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**Bishop’s Castle Community Heat & Wind project
 Project summary February 2024**

What’s the aim of the project?

As an off-the-gas-grid Town, Bishop’s Castle’s carbon footprint is well above average (at **17.9t**/a/household, well-above the UK average of **13.1** t). This project aims to deliver low-carbon heat and hot water to the SpArC Leisure Centre (Theatre, Gym and Swimming Pool), the Community College and at least 100 homes in Bishop’s Castle, replacing existing oil boilers. The heat would be generated by air-to-water heat pumps with most of the electricity for them generated by a 1MW wind turbine and 500kW of solar.
Having the larger ’loads’ of the Sports Centre and Community College will help to anchor the scheme.
The Heat & Wind Network will focus on the older housing in the centre of the Town where thermal retrofit is most difficult and individual heat pumps are less likely to be fitted. The Network is initially intended to benefit at least 100 households but could be extended in future years. The areas of the Town where fuel poverty is more prevalent are already well served by heat pumps, both individual and small shared-loop schemes, mostly installed by the local Housing Association.
The scheme will also include helping those signing-up to the Network to undertake thermal improvements to their properties so the cost benefits will increase and the heat produced can go further. Light Foot have extensive experience in such energy advice.

How will it work?

The heat will be generated by air-source Heat Pumps which will utilise large Thermal Storage Tanks. The scheme however would not be viable without the addition of renewable energy to drive the Heat Pumps, which will turn each unit of energy produced by the Wind Turbine into three units of heat.
The combination of the four elements: Heat Pumps, Thermal Storage, Wind Turbine and Solar PV panels means that only minimal back-up heat should be required, and thus minimal grid electricity used.
The land for the Wind Turbine site is to the east of the road to Lydbury North near the Conery. The Energy Centre will probably be located at the SpArC Leisure Centre but other options are available. (This land is owned by Shropshire Council which has been very supportive of the proposal.)

Ownership & Funding

The aim is for the project to be Community-owned through *Shropshire & Telford Community Energy [STCE]* or a similar organisation, with a share issue providing at least some of the funding, though it is envisaged that on a project of this size the majority of the funding will be through grants and loans. (The scheme would be eligible for *Green Heat Network* Funding for up to 50% of the heat network elements.) The local Community and wider public will be invited to invest in the scheme via a *Community Share Offer*, and thereby become part owners.

There will be a standing charge levied to cover basic costs plus a per kWh charge for heat used; those who join the scheme initially will not have to pay a connection charge. This income will be supplemented by selling electricity to SpArC and some electricity export income. All charges will be set to be competitive with the price of oil heating.

The Community will benefit directly from reduced reliance on oil, protection against future price shocks and reduced carbon emissions. In early years it will be important to keep the costs competitive with oil prices, so there are unlikely to be financial surpluses in the early years. In later years however, as loans and equity are paid off, any surpluses generated by the scheme will be directed to the Town and surrounding area with a focus on further carbon reduction projects through a *Community Benefit Fund*.
One advantage of this scheme is that, with strong anchor loads, high domestic participation is less important than for similar schemes (e.g Swaffham Prior). The initial financial model allows for costs of maintenance and renewal of all the equipment and for the administration of the scheme over 30 years.

The model shows an expected Internal Rate of Return (IRR) for the project of 5.3% over 30 years. This is assuming a fairly slow increase in the cost of oil, higher returns can be expected if oil prices rise faster, as appears likely.

How did we get this far?

This project emerged from feasibility work undertaken by *Sharenergy* and *Carbon Alternatives* for STCE in 2021. This initial development work was funded by a *Next Generation* grant from *Power to Change*. In 2021 a Wind Constraints Study was produced, and a public survey was carried out which showed strong support for the scheme and a well-attended public meeting was held.
In 2022 a study of the Heat & Wind Network was carried out by *Carbon Alternatives* and *Sharenergy*, and a Landscape & Visual Impact Study was produced.
 A Pre-Planning application was submitted in early 2023. In the response Shropshire Council suggested they would accept a Planning Application if the proposal was included in the Bishop’s Castle *Place Plan*. This was supported unanimously by the Town Council in August 2023, who submitted it to the *Place Plan*.
A further packed public meeting in April 2023 showed continued support for the scheme (this meeting featured on Channel 4 in November 2023). The landowner for the proposed turbine site is very supportive of the proposal and has agreed to sign a Heads of Terms - final wording is currently being agreed.

Who’s involved?

The funding has been applied for and managed by Shropshire and Telford Community Energy (STCE). STCE have recently purchased a 10MW solar farm near Whitchurch. The project is being ledby *Sharenergy,* specialists in community energy (set-up in 2011 as an offshoot of *Energy 4 All)*. They have worked on 15 RCEF projects in the last three years, including 3 heat projects; Brassington, Sedgeberrow and a shared ground-loop study in Shropshire. They set up Woolhope Woodheat and have worked with over 50 separate community energy groups, and have also recently started work on a Community Heat Development project funded by the *Energy Redress* scheme.
*Carbon Alternatives* are a consultancy specialising in Heat Networks run by Martin Crane. They were involved in the early stages of the Swaffham Prior Heat Network and worked on the Brassington Heat Network report for the *Midlands Net Zero Hub*. Martin has 25 years of experience in heat networks, is a director of *Springbok Heat Co-op* and of *Community Energy England* and an active member of the *CEE Heat Practitioners* group.
*Locogen*, another highly reputable consultancy, carried out the Wind Constraints Study and the Landscape Study was carried out by *Amalgam Landscape*.
*Light Foot Enterprises* are a local environmental charity which has been involved in 2 previous renewable energy projects in Bishop’s Castle, as well as the long-running Household Energy Surveys.

What’s next?

An application was submitted to the Community Energy Fund (CEF) in jan 2024. The CEF funding will enable the project to undertake work to deliver a series of reports over the coming year: Wind Turbine bird and noise studies, case studies to show how individual houses could connect to the network, a detailed design for the Heat Network’s infrastructure, and develop a list of those interested in joining the scheme, in preparation for the full Planning Application.
The largest critical business success factor will be around signing up at least one of the SpArC centre or Community College, and preferably both. Encouraging sufficient residents within a confined area to take part will also be important in keeping pipe costs/dwelling under control.
As the project develops it will be crucial to keep a check on all the capital costs, one aspect of this work will be to value engineer the system, i.e ensure that any proposed changes do not have a negative impact on the business case.

Heat Networks take many years to develop. We expect another year’s work will be required after the CEF funding has finished to bring this scheme to fruition. This will include finalising the details of the Heat Network, employing contractors, getting contracts signed and arranging finance, so we do not expect construction to start until 2026 at the earliest.

If you would like to help with this project, please e-mail climateaction@lightfootenterprises.org