. The cost of operations and maintenance.

This study provides a financial model (Appendix 3) which allows changes to these variables to be made easily, and clearly shows whether the resulting network would be viable, and so it is recommended that:

1. Thurlestone Parish Council or others interested in biomass heat networks in the village revisit the financial model, entering revised figures, every three years, or when there is a significant change in circumstances. Such a change would include a large heat user commencing business close to a proposed network.
2. If the model then shows a financially feasible model, that a brief assessment is undertaken to assess whether users are interested, and whether wayleaves can be obtained and other requirements met for a heat network.
3. If the brief assessment shows that a network is viable, work with an existing community benefit society partner to create a Thurlestone Community Benefit Society which would finance, install, own and operate the network or networks.