

Shenstone & Stonnall Villages Decarbonisation Study

RCEF Stage: 1

The Story

A decarbonisation study of two villages inside Shenstone Parish Council, Lichfield District and Staffordshire boundaries. The villages are Shenstone and Stonnall containing 1500 homes with carbon emissions 30% higher than the national average. Two carbon-neutral options were identified, one centralised and one decentralised. The study confirmed that both villages are located above a sandstone aquifer that can meet the majority of the heating required via a centralised community heating system. The study found that to give all homes a guaranteed 55 degrees via a community pipe network, a central energy centre will need to have some air source support for cold days and some further electric boiler support for exceptionally cold days. The carbon footprint would be reduced by 70%. The utility company, South Staffordshire Water are very interested in the potential use of the water in the aquifer as it has a high agricultural contaminant content, and is not currently extracted for potable (drinking) use. During the consultation, the scale of the capital and revenue cost repayment estimates for individual residents led to the investigation of an alternative, decentralised community heating second option. This is a less disruptive option, would provide space heating between 35 and 65 degrees and hot water up to 65 degrees and reduce the carbon footprint by 60%. The study identified how a community purchase scheme and local power grid could be used to reduce the cost of the second decentralised heating option.

Challenges & Risks

Challenges the study and consultation identified are (i) the older demography of both villages means householders do not have life expectations that match the national decarbonisation targets (ii) a significant number of older, larger homes disproportionately adds to the household fabric first expenditure (iii) the size of estimated initial and 30-year repayment costs of the heat network option are a financial barrier that a Stage 1 study cannot be precise about which frustrates householders. Risks the study identified are (i) the cost of a network system crossing under an active railway line (ii) the need for a minimum number of start-up joiners required for both options (iii) South Staffordshire Water commercial interest (iv) householder understanding and management of an ambient heat home environment.

Lessons Learned

What would we have done differently? (a) We would have engaged consultants with a far better balance of technical and communication skills. We overcame the overly-technically written and verbal approach from the consultant by the residents RCEF Working Group taking over responsibility for writing the Study Executive Summary and final PowerPoint presentations and meetings. (b) We would have worked harder at encouraging a larger resident turnout to the study public consultation meetings. The RCEF Working Group has identified an alternative plan to secure wider knowledge, interest and improved attendance at future meetings that includes the time of year decisions, social media, formal village networks and making video recordings of the meetings available to non-attendees.

Key Facts	
Air source heating	Supports the centralised option and essential to the decentralised option.
PV	Supports the centralised and decentralised option
Ground water	Essential to centralised option only.
Community benefits	60 or 70% carbon reductions. Implementation by 2035. Some of ground water infrastructure already in place

Key Figures

Project size:	1,520 homes and 28.6k MW/hours of annual heating demand
Energy Generation	Centralised option = 15 MW Decentralised = TBI
CO2 savings	Centralised option = 70% Decentralised = 60%
Private finance leverage	South Staffs Water TBI
RCEF grant	£35,000

Further notes

LEP area: Greater Birmingham and Solihull

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