ENERGY AND WATER USE IN TODAY'S COUNTRYSIDE

Introduction

Over the last couple of decades there have been significant reductions in levels of domestic energy consumption in England, except during the period of the Covid 19 pandemic, when there was a slight rise (DESNZ 2023). There was also a rise in domestic water consumption during this period (Abu-Bakar et al., 2021) and although there has been a slight fall in water consumption since this time, consumption of water has generally increased over the last two decades. The Government has set a legally binding target under the 2021 Environment Act for there to be a per-capita reduction in public water supplies of 20% by 2038, which is seem to involve a reduction of domestic water use from its current level of 144 litres per person per day to 122, as well as reductions in water leakages by 37% and non-household water use by 9%, with further reductions by 2050 to 110 litres per person per day, a 50% leakage reduction and a 15% reduction in non-household water use. This is to be achieved when climate change itself is viewed as likely to decrease available water supply by 7% by 2045 (National Audit Office, 2020), as well as potentially create increased demands for water and a series of additional challenges around flooding, effluent discharges and water pollution. It is also expected that the population of England will grow by over 10 million people over the next two decades, with "a large part of this growth occurring in areas where water is already scarce" (Defra, 2019: 1).

In relation to both energy and water consumption, conservation strategies in the UK have often focused in the UK on the employment of technological solutions, including improved insultation in relation to energy and flow reduction equipment in relation to water use, although the adoption and efficient use of these technologies often require awareness, behavioural actions and a willingness to pay, all of which may be limited amongst some consumers and may be impacted by other contemporary events and challenges, including concerns over a range of rising living costs. Household spending on energy in the second half off 2022 and the first half of 2023 was, for example, viewed as being 57% higher than it had been 23 months earlier (House of Commons Library 2024: 11), while some water companies have recently requested that water bills be allowed to increase by up to 40% by 2050 (Simpson, 2024). However, major concerns have been raises by increased energy and water bills, and it may be that rural residents may be particularly impacted. For example, although levels of fuel poverty have been estimated to be similar across urban and rural areas, there are significant regional variations, and the depth of fuel poverty is calculated as being more than double in rural as opposed to urban areas of England (Defra, 2023: 19). This reflects the presence of higher proportions of 'hard to heat' (HTH), 'hard to treat' (HTT) and off-gas-grid homes, as well as low levels of pay in some rural businesses. The last factor clearly can impact on ability to pay water, and although less widely recognised that fuel poverty, water poverty has been viewed as impacting between 5 and 20 % of UK households (Sylvester et al. 2023). Furthermore, household experiencing energy poverty are likely to experience water poverty, and vice-versa, as recognised by the Priority Services Register, which also recognises how physical and mental health needs, as well as other vulnerabilities, can impact on both energy and water needs and accessibilities. On the other hand, many rural areas also relatively high proportions of households with social class, income and household size, with studies indicating that domestic energy consumption tends to increase with income levels (e.g. Druckman and Jackson, 2008; Büchs and Schnepf, 2013; Phillips and Dickie, 2015a).

Rising energy and water costs not only raise questions of poverty, social exclusion and health vulnerabilities, but have also been seen to impact on water and energy conservation, both through fostering reductions in consumption as people seek to limit levels of personal/household expenditure, but also, conversely, through acting to heighten opposition climate mitigation and

adaptation policies, in part on the grounds that these may act to further disadvantage those in poverty (Atkins, 2022; Salite et al., 2023). Concerns have also been expressed that recent falls in energy prices may lead to increases in consumption, both undermining energy conservation strategies and also potentially leading households into energy poverty.

However, as yet there has been little examination as to how these divergent influences are playing out in households in specific localities, including in relation to specific socio-demographics and people with specific needs and vulnerabilities.

The present proposal is to undertake research to address this omission, though undertaking a questionnaire of attitudes to energy and water conservation and decarbonisation amongst rural householders in areas with high levels of per capita energy and water use and high levels of fuel and water poverty, alongside interviews with people with particular vulnerabilities in relation to energy and water use and key agents involved in providing support to people in energy and water poverty (e.g. local citizen advice officers, volunteers at warm hubs, members if energy efficiency clubs).

Potential work plan

A project on energy and water conservation and decarbonisation could potentially be developed as follows.

Stage		Content	Timescale
1	Project initiation	Review and sign off Project Plan.	June 2024
2	Review of existing studies, identification of relevant secondary data sources, and design questionnaire and interview surveys	Review of studies and source materials on rural energy and water consumption; design questionnaire, and apply for ethics approval for questionnaire and interview surveys	July 2024
3	Collation of relevant secondary datasets and piloting of questionnaires	Gain access to relevant datasets, download data and enter in relevant analysis software (Excel, QGIS); pilot interviews	September 2024
4	Identification of key study locations	Develop basic statistical summaries and maps of energy and water consumption in rural areas; identify case study localities	October 2024
5	Circulate on-line questionnaires; recruit interview participants	Circulate on-line questionnaire by RSNs and participating utilities companies; identify participants for interviews	November 2024
6	Analyse questionnaires and undertake interviews	Analyse questionnaires results and undertake interviews.	January 2025
7	Transcribe and analyse interviews and commence report write-up	Transcribe and analyse interviews, begin writing draft report.	Febuary 2025
8	Complete draft report	Complete draft report and distribute for feedback	April 2025
9	Finalise report	Produce final version of report	May 2025
10	Prepare for report launch.	Produce launch and dissemination plan. Have report formatted for publication	June 2025

Research Objectives

THE RESEARCH QUESTION: "Today's world – from cost of living, through to sustainability – how does this impact people's behaviours relating to energy/water use? How different is the answer dependent on factors such as rurality, demography and need?".

It is recognised that to achieve Net Zero objectives will require awareness, behavioural actions, and a willingness to pay. However, all of these may be limited amongst some consumers and/or impacted by other contemporary events and challenges, including concerns over a range of rising living costs. Every household has been through some tough years of late.

As much as we saw an increase in people wanting to be sustainable as we went into lock-down – we want to find out more about what has been the real impact of the cost-of-living crisis upon people's behaviours living in a rural environment. THAT IS THE PRIMARY RESEARCH OBJECTIVE.

THE AIM OF THE REPORT
The resultant research report should raise awareness within the Utility Companies commissioning the work of the issues from a rural perspective. It may also be used to inform policy makers and influencers of the issues and impacts concerned.

SUPPLEMENTARY OBJECTIVES

1. To clarify whether and by how much rural households have reduced their consumption of energy and water in the home over the last few years. If possible, distinguishing different types of rural household and comparing them with urban households. [as an analysis of existing data rather than seeking new data]

2. To understand rural households' intentions and plans for reducing their use of energy and water in the home over the next few years. Again, seeking to distinguish some different types of households. Specifically, through this objective we want to develop an understanding (by demographic groups, socio- economic groups and vulnerabilities (ideally through specific needs' such as Serious Chronic Illness, medically dependent equipment, or additional communication needs or at least by households who are on the PSR) if people now feel:

- **they can afford to progress with plans that they once had (and if they had them).**
- **they can still trust that spending money now will reap the benefits they wanted it to – or have those savings (or the trust in being able to spend those savings without worrying) become a thing of the past?**

3. To explore what factors are driving those future intentions or plans. In particular, how far they are driven by cost-of-living pressures and how far by concerns about sustainability or climate change or other concerns.

4. To explore what factors are holding back any such intentions or plans. For example, how far households are dissuaded by upfront costs, by lack of knowledge or by uncertainties over future cost savings.

5. To understand who or where rural households turn for advice about taking action to reduce home use of energy and water. Also, whether they feel they have access to trusted sources for such advice.

Project outputs

The main output from the project will be a written report for publication, setting out the evidence base in a structured way and outlining the main findings. This report will include a summary.

A dissemination plan will be produced towards the end of the project, to ensure that target audiences are identified and appropriate means to reach them are adopted.

A PowerPoint presentation will also be prepared, based on the report, for use at meetings and events. This will be required in time for the launch of the report.

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Project resources

Martin Phillips will lead the project and will be involved in all aspects of the research, plus be the main author of the project report. Help with data collection and analysis will be provided by a Research Assistant based at the University of Leicester.

Members of the RE Stakeholder Group will be invited to input by supplying evidence or intelligence that their organisations' have gathered about changing levels of service provision and the role and challenges of voluntary service provisions. The Utility Research Panel will provide guidance at key stages (see below). This will involve suggesting relevant data sets, reviewing documents contributing ideas at the report drafting stage, as well as being asked for advice where appropriate.

External PR advisers may be commissioned in due course to assist with the project report launch, including any sell-in to the print and broadcast media.

Project timescale

Project activity would commence in June 2024, presuming an agree project plan has been agreed.

Management and oversight

The project lead will report on progress and any issues arising to the Utility Research Panel and RE Directors. That will ensure the project delivers within the resources available to RE and at a pace which meets plans for the report launch.

Martin Phillips
Rural England CIC 14th June 2024

Project plan version 1.2

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