



**Tackling Fuel
Poverty through
Smart Metering**

Contents

1. Executive summary	2
2. Purpose and context	4
3 Supporting fuel poor households through the smart meter system	10
4. Conclusion and Next steps	20

1. Executive summary

High energy prices combined with cost-of-living pressures have pulled over six million households into fuel poverty, according to estimates from National Energy Action¹. At this scale, the challenge has become normalised for many, with energy debt levels reaching £3.82² billion. The resulting impact is more profound than ever.

Fuel poverty can negatively impact physical and mental health and in turn, increase pressure on public services. Treating those who have illnesses related to fuel poverty is estimated to cost the NHS £2.5 billion per year³.

It is a complex societal issue that could be exacerbated as the energy system transition continues. Without careful navigation, decarbonisation could drive further inequity or reduce the viability of meeting net zero targets.

Understandably, addressing fuel poverty remains a high priority for government, Ofgem and industry. Improving energy efficiency, understanding variation in consumer needs, identifying vulnerable households and improving the efficacy of interventions are all important areas in which the smart meter network which DCC operates can make a significant contribution.

Fuel poverty requires a collaborative solution across a broad range of stakeholders, including government, industry, and the third sector. This paper highlights the important role the smart meter system can and should play – enabling targeted interventions such as energy efficiency improvements, direct financial intervention and reactive assistance – in support to industry, government and households across Great Britain.

"We need proper, long-term support that reflects the reality of everyday energy use – not just when it's cold outside, but all year round."

Matt Cole,
CEO Fuel Bank Foundation

The smart metering infrastructure

Over 21 million premises are now connected to Great Britain's secure smart meter network; on average a further 15 thousand meters are connected every day. Over 2.6 billion messages are sent across the network every month, creating an unrivalled source of data and a unique platform for policy implementation and change at pace.

This paper highlights two primary opportunities in which the potential of the smart metering system, data and functionality can support the energy sector and the regulator in addressing fuel poverty:

1) Richer, more dynamic and accurate insight to enable targeted intervention – smart meter data is a unique temporal data set which, when used appropriately, with unwavering focus on data privacy, can contribute to deep insights into financial difficulty. These insights are based on a combination of factors such as fuel type, supplier / tariff switching, payment type, pre-payment meter patterns, 'low credit' and 'credit exhaustion' alerts.

Working with industry and Ofgem, DCC have enabled controlled access to this data to help several organisations enhance their fuel poverty programmes. This paper provides case studies showcasing how the data is helping to identify geographic areas of fuel poverty, enabling improved targeted deployment of energy efficiency schemes. This paper also emphasises opportunities for further expansion and impact, including in context with reform of the Priority Services Register.

2) Direct intervention through the system – the unique technology infrastructure provides secure connectivity coverage to over 99% of Great Britain⁴. This functionality has already been used for direct-to-the-meter credit and low-cost tariff provision through 'load control' of storage heaters, which is when smart meters can control and monitor energy consumption loads in the home.

Combined, these capabilities, alongside the breadth of smart meter data available hold the potential to contribute to an accurate, cost-effective social tariff for vulnerable households – should government and the regulator support this direction of travel.

Next Steps

The smart meter system is a unique technology infrastructure that operates at scale across Great Britain, with significant potential to deliver further public benefit quickly. This paper highlights several areas where the system is, and can increasingly, support government and industry to address this complex challenge. We have identified three key next steps to enable further progress:

Increasing impact from controlled access to smart meter 'system data' – System data is a unique resource that requires a unified and controlled access regime. Further collaboration and data exchange can help improve and accelerate identification of fuel poor households today, enabling targeted deployment of energy efficiency schemes such as the Energy Company Obligation. Alongside this, further data exchange would enable progress to be accurately measured, and reduce the potential for further inequity as the transition to net zero continues.

Maximising the utility of secure, in-home connectivity

– The system currently covers over 99% of Great Britain, with work underway to ensure every home can be connected. This secure connectivity offers opportunities to realise further benefits including retrieval of additional data such as temperature and humidity and enabling greater use of direct-to-the-meter credit.

Both opportunities require further research, technological development and regulatory change and we will look to our stakeholders and industry for support in these areas.

Consideration of the role of smart metering in the design of a social tariff – As broader industry activity and discussions progress, we will help to explore what role smart metering capabilities – data and connectivity – can play in a social tariff, to maximise efficiency and ensure demonstrable improvement on the lives of those people most in need.

We will continue to progress with near-term opportunities, including broadening access to relevant system datasets for fuel poverty initiatives. We welcome feedback, input, and opportunities to work together as we seek to deliver ever greater impact on the challenge of fuel poverty.



"The energy transition will only be successful if it delivers for working people and for the most vulnerable in our society."

Minister Fahnbulleh MP - Minister for Energy Consumers

1 Fuel Poverty Explainer - National Energy Action (NEA)
2 Ofgem Debt strategy
3 The cost of unhealthy housing to the NHS - Local Government Association
4 Smart DCC Business Development Plan 2024/5

2. Purpose and context

As high energy prices continue, many millions of households are feeling the full impacts of fuel poverty – challenging lived experiences and broad ranging impacts on health and well-being, financial stress, debt and more.

As we transition to the net zero energy system of tomorrow, we can expect energy costs to remain above pre-crisis levels. Innovation – new technologies, business models, regulatory change and novel consumer engagement – will be needed to ensure that the current price premium associated with net-zero living can be reduced.

Enabling this transition equitably will require a concerted effort and intervention, anything less holds risk of exacerbating the current hardship felt by so many.

Within this paper we explore the current context and consider how the smart metering system can be used further to help tackle this issue. We recognise that there is no single fix for the problem, and we advocate for a holistic approach where the smart meter system is a valuable component, not a defining solution. Our intent is to raise awareness of the capabilities, so that informed decisions can be made to realise maximum value from a system that energy bill payers across Great Britain have already invested in, and continue to do so.

“Targeted bill support will complement energy efficiency upgrades by helping households manage high energy prices and bridging the gap to long-term affordability.”

Citizens Advice Bureau

Scale of the challenge

Energy prices remain much higher than pre-crisis levels, continuing to exert pressure on households and businesses across the country. Between 1 October and 31 December 2024, the energy price cap was set at £1,717 per year for a typical household who use electricity and gas and pay by Direct Debit. This was an increase of 10% compared to the cap set between 1 July to 30 September 2024 (£1,568)⁶ and compared to pre-crisis levels.

The impact on consumers is acute. Official government Fuel Poverty Statistics published in February 2024 identified 13% (3.17m homes)⁷ to be in fuel poverty however this is built on data from 2022-23. The use of historical data to inform this figure has resulted in several organisations challenging its accuracy, highlighting the importance of having more dynamic data readily accessible.

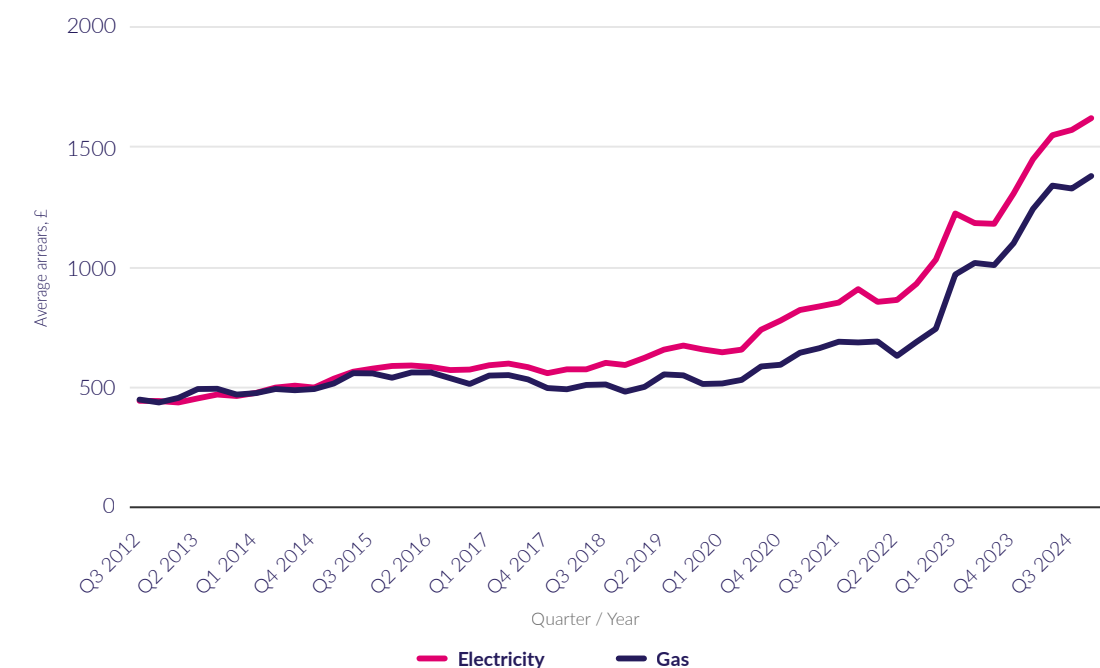
National Energy Action (NEA), a leading charity working across England, Wales and Northern Ireland to help households that are in fuel poverty, has estimated that

around six million households can be currently classified as fuel poor today⁸. Likewise, Citizens Advice estimate that five million households remain in ‘negative budgets’ leaving them unable to afford essentials⁹. The average energy debt held is reported to stand at £1,200 per household¹⁰.

Common characteristics of fuel poor households – property typologies, demographics and geographic disparities, motivations, and time pressures – must all be navigated to achieve an equitable transition. In 2022, 20% of all greenhouse gas emissions in the UK resulted from residential buildings¹², demonstrating the critical importance of decarbonising UK homes to reach net zero targets. All homes must reach an Energy Performance Certificate rating of ‘C’, yet 46% of low-income homes live in properties that are band D-G¹³.

The cost of making these improvements to reach a C rating varies depending on the type of property, but it is estimated that making improvements to go from a D to a C could cost £6,155¹⁴ on average, highlighting that this would be very challenging for households, and impossible

Average debt level where there is no arrangement to repay the debt (arrears)



Information correct as of March 2025

Source: Ofgem data

Figure 1 – Average debt level where there is no arrangement to repay the debt between Q3 2012 and Q4 2024. Ofgem debt indicators¹¹

⁵ Gas and electricity prices during the ‘energy crisis’ and beyond - House of Commons Library

⁶ Changes to energy price cap between 1 October to 31 December 2024 | Ofgem

⁷ Annual fuel poverty statistics in England, 2024 (2023 data) | Ofgem

⁸ Fuel Poverty Explainer - National Energy Action (NEA)

⁹ Negative budgets data - Citizens Advice

¹⁰ Over £3 billion energy debt wipes out price cap drop for millions of customers - National Energy Action (NEA)

¹¹ Debt and arrears indicators | Ofgem

¹² Housing and net zero - House of Commons Library

¹³ Understanding the barriers and enablers to supporting fuel poor households achieve net zero

¹⁴ How Much does it Cost to Upgrade EPC from D to C? | Nexus

for those in fuel poverty without some form of targeted intervention and support.

Policy Context

The challenge remains a high priority for the government, the regulator and local authorities. Looking across initiatives – improving energy efficiency, better data use and collaboration within and across sectors all feature high on the agenda. The Department for Energy Security and Net Zero (DESNZ) has consulted on a refresh of the fuel poverty strategy which addresses several key areas in which use of the smart meter system would prove highly advantageous – not least better data use to improve targeting.

Government's consultation on Reforms to the Energy Performance of Buildings describes how improvements are integral to creating a regime that supports consumers to manage the energy performance of their buildings, reach net-zero emissions by 2050, and alleviate fuel poverty, whilst enhancing building standards across the country.

As government develops its Warm Homes Plan in parallel, commitment to tackle inefficient homes – a key component of fuel poverty – can be expected to be elevated even further.

Over £3.4 billion has already been allocated for domestic retrofit projects, including through the latest round of the Warm Homes Social Housing Development Fund, and the Government aims to spend £1.8 billion to support fuel poverty schemes, helping over 225,000 households reduce their energy bills by over £200¹⁵. The Warm Homes Discount has also provided over £443m in rebates to eligible households over the course of the 22/23 regulatory year.

Alongside the government, Ofgem is exploring the challenge. Ofgem's refreshed Consumer Vulnerability Strategy, accompanied by a new Consumer Confidence Programme identifies several key themes including supporting those struggling with bills, improving identification and smarter use of data – particularly in context with reform of the Priority Services Register.

The Committee on Fuel Poverty, an advisory non-departmental public body, sponsored by the Department for Energy Security and Net Zero continues to drive forward multiple initiatives and advises on the effectiveness of policies aimed at reducing fuel poverty through research and recommendations.

"Based on current energy price levels, targeted support to the fuel poor will remain important, and necessary, for the foreseeable future."

Ofgem Consumer Vulnerability Strategy 2025

The Fuel Poverty Annual Report 2024¹⁶ published by the Committee on Fuel Poverty, recommends several actions for government which are directly pertinent to smart metering capabilities, such as:

- Making better use, and sharing of, data from different sources to assist fuel poor households to pay their energy bills and improve the energy efficiency of their homes.
- Moving away from a single source of data, such as benefits, to incorporate a broader suite of proxies for fuel poverty.
- Researching how best to identify fuel-poor households and understand the trade-offs different approaches; for example, whether it is more effective to target energy efficiency schemes at individual homes or use area-based targeting.
- Designing government schemes to make it as easy as possible for local authorities and registered providers of social housing to collaborate with energy companies and others in the delivery of energy efficiency programmes.

¹⁵ Autumn Budget 2024 – HC 295

¹⁶ Can fuel poverty be ended? Committee on Fuel Poverty Annual Report 2024 - GOV.UK



Industry activity

The scale of industry response to the challenge of fuel poverty is encouraging – support schemes, policy lobbying, research and innovation all feature across a broad suite of activity being undertaken. Common themes and priorities include:

Better understanding of consumer needs –

Understanding the complex drivers behind and impacts of fuel poverty across differing consumer segments is a key focus. For example, research undertaken by the Fuel Bank Foundation identified that people aged 18 – 35 are most likely to be living in perpetual fuel poverty¹⁷. Within that group, 80% have young children at home, with 1 in 4 children living in cold homes at risk of multiple mental health symptoms, such as anxiety and depression.

The DESNZ funded 'Inclusive Smart Solutions Programme'¹⁸ has conducted extensive research to gain a better understanding of the barriers faced by low income and vulnerable consumers in the transition to a smart, flexible energy system.

Research by the Centre for Sustainable Energy¹⁹ identified a multitude of barriers that will limit the ability of fuel poor households to transition to net zero with increased costs, limited time and cognitive bandwidth, lack of awareness and trust in energy efficiency schemes all featuring highly.

Calls for better data use to identify households in need –

in line with government policy and increasing industry alignment²⁰, there is growing consensus on the need for broader use of existing data to improve identification of households in need.

In the same report as above, the Centre for Sustainable Energy recommended the use of cross-sector and cross-department data for more efficient targeting of fuel poor households. Likewise, Public First²¹ proposed launching 'a one-year sprint on data-matching for targeted bill support and to reduce search costs to identify vulnerable households for retrofit'.

In their report 'Finding the fuel poor and framing policy better',²² Cambridge Architectural Research (in partnership with the University of Oxford and the Environmental Change Institute) used smart meter data from energy supplier Utilita to identify sub-sets of households in extreme need. The research suggests that better use of data is needed to re-set the English definition of fuel poverty, which they feel currently underestimates need considerably. For example, the (low income, low energy efficiency) definition excludes all households residing in a property in EPC bands A-C, whereas the research demonstrated that 63% of households living in these properties experienced frequent energy [self] disconnections.

Improving consumer experience and delivering support –

building on their licence obligations, many energy suppliers and DNOs have sought to improve their support to fuel poor households. For example, energy suppliers have delivered over 500,000 energy efficiency improvements to eligible households through the latest round of the Energy Company Obligation²³.

Collaboration, innovation, and best practice, including through data sharing has been driven by initiatives such as Energy UK's Vulnerability Commitment²⁴ a voluntary agreement in which 13 suppliers (covering 90% of UK homes) are participating.

Distribution networks, in tandem with the work of Water UK and the Energy Networks Association have begun sharing Priority Services Register between DNO's and local water companies.

Pushing for a social tariff – with energy bills expected to remain high over the medium term, the need for a targeted support mechanism, in the form of a social tariff for the energy market, remains a high priority for many organisations.

In 2023, over 140 organisations and MPs wrote an open letter to government²⁵, urging further consideration of a discounted, targeted tariff aimed at those in greatest need. Much commentary on the topic has included

proposals for automatic support to provide greater price protection to those households at extreme risks from under-heated homes, self-rationing and desperate decisions between heating and eating.

Most recently, disability charity Scope has been developing a collaborative research project which will produce a public policy report backed by thorough economic research, to outline collective proposals for an energy social tariff. Key to the project will be exploring options for identifying households in need via enhanced data matching – enabling the delivery of the social tariff automatically, without the need for an application.

Ofgem CEO, Jonathan Brearley acknowledged at the Ofgem / Ofwat Vulnerability Summit (November 2024) that 'it [a social tariff] is something that should be looked at', sentiments that have since been echoed by the Secretary of State for Energy and Climate Change, Ed Miliband²⁶.

17 FBF-Fuel-Crisis-Report-2024_Digital.pdf

18 Inclusive Smart Solutions Programme: successful projects - GOV.UK

19 Understanding the barriers and enablers to supporting fuel poor households achieve net zero

20 Eon boss: Two steps to unlock supplier support for the vulnerable - Utility Week

21 Public First: Upgrade - How to deliver better homes by 2030

22 Environmental Change Institute - Finding the fuel poor and framing better policy

23 UK Parliament - Energy Efficiency of UK Homes

24 Energy UK Vulnerability Commitment Principles

25 Social tariff for energy - National Energy Action

26 Government must examine a social tariff says Miliband - Utility Week

"The Committee on Fuel Poverty believe there is potential to use smart metering to improve targeting support for the fuel poor"

Committee on Fuel Poverty

3. Supporting fuel poor households through the smart meter system

DCC operates and maintains the national smart metering infrastructure which at scale will support secure connection of 100 million devices in 33 million premises and small businesses across Britain to a single secure, digital network²⁷.

Smart meters and smart metering data will be at the heart of many of the reforms required to enable the energy sector to transition to net zero. Already today, consumers are benefitting from greater visibility and control over their consumption, seamless supplier switching and increasingly innovative propositions, including time-of-use tariffs.

The system also helps network operators and suppliers by providing real-time data on network performance including rapid support for vulnerable households impacted by outages.

Over 2.5 billion messages are sent over the network. DCC has central visibility to this unique 'system data' (primarily to monitor the performance of the network) and in line with government policy, we are seeking to broaden access to deliver public benefit.

Increasing appropriate access to this data set for public interest purposes is a key focus of DCC's data access initiative – 'Data for Good'. Doing this successfully offers significant potential to foster innovation and drive further cross sector engagement, ultimately for the benefit of consumers by providing greater insight and the potential for targeted intervention.

Greater insight & better targeted intervention

Understanding the prevalence and severity of fuel poverty is challenging as it is a transient issue. Household income, weather, energy cost, usage, consumer behaviours and needs are all dynamic. Official statistics are unable to provide a dynamic and up to date view.

This creates challenges in identifying fuel poor households and understanding their needs, so that policies and support services can be designed and deployed efficiently and effectively. This becomes increasingly important as we transition to net zero, ensuring enablers are in place to engage and ensure participation across all consumer groups.

As a GB-wide, temporal dataset, smart meter data can, where used appropriately and combined with other data (weather, property typology etc), enhance understanding of consumer segments, challenges, and requirements.

Potential insights from smart meter data include:

Smart metering penetration rates – which areas are less able to benefit from smart solutions due to a low rate of take up? How can learnings from successful campaigns be used to target areas with low penetration rates?

Fuel type – are households off gas and paying more for alternative fuels?

Energy system engagement – are there opportunities to increase supplier or tariff switching, what are the rates of participation in flexibility services (e.g. ESO Demand flexibility services)?

Payment patterns – are credit or pre-payment meters more commonplace and what is the scale and frequency of remote switching between states?

Financial difficulty indicators – are pre-payment meter top-ups occurring more frequently, are households transferring credit between electricity and gas, how frequent are low or emergency credit activations or self-disconnections from the system? These indicators are highlighted in the Figure 2 (Overleaf).

Energy consumption* – how much energy / gas are households using? Coupled with financial difficulty indicators this can enable further visibility of self-rationing and the likelihood of underheating.

* Available under a controlled access regime within the Smart Energy Code and accessible only with explicit consent of the consumer



27 [dcc-draft-business-and-development-plan-2025-26_for-consultation.pdf](#)

Current activity

Deriving insights from smart meter data to help support fuel poor households requires careful and comprehensive consideration of data privacy, ethics, security and regulatory implications.

DCC has been working with industry and Ofgem to enable controlled access to a sub-set of anonymised smart meter data to a small group of organisations, primarily charities – to help enhance their fuel poverty programmes.

The data is updated monthly and is anonymised through aggregation to an 'Output Area' (roughly 40 households on average) to ensure data privacy is maintained.

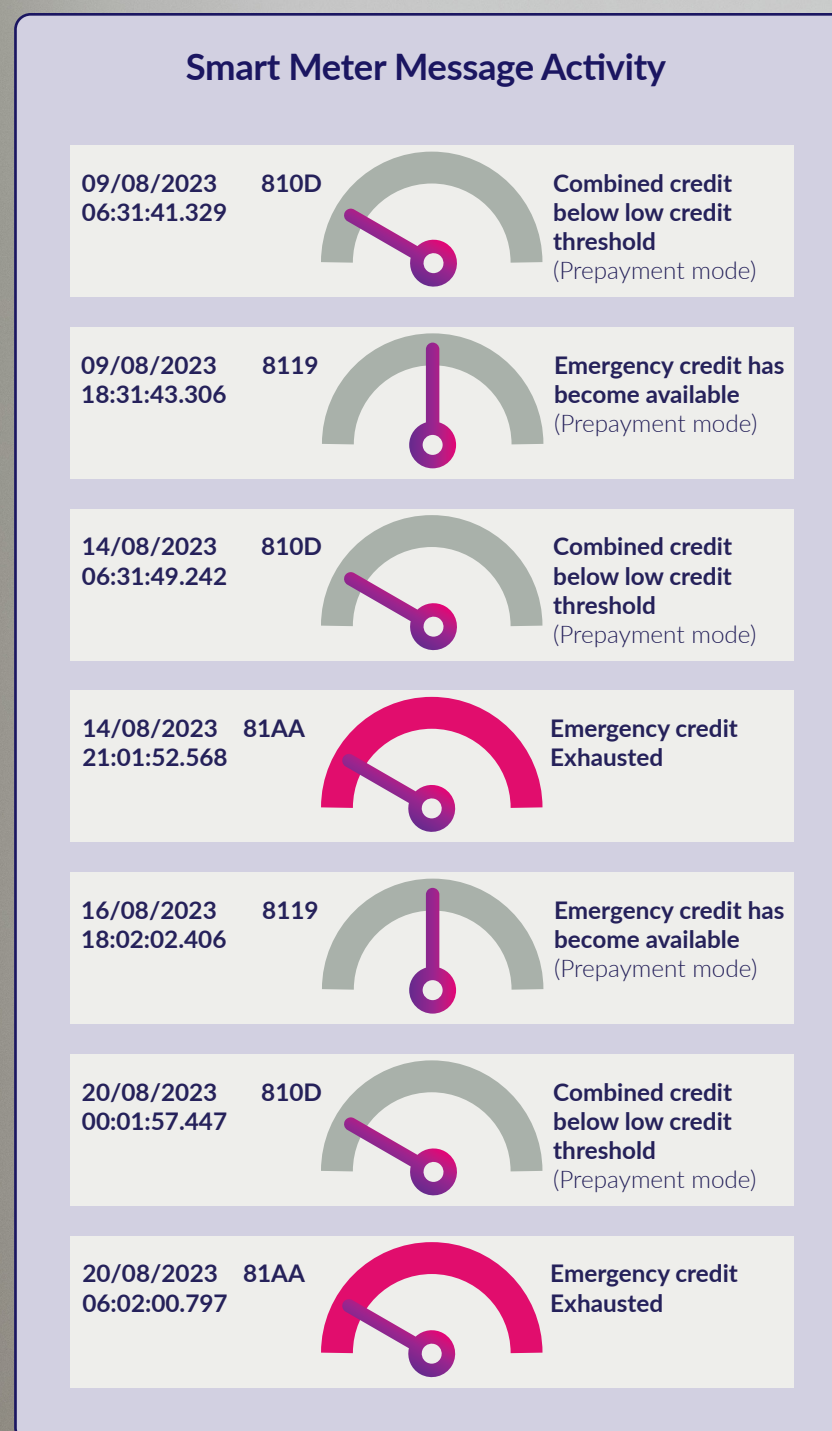
This activity has been progressed with the support of five energy suppliers: EON, Good Energy, Octopus Energy, Utilita and EDF. Combined, this equates to data from ~32% of the installed base of pre-payment smart meters.

The primary focus has been on use of prepayment meter data as indicators of financial difficulty are more prevalent in frequency of 'top-up' and alerts relating to low and exhausted credit. Equally, fuel poverty is three times more commonplace across pre-payment meter users than those paying by direct debit²⁸.

However, we recognise there may be additional insights from system data relating to credit meters – recency of change between states and changes of supplier / tariff (indicate potential for households to be on less affordable tariffs).

Several projects are now being enhanced through use of this data, shown overleaf.

Figure 2. DCC. System data transactions visible within DCC systems. Indicative activity of a household across several days as a pre-payment meter reaches low credit, uses emergency credit and exhausts this leading to a self-disconnection and spells without any power. This data, in anonymised form, can be used to identify geographic areas at greater risk of financial difficulty.



28. Using smart energy meter data to design better policy: Prepayment meter customers, fuel poverty and policy targeting in Great Britain - ScienceDirect; (gas – 27.2 % PPM, 9.7 % direct debit, electricity – 27.8 % PPM, 10.5 % direct debit)

Several projects are being enhanced through smart metering data:

Combined Authority

Greater London Authority

Smart meter system data, combined with other data sets, are being used to understand areas at increased risk of financial difficulty, to help target interventions such as energy efficiency schemes, which can result in lower bills.

In addition, the data is being used to enhance Local Area Energy Plans, helping to establish areas at risk of missing out on future benefits (and therefore compounding financial difficulty) from time of use tariffs and flexibility services.

Impact: System data access will allow for more accurate targeting meaning more fuel poor households are reached in fuel poverty schemes – particularly across the Home Upgrade Grant 2 scheme.

GREATER
LONDON
AUTHORITY

Distribution Network Operator

Scottish and Southern Electricity Networks

As part of the VIVID (Vulnerability Identification via Informative Data) project funded through the Strategic Innovation Fund, SSEN and partners developed innovative techniques to securely and safely share smart meter system data, which, when combined with other social and local information was used to better identify and support consumers most in need.

These methods of identification allow contact with customers who have previously been left out of engagement, not realised the support they are entitled to, or have found it hard to ask for help. A key part of the project is working through how smart meter data can be shared safely and securely, ultimately seeking to unlock a model that can be scaled across Great Britain.

Impact: initial findings from the project demonstrated the power of data matching to improve identification of vulnerable households. Over 50% of households supported through the project had not heard of the Priority Services Register.

Next steps: The VIVID process is being built into future projects by DCC and SSEN to expand the benefits for consumers and energy networks alike.

Scottish & Southern
Electricity Networks

Private sector

UrbanTide & uZero

Urban Tide and Greater Southeast Net Zero Hub – uZero is an AI and data insights platform created by Urban Tide that maps, identifies and predicts fuel poverty.

By integrating anonymised smart meter system data with multiple cross-sector datasets, uZero is being used to help local authorities, housing associations, energy providers and social care providers to enhance fuel poverty intervention schemes.

The Greater Southeast Net Zero Hub has used the tool during the delivery of the government-funded Home Upgrade Grant Phase 2 (HUG2) across its region – providing an efficient means of identifying properties in need of essential upgrades across the 46 participating local authority areas.

Impact: by combining smart meter system data, network operator data, DWP, and Home Energy Performance data, uZero was able to identify over 200,000 off-gas and potentially eligible properties, resulting in an 800% increase in conversion rates compared to previous campaigns.

UrbanTide

“This technology is already helping local authorities, energy networks, and others provide targeted support for households most affected by fuel poverty.”

Simon Tricker, co-founder Urban Tide

Research project

University of Edinburgh

A five-year research programme funded by the Wellcome Trust will explore how novel cross-sectoral datasets can help to mitigate the impact of underheated homes on the risks of preschool respiratory illness, with 40/100 infants admitted with an acute respiratory infection annually.

With smart meter system data as a key feed, the programme will explore how routinely collected data across multiple categories – health, housing, energy, finance, weather, environmental can be combined, appropriately, to help address underheating.

Impact: the programme will establish a new methodology for identifying children in underheated homes and provide actionable evidence on the risk of underheated homes for pre-school respiratory illness. The project will involve data of ~4.3 million person-years across 230,000 properties, as well as being granted access to modelled EPCs for all properties.



Unlocking greater impact through collaborative data exchange

Today, our activity has garnered support from five energy suppliers to enable data sharing with ten organisations working on the challenge of fuel poverty.

Whilst this is proving highly beneficial, so much more could be done through a more streamlined approach to data exchange within and beyond the sector. An extensive list of organisations has already expressed interest in this activity including Greater Manchester Combined Authority, NESTA and Citizens Advice.

Further progress would require a streamlined approach to access controls, licencing, data privacy, consumer engagement and security. The development of a 'Trust Framework scheme', in alignment with recommendations of the Data Sharing Infrastructure²⁹ represents a potential mechanism through which this could be delivered more efficiently.

In the interim, we urge remaining energy suppliers to support the current data access initiative to enable greater support this winter. The more participants, the greater the collaboration, the better the data insights generated and the more effective and impactful the support for fuel poor homes.

Enhancing accuracy of Distribution Network Operator Priority Services Register

DCC holds central visibility of an audit trail of all transactions that take place across the smart meter system. Ability to provide access to key smart meter 'system data' categories such as 'change of tenancy', would enable DNO's ability to maintain a more accurate and up to date record of consumer vulnerability.

Direct Intervention through the system

The smart meter system is a unique technology infrastructure that provides secure connectivity to homes across Great Britain. This connection has already been leveraged to provide direct support to fuel poor households and new trials are demonstrating even greater potential.

“The Government should consider an enduring, targeted support mechanism to reach those most vulnerable.”

Energy UK

Delivering help through the Energy Bill Support Scheme

During the energy crisis, the Energy Bill Support Scheme provided every home in Great Britain with a £400 rebate to reduce the impact of energy costs. For those households with an installed smart pre-payment meter, this rebate was provided direct to the meter, automatically, ensuring a better consumer experience, accurate delivery and low cost in scheme deployment.

DCC's technical operations centre monitored the deployment of transactions to the meter ensuring rapid issue resolution for any failed top-ups. The total success rate for completions averaged 99%.

In comparison, households with an analogue pre-payment meter were required to retain rebates as a paper voucher from their local post office. Towards the end of scheme in June 2021, Government advertised that 20% of vouchers remained unclaimed at a potential loss of £130 million to eligible consumers³⁰.

More recently, the Post Office announced that £3m of Warm Homes Discount vouchers went unclaimed in 2023³¹.

Direct to the meter application of credit is a valuable, efficient intervention that holds significant potential for several financial support schemes, and benefits from this are already being provided through the smart metering network existing.

Load control functionality and the Radio Tele Switch Service

The smart metering system contains inherent functionality to enact 'load control' – broadly, turning technology such as storage heaters on or off in response to price signals.

This functionality, combined with the network's reliability, coverage and cybersecurity offer a viable route to deliver load control for specific use cases, enabling cost effective usage at off-peak times.

Distinguishing features of the network include the Wide Area Network's 99% coverage in GB, with a service availability at 99.9%. Likewise, devices connected to the smart meter communications hub remain connected regardless of change of service provider (e.g. energy supplier) or change of tenancy.

One specific application is the replacement of the Radio Tele Switch Service (RTS) which enables households to access 'Economy 7' for programmed, lower cost use of electrically heated homes – an estimated 9% of GB homes access this service³². The RTS shut down will be phased from June 2025. Whilst replacement services are now emerging³³, concerted and combined industry effort is needed to ensure the smart metering system can replace this cost saving service.

³⁰ [Claim Your Energy Voucher Day launches final push to get remaining £130 million in support to prepayment meter customers - GOV.UK](#)

³¹ [Post Office calls on people to redeem their WHD vouchers](#)

³² [Census 2021: how homes are heated in your area - Office for National Statistics](#)

³³ [Snug Octopus | Octopus Energy](#)

²⁹ Digital spine feasibility study: exploring a data sharing infrastructure for the energy system – GOV.UK

Other use cases where the smart metering system's coverage and network characteristics are especially beneficial for delivery of demand side response include where internet provision is unavailable or unaffordable. For example – to control low carbon heat technologies in sheltered accommodation and assets in situ for houses of multiple occupants.

Secure, reliable, scalable access to temperature and humidity data in the home

Using smart meter data accessed through the existing DCC network, the Smart Metering Internet of Things System programme focuses on demonstrating smart sensing of temperature and humidity within a property. This is important when considering fuel poverty due to the direct link between temperature and humidity and the presence of mould in properties, especially in social housing where it is estimated that mould is impacting 99% of social landlords³⁴.

The applications of this are many – enabling accurate retrofit specifications and monitoring in-situ performance, reducing ill-health through identifying households where improvements can be made, supporting Warm Homes on Prescription models through to supporting the deployment of a social tariff.

The smart meter system won't always be the right technology choice, but the use of an always on, paid for, secure communications network presents many advantages

over the current issues of reliability, data silos and non-interoperability occurring from a multitude of systems currently being deployed.

Prioritising smart meter operations through Priority Services Register data

The Priority Services Register (PSR), supports and helps protect vulnerable people, including pensioners, households with children under five, people with health conditions or impairments and those dependent on medical equipment.

Whilst financial difficulty is not an explicit eligibility criterion for the PSR, help is available for households in need of temporary support due to life-changing events, for example job-loss. Ensuring continuity of smart meter functionality such as at pre-payment meter top-up for these households is as critical as resolving power outages.

Controlled DCC access to households on the Priority Services Register represents a scalable opportunity to prioritise, ensure transparent accountability and expedite fault resolution across non-communicating meters. In situations where the issue cannot be resolved, particular property typologies for example, the premises could be flagged for accelerated deployment of emerging non-typical connectivity solutions, such as a Virtual Wide Area Network Solution.³⁵

In addition, further opportunities exist to develop network usage policies that enable prioritisation of message traffic to priority households.

Future potential

Supporting a social tariff

For some consumer groups, irrespective of financial advice, energy efficiency improvements to properties or provision of benefits, the cost of energy will remain perpetually problematic.

The capability of the system to support the implementation of a social tariff, or managed energy service could be life-changing for households continuously at risk of fuel poverty.

Any scheme design would of course require significant policy development, research, regulatory change and industry collaboration. Careful considerations would be needed around market competition, auto-enrolment sensitivities, perverse outcomes, and equity of service provision.

In those situations, many of the current capabilities described above could be combined to help augment a targeted and cost-effective social tariff. In essence, the system holds the potential to support lower-price tariff options that are underpinned by:

- Data availability to contribute (alongside other data categories) to eligibility determination, supporting a targeted, cost-effective solution to households who need it most.
- Automated participation and direct to the meter credit to maximise efficacy and ease in deployment, allowing financial support to be automatically claimed through the meter, reducing the burden on the customer.
- Temperature and humidity monitoring to ensure that cost of energy is sufficiently discounted to enable sufficient energy and heating availability to ensure healthy and warm homes are achieved.
- Opportunities to participate in flexibility markets to drive further savings, through informed engagement with low carbon technologies and flexible tariffs.

³⁴ Study reveals extent of mould in UK social housing | Specification Online

³⁵ vwan-consultation-on-the-svtad.pdf



4. Conclusion and Next steps

This paper sets out several areas in which the smart metering system is and can further help to resolve the challenge of fuel poverty.

Those opportunities are at varying levels of development – further collaboration, consideration of key issues (regulatory, technical, data privacy) and commitment will be vital to achieve greater scale and impact.

We identify three key next steps to enable further progress:

The smart meter system is a unique technology infrastructure already operating at scale across Great Britain. It holds significant potential to deliver further public benefit. Government's current focus on a refresh of the Fuel Poverty Strategy, the Warm Homes commitment and reform of the EPC framework create a

1 Increasing impact from controlled access to smart meter system data – System data is a unique resource that requires a unified and controlled access regime. Further collaboration and data exchange can help improve and accelerate identification of fuel poor households today, accurately measure progress and reduce the potential for further inequity as the transition to net zero continues.

We will push to expand the access regime to smart meter system data to ensure a greater array of organisations can benefit from the insight being generated. This requires a streamlined approach to data legislation, regulatory change, and cross-sector collaboration. We will continue to work with industry and the regulator (in context with the Successor Licence³⁶) to achieve this and enable multiple stakeholders across industry to align and innovate their fuel poverty support.

2 Maximising the utility of secure, in-home connectivity – the smart meter system currently covers over 99% of Great Britain, with work underway to ensure every home can be connected to the highly secure network. Consumers have paid for this communication network and opportunities to realise further benefit can and should be explored.

In context with fuel poverty, two primary opportunities to expand and extend use of the network include:

- Retrieval of temperature and humidity data securely, cost effectively and reliably through the system – doing so can deliver multiple benefits from improved retrofit specification to better health outcomes
- Enabling direct to the meter credit functionality for a wider range of applications and interventions – doing so can ensure greater accuracy and efficacy in grant allocation to those most in need.

Both cases require further research, technological development and regulatory change – we look to our stakeholders and industry for support in these endeavours.

3 Consideration of smart metering in design of a social tariff – As broader industry activity and discussions progress, we will help to explore what role smart metering capabilities – data and connectivity – can play in a social tariff, to maximise efficiency and ensure demonstrable improvement on the lives of those people most in need.

powerful impetus for government to establish, holistically, greater use of the smart meter system to tackle the challenge of fuel poverty.

Within this paper we have identified several opportunities. Some of these rely on inherent system capability, others have been proven through innovation projects and trials and are ready to scale. However, it is clear that no one solution can address the complex and differing needs of all of those who suffer from fuel poverty, today and into the future.

Consumer considerations must be central to further progress. Public sensitivities around data use remain and

particularly in relation to emotive topics such as fuel poverty and health. Ensuring consumer choice, trust and transparency through effective engagement will be vital.

The varied nature of the solutions and the number of actors required means it is imperative that Government, Ofgem and industry come together to identify and coordinate the interventions.

We will continue to take action, and we welcome your support, collaboration and input to help accelerate progress.

“We’re committed to doing what we can to ensure the benefits (of smart meters) are realised while taking action ourselves to address the affordability challenge facing consumers and the wider sector.”

Chris Lovatt,
CEO Smart DCC

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³⁶ DCC review: Process for appointing the Successor Smart Meter Communication Licence holder – conclusions and next steps | Ofgem