**BISHOP’S CASTLE COMMUNITY HEAT & WIND PROJECT
FREQUENTLY ASKED QUESTIONS**

1. **What are the benefits of the Heat Network to the Community?**

If this scheme progresses the community would benefit through:-

* Reduced carbon emissions,
* The ability to remove oil tanks and boilers,
* Improved air quality,
* Reduced fuel costs and protection from energy price spikes,
* Assistance with fitting energy efficiency measures,
* The opportunity to invest in the CBS,
* Reduced dependency on imported oil and LPG,
* Support for local businesses and organisations (e.g, the biomass heat option would provide additional income for Ransfords).
1. **Has the site for the Energy Centre (Heat Hub) been identified?**2 potential sites have been identified: Community College/SpArC or Ransfords, dependent on which network option is pursued.
2. **What effect does using the Heat network have on an individual house’s carbon output?**It will reduce carbon emissions from heating by about 90% .
3. **Why do we need a Wind Turbine to power the Heat Network?**Primarily to deliver a renewable energy, low-carbon solution. A wind turbine is a good match for heat pumps as it generates most when the heat demand is highest.  Any surplus electricity it creates will be exported first to SpArC and then to the grid. Having a wind turbine could reduce the costs of running the heat network by up to 30%, this will help us to provide cheaper heat, the heat pump option would not be viable without it.
4. **What happens when the wind isn’t blowing?**When needed, the system will use electricity from solar panels or the grid if there isn't any available from the Turbine, but will have 2-3 days of heated water available in the Heat Store.
5. **How much noise does the Wind Turbine make?**Modern Wind Turbines are now very quiet and we're ensuring that the Turbine will be at least 500m from any properties. A full noise assessment will be carried out as part of the planning process.
6. **What impact will the sight and sounds of the wind turbine have on wildlife and tourism?**A visual impact assessment has been carried out, but more detailed assessment will be needed on all these matters. The RSPB supports well-sited wind turbines. Wildlife impacts, with a correctly designed and located turbine, are minimal, compared to the huge threats they face from the Climate Crisis. There has been no reported effect on tourism in other areas with wind turbines, such as Cumbria, Derbyshire Peak District and Norfolk. A full scrutiny of any Planning Application will be undertaken.
7. **Will it be cheaper for the householder?**The intention is for prices for heating to be competitively priced and less prey to energy price spikes as, with our own Wind Turbine we would have some protection against rising fuel prices in the future. It will also help with more predictable budgeting.
8. **Would this be an opportunity for installing a second Wind Turbine to supply electricity to enable social housing occupants to transfer from their expensive pre-payment meters?**An increase in Wind Turbine installations locally would not be realistic at present. It’s also difficult to feed electricity from a Wind Turbine directly into peoples’ homes. The ‘Energy Local Option’ whereby anyone on the same substation & the same electricity supplier could get a discount on their electricity could be of interest, but people would have to sign up to Octopus or similar to be involved, and it’s not a guaranteed system. (See also question 26).
9. **What is the minimum number of houses needed to make this project viable?**A minimum of 100 houses in off gas grid areas is required to attract government funding.
10. **What will the costs to the householder be?**There are no installation costs for those who join at the start, and no on-going costs for replacement or repair of your own boiler. The householder will pay a standing charge plus a metered cost for usage. These charges will cover the system’s maintenance.
11. **How will it be funded?**In addition to government grants (up to 50% of the heat network costs), funding will be raised by a share issue. As long as there’s a reasonable return there should be no difficulty raising the capital.
12. **Will it pay dividends?**A fair interest will be paid on the shares but any extra surpluses will be available for Community benefit, not for the shareholders.
13. **Can you decide to join the network after it’s been installed?**

Yes, as long as there’s a network pipe nearby, but there will be a charge for late joiners.

1. **How will you decide where the heat network runs?**The key factor will be the need for a lot of the buildings in a street to join the network to make pipework installation viable. Subject to the response, the network will be able to pump hot water to any part of the town, though we are targeting the centre of the town initially.
2. **Will it still function in a very cold winter?**Yes. The system will be designed to cope with maximum heat loads. It will still be connected to the grid and have back up oil boilers.
3. **Will the installation of the network pipes be intrusive?**Roads will have to be dug-up, but this may offer opportunities such as the installation of fibre-optic broadband cables, or the improvement of the water pipes.
4. **What is the time-frame for the project?**Like all local renewable energy projects there are many hurdles to be cleared before work can begin. The project has been running since August 2021 and is still in its exploration stage. We now have permission to put in a planning application and ecology studies have started on our preferred site. Further funding for the project is being applied for by *Shropshire & Telford Community Energy* [STCE] from *the Community Energy Fund*. A planning application could be submitted late 2024, the earliest the project could commence would be late 2025.
5. **How will the thermal energy generated by the air-source heat pump be stored?**In a hot water tank located in the Energy Centre, which also houses the control equipment.
6. **What will the temperature of the heat network’s water be?**Varying from 65⁰c to 80⁰c in the winter.
7. **Is the Heat Network a closed system?**There would be a Heat Exchanger in each property so the water flowing through the Heat Network is separated from the water flowing through your radiators.
8. **What inducements would there be, if any, to motivate users to write off their past investments in storage tanks and boilers etc. and switch to using this low carbon alternative ?**For those concerned about the climate crisis the key inducement will be to reduce your carbon footprint. More generally, as initial costs will be zero there is a significant saving in repair and replacement costs and also the opportunity to remove oil & LPG tanks.  The 'joining later' fee is a further inducement to join at the beginning.
9. **How successful has the Swaffham Prior project been?**The Swaffham Prior heat network is being installed. For more information go to:-
[About Swaffham Prior's Heat Network - Cambridgeshire County Council](https://www.cambridgeshire.gov.uk/residents/climate-change-energy-and-environment/climate-change-action/low-carbon-energy/community-heating/swaffham-prior-heat-network/about-swaffham-priors-heat-network)
[Digging for Britain: Swaffham Prior’s heat network – CIBSE Journal](https://www.cibsejournal.com/case-studies/digging-for-britain-swaffham-priors-heat-network/)
10. **Will the shareholders get interest paid and their capital returned?**

Heat networks have a high capital cost and we will also need to fund the wind turbine and solar panels. Some of the equipment will also need replacing after 20 years or so and we need to keep the heat price lower than the price of oil heating. The scheme will therefore take longer to repay the capital and show significant surpluses than schemes which are just fitting solar panels or a wind turbine, even with the Government grant. However over 30 years it has been estimated the project should be able to repay all the capital and pay 3 to 4% interest to the shareholders plus generate surpluses for community benefit. The interest paid in the first few years is likely to be slightly lower till the scheme gets established and capital is likely to be repaid starting around year 15. Delivering this return will require a strong control on initial costs and keeping the scheme well maintained.

1. **Who will run and maintain the network?**

The Feasibility Study (para.8) discussed 5 options: i) Set up a new, local, Community Benefit Society (CBS); ii) partner with Shropshire and Telford Community Energy; iii) partner with a community-owned Heat Network society; iv) partner with a local authority; v) partner with a private sector company. The project’s preference is for option i).

1. **How much say would the community have in its operation and strategic direction?**If option i) or ii) is the outcome, anyone buying share in the CBS would become a member with voting rights and, therefore, influence on the strategy.
2. **Will we have to install new radiators and pipes?**It is assumed that the Heat Network would run at a temperature high enough so that most radiators would not need to be replaced. (FS para.1.3)
3. **What are the costs/risks to users once committed to the Heat Network?**Detailed costs are presently unknown. Shareholders will be the first to suffer if oil prices drop significantly. Only in a prolonged period of low oil prices would there be a risk of the Heat Network’s prices exceeding oil prices. Given the direction of travel for energy sources, the risk of an extensive period of low oil prices is very low. The risk profile for heating your home is reduced by having a centrally-maintained supply of heat being delivered from a local, renewable energy source.
4. **What happens if a user moves house?**The new owner can choose to continue to use the Heat Network or install their own system.
5. **How reliable will it be, and what happens when it breaks down?**The system will be maintained and serviced centrally and will have back-up systems.Any problems experienced in connected properties will be dealt with by the Heat Network’s maintenance team.
6. **What is the Standing Charge for?**This is similar to such charges for electricity or gas systems. It would include the maintenance and replacement every 20 years of the heat interface unit (HIU) that connects the Heat Network to the network properties’ existing heating and hot water system. The standing charge ensures that even very low energy users are still paying something for being connected to the network.
7. **How will I pay for my heating and hot water?**This will include the usual payment options, e.g. direct debit, etc. The bills will be based on the metered supply to your property.
8. **Will I need to have a Smart Meter**No.
9. **What happens if I can’t pay my bill?**

The society would seek to help anyone who struggles to pay their bills and there will be a range of options to assist customers finding themselves in difficult financial situations.

1. **How do Heat Networks affect consumers on pre-payment meters?**
Most people who sign up to the heat network will pay on metered usage. The society would seek to help anyone who struggles to pay their bills and it is highly unlikely that pre-payment meters would be fitted, unless that was agreed as the best way forward. Anyone having a pre-payment meter fitted would be consulted on the best location and offered an In Home Display (IHD) so they can see how much heat they are using. See Citizens’ Advice guidance at: <https://www.citizensadvice.org.uk/Global/CitizensAdvice/Energy/Prepayment%20and%20heat%20networks%20-%20learning%20the%20lessons.pdf>
2. **What will happen to existing domestic boilers and oil tanks?**

The boiler will be removed as part of the installation process of the new heat interface unit, but the removal of an oil tank will be an extra charge.

1. **Will I first need to spend money on insulating my house?**

No, we will be encouraging and helping people to improve their properties’ thermal performance, but it will not be a requirement of joining the network.

1. **How many houses will the different options supply?**The target of at least 100 houses is the same for all the options**.**
2. **If the ASHP’s are delivering 70° to Heat Exchangers at properties, some at the top of the Town, will pumping this through the town require massive pipes?**
If the scheme progresses *Carbon Alternatives* would, in the next stage, report on the selection of pipe pressures, pipe sizing and pipe types for the Heat Network.
3. **Will the heating need to be on all the time?**Most heat pumps work to a lower flow temperature, which means that you might need bigger radiators & even with these the system will react more slowly than with a conventional boiler. Hence you're advised to keep a fairly regular temperature, i.e, not let the house get too cold as it'll take a long time to warm up again.  As the BC heat network will be working with higher flow temperatures this isn’t an issue
4. **Why can’t solar panels be used rather than a wind turbine?**
Solar panels’ peak output is during the summer months and doesn’t match the Heat Network’s highest demand period in the winter. A wind turbine’s output profile suits the network’s requirements better**.** A solar panel array with a sufficient output would cover a very large field. We are suggesting fitting some solar panels to provide electricity when its not windy.
5. **What impact will it have on BC’s carbon footprint?**\*It will reduce it significantly with the heating emissions for those who join in falling by around 90%. The total effect will depend on how many people join the network. We will calculate annual carbon emission reductions on an ongoing basis. Further savings could be made in the future by reducing or eliminating the use of the back up oil boilers.
6. **Government Policy and National Planning Guidance are both negative regarding on-shore wind Turbines. How do we get around that?**With difficulty! However, despite the hurdles some wind turbine projects have been successful (e.g. Keele University), and we have one key ingredient which is high community support for this project. We also have a clear rationale why we need a turbine in this particular location and it would be doing so much more than just generating clean electricity. We now have permission to put in a planning application and ecology studies have started on our preferred site.
7. **Will businesses be able to join the network?**Yes.
8. **How many years will it take to pay back the Carbon footprint of setting the project up?**For the wind turbine the return is less than a year. We don’t yet have figures for the remainder of the installation, but it is unlikely to be more than 4 or 5 years.
9. **Will listed building have to get special planning permission to become part of the project?**No, not unless structural alterations need to be made. The society will work with Shropshire Council historic buildings team to arrange permissions and minimise the impact.
10. **Are the landowners of potential sites for the turbine on board with the project?**In principle, yes.
11. **Will it create any local employment or make use of local skills, e.g local plumbers, electricians?**We would expect local support and maintenance and other roles will prioritise opportunities for local employment.
12. **Can any mitigation measures be put in place for the loss of ground cover on access track and turbine footprint?**A community tree-planting initiative can help to off-set these.
13. **If it is option 2, the biomass option, will there be assurances that only waste timber will be used, not virgin woodland?**Yes, Ransfords currently burn stumps from felled trees in their boiler and they have a ready supply of these. It would not make sense to cut down trees specifically for the heat network.
14. **How will you size the heating supply for the current proposed solution?**This will be an iterative process.  We will need to gather more information gradually as the Network options are refined. We have a fairly good idea of what individual household energy use looks like, and have used this to set our parameters.  If we went into too much detail with individual houses we might come up with a more detailed Heat Map, but it will be nugatory effort if those houses decide not to join the Heat Network.  We will need to size the main pipes of the system to allow for future expansion anyway.
15. **Will any checks be carried out to ensure those in most need, or who live in BC all year round, are given priority access to the heat network before second-home owners?**

This should not be needed and would be difficult to implement.

1. **What will happen to any surplus electricity generated by the Wind Turbine?**

Any surplus electricity will first go to SpArC. If not needed by SpArC it will go to the heat pump, which will use it to top-up the thermal storage, and if not needed by the heat pump it will go to the grid.