

# Data sharing to target fuel poverty



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# Contents

<b>1</b>	<b>Introduction and background</b>	<b>4</b>
1.1	Policy context	4
1.2	Fuel Poverty definitions	6
1.3	Types of fuel poor households	6
1.4	Current policies	8
1.5	Proxies and targeting efficiency of policies	10
1.6	Local fuel poverty schemes	14
<b>2</b>	<b>Methodology</b>	<b>16</b>
2.1	Conceptual framework	16
2.2	Desk review	17
2.3	Stakeholder interviews	18
2.4	Stakeholder workshop	18
2.5	Legal advice	19
2.6	Structure of this report	19
2.7	Interpreting and using this report	19
<b>3</b>	<b>Accuracy and technical issues</b>	<b>20</b>
3.1	Accuracy	20
3.2	Technical	26
3.3	Conclusions	28
<b>4</b>	<b>Legal Considerations</b>	<b>30</b>
4.1	Analysis of public authorities' power to share	31
4.2	UK and EU ongoing proposals	35
4.3	Policymakers' views on legal aspects of data sharing	36
4.4	Conclusions	37
<b>5</b>	<b>Ethical concerns and public perceptions</b>	<b>39</b>
5.1	Privacy and consent	39
5.2	Public perceptions	41
5.3	Conclusions	45
<b>6</b>	<b>Cost</b>	<b>47</b>

6.1	Targeting costs of existing programmes .....	47
6.2	Cost-benefits of data sharing .....	50
6.3	Data costs .....	52
6.4	Seeking Consent .....	55
6.5	Solutions.....	56
6.6	Benefit system changes .....	58
6.7	Conclusions .....	58
<b>7</b>	<b>Institutional culture .....</b>	<b>60</b>
7.1	ICO Guidance .....	60
7.2	Institutions involved in data-sharing and fuel poverty.....	61
7.3	Institutional barriers to data-sharing .....	63
7.4	Future directions and recommendations .....	65
7.5	Case studies.....	67
7.6	Conclusions .....	68
<b>8</b>	<b>Future schemes.....</b>	<b>69</b>
8.1	Targeted legislative approach .....	70
8.2	Area-based approach .....	74
8.3	Consent based approaches.....	80
<b>9</b>	<b>Conclusion .....</b>	<b>84</b>
9.1	Consent based approaches.....	89
9.2	Data sources .....	1

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# Glossary

<b>CERT</b>	Carbon Emission Reduction Target
<b>CLG</b>	Communities & Local Government
<b>CO</b>	Cabinet Office
<b>COA</b>	Census Output Area
<b>CSE</b>	Centre for Sustainable Energy
<b>CWP</b>	Cold Weather Payment
<b>DECC</b>	Department for Energy & Climate Change
<b>DNO</b>	Distribution Network Operator
<b>DPA</b>	Data Protection Act
<b>DWP</b>	Department for Work & Pensions
<b>ECO</b>	Energy Company Obligation
<b>EPC</b>	Energy Performance Certificate
<b>ESAS</b>	Energy Savings Advice Service
<b>EST</b>	Energy Savings Trust
<b>HHCRO</b>	Home Heating Cost Reduction Obligation (aka Affordable Warmth)
<b>ICO</b>	Information Commissioners Office
<b>LSOA</b>	Lower Layer Super Output Area
<b>MLSOA</b>	Middle Layer Super Output Area
<b>NEA</b>	National Energy Association
<b>NLPG</b>	National Land Property Gazette
<b>OFGEM</b>	Office of Gas and Electricity Markets
<b>PSR</b>	Priority Service Register
<b>SAP</b>	Standard Assessment Procedure
<b>WFP</b>	Winter Fuel Payment
<b>WHD</b>	Warm Home Discount
<b>VOA</b>	Valuations Office Agency

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# 1 Introduction and background

This project seeks to explore how improved data use might enable suppliers to improve the targeting and effectiveness of fuel poverty initiatives. It explores the data sharing opportunities that exist and identified barriers and risks associated with their use. This introductory section provides the context for the study, including how fuel poverty is defined, the different types of fuel poor households that exist, the current policies being used to target the fuel poor, the kinds of data used for these policies, and how effective they are in reaching the fuel poor.

While this research has a particular focus on the role of data in improving the targeting of fuel poverty programmes, many of the issues raised and solutions discussed have much wider implications for social programmes aiming to use and share data to more generally.

There are various benefits of data sharing. The sharing of data can help policy makers and public authorities make more informed decisions to the benefit of society at large. Data sharing can help make for more joined up approaches to service delivery. It could help public bodies better understand their populations, meaning that they can become better at targeting services to meet the needs of specific groups. Through better targeting, and by removing the need for data collection where similar data collection has been undertaken another body, it can increase the cost effectiveness of policies. The administrative burden on individuals is also reduced when they are not required to provide the same information to separate bodies.

But these benefits can come at a cost, for example, increased risks of prejudicial treatment of vulnerable people whose data is shared, increased risks of data loss or concerns about the dissemination of inaccurate information (*ibid.*). Such risks can be exacerbated where sensitive data is involved, as is the case with some data typically discussed in relation to targeting fuel poverty.

## 1.1 Policy context

Fuel poverty is a significant social problem affecting millions of households within Britain, and contributes to ill health and mortality. It also has important links to tackling carbon reduction.

The Warm Homes and Energy Conservation Act 2000 represented an important milestone in the recognition of the severity and impact of fuel poverty. It was followed in 2001 by the publication of the Government's Fuel Poverty Strategy for England, which set an interim objective of eradicating fuel poverty in vulnerable households as far as reasonably practicable by 2010; under the terms of the Warm Homes Act, no household should be in fuel poverty as far as reasonably practical by 2016. However, the rising cost of domestic energy has seen fuel poverty in England increase dramatically since 2004 (Stockton and Campbell, 2011). In March

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2011, with the 2010 target missed and the 2016 target looking unlikely to be achieved, Professor John Hills was appointed to review both the fuel poverty definition and target. He proposed a new 'low income high cost' indicator (LIHC) and this forms the basis of the new definition of fuel poverty (see Section 1.2) set out by DECC in its recent publication, *Fuel Poverty: a framework for future action* (Department for Energy and Climate Change, 2013a). The report also sets out DECC's proposed approach to tackling the issue.

Alongside this framework, there have been subsequent amendments to the Energy Bill which is currently at reporting stage in the House of Lords. The most recent revisions effectively require the Government to set a new objective to tackle fuel poverty within a defined time period. This objective will then be backed up by a supporting strategy that contains targets.

The following quotation provides a good summary of the overall ethos of DECC's new framework document:

*Any new target should drive the right actions, which means delivering cost-effective support to households that are most in need. To this end, it is important that any target is specified in a way that reflects the impact that Government policies are having in improving people's circumstances. We therefore propose focusing our efforts primarily on ensuring that those households who are fuel poor (as defined by the LIHC indicator) attain a certain standard of energy efficiency in their homes. Progress could be measured against an average or minimum standard of energy efficiency for fuel poor households.*

Department for Energy and Climate Change, 2013a

This aspiration illustrates the key role that better access to, and sharing of, data could have in helping identify and target fuel poor households. But it also makes clear that any such data will need to cover both income *and* property efficiency. Tackling fuel poverty is not purely a matter of addressing the energy efficiency of the property – income maximisation, improved access to the energy market and tackling fuel debt are also important elements of solutions to lift people out of fuel poverty and will need to be understood by the those responsible for delivering fuel poverty alleviation programmes if they are to better prioritise resources.

The current Energy Company Obligation (ECO) – described in more detail in Section 1.4.4 below – has three funding streams, of which the Home Heating Cost Reduction Obligation (HHCRO), or the 'Affordable Warmth' group, and the 'Rural Safeguard' of the Carbon Saving Communities obligation (CSCo) target householders based on a set of qualifying means tested benefits and income threshold. At present for the HHCRO element both the Energy Saving Advice Service and Home Energy Efficiency Programmes for Scotland (HEEPS) provide a pre-verification service for HHCRO customers, whereby their benefits status is checked with DWP before their details are passed on to a supplier.

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For the next phase of the ECO there is considerable desire from all parts of the supply chain to extend this pre-verification process to other stakeholders. Not only is it argued that this will lead to cost reductions, both administratively and regarding customer acquisition, but it would also reduce the need to collect and hold sensitive personal information. This is a particular concern for installers who may not have systems in place to hold sensitive data such as bank details and letters associated with qualifying benefits.

## 1.2 Fuel Poverty definitions

Fuel poverty is caused by several interrelated factors – poorly insulated homes, inadequate heating, high fuel prices and low income. Up to 2013, households in the UK were deemed to be in Fuel Poverty if they had to spend 10% or more of their total net income on achieving an ‘adequate level of warmth’. This is defined as maintaining a temperature of 21°C in the main living area of the house during daytime hours, and 18°C elsewhere in the property. The energy costs are then determined from the energy requirements for maintaining these conditions.

In 2012, the Hills Review into Fuel Poverty published its findings and recommendations (Hills, 2012), including a suggested change in the definition of fuel poverty. The new definition deems that households are in fuel poverty if they: a) have higher than average energy costs to maintain an adequate level of warmth in their homes, *and* b) if they were they to spend this amount their net disposable income would be less than 60% of the national median of net disposable income. In simpler terms, a fuel poor household is a low income household that lives in a property with high energy costs. Hence, this new definition has become known as the Low Income High Costs (LIHC) definition of fuel poverty.

The LIHC definition has now been officially adopted as the main definition of fuel poverty in England. However, the devolved nations of Scotland, Wales and Northern Ireland have so far chosen to keep the original ‘10%’ definition to assess fuel poverty. This has implications for identifying the fuel poor in different parts of the UK and, consequently, for working on strategies to alleviate and report on progress in tackling the problem.

## 1.3 Types of fuel poor households

When designing schemes that target and alleviate fuel poverty, a significant issue is the identification of the types of fuel poor households that are to be targeted. The design and choice of potential policies, schemes and social tariffs is significantly influenced by the particular subset of fuel poor households that are to be targeted. For instance, tackling rural fuel poverty with energy efficiency measures will have to enable sufficient funding of more expensive hard to treat measures typically required of a large proportion of rural dwellings.

Similarly, the data used to determine the location and eligibility of these different groups of fuel poor will also vary depending on the subset of fuel poor households a specific scheme is



aiming to target. Below we consider a number of different types of fuel poor households and the data that would be needed to identify them.

### 1.3.1 Severe Fuel Poverty

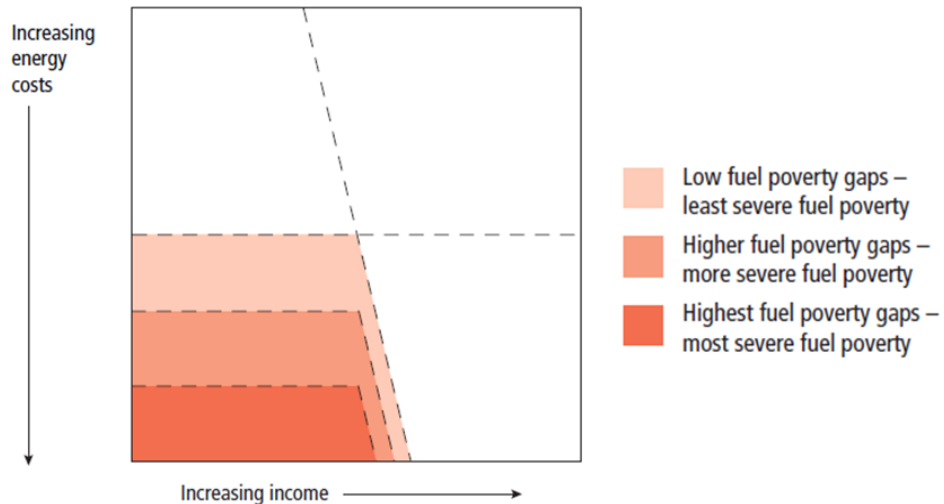
Arguably, the focus of a policy that specifically aims to target the fuel poor should look to (initially) target the most severe cases.

Under the 10% definition, the severe fuel poor are categorised as those households with fuel costs that are 20% or more of the total net household income.

The LIHC definition includes an additional indicator, the 'fuel poverty gap', which is a measure of the additional cost that a household has to pay above the median fuel costs for all households. The greater the additional amount, the greater the depth of fuel poverty and the larger the fuel poverty gap is. It has been proposed that fuel poor households under the LIHC definition are split into three distinct groups which have increasing severity of fuel poverty (see figure 1.1 below):

1. Low gap: 'least severe'
2. Medium gap: 'more severe'
3. Highest gap: 'most severe'

**Figure 1.1** The fuel poverty gap and fuel poverty severity for the LIHC definition of fuel poverty (Hills, 2012)



## 1.3.2 Rural Fuel Poverty

Rural households have both higher overall energy rates and more severe levels of fuel poverty than their urban counterparts, illustrated in Table 1.1 below. This phenomenon is primarily due to the types of housing and the predominant heating fuels in rural areas. Rural housing tends to be older stock, typically built using solid wall construction, and often without connection to the national gas grid. As a result, the housing is less thermally efficient and heated using more expensive 'unmetered' fuels such as oil, liquid petroleum gas (LPG) or electricity. Insulating solid wall requires more expensive insulation and higher installation costs than cavity wall insulation. Furthermore, replacing oil, LPG or electricity heating systems is usually considerably more expensive than the cost of new gas heating systems. However, without specific provisions, these households are less likely to receive support under energy efficiency schemes, due to the costs of the measures and of reaching these households.

**Table 1.1 Numbers, percentages and average fuel poverty gap of the fuel poor in 2011 by rurality (LIHC definition) (DECC, 2013)**

Rurality	No. households in fuel poverty (thousands)	% households in this group in fuel poverty	Average fuel poverty gap
Urban	1,865	10.5	£371
Rural - town and fringe	234	11.2	£406
Rural - villages, hamlets and isolated dwellings	292	13.8	£889
<b>Total</b>	<b>2,390</b>	<b>10.9</b>	<b>£438</b>

## 1.4 Current policies

The current policies to tackle fuel poverty and/or use data to target the most vulnerable in society are summarised below, including a brief explanation on the processes involved in providing a benefit to recipients of the policies. The following section lists the types of eligible households and what data or proxies are used to determine eligibility.

### 1.4.1 Warm Home Discount (WHD) scheme

The Warm Home Discount (WHD) has two main groups; a Core Group comprising of low income pensions and a Broader Group identified by the suppliers themselves but determined to be fuel poor households or those at risk of fuel poverty.<sup>1</sup>

<sup>1</sup> The WHD has been recently been extended, with small changes, to 2015-16: <https://www.gov.uk/government/consultations/warm-home-discount-extension-to-201516>. A longer-term restructuring of the policy is expected following the general election. .

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The core group aspect of the WHD is regarded as a largely successful example of data-sharing to help alleviate fuel poverty. The scheme involves the sharing of data by DWP with the Big 6 Energy Suppliers regarding persons in receipt of pension credit who then receive a rebate on their energy bill of £140, which is overseen by the Department for Energy and Climate Change (DECC). Energy Suppliers provide details of all their customers to DWP who then match the customer details against their records of those in receipt of pension credit. The scheme operates under the auspices of the Pensions Act 2008 which created the necessary legal gateway to allow for the sharing of personal data, in this case benefit information.

### **1.4.2 Cold Weather Payments (CWP)**

The Cold Weather Payment (CWP) is an emergency payment made to low income households in the event of exceptionally cold weather. This is defined as a situation where the temperature drops below zero for 7 days in a row. For any week that this occurs, low income households are automatically paid £25 to help with the additional cost of heating their homes. As an interviewee from DWP explained, the CWP is not designed to be a 'long-term answer to fuel poverty but as a palliative'. The number of people who qualify for CWP is extensive and includes pensioners, those with a disability and low-income families with a child under 5 years old. The payment is made by DWP, who also hold the benefit data that determine eligibility, so the scheme does not require any data-sharing. The scheme has strong political support, particularly in Scotland where it is triggered more regularly than other parts of the UK and is relatively cheap to run, costing £300m per year.

### **1.4.3 Winter Fuel Payments (WFP)**

Winter fuel payments are an annual tax-free payment made by the government to eligible pensioners, i.e. those in receipt of pension credit or another qualifying benefit, to help towards their winter heating costs. In most cases the lump sum is paid automatically and the value ranges from £100 to £300 depending on personal circumstances and age (higher payments are made to persons over 80). As explained by an interviewee from DWP, the scheme was originally introduced to combat the problem of pensioners under-heating their homes due to insufficient funds. Originally the sum paid was only £25 but this has increased over time. As with the CWP, the payments are made by DWP as they already know who is in receipt of pension credit and can make payments automatically.

### **1.4.4 Energy Company Obligation (ECO) - Affordable warmth**

The Affordable Warmth element of the ECO is designed to provide funding for energy efficiency measures to the poorest households in Great Britain. Under ECO's Affordable Warmth obligation, the Government is proposing to include any measure that will improve the thermal performance of a property, based on a measured reduction in the expected costs of space or water heating in the dwelling.

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Eligibility for ECO Affordable Warmth support will be determined by householder's individual circumstances, e.g. recipients of Child Tax Credit with children less than 19 years in full-time education. Eligible householders can expect to receive 100% funding from energy suppliers towards measures to improve the thermal efficiency of their home and reduce energy bills.

For ECO HHCRO a referral system is available through the Energy Saving Advice Service (ESAS) with households being referred to the ESAS through various mechanisms. The ESAS call centre passes information about applicants – with their consent – to DWP, who match the data to benefit data. ESAS then passes details of successful applicants onto energy suppliers so that they can be referred to the appropriate scheme.

### 1.4.5 Digital Switchover Help Scheme

Although not a fuel poverty policy, the Digital Switchover Help Scheme has some relevant

The Help Scheme was run by the BBC to provide assistance to those believed to be the most vulnerable, isolated or hard to reach in the UK. The eligibility criteria was set as being anyone who was disabled, aged 75 or over, registered blind or partially sighted or anyone who had lived in a care home for 6 months or more. It was decided that the best source of data on the disabled and elder was held by DWP data, and information on blind and partially sighted was held by local authorities. Primary legislation was then produced to create a legal gateway to allow the BBC access to this data, becoming law as the Digital Switchover (Disclosure of Information) Act 2007 (BBC, 2012).

The digital switchover differs somewhat from other programmes discussed here; there was a very high profile campaign and awareness raising through several different media channels, but also with assistance from key community members to help contact those deemed to be the hardest to reach, mostly due to social isolation but also likely to be a result of not taking up benefits they were eligible for. A driver for the additional effort and cost devoted to the Help Scheme was that the switchover had a 100% target rate throughout the UK, as illustrated in this paragraph from the Digital Switchover Final Report:

*The Help Scheme developed an innovative 'communities programme' which was aimed at the hardest to reach '5 per cent'. These are eligible people without either friends or family or formal care to support them, and who face multiple barriers to managing change in their lives, such as mental health issues, declining health, dementia or deprivation. Research found that these individuals are typical only in their isolation and reliance on a small number of loose social contacts. It was essential to carry out specific activity to reach these people if the Help Scheme was to leave no-one behind.*

## 1.5 Proxies and targeting efficiency of policies

Table 1.2 below provides a list of the types of eligible households for each policy, plus the proxies used to identify these households. The majority of the current policies use DWP benefit data as a proxy for elderly and low income households.

**Table 1.2: The existing fuel poverty policies, the types of eligible households and the data used to determine eligibility (NEA).**

Scheme	Target households	Data or proxies used
<b>Warm Home Discount (Core Group)</b>	<ul style="list-style-type: none"> <li>• Old age pensioners</li> <li>• Low income pensioners</li> </ul>	<ul style="list-style-type: none"> <li>• Pension Credit</li> </ul>
<b>Warm Home Discount (Broader Group)</b>	<ul style="list-style-type: none"> <li>• Vulnerable low income</li> <li>• Vulnerable disabled</li> <li>• Vulnerable with children</li> </ul>	<ul style="list-style-type: none"> <li>• Varies across suppliers</li> </ul>
<b>Cold Weather Payment</b>	<ul style="list-style-type: none"> <li>• Low income pensioners</li> <li>• Low income disabled / family with a disability</li> <li>• Low income family with children</li> </ul>	<ul style="list-style-type: none"> <li>• Pension Credit</li> <li>• Income Support, Income-based Jobseeker’s Allowance</li> <li>• Income-related Employment and Support Allowance</li> <li>• Universal Credit</li> <li>• Child Tax Credit</li> <li>• Pensioner and Disability Premiums</li> </ul>
<b>ECO Affordable Warmth Group (AWG) and ECO Carbon Saving Communities Obligation (CSCO) –RURAL ELEMENT</b>	<ul style="list-style-type: none"> <li>• Low income pensioners</li> <li>• Low income disabled / family with a disability</li> <li>• Low income family with children</li> </ul>	<ul style="list-style-type: none"> <li>• Pension Credit</li> <li>• Income Support, Income-based Jobseeker’s Allowance</li> <li>• Income-related Employment and Support Allowance</li> <li>• Child Tax Credit</li> <li>• Working Tax Credit</li> <li>• Pensioner Premium</li> <li>• Disabled Child premium</li> <li>• Disability premium</li> </ul>
<b>ECO Carbon Saving Communities Obligation (CSCO)</b>	<ul style="list-style-type: none"> <li>• Households living in 25% most deprived areas</li> </ul>	<ul style="list-style-type: none"> <li>• Index of Multiple Deprivation</li> </ul>
<b>Priority Service Register</b>	<ul style="list-style-type: none"> <li>• Pensioners</li> <li>• Disabled</li> <li>• Long-term ill</li> </ul>	<ul style="list-style-type: none"> <li>• (energy companies’ own data and self-referrals – see below for further information)</li> </ul>
<b>Switchover Help Scheme</b>	<ul style="list-style-type: none"> <li>• Pensioners</li> <li>• Disabled</li> <li>• Blind and partially sighted</li> </ul>	<ul style="list-style-type: none"> <li>• Disability Living Allowance</li> <li>• Attendance Allowance</li> <li>• Constant Attendance Allowance</li> <li>• Mobility Supplement</li> </ul>

- Living in care home

Table 1.3 below, reproduced from information provided by Platt et al. (IPPR, 2013), provides an estimate of the proportion of fuel poor households that qualify for each policy and what percentage of all fuel poor households are reached for each policy. With the exception of the amended Warm Front programme in 2011, it is estimated that fuel poor households comprise between 19% and 37% of eligible households in recent and current policies. While of all current schemes the ECO HHCRO element includes the highest number of fuel poor households, over 60% of those eligible for measures are not fuel poor. Overall, the table illustrates the inability of proxies currently used to effectively target fuel poor households. It is in itself evidence for the need for better targeting of fuel poverty programmes through better and increased use of data.

**Table 1.3 Fuel poverty targeting efficiencies of current policies (IPPR, 2013)**

Policy	Percentage that are fuel poor	Percentage of the Fuel Poor covered/eligible <sup>2</sup>
CERT priority group	25.2%	75.0%
CERT super priority group	27.4%	41.1%
CESP	22.4%	-
Warm Front pre-2011	30.3%	35.1%
Warm Front 2011 onwards	68.8%	16.4%
Winter Fuel Payments	19.0%	50.0%
Cold Weather Payments	20.0%	-
Warm Home Discount	28.0%	-
ECO HHCRO	37.2%	51.8%
ECO CSCO	26.9%	12.4%

### 1.5.1 Existing National Databases

Some of the data identified in Table 1.2 warrants additional descriptions, these are found below.

#### Priority Service Register

<sup>2</sup> Data not provided in the reference source.

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Each domestic electricity and gas supplier and DNO has legal obligations to maintain a register of vulnerable customers. The obligations for energy suppliers and DNO's are slightly different because of different functions that these registers serve. Energy suppliers have licence obligations to offer special services to customers who are of pensionable age, disabled or chronically sick. The services offered include repositioning of meters, redirecting bills to third parties, and gas safety checks. DNOs have licence obligations concerning vulnerable customers affected by supply interruptions. Both must provide appropriate communication services for blind or partially sighted or deaf or hard of hearing customers. As a result of obligations there are significant differences between the number of customers held collectively on their different registers.

The energy suppliers PSR is mainly populated through self-referral of individual customers through their energy supplier (most, if not all, suppliers have a registration page on their website). Although customers can also contact their DNO to be added to the distributors PSR, DNO's PSRs are mainly populated through automated data flows from energy suppliers. At present there is no automated supply of data in the other direction, with information generally supplied by DNOs to energy suppliers on an ad hoc basis. However, according to Ofgem, information on customers' eligibility for inclusion in the priority services register is readily transferred between DNOs and suppliers<sup>3</sup>.

Currently, the main method of checking the accuracy of records in the DNO's PSR is during power outages, which can result in inaccuracies over time<sup>4</sup>. However, one operator contacted during the research mentioned that plans were in place to ensure all records are verified every two years. The same DNO hoped that future improvements to the PSR would enable automatic flow of data from DNO to energy suppliers. They recognised that the PSR contains useful information that could help to improve the experience of vulnerable people and is considering other ways that the data could be used, and even potentially shared with others.

The PSR has the potential to be a useful resource in future data sharing efforts. It could be enhanced by energy suppliers and DNOs matching additional data to the PSR to increase both the wealth and accuracy of data in the register. Alternatively it could be used for other fuel poverty schemes.

## **National Energy Efficiency Data-Framework (NEED)**

The National Energy Efficiency Data-Framework (NEED) is an address level database that matches gas and electricity consumption data, collected for DECC sub-national energy consumption statistics by energy suppliers, with information on energy efficiency measures installed in homes, from the Homes Energy Efficiency Database (HEED). It also includes data about property attributes and household characteristics, obtained from a range of sources

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<sup>3</sup> Interview with Ofgem

<sup>4</sup> Interview with Western Power Distribution

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including Valuations Office Agency (VOA), Experian and National Land Property Gazette (NLPG).

## Home Energy Efficiency Database (HEED)<sup>5</sup>

The Home Energy Efficiency Database (HEED) is a domestic address level database held by the Energy Savings Trust (EST) and contains the following information:

- Property characteristics (property age, property type, property tenure, glazing type, external wall type etc.)
- Heating systems (main heating fuel, main heating system, heating controls etc.)
- Insulation installed (cavity wall insulation, loft insulation, hot water tank insulation, draft proofing measures etc.)
- Micro generation technologies installed (heat pumps, solar PV, solar thermal etc.)

HEED now contains at least 1 piece of date-stamped information for approximately 51% of the UK's homes. The percentage coverage varies widely by housing attribute with attributes like property age and type being far better populated than attributes like microgeneration technologies installed.

## 1.6 Local fuel poverty schemes

Local schemes include those administered by the local authority, a locally based community organization or partnership between the two. Local authorities often have access to freely available local datasets and data from previously run local schemes. These can be combined with national area-level data, such as the Index of Multiple Deprivation (IMD) series and enhanced by purchasing property specific data, such as records of Energy Performance Certificates (EPCs), to provide further accuracy or complete gaps. An example of a local fuel poverty database is the 'East Durham Housing Energy Database' developed by Durham CC. This is an address level energy efficiency database for the 39,500 properties in the area. This included a door to door insulation rolling programme for private sector housing, which included collecting property specific energy performance data (SAP data) and processing using a combined SAP software and database package. Information was continually updated over 3 years resulting in a rich database for effective targeting for energy efficiency promotions (CRC, 2010). More details are provided in Section **Error! Reference source not found.**

Another example of a local based scheme involves targeting through local services, such as health visitors and local NHS trusts. This can involve referrals by doctors or other medical staff of specific patients who are suffering health problems that may be exacerbated by fuel poverty. Alternatively medical practitioners can encourage patients to self-refer and offer and

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<sup>5</sup> <http://www.energysavingtrust.org.uk/Organisations/Government-and-local-programmes/Programmes-we-deliver/Homes-Energy-Efficiency-Database>



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include relevant literature with prescription medication to encourage them to contact their local authority or a relevant energy charity. In both cases problems of eligibility arise. Identifying energy efficient properties or people suffering cold-related illness are both good starting points for finding those in fuel poverty, but income checks will still be necessary to confirm whether or not they qualify for government assistance.

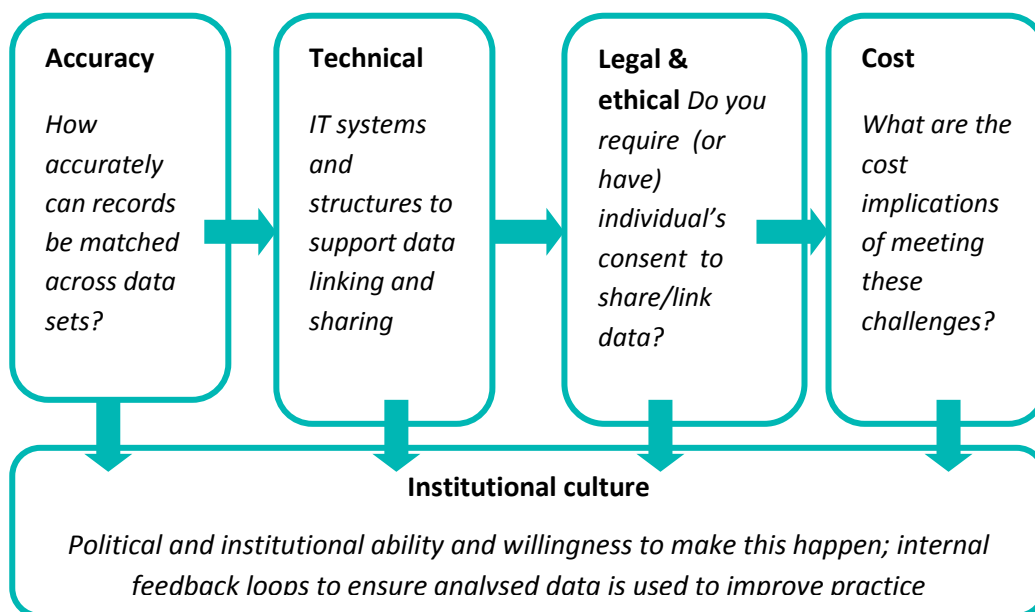
## 2 Methodology

The following section provides an overview of the work undertaken as part of this research study to produce the findings presented in this report. The research used existing literature, stakeholder interviews and a stakeholder workshop to investigate the existing barriers that prevent additional data sharing. Within the stakeholder interviews and literature review, we explored what more could be done to promote data sharing. Finally the three approaches to data sharing, which evolved as a result of conducting this work, outlined in Section 8, were presented to, and discussed amongst, participants who took part in the stakeholder workshop. A 'conceptual framework' was used to guide all stages of the research.

### 2.1 Conceptual framework

Figure 2.1 below shows the topics considered during the assessment of current issues concerning the lack of data sharing and matching that currently exists, as part of a framework that was used as an overarching theme during the research. Each topic is summarised below.

**Figure 2.1** The conceptual framework used in the research



**Accuracy:** Accurate data matching is the first requirement of a data linkage exercise<sup>6</sup> – it needs to be possible to link data from different sources accurately and efficiently. This requires the data collected via different systems to be collected and recorded accurately. Data linkage requires a common reference point (i.e. information collected on both systems that allows one

<sup>6</sup> Data linkage is the joining of two or more datasets to greatly increase the power of analysis then possible with the data.

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case to be linked to another); this can often be the point at which accurate and efficient data linkage falls down.

**Technical:** If the data sources to be shared or matched are accurate, it needs to be determined whether sharing or linking is technically possible. In particular, this may require the data to be accessible to non-experts and different ICT systems to communicate effectively.

**Legal and ethical:** Depending on legislative framework and related factors, personal data may have had to be collected, along with the permission to share this (or consent), from the individuals involved, and personal data then must be linked with other data sources. We know from NatCen's survey work (which often involves requests for consent to data linkage) that there can be public concern about the ways in which data can be linked and shared.

**Cost:** Overcoming challenges has cost implications, and these need to be considered alongside the potential cost savings or wider social benefits of data sharing or linking.

**Institutional culture:** The extent to which overcoming these challenges is feasible may in large part depend on the institutional arrangements with and across government departments and other organisations. In particular this refers to the attitude toward data sharing.

## 2.2 Desk review

The desk review involved exploring what is currently known about the topic. Data sources were identified in a number of ways including using previous knowledge of the research team, academic search engines and snow-balling to ensure a broad coverage. A number of interviewees also recommended reports that were useful for the team to ensure all relevant areas had been included. All sources reviewed and used in this report can be found in the reference list at the end of this report.

A specially designed pro-forma template was used which elaborated on the headings given above so that all researchers could record their findings in a systematic way that could be easily shared with the rest of the team. Each piece of reviewed literature required the completion of a pro-forma outlining whatever relevant information the source contained under the appropriate heading and indicating whether or not this was a barrier or an enabler for data sharing. This also formed the basis for the structure of the final report as the different areas of the conceptual framework worked well as subheadings for discussion. This systematic approach drew on both organisations' experience of conducting literature reviews and ensured that the review is comprehensive and transparent in coverage.

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## 2.3 Stakeholder interviews

The stakeholder interviews provided valuable information that predominantly supported the findings of the desk review. Below is a list of the organisations who were interviewed:

Type of Org	Organisation/Company name
<b>Energy industry</b>	Scottish & Southern Electric Northern Power Grid Western Power Distribution Ofgem
<b>Government Departments</b>	DECC fuel poverty and smart meters DECC Fuel Poverty Strategy Department for Work and Pensions
<b>NGO, consumer groups</b>	Energy Audit Privacy International National Energy Action
<b>Others</b>	Bond Dickinson Open Data Institute Information Sharing Centre of Excellence

A total of 13 interviews were completed from a total of 19 who were originally contacted. They include a wide range of organisations selected purposively from a list drawn up in conjunction with Consumer Futures and based on our own previous research into energy use and fuel poverty. Interview data was recorded in a similar pro-forma document to that used for the desk review which simplified cross comparison of material.

## 2.4 Stakeholder workshop

A stakeholder workshop was attended by 14 participants from a wide range of organisations. Representatives from the energy industry, legal bodies, government departments, academic institutes and consumer organisations all attended. In addition, some of those who participated in the interview stage were invited to the workshop to provide additional information to the work.

The workshop presented the findings of the research to date from the literature reviews and stakeholder interviews, seeking verification and clarification of the findings so far. The second part of the workshop presented three possible approaches to data sharing (or future solutions) to the group and asked the participants to consider how these approaches might be designed, what data they would use and what they thought the current barriers were to achieving these aims. The discussions held form the basis of Section 8.

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## 2.5 Legal advice

During interviews for the study, there was considerable confusion as to what is legally permissible or not. Therefore we asked lawyers<sup>7</sup>, experts in data protection, to give advice on the types of assistance and the types of data that may be used for fuel poverty relief schemes. Based on the comments of the lawyers, sections of the report were added and redrafted by Anna Fielder, a consultant and policy expert specialising in consumer data issues.

## 2.6 Structure of this report

This report brings together the findings of the work described above. The report continues to use the conceptual framework above to present the findings, with some slight amendments as a result of conducting the research. Technical and accuracy issues have been combined in one section, Section 3. A discussion of the legal considerations is presented in Section 4 with Ethical issues being described separately in Section 5, including the additional topic of ‘public perception’. The costs involved in data sharing are examined in Section 6 and the conceptual framework topics are rounded off with a discussion of the institutional culture that exists around the use of data for social initiatives (section 7).

The final section, section 8, presents the three potential approaches (or future solutions), that evolved during this research, for data matching which could be used in future fuel poverty related initiatives.

## 2.7 Interpreting and using this report

As mentioned above, this report brings together evidence from a review of the literature, qualitative interviews with a small sample of stakeholders and discussions held at a stakeholder workshop. Where information is thin or missing (for example on cost, section 6), we have tried to fill in the gaps with knowledge from within the NatCen and CSE research team. This has not always been possible however. In some cases, there remain gaps that require further research to fully understand, including evidence-based research from pilot studies or access to data itself to perform an assessment of what it is possible. Where possible we have tried to describe what further work is needed and what additional information it could reveal. Overall, the reader should understand that this research doesn’t provide all the answers to future targeting of fuel poverty programmes using data, but will help to focus future debate and research.

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<sup>7</sup> The analysis was carried out by external counsel, and concluded in December 2014

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## 3 Accuracy and technical issues

This chapter examines the key accuracy and technical issues that currently prevent more data sharing practices. It became clear through the project that the two areas had a high degree of commonality and so are presented together in this same section.

### 3.1 Accuracy

Fuel poverty has three drivers: low income, high fuel prices and energy-inefficient homes. Direct financial assistance can help ameliorate the first two factors, while energy efficiency schemes target the third. The priority for fuel poverty alleviation should be energy efficiency improvements targeted at low income households living in inefficient properties (see, for example Howard, R, 2015). As such, the data required to target these households' needs to be able to identify both households that are low income and/or vulnerable households and inefficient housing.

The accuracy of using data to target fuel poverty is affected by both the type of data used i.e. the use of proxies to identify fuel poor, and the quality of the data itself. The latter is a function of data collection and management processes.

#### 3.1.1 Data Types

The complexities around identifying fuel poor households mean that proxies are used as indicators of fuel poverty. For example, receipt of Pension Credit, which is paid to low income pensioners, is used as basis for the Warm Home Discount, a payment designed to tackle fuel poverty. The choice of definition in fuel poverty impacts on what proxies are used for identification and this in turn influences what can be used for subsequent targeting.

#### Individual income-based data

There are special challenges associated with measuring fuel poverty with income-based indicators. Financial circumstances are changeable, and people can move in and out of poverty. To accurately identify low-income families, for example, would require a dynamic, real-time database.

The data for this exists in the databases held by HMRC, DWP and other public bodies that routinely collect income data however there are complex issues in accessing and sharing this data which are discussed in detail in Section 4 on legal considerations.

Another issue with using proxies that are benefit-based as eligibility criteria is that people may be missed who are eligible but do not claim. For example, DWP estimates that around a third of those eligible for pension credit do not receive it and – if engagement is based primarily on

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existing benefits data – may exacerbate the gap between those who already claim and those who do not.

There are concerns that when multiple benefits – currently used as proxy indicators – are replaced with the single payment of ‘Universal Credit’ that there is a potential for a loss in the granularity that multiple benefits systems allow for targeting interventions, as well as the loss of specific legal gateways in place allowing access to databases for data sharing. Conversely, the resource for matching data across fewer databases would decrease. One interviewee noted the incoming change to the benefits system which should have reached a new steady state by 2017-2018; and that until then there will be a mix of people under the new and old systems further complicating any data matching exercise.

### **Area-based data**

There are similar limitations with accurately targeting using area-based approaches. For example, the Carbon Saving Communities (CSCO) strand of ECO uses area-based indicators such as Indices of Multiple Deprivation (IMD). Area-based indicators can’t capture the variation in energy performance and socio-economic demographics within specific geographical areas. Income levels and housing conditions can vary considerably within Lower Super Output Area (LSOAs), the geographical sub-division used to target in the CSCO scheme. LSOAs in inner city areas in particular can be very heterogeneous. And in rural areas, pockets of poverty can also be overlooked by aggregated area-level data.

### **Household energy efficiency data**

While energy performance of a home is not currently used as a formal eligibility criterion for energy efficiency schemes, it is ‘essential for the successful targeting of local fuel poverty and energy efficiency programmes’ (National Energy Action, 2011). This was thought by interviewees to be due to a combination of uneven coverage of UK housing stock and the data being spread across disparate databases. The scoring system used for the Energy Company Obligation means energy efficiency performance is a *de facto* eligibility criteria for the programme.

However there are two key databases in this area: the Home Energy Efficiency Database (HEED) managed by the Energy Saving Trust, and the National Energy Efficiency Database (NEED) managed by DECC. There are currently no specific legal gateways to share detailed data from these databases but, following on from a consultation in May 2014, DECC proposed to publish two **anonymised** record level datasets of NEED drawn from a larger dataset containing data for individual properties. One will be made publicly available as open data with 20,000 records for public use or training, and one with approximately four million records with restricted access via an end user license. DECC acknowledged that this data wouldn’t directly enable better targeting of the Energy Company Obligation but would allow for strategic

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analysis and for identifying geographic or demographic areas which would benefit from interventions.

As NEED contains data on household data use there are data protection considerations with accessing address level data, and DECC have explicitly stated that releases will have been processed in conjunction with the Information Commissioner Office's Anonymisation Code of Practice. Data would be anonymised to prevent any individual household or business being identified, and would be published in a format that could not be used for targeting specific households. In the case of both datasets, there is a trade-off to be made between risk of disclosure and utility in what level of detail is included in the final datasets i.e. level of detail that is acceptable to protect people's identities but allow for meaningful research and analysis. The first release of anonymised data was made available in July 2014. For further details see DECC (2013b) 'National Energy Efficiency Data-Framework: Making data available', and the ICO (2012) 'Anonymisation Code of Practice'.

### 3.1.2 Data Quality

Data collection can impact on the quality of the information collected and consequently the comparability of different sources reporting the same type of information; HEED is an example of a database with information collected from multiple sources and was described in interview as a 'Frankenstein of databases'. Information is collated from four surveys and eight data sources on installations which include sustainable energy measures that have been installed, when and by whom. Issues arise with the quality of data collected by multiple agencies including the subjectivity of measurements and differences in compliance. As noted in the DECC report on the NEED framework (Department for Energy and Climate Change, 2012), the recording of installation dates are of varying quality; particularly for solid wall insulation, where it is not possible to distinguish when during 2005-2008 measures were installed. A standardised UK-wide data collection framework for energy efficiency measures would seek to improve issues around accuracy and comparability of data collected by different agencies.

The act of data linkage, also known as record linkage, is the process of seeking connections between pieces of information. In preparing data for linkage, NatCen Social Research has found that to increase the probable success of the linkage, cleaning activities such as checking for duplicate entries and dealing with typographical errors improve accuracy within the data. Standardising the format of values in the database will also improve the match rate such as assigning missing values.

This is easiest to achieve when a unique identifier exists e.g. National Insurance Number, but this isn't always available, especially when linkage is being sought across disparate databases. Linkage can also be achieved by using a combination of identifiers, usually personal details such as name, date of birth, or postcode.

There are two commonly-used data linkage method: deterministic and probabilistic matching.



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Deterministic matching relies on a common ID, or derived ID based on a combination of unique identifiers. The National Energy Efficiency Database (NEED) contains the local authority Unique Property Reference Number (UPRN) which would allow for straightforward, deterministic linkage to other databases. These unique identifiers were matched onto 'AddressBase', an ordinance survey product which contains Royal Mail PAF addresses and is national standard for all buildings and addresses.

Probabilistic matching on the other hand seeks to address the lack of a consistent unique identifier with an algorithm to calculate the probability of the match weighted against other characteristics. The Ministry of Justice (MoJ) conducted linkage with HMRC and DWP to track employment outcomes of ex-offenders using probabilistic matching. No unique identifiers existed between their databases so a combination of identifiers was derived and a robust 37-step algorithm linkage method created. In total 3.66m offenders were matched to HMRC/DWP data, the matching was successful to an accuracy of 86%.

### **3.1.3 Existing data sharing of proxy indicators**

We will now discuss the types of benefit-based proxies used under current schemes and explore the accuracy of sharing and linking benefits data. Detailed information on the practicalities of sharing and linking data across these schemes was provided by stakeholders who participated in this research.

#### **Existing data-sharing scheme: Warm Home Discount**

The Warm Home Discount, which is a social obligation on energy companies, is regarded as a largely successful example of data-sharing to help alleviate fuel poverty. It has differing approaches to targeting a Core and a Broader Group and demonstrates that systematic, top-down approaches are far more successful at delivering support to the fuel poor households, and more cost-effective, than schemes that rely on engagement with the public.

##### **Core Group of pensioners on low incomes**

The scheme involves large energy suppliers providing an energy bill rebate of £140 to recipients of the guarantee credit element of Pension Credit. This involves the DWP sharing relevant benefit data with the large energy suppliers. Section 142 of the Pensions Act 2008 expressly allows data to be shared between the Secretary of State and energy suppliers without the need for mandatory consent from the customers to link their energy data with DWP benefit records (see section 4.1 on public authorities' power to share for full details).

##### **How the data matching of the Core Group works**

Every year DWP takes a snapshot of people receiving the relevant benefit on the qualifying day. DWP create a postcode filter and send the energy suppliers a list of all the postcodes which contain people receiving the benefit. Using postcodes instead of full addresses reduces

the size of the file and processing time required. The energy suppliers take a snapshot of all their customers on the qualifying day. They send DWP the first name, initial, surname and address of every customer living in the postcodes in the DWP list. At the end of August each year, DWP matches the customer details sent to them by the energy suppliers with their records of the people receiving the benefit. DWP then sends the individual energy suppliers the matched data which is the final ‘instruction to the supplier’ to give those customers a rebate. The suppliers do not receive any more information about the customers.

Linkage of energy and benefit records does not result in a match for all eligible customers. Approximately 1.5 million people met the benefits criteria in 2013 and of those 1.5 million, 1.16 million were matched. Interviewees attributed this to two issues.

The first is the fact that smaller energy companies not required in the scheme. It is only mandatory for energy companies with over 250,000 customers to provide the discount, and to provide information to DWP, so customers of smaller companies aren’t captured under the current scheme.

The second are more practical issues with data quality. Issues also arise in the matching process where typographical errors exist in either of the databases, or where there are discrepancies between records.

Targeting is also an issue where a person who is in receipt of the DWP benefit may not be name on the household utilities bill; many fuel-poor live in multi-occupancy houses. Table 3.1 provides a breakdown of fuel poor houses by number of adults and show that 40% of fuel poor households in 2010 had two or more adults where a person receiving benefits could be different from the person named on the energy bills.

**Table 3.1: Number of fuel poor households in England in 2010 by number of adults in households (data from the English Housing Survey 2010)**

Number of adults in the household	Number of households in fuel poverty (10% definition)	% of households in fuel poverty (10% definition)
<b>1</b>	2,107,264	59.6%
<b>2 or more</b>	1,428,668	40.4%
<b>Total</b>	3,535,932	100.0%

In 2013, the 300,000 potential Warm Home Discount customers – those in receipt of Pension credit guarantee – who did not automatically receive the rebate via the matching exercise were sent a letter asking them to contact a dedicated call centre to confirm their details. The energy companies then receive a weekly secure transfer of files from the call-centre detailing eligibility and can apply the discount. This contact with the public allows for incorrect details

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to be amended which in turn improves the quality of the data, and the success of future matching exercises.

The broader issue with this scheme in addressing fuel poverty – as with using proxies more generally – is that it only targets pensioners on a low-income. It has been calculated that by extending the ‘Core Group’ to those in receipt of the Cold Weather Payments and Child Tax Credit would mean 39% of fuel poor households would be eligible compared to just 25% currently (Consumer Focus, 2011). The accuracy is marginally decreased with 33% of all persons in the group suffering fuel poverty compared with 36% of the current group.

### **Broader Group of ‘at risk’ energy customers**

Unlike the case for the Core Group of the Warm Home Discount there is no legislative gateway to allow the energy companies and public authorities to share information in relation to the Broader Group. This makes this Broader Group harder to accurately identify in a systematic way, and instead depends upon a separate data collection exercise. Consent stipulated under the Data Protection Act (see 4.1.1 on key requirements of this Act) is gained as customers either nominate themselves for the discount or they are approached through a referral mechanism. If they nominate themselves, energy companies use a third party to liaise with the customer before contacting DWP to confirm their receipt of benefits and consequently is a resource intensive approach to data collection.

Energy companies may also refer potential recipients with their own referral mechanism, a database of vulnerable customers called the Priority Service Register (PSR). All energy companies and distribution network companies are obliged to keep a register of ‘vulnerable’ customers who may have additional needs in relation to energy, and to offer them services based on these needs e.g. older persons, those with a disability or long-term illness.

### **Accuracy of data for the Broader Group**

PSR is primarily dependent on energy companies having proactive engagement with consumers e.g. communications and promotions, and good customer-company relations. This is a step beyond a traditional transactional relationship where a telephone dialogue may only occur on an occasional basis to solve a particular issue or billing query.

Signing up for the PRS depends on the customer themselves providing confirmation or evidence that they receive means-tested benefits. This approach is likely to contain systematic inequalities and to exacerbate the gap between those who traditionally claim ‘benefits’ and those who don’t. There is a risk of there being a lower rate of uptake with certain communities as it tends to be the people who need it most who tend to fall off the radar when it comes to collecting evidence.

Allocated pay-outs via the PSR are limited and on a ‘first come first serve’ basis meaning there is no way of allocating resources on a needs basis amongst those on the register.

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## Existing data-sharing scheme: Winter Fuel Payment

The Winter Fuel Payment is a scheme that provides between £100 and £300 towards heating costs – dependent on people’s circumstances – and is a universal benefit for all people aged 62 years and over. The scheme provides a universal benefit, unlike the scheme previously mentioned where targeting using pension credit means only targeting 70% of those eligible.

The Winter Fuel Payment is both carried out, and funded by DWP as a discretionary payment from the DWP Social Fund. The total cost of the payments is £2.1 billion but, as explained below, the administrative costs are relatively low.

### How the eligible are identified

Data is extracted from IT systems from *within* DWP to identify eligible recipients aged 62 and over; this includes the state pension, pension credit, disability benefit, and attendance allowance. The legislation enabling this scheme has to be renewed annually, and it was noted during interview that, unlike the aforementioned benefit IT systems which have a firm basis in legislation, this is a potential reason for not investing in one database.

Matching this data identifies eligible individuals/households with almost 100% accuracy but as the Winter Fuel Payments are payable from the women’s state pension age, there’s a mop up of about half a million people at the end of mostly men aged under 65. Those people have to claim the payment and the claim process is the most costly administrative aspect costing £8 a claim. The take-up rate of the mop-up is around 70%. As with the Broader Group under the Warm Home Discount, this approach is likely to contain systematic inequalities for accurately targeting those most in need, as it is wholly dependent on effective engagement with the public.

## 3.2 Technical

### 3.2.1 Infrastructure

The basic technical issue in data sharing is the IT infrastructure required for handling large databases. Issues such as server size, memory and processing power will need to be considered. Facilitating linkage of administrative databases on a national scale can involve millions of records and software with the appropriate capabilities will also need to be considered. Examples of applications capable of handling large databases are as SAS, SPSS, or STATA. According to SAS<sup>8</sup>, HMRC work with SAS software to manage their data, and DWP for general analytics. Deciding on the most appropriate software is contextual though and dependent on factors such as existing software and skills, the number of licenses, training, and

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<sup>8</sup> SAS, References by Company, last accessed 21/03/2014

[http://www.sas.com/offices/europe/uk/solutions/customer\\_successes/indexByTechnology.html](http://www.sas.com/offices/europe/uk/solutions/customer_successes/indexByTechnology.html)

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future usage i.e. whether purchasing software is a long-term investment or for an ad hoc project as the software mentioned comes with a proprietary license fee dependent on the aforementioned factors.

### 3.2.2 Security

In accordance with the Data Protection Act 1998 (DPA) stringent information security is considered one of the most important aspects of any data sharing programme. Data encryption and security technologies are fundamental for personal data to be safely stored and exchanged. Best practices involve separate and secure servers for storage, access authorisation for specific personnel, and appropriate use of encryption for data transfers. HMRC provide the Secure Electronic Transfer (SET) service hosted by the Government Gateway website which enables organisations to transact data with HMRC securely over the internet using *Pretty Good Privacy™ Desktop (PGP™ Desktop)*<sup>9</sup>. *PGP™ Desktop* is a common program for sharing personal data to securely encrypt and decrypt personal data via secure keys; it is frequently used by NatCen for receiving sample data from DWP and HMRC which contain personal information. The UK Data Archive – holder of the largest collection of digital research data in the social sciences and humanities, and who frequently receive data from government departments – tested a number of software applications for encrypting data and also recommend *PGP™ Desktop*<sup>10</sup>. There is a fee for commercial-use, but it is freely available as open source software for non-commercial use.

### 3.2.3 Data Management

The Department for Communities and Local Government (DCLG) published a report in 2005 considering the benefits, drivers, principles, and mechanisms needed for good data management of public sector information.<sup>11</sup> They define data management as “a group of activities relating to the planning, development, implementation and administration of systems for the acquisition, storage, security, retrieval, dissemination, archiving and disposal of data.” In our experience of conducting large quantitative social surveys at NatCen Social Research, data management activities include but are not restricted to: data quality, metadata compilation, data lifecycle management, data access and dissemination. Having good data management practices ensure that data is reusable and beneficial to the public to which it ultimately belongs.

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<sup>9</sup> HMRC, How to use SET using PGP™ Desktop, last accessed 21/03/2014 [www.hmrc.gov.uk/set/using-pgp-desktop.pdf](http://www.hmrc.gov.uk/set/using-pgp-desktop.pdf)

<sup>10</sup> UK Data Archive, Transmitting & encrypting data, last accessed 21/03/2014 <http://www.data-archive.ac.uk/create-manage/storage/encrypt>

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A number of key pieces of legislation relating to data use have been introduced since 1998 including the Data Protection Act 1998 (DPA) and the Freedom of Information Act 2000 (FOI), which reflect the importance of good data management. The FOI stipulates public bodies provide requested information within twenty days, and to easily retrieve the data within the timeframe the data must have first been effectively managed and stored. The DPA introduces principles to protect data more effectively, relating to retention length, keeping information secure and up-to-date which relates to the accuracy of data sources.

The technical capability of an organisation for effectively and lawfully handling data is underpinned by good data management. The workforce will be required to keep up to date with the power of modern and emerging technology and changing data landscape; this is believed to be a particular issue in relation to local authorities which frequently handle sensitive or personal data. Devising and maintaining effective data collection mechanisms that comply with relevant data legislation require skills, training and resources. The types of data breaches reported to the Information Commissioners Office (ICO) are fairly consistent e.g. disclosed in error, loss or theft of data. We calculate from 2010 to 2014, 44% of monetary penalties by the Information Commissioners Office (ICO) were data protection breaches by Local Authorities.<sup>11</sup> Further information for Local Authorities can be found on the ICO website: [http://ico.org.uk/for\\_organisations/sector\\_guides/local\\_authority](http://ico.org.uk/for_organisations/sector_guides/local_authority)

The NHS has also recently had a high number of data breaches but “it is important to view this context though: the Government expects NHS organisations to self-report potential data breaches which mean few go unreported.”<sup>12</sup>

### 3.3 Conclusions

- The use of proxy information, in data sharing exercises, needs to be well thought out since the choice of proxy is imperative to the success of identifying the right kinds of households, and targeting these.
- Organisations involved in data sharing exercises will need to have access to the appropriate software and be trained and skilled in using it. Recent examples of monetary penalty notices issued by the ICO for breaching the Data Protection Act were in the range of £50,000-£200,000.
- Where data are to be processed and transferred between organisations, technology needed to enforce appropriate data security and data encryption is necessary. Organisations involved need to be trained and skilled accordingly.

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<sup>11</sup> Information Commissioners Office, Monetary penalty notices, date data downloaded 18/03/2014, last accessed 21/03/2014 <http://ico.org.uk/enforcement/fines>

<sup>12</sup> Information Commissioners Office, Trends, last accessed 23/07/2014 <http://ico.org.uk/enforcement/trends>

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- If data are to be effectively shared between organisations, good uniform practices for collecting, storing and managing of data resources are needed. As well as protocols around using and sharing information (where appropriate and within the legal parameters of the Data Protection Act).

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## 4 Legal Considerations

As stated in the introduction to this report (chapter 1) data sharing can bring valuable benefits to individuals and society as a whole. But these benefits can come at a high cost, for example risks of prejudicial treatment of vulnerable people whose data is shared, increased risks of data loss or concerns about the dissemination of inaccurate information, as described by the recent Law Commission report (2013). Such risks can be exacerbated by the sensitive nature of some of the data that would need sharing in order to deliver the various policies to tackle fuel poverty, for example disability or long-term health problems.

To mitigate such potential risks there are a number of laws governing data sharing. A detailed description of the whole of the legal framework governing data sharing is beyond the scope of this report; useful summaries have been produced by the Information Commissioner's Office (2011b), the Ministry of Justice (2012) and the Law Commission (2013). Instead, this chapter focuses on the two law areas that are particularly relevant to data sharing in the context of fuel poverty relief policies, because of the ways they have influenced existing policies and their implications for future initiatives:

- Public Authorities specific powers to share data, and whether there is a need to create more such powers
- The Data Protection Act 1998, which applies to all organisations involved in sharing data, regardless of whether they have specific data sharing powers

As discussed in previous chapters, the particular issue that exercises policy makers and others is whether data can be legitimately (and ethically) shared without the knowledge and consent of potential beneficiaries since people living in fuel poverty can be both difficult and expensive to reach to get such consent. Indeed, data sharing is often considered as a tool for reaching these people.

During interviews for this study, there was considerable confusion as to what is legally permissible or not, and a belief that any relief policy is required to deliver a proportionate and automatic benefit to the consumer if his/her data is to be shared without consent. Consequently policy makers believed that any initiative involving data sharing without consent was open to legal challenge unless the authority had specific powers to share data, otherwise known as a legislative gateway.

Therefore the following sections of this chapter are based on the advice of lawyers<sup>13</sup>, experts in data protection, who were asked to give a principle-based view for the types of assistance and the types of data that may be used for fuel poverty relief schemes, rather than consider

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<sup>13</sup> The analysis was carried out by external counsel, and concluded in December 2014



the application of data sharing or matching to existing individual schemes, as these may change in the future.

**Table 4.1: Types of assistance in fuel poverty relief schemes and related types of data**

Assistance	Data
<ul style="list-style-type: none"> <li>Financial support (e.g. Warm Home Discount, Winter Fuel Payments)</li> <li>Extra Help Scheme during smart meter rollout (delivering information, support, and/or energy efficiency measures)</li> <li>Energy efficiency measures</li> </ul>	<ul style="list-style-type: none"> <li>Customer age</li> <li>Property energy performance (EPC rating)</li> <li>Tenure type</li> <li>Disability</li> <li>Hearing or visual impairment</li> <li>Long-term ill health</li> <li>Income or financial means</li> <li>Related benefits</li> </ul>

## 4.1 Analysis of public authorities’ power to share

Public authorities, unlike private organizations, must act “within powers”. This means that a public body can share personal information only if it has been given the power to do so through legislation; this applies even where such sharing would otherwise be permitted under data protection law (see section 1.2 below).

Such statutory powers can be express, discretionary or implied. Express statutory powers are also known as “gateways” and often are designed to permit disclosure of personal information for specified purposes. Only one such “gateway” exists for fuel poverty relief initiatives (see section ##), namely section 142 of the Pensions Act 2008, which provides for regulations allowing the Department for Work and Pensions to give energy suppliers information about people receiving state pension credit. This section was included in the legislation with a view to creating the Warm Home Discount scheme. Detailed provisions are set out in secondary legislation: the Warm Home Discount Regulations 2011 and the Disclosure of State Pension Credit Information (Warm Home Discount) Regulations 2011.

The distinction between the different types of powers is important because while express statutory powers (or “gateways”) potentially allow public bodies to share personal data even without consent, by contrast, reliance on a discretionary or implied power to disclose information is subject to express statutory or even common law limitations, such as an obligation to maintain confidentiality (i.e., “obligations of confidence”)<sup>14</sup>.

<sup>14</sup> Department of Work and Pensions (2014) Guidance for Local Authorities on the use of social security data, pages 5 – 7, [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/307156/data-sharing-guide-april-14.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/307156/data-sharing-guide-april-14.pdf)

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Local authorities in particular may have implied powers to share data in connection with fuel poverty initiatives under section 111(1) of the Local Government Act 1972 (which provides that they “shall have power to do anything...which is calculated to facilitate, or is conducive or incidental to, the discharge of any of their statutory functions.”) and section 2(1) of the Local Government Act 2000 (which provides that they shall “have power to do anything which they consider is likely to achieve any one or more of the following objects—(a) the promotion or improvement of the economic well-being of their area; (b) the promotion or improvement of the social well-being of their area; (c) the promotion or improvement of the environmental well-being of their area”). Throughout this research we did not find any examples of central government departments relying on implied powers to share data.

In addition, in the absence of a statutory power to share data, central government departments headed by a Minister of the Crown may be able to rely on common-law or other non-statutory powers to share data. However, such common law powers may be extinguished by statute and may otherwise be limited by the requirements of public law, the law of confidence or by agreement. Reliance on common law powers by public bodies in relation to data sharing has not often been considered by the courts, which implies a certain level of risk in such an approach<sup>15</sup>.

#### 4.1.1 Data Protection Act 1998, key requirements

All organizations that process personal information and act as “data controllers” must comply with the UK Data Protection Act 1998 (DPA). This includes public bodies, whether they rely on a gateway or not, as well as private and third sector organizations. It is therefore necessary to cover the key provisions of the DPA in a little more detail, in order to understand how they relate to public authorities and their data sharing rights and obligations.

The key “controller” obligations, which are known as the eight data protection principles, are contained in Schedule 1 Part I of the DPA. The first principle is that “Personal data shall be processed fairly and lawfully and, in particular, shall not be processed unless— (a) at least one of the legal grounds or conditions in Schedule 2 is met, and (b) in the case of sensitive personal data, at least one of the conditions in Schedule 3 is also met”.

Schedule 2 conditions that would be potentially relevant to public authorities in the context of data sharing include:<sup>16</sup>

- Consent.
- The processing is necessary in relation to:
  - A contract which the individual has entered into; or

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<sup>15</sup> Ministry of Justice (2012) pages 5-8

<sup>16</sup> See page 15 of the ICO’s Data Sharing Code of Practice, available at [https://ico.org.uk/for\\_organisations/data\\_protection/topic\\_guides/~media/documents/library/Data\\_Protection/Detailed\\_specialist\\_guides/data\\_sharing\\_code\\_of\\_practice.ashx](https://ico.org.uk/for_organisations/data_protection/topic_guides/~media/documents/library/Data_Protection/Detailed_specialist_guides/data_sharing_code_of_practice.ashx).

- Steps that must be taken at the request of the individual in order to enter into a contract with them.
- The processing is necessary because of a legal obligation that applies to the data controller.
- The processing is necessary to protect the individual’s “vital interests”. This condition only applies in cases of life or death (e.g. disclosing an individual’s medical history to medical staff following a road accident).
- The processing is necessary for any of several reasons that relate to the functioning of government (e.g., for the administration of justice, for the exercise of any functions conferred on any person by statute, for the exercise of any functions of a Minister of the Crown or a government department, or for the exercise of any other function of a public nature in the public interest).The processing is necessary for administering justice, or for exercising statutory, governmental, or other public functions.
- The processing is necessary for the purpose of the data controller’s own legitimate interests or the legitimate interests of the third party that the information is disclosed to. However, this condition cannot be satisfied if the processing prejudices the rights and freedoms or legitimate interests of the individual whose data is being processed. And it does not apply in the case of sensitive personal data (see section below).

If the sharing of data also involves personal information defined as “sensitive”, public organizations will also need to satisfy at least one of the conditions in Schedule 3 of the DPA. Some of the categories of data that would need to be shared for the purpose of fuel poverty relief schemes (see table 1.4 above) are defined as sensitive by the DPA, namely disability, hearing or visual impairment, and long-term ill health.

Schedule 3 conditions that would be potentially relevant to public authorities in the context of data sharing include:

- *Explicit* consent.
- The processing is necessary to protect the individual’s “vital interests”.
- The processing is necessary for any of several reasons that relate to the functioning of government (e.g., for the administration of justice, for the exercise of any functions conferred on any person by statute, for the exercise of any functions of a Minister of the Crown or a government department, or for the exercise of any other function of a public nature in the public interest).

However, having a legal ground to process personal sensitive data alone does not automatically make processing “fair and lawful” under the DPA. “Fair and lawful” processing further requires that the organization acting as a data controller provide appropriate notice to individuals at the time of data collection to enable them to understand what personal information is being collected about them and how it will be used. Fresh notice may be required if the controller (or any of the sub-processors the controller has engaged) decides to use the collected data for new, unrelated purposes. This would be the case in all situations where a public authority may be sharing personal information with an energy company for fuel poverty relief purposes.

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Although strictly speaking the obligation to notify applies to data controllers (i.e. the public body in this case), guidance by the ICO (2011a) indicates that all organizations involved in the data sharing will be expected to assist in providing notices to individuals, as and when appropriate.

Other relevant applicable principles contained in Schedule 1 of the DPA state that: personal data should be relevant and not excessive in relation to the purposes for which it was obtained (Third Principle); data should be accurate and kept up-to-date (Fourth Principle); data should not be kept for longer than is necessary to fulfil the purposes for which it was collected (Fifth Principle); data should be processed in accordance with data subjects' rights (Sixth Principle); controller should adopt appropriate organizational and security measures (Seventh Principle); etc.<sup>17</sup>

#### 4.1.2 Public Authorities' Ability to Share Personal (Sensitive) Data

As explained in the section above, having express statutory powers, or gateways, to share data does not exempt public authorities from the requirements of the DPA. In practice, these organisations could share personal information on their records with the energy companies, by relying on Schedule 2 condition of the DPA that the processing is "necessary for administering justice, or for exercising statutory, governmental, or other public functions"<sup>18</sup>. Such organizations could also arguably rely on the "legal obligations" condition.

Separately, in relation to sensitive personal data, organizations that are expressly obliged by statute to share such data (i.e., under a gateway) could rely on the DPA Schedule 3 condition that the processing be necessary for exercising statutory powers or any functions of a government department.

Therefore, public bodies that have an express power to share non-sensitive or sensitive personal data can arguably do so without the need to obtain consent from affected individuals. However, this data sharing must nevertheless be transparent and must be carried out for specific purposes (see discussion above on "fair and lawful" processing and on the other data protection principles more generally). Although providing choice to individuals is not strictly necessary where a gateway applies, implementing an opt-out scheme may be good practice especially where health or other sensitive data is shared.

Public organizations relying on an implied or discretionary statutory power (or on common law powers) are subject to the same controller obligations as above. Where non-sensitive personal information is concerned, these authorities could arguably rely on the "necessary for administering justice, or for exercising statutory, governmental, or other public functions"

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<sup>17</sup> For a good overview of all the principles, see Ministry of Justice (2012) page 18

<sup>18</sup> This condition is interpreted in a similar way to human rights legislation, and supported by case law: if a pressing social need is involved and the response is proportionate to the legitimate aim pursued, then the processing will be justified. See also Ministry of Justice (2012), page 13

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legal ground under Schedule 2 and share information without consent. A determination would have to be made on a case-by-case basis. Such data processing/sharing must nevertheless be transparent and must be carried out for specific purposes (see discussion above on “fair and lawful” processing and on the other data protection principles more generally).

However, public bodies that do not have an express power to share would likely need to obtain “explicit” consent from affected individuals before they can share individuals’ sensitive personal information with third parties. An opt-out scheme would not be appropriate in such circumstances.

Overall, if we take a principle based approach to the types of assistance likely to be offered by fuel poverty relief schemes – financial support, energy efficiency measures and extra support and information during smart meter rollout (see table 4.1 above) – our lawyers’ advice is that data sharing between public bodies and energy companies without consent is possible under current legislation, but needs careful assessment. It is more likely to be possible if it involves financial support or energy efficiency measures, and the types of data shared do not involve sensitive personal information, such as health or disability. For information or support measures, such as Extra Help Scheme for smart meter rollout, any authority wishing to share data would need to assess whether the sharing is proportionate to the aims being pursued and whether there are no other, less intrusive ways to achieve the same objectives. However, even for these, cost and efficiency considerations could help build a defensible case for sharing without consent.

## 4.2 UK and EU ongoing proposals

The Cabinet Office is developing proposals for legislation giving government agencies greater powers to share data with each other. One of these is a proposal to create a power for data to be shared between defined public bodies in order to improve the targeting of public services – including energy-efficiency measures and fuel poverty grants – to specific groups of individuals, in order to provide them with benefits such as improved health, education or employment. Details are not yet available. The proposals are subject to an early pre-consultation process with stakeholders before being put forward for public consultation and scrutiny<sup>19</sup>.

The Law Commission has been consulting separately on data sharing between public bodies, having decided to include the topic in its current programme of law reform in response to proposals from police sources and discussions with the Ministry of Justice indicating that there were general issues with data sharing, including a perception that there are obstacles to data

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<sup>19</sup> Details and updates of this current initiative are available on <http://datasharing.org.uk/> ; useful report from one of the participating NGO stakeholders also available at <https://www.openrightsgroup.org/blog/2014/update-on-data-sharing-policy-process>, see section 2 in particular.

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sharing between public bodies. Its scoping report was published in July 2014 and currently awaits Government response for further action. In it the Law Commission recommended that a full law reform project be carried out “in order to create a principled and clear legal structure for data sharing, which will meet the needs of society”; it also recommended that the scope of this project be extended to data sharing between public bodies and other organisations carrying out public functions (Law Commission 2014).<sup>20</sup>

Meanwhile at European level there is ongoing reform of existing data protection legislation that will impact the UK data protection regime. The proposed legislation, in the form of a General Data Protection Regulation, is expected to be agreed and adopted by the relevant European institutions by early 2016 and will come into force two years after that. The purpose of this Regulation is to update legislation in line with advancing technological developments, and harmonise provisions across European Member States<sup>21</sup>.

### 4.3 Policymakers’ views on legal aspects of data sharing

Various policymakers interviewed for this research had a perspective on data sharing that diverged somewhat from the above legal analysis. They indicated that when they were developing the Warm Home Discount scheme, they had been advised that in the case of data sharing without consent, the law required that for every match there had to be a “proportionate, automatic” benefit to the household.

The data sharing for the Warm Home Discount core group component was said by policymakers to pass this test because the level of the benefit (£120 when the scheme was first introduced, rising to £140 in the fourth year<sup>22</sup>) was large enough to be regarded as proportionate, and the benefit could be regarded as automatic because energy suppliers were required by law to pass it on, in the form of a rebate. However, the views about how the level of the rebate was set were conflicting, and there was uncertainty about the advice given and the extent to which it applied to other schemes.

However, while proportionality is a common concept under data protection and human rights legislation, the concept of “automatic benefit” is not. Our lawyers were unclear about the legal basis of this analysis and were not able to locate case law that would establish this legal test. This interpretation could possibly derive from the fact that financial direct support can more readily meet the “necessary” for a particular purpose condition under Schedule 2 of the DPA (see 4.1.2 above.)

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<sup>20</sup> Summary of Law Commission work on data sharing available at <http://lawcommission.justice.gov.uk/areas/data-sharing.htm>.

<sup>21</sup> Overview available at [http://ec.europa.eu/justice/data-protection/review/index\\_en.htm](http://ec.europa.eu/justice/data-protection/review/index_en.htm).

<sup>22</sup> The prescribed rebate is set out in regulation 2(1) of the Warm Home Discount Regulations 2011

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While express powers or a legislative gateway may not be necessary to carry out data sharing without consent for every fuel poverty initiative, policy makers believe that this is the case – which could be more for political rather than legal reasons, as people tend to be more accepting of intrusions that bring them immediate and tangible benefits. It is reasonable to assume that, even if government proposals lead to an extension of powers to share data between government departments (see 4.3 above), any future data sharing without consent with private- or third-sector organisations for fuel poverty initiatives – along the lines of the core component of the Warm Home Discount – will be seen by policymakers as requiring a legislative gateway.

## 4.4 Conclusions

- All fuel poverty alleviation policies – past, present or future – provide either financial support for low income households, or energy efficiency measures, or provision of information or support for new initiatives, such as the Extra Help Scheme for the smart meter rollout. Each of these types of assistance will require certain types of personal data, some of which is considered sensitive by the law. We have therefore asked expert lawyers to provide us with a principle-based view on data sharing for such schemes, rather than the specific schemes currently in operation.
- The analysis in this chapter focuses on data sharing between public bodies and energy companies *without the consent of the individual involved*. Sharing of personal data with the consent of the individual is perfectly legal under the provisions of the Data Protection Act 1998 (DPA) for all organisations and can be used for a wide range of initiatives; the same applies for non-personal or anonymised data which falls outside of the scope of (current) data protection legislation.
- All organisations that collect and process individuals’ personal information, including sharing it with others, must comply with the DPA, including provisions on “fair and lawful” processing. In addition, public authorities (government departments or local authorities) must also have additional powers to be able to share the personal information records on their databases with other entities. These powers can be express (also known as “legal gateways”), implied or discretionary. There is only once instance of a legal “gateway” for current fuel poverty alleviation schemes.
- Where the data sharing is required by statute (i.e., on the basis of a “gateway”), public authorities can generally share personal data (including sensitive personal data) with third parties, as required by law, without the need to obtain consent from affected individuals. However, where the gateway-based sharing involves sensitive personal data (e.g., ill-health or disabilities), as a matter of good practice, an opt-out approach should be adopted to allow individuals to object to such processing.
- Where the data sharing is legitimized on the basis of an implied or discretionary statutory power, public organisations could also arguably share non-sensitive personal data without consent, provided that the sharing is “necessary for administering justice, or for exercising

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statutory, governmental, or other public functions”. However, in such cases, public bodies need to assess the appropriateness of this legal ground on a case-by-case basis, seeking advice from the Information Commissioner or lawyers according to need. Data sharing will be more likely to be justified on this ground if there is a pressing social need and there are no other effective means of achieving the same goals. Organisations relying on an implied or discretionary statutory power to share sensitive personal data will likely be required to obtain explicit consent (i.e., an opt-in approach).

- In all of the above scenarios, the principles of proportionality, data minimization and transparency must be respected. Thus, even where consent is not required, public organisations must provide clear and comprehensive notice to affected individuals to inform them of who their personal (sensitive) data will be shared with, for what purposes, etc.

Finally and important, while our lawyers’ analysis indicates that express powers, or statutory “gateways”, may not be necessary to carry out data sharing without consent for every fuel poverty initiative, policy makers interviewed for this study believe that this is the case; they are uncertain about the level and type of benefit to individuals needed to justify data sharing without consent. They therefore see any future data sharing as likely to require specific legislation to enable it. This is not really surprising given the complexities of data protection legislation, and the varying degrees of confidence in its application by different authorities. Further detailed legal advice and guidelines are needed for local and central government authorities, specifically on data sharing without consent in relation to fuel poverty relief policies.



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## 5 Ethical concerns and public perceptions

When designing schemes that link data about individuals and/or properties, thought needs to be given to the ethical practice of doing so. In this section, we discuss some of the issues which relate to privacy and consent and the perception of the general public. The literature in this area is fairly thin with respect to data sharing for fuel poverty so we have drawn on wider research about data sharing more generally, and data sharing in other contexts.

### 5.1 Privacy and consent

It is a common and accepted view that data protection exists for a legitimate reason and that data-sharing activities: should be looked at on a case-by-case basis, ensure the potential benefits outweigh the potential risks, as well as considering possible alternatives to achieving the same benefits without the risks. There was opposition for a broad power by government to share data.

In relation to reducing fuel poverty, data sharing is by some considered more acceptable if it leads to guaranteed benefits to the individuals involved; a representative from one organisation we consulted held the view that data sharing should only be carried out if there are *direct benefits* to the individuals involved.

Consent of the individuals whose data is being shared was considered a key issue (NGO/Consumer Groups interviewed as part of this research; Thomas and Walport, 2008).

At present, the law, specifically through the Data Protection Act and the Freedom of Information Act, prescribes the circumstances in which consent must be obtained, as well as the conditions when data can be shared without consent (see Section 4.1.1). There are a separate set of ethical issues when consent is required, compared to when it isn't. This is summarised below in sections 5.1.1 and 5.1.2.

#### 5.1.1 Data linkage with consent

Where consent is obtained to link an individual's personal data, there seem to be a set of common requirements set out in the literature. Consent should:

- Be **Transparent** - be clear about the purpose, and the process as well as the details around what personal information is shared and with whom;
- Be **Informed** - provide the individual with all of the necessary information needed to make a choice around whether, or not, to consent;
- Truly state **the benefits to the individual** - being clear where the benefits are guaranteed, i.e. 'you will receive £X off your energy bill' or otherwise, where the benefits are subject to

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a set of conditions, i.e. ‘someone will visit your home to see whether (or not) you qualify for energy efficient measures’.

There are a number of issues worth noting which have implications when data sharing is facilitated via obtaining the consent of individuals:

- The exercise is likely to be administration heavy - having to collect the consent of all individuals in either a written, or a verbal form. Primarily this is a cost issue, however it also places some burden on individuals;
- There needs to be a balance between providing enough information to the individual about the data linking without causing confusion and having a detrimental effect (Gray, 2010);
- The success of any targeted scheme relies on the engagement of individuals. If people don't consent, the scheme won't reach as many people (or possibly the right kinds of people) and have the desired effect;
- Even when consent is obtained in a data sharing exercise, question testing (in relation to linking survey and administrative data) has shown that the general public can give consent without fully understanding what is involved (Lightfoot and Dibben, 2013). This raises the importance of designing consent questions that people fully understand;

## 5.1.2 Data sharing without consent

Whilst some hold the view that, depending on the purpose, data sharing with consent (i.e. an ‘opt in’ exercise) is best case scenario, there is recognition that there may be benefits of linking data without consent. And that gaining consent may not always be necessary (see Section 4: Legal Considerations).

Data sharing without consent has its advantages. The costs of the policy may be reduced through increased engagement with individuals who might otherwise be hard to reach (i.e. the vulnerable). Additional cost-effectiveness can be achieved through automation (an example being the Warm Homes Discount) where data are linked and, where there is a match, the individual receives the intervention. Additionally, the burden is reduced on individuals since the benefits are automated.

For non-sensitive personal information, removing the need to seek consent means that those who would otherwise choose to opt-out, or *not* give their consent, if given the choice (because of the effort involved, in error or because they do not fully understand the process or potential benefits), would still be eligible to receiving the benefits. As well those who are difficult to contact and/or engage with could be included if consent is not required: a particular issue relevant to fuel poverty policy because the most vulnerable are often the most difficult to engage with.

Where consent is not possible, and the share involves personal information that is sensitive (see section 4.1.2), including an ‘opt-out’ provision in the process is considered necessary by

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privacy advocates and consumer groups, and as good practice by data protection practitioners, including many businesses.

## 5.2 Public perceptions

Gaining an understanding of the acceptability of data sharing from the view of the public or people involved is important when designing data sharing/linkage schemes. A review of the literature, and interviews with stakeholders, reveals mixed conclusions about the views of the public about data sharing.

There appear to be a number of factors that will determine comfort levels amongst the public in relation to having their data shared. According to existing research this is influenced by:

1. *Who the data are to be shared with* – Public perceptions of an organisation’s ability to handle and share personal information properly may well strongly shape decisions around whether they are happy with the process. Similarly, perceptions about the organisation’s remit and intentions (i.e. for the public good vs. for financial gain) could shape willingness to allow that organisation access to personal data.
2. *The type of data being used, and shared* – The public’s perception of how personal the data are may influence their willingness to share it.
3. *Existing assumptions about existing sharing of data* - Often customers of services/benefits assume that their information is already shared with other service providers (particularly where departments are part of same local authority), and sometimes the customers themselves are annoyed where this isn’t the case and it has impacted the support they receive (Department for Work and Pensions, 2011).
4. *The perceived trust in the organisations or bodies that will share data* – The literature in this area suggests that consent rates to data linkage are likely to vary depending on the study or scheme and rates can be higher where trust has been built over time between the organisation involved and the individual (Administrative Data Liaison Service, 2010).

### 5.2.1 Public views on data sharing

Research exists that suggests that data sharing can be acceptable to the (a substantial proportion of the) public. Semi-structured group discussions with patients, service users, carers and the wider public, carried out in relation to linking health data, for example, found support amongst participants for more joined up service delivery. This would require the different agencies involved to have access to data, thus avoiding the need for patients to provide the same information twice (Aitken, 2011). Other work also points to a public desire to see more joined up services where people do not have to repeatedly provide the same information to different government sources (Eurim, 2004).

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In relation to data sharing in respect to energy, IMB's UK consumer survey (2010) found that 42% of respondents would share their smart meter data to manage energy bills. Accenture (2011) found respondents split when asked if they would be comfortable with their energy supplier sharing their personal energy usage data with third parties, potentially other private companies, assuming to help them save on their electricity bill (Consumer Focus, 2011), in other words, explicit consent. Qualitative research with stakeholders and the general public and a national survey, carried out by the UK Energy Research Centre, found that on the whole people are willing to share their energy use data however many had concerns about this (Parkhill et al., 2013). In the same research however, a substantial proportion of respondents were not willing to share energy use data with anyone.

According to the Department of Energy and Climate Change, in our interview, whilst some people have refused the Warm Home Discount, stating that they don't need government money, nobody has objected to their data being shared.

There is also research, however, that presents a set of different concerns which exist among some members of the public that need to be considered when designing data sharing activities to target fuel poverty. According to a consultation carried out by the Scottish Government (2012), along with the legal issues, public acceptability is one of the most cited obstacles to data linkage (cited in the Law Society, 2013). Other work carried out by the Scottish Government (2013), which used deliberative events with the public and looked at data sharing in general and not in relation to specific policy or kinds of data, found that potential for commercial gain through data sharing activities is a concern among some.

Other concerns noted in the literature include fear of data falling into the wrong hands (Wellcome Trust, 2013) and a feeling that data sharing activities are an extension of 'Big Brother watching' (Eurim, 2004; Wellcome Trust, 2013).

In relation to data sharing activities that have used energy consumption data (which has relevance to fuel poverty), the annual tracking report on individuals attitudes and awareness of data protection, by the Information Commissioners Office (2009), showed that the majority of respondents had concerns about the handling of their personal information: 93% of respondents concerned which is an increase of 23% since 2004 (Consumer Focus, 2011).

Navigator's smart meter research (May 2010) found that 49% of consumers were happy to share information on appliance consumption with their energy provider, 10% with other companies, with 39% saying that they would rather their information be kept within their home (Consumer Focus, 2011).

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## 5.2.2 Public vs private

Some evidence has been found to suggest that public attitudes to handling and using of data can differ depending on whether the exercise is in the public or private sector. The difference between public and private data sharing can be attributed to:

1. **The motivation of those involved:** the private sector is viewed as being motivated to sell data to third parties to make money, whereas the public sector are thought to be more motivated to deliver public benefits. Research shows that consumers have a range of concerns, related to data privacy, about energy companies having access to information about them (Consumer Futures, 2014). Although not specifically in relation to energy companies, other research has indicated that private sector involvement in data sharing can be a contentious issue for the public stemming from fear that data will be used for sole purpose of profit maximisation (Scottish Government, 2013).
2. **The security procedures in place:** Anecdotal evidence, in the form of the perceptions of some participants who attended the stakeholder workshop, suggests that the public sector is considered to have more stringent security in place than the private sector. However, the Navigator survey by DECC found that despite a noted cynicism, and even distrust, towards energy companies, respondents felt that they would be expected to observe reasonable standards of data protection (Department for Energy and Climate Change, 2011).

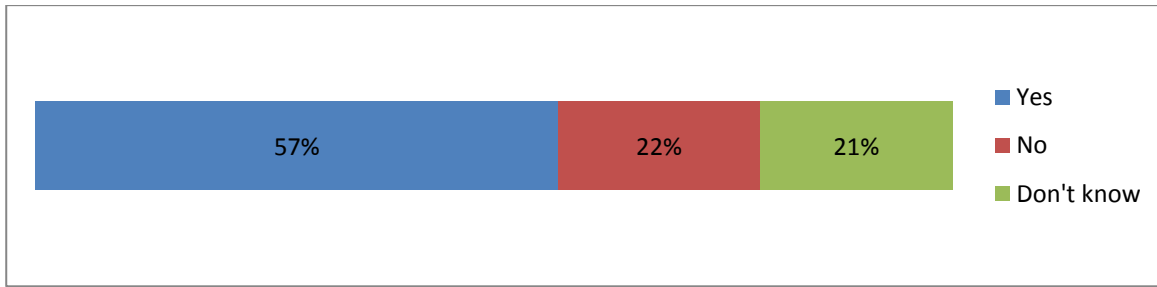
## 5.2.3 Public perceptions on data sharing with energy companies

Research carried out in early 2014 on behalf of Consumer Futures by GFK asked consumers whether they would be happy if the government shared their benefit or income status with their energy company, in order to deliver certain services<sup>23</sup>. This showed the majority of the public supported data sharing with energy companies, both where there was a guaranteed benefit and when the benefit was neither guaranteed nor monetary, for example insulation depending on their property type. Support for data-sharing was higher among those who said they were in receipt of an ECO qualifying benefit – who would likely be the subject of a data-sharing initiative – than those who said they were not.

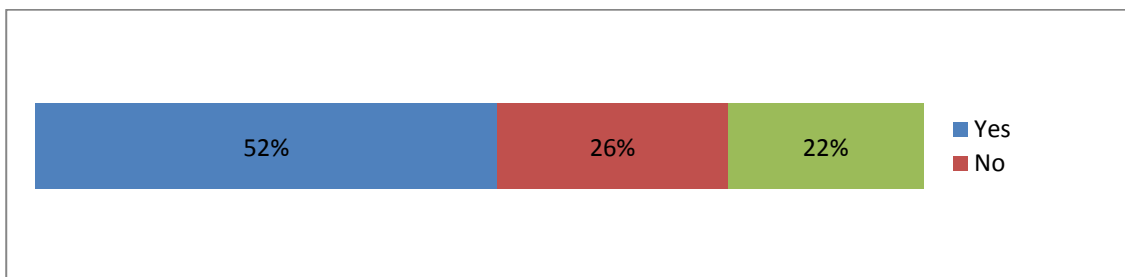
**Figure 5.1: Would you be happy if the government shared information about your benefit or income status with your energy company if this provided a guaranteed benefit e.g. a discount on your energy bill?**

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<sup>23</sup> The questions were prefaced with the statement: 'Energy companies are required by the government to provide services to certain consumers, for instance those receiving certain benefits'. Fieldwork was carried out 14 to 30 January 2014 with a sample of 8,000 consumers.



**Figure 5.1: Would you be happy if the government shared information about your benefit or income status with your energy company if this allowed the possibility of receiving a non-monetary benefit, such as extra insulation or a boiler replacement, depending on whether your home was suitable?**



## 5.2.4 Perceptions around how secure data sharing is

Research has found mixed opinions among the public regarding the security of data sharing exercises. According to Aitken (2011) (in relation to the views of social care clients, patients and carers, on linking social care, housing support and health data) some voiced the security of data sharing being of particular concern whilst others felt confident of appropriate security measures being in place to protect data and most of those who were worried appreciated that the benefits of data sharing would probably outweigh the risks in most cases. Other qualitative research (in relation to smart meter data) found that consumers highlighted concerns about data security and data privacy when it was realised that their energy consumption data would be given to their energy supplier, who holds their personal details. Such individuals wanted reassurance about how the data were to be transmitted and the security in place (Griffiths, 2014).

## 5.2.5 Acceptability of data sharing by demographics

There is some evidence to suggest that certain kinds of people may be more likely to positively engage with data sharing exercises, when compared to others. Age, for example, has been found to be an associated factor however the evidence is mixed.

- Research by Accenture (2011), in relation to data sharing for energy interventions, found younger respondents (and low income earners) more likely to be reluctant to share this data (Consumer Focus, 2011).

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- It has also been noted, however, that older people can be more wary or worried when compared with younger people. This may be linked to the fact that health data tends to be more sensitive and older people tend to have more health issues. The Wellcome Trust (2013), for example, found evidence of this through carrying out qualitative work with the general public exploring the use of health data in data linkage when compared to other kinds of data such as Facebook user data, Anonymous loyalty card data, Anonymous household energy use, Pre-term birth data and income data.
  - Consent rates are generally lower among older people and ethnic minority groups in survey research where respondents are asked to consent to their survey data being linked to administrative data (Gray, 2010).

## 5.2.6 Solutions

Proportionality (whether the benefits outweigh the risks), accountability and transparency all play important roles in deciding whether it is appropriate, or not, to share information about individuals with others (Thomas and Walport, 2008).

Communications about data linkage require clarity, transparency and reassurance (Wellcome Trust, 2013) and should be easily understandable so that when someone gives consent, the decision to do so is fully informed.

Some have suggested if data sharing is to take place between government bodies and energy companies that the government have an obligation to the public to make them aware of the details – i.e. by listing the names of the energy companies involved (NGO/Consumer group).

Privacy notices could be written, for public consumption, that state what personal information each organisation involved holds about the individuals, the purpose of the data sharing, how the data will be shared and who will have access to it and how long it will be retained for (Thomas and Walport, 2008). These should be genuinely informative and understandable to their target audience. Personal “data lockers” have been advocated, as a new model of data management that would allow individuals to securely store and aggregate data about themselves from multiple sources and to be able to correct any errors. It would be up to them to set permissions about who can access what information (World Economic Forum, 2012). There are links here to the UK-government-led *midata* initiative. One potential problem that is requires a level of engagement that

Data sharing communications should emphasise the benefits of data sharing, both to individuals and to the wider public and state whether or not these are guaranteed benefits.

## 5.3 Conclusions

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- There appears to be a common set of requirements set out in the literature, where consent is required to share and link data. These include ensuring that consent is transparent, has been informed and truly states the benefits to the individual.
  - Several issues need to be considered where consent of the data subject is required. These include the fact that the exercise is likely to be administratively heavy, that the success of any targeted scheme will rely on the engagement of individuals involved and that there may be a need to collect re-consents if the data are to be used for different future purposes.
  - There appears to be mixed evidence in relation to how the public perceive data sharing and factors such as the motivation of those involved (i.e. the organisations) and the security procedures in place have been linked to attitudes around such exercises.
  - Comfort levels amongst the public, according to this research, can be influenced by:
    1. what the public think about who the data are to be shared with (i.e. the organisations) and for what reason;
    2. the type of data being shared and how personal this is perceived to be; and
    3. assumptions about existing sharing of data and the perceived trust in the organisations or bodies sharing the data.
  - Whilst evidence exists to suggest that the public can be sceptical about what is involved in a data sharing exercise, there is also research that suggests that data sharing can be acceptable to the public and specifically some findings that have focussed on support for data sharing where energy companies are involved.



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## 6 Cost

This section covers both the benefits of better data use, which can reduce the costs of delivering fuel poverty schemes, and the costs of gathering and using the data itself.

Obtaining, processing and matching data is likely to require financial investment. Currently, some of the costs involved in accessing new data or increasing the use of existing datasets can be a key barrier to use of data. In some cases, determining the overall cost-benefit of using data will have a cost.

From a public sector perspective, benefits of data use and better targeting of the fuel poor can often be more complex than simple financial cost benefits; individual, societal and/or environmental benefits may all be considered when determining the worth of a project. However, these are less tangible and more difficult to ascertain and quantify. As well as reducing administration costs, accurately targeting schemes at the fuel poor has the potential to provide wider societal benefits which can reduce financial strain on other institutions and the public purse. However, the findings of this research suggest that this additional and wider benefit is not currently catered for. The second part of this section aims to summarise the different costs associated with using data. Some are straightforward, while others, such as determining the cost benefit of using and matching data in the first instance and therefore justifying its use have considerable nuances, complexities and unknowns. Where information is available, the current costs of existing or recent programmes are presented and discussed.

### 6.1 Targeting costs of existing programmes

The following section provides information obtained during stakeholder interviews and from literature reviewed on the costs of using data to target people and households eligible for certain schemes. However, while the overall spending on policies are often commonly available, the specific costs of data use (including purchasing, administration, matching and cleaning) are rarely specified in publications and annual reports. Where possible we have used the information available to focus on this specific aspect of a policy's or programmes cost. However, for some policies the information on the specific costs of using data was unknown or unpublished. In some instances this is a result of the information being commercially sensitive – a hint to a wider institutional problem regarding the lack of information sharing on data use (see Section 7).

Currently, the cost of running fuel poverty alleviation programmes is paid for by energy companies who pass on costs to consumers. To fund each of the policies discussed here, a fixed cost per customer is levied on energy bills.

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### 6.1.1 Warm Home Discount

Targeting the core group of the WHD takes place in two steps: firstly, an automated matching of energy company customer records to DWP pension credit records, followed by a 'sweep' to collect as many of the remaining mismatched records as possible.

Costs of data matching for either of these steps are difficult to accurately ascertain or find well referenced sources for, although there are several commonly quoted anecdotal figures in circulation. The commonly quoted figure for the initial automated matching is £4 per customer. This was again quoted during an interview with more than one government department official. However, one government official stated that one supplier claimed it cost them 38p per automated matched record. Finally, and to illustrate the uncertainty of the costs and the range of quoted figures, during the stakeholder workshop a representative from DECC quoted the costs of 14p for automatic matching of the core group. These costs include the administration costs of sending an automated letter informing the recipient about the money they will receive and providing them with the opportunity to opt out of the programme, as well as the data processing requirements. For the current year, 2014/15, this automated stage captured 1.34 million customers, from an estimated total of 1.67 million (evidence from DECC). Unfortunately, the previous annual reports on Warm Home Discount do not report on administration costs of the policy or provide sufficient data to produce an overall cost of data matching; only total costs of the discount payment are included.

The follow-up sweep typically collects around 25 percent of the remaining core group eligible households who were not automatically matched, a figure which has been steady over the course of the scheme. In 2013-14, the latest year with complete figures, of around 300,000 core group eligible households who were not automatically matched, the follow-up sweep collected an additional 74,832 (Ofgem, 2014).

Mismatches in the core group are due to reasons such as spelling differences in names or addresses, or different people in the same household being registered for pension credit and with the energy companies. Unmatched potentially eligible customers are sent a specific letter and required to contact a call centre from where their claim will be processed. The administrative costs of processing these claims were stated to be £8 per household by a government representative during an interview. The total costs of targeting are likely to be higher than this from additional data cleaning requirements – a DECC representative in the stakeholder workshop (see previous core group cost reference) provided a figure of £14 per successful 'sweep-up' match. So, from the limited evidence available, the cost of sweeping up the mismatched core group's records appears to be at least twice that of the automated matching process. Nevertheless, this is still a comparatively low cost, especially when compared to the benefit received by the householder of £140.

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## 6.1.2 Digital Switchover Help Scheme

Although the Digital Switchover, outlined earlier in the report, was not related to fuel poverty, the Help Scheme had some similarities in its target group and help provided. It aimed to offer all eligible older and disabled people practical help to convert one of their TVs at switchover. It was in one way more ambitious than recent fuel poverty programmes in that every single household had to be reached in the switchover; the target was 100% of the population. With both this target and the nature of the offer, this scheme and its engagement are not directly comparable to fuel poverty scheme, but there are lessons to be learnt from its success.

The Help Scheme was designed in order to find and offer help to the hardest to reach and the most vulnerable. This included the disabled, elderly and those who “are often beyond the day-to-day reach of statutory agencies”.

The main proxy to identify the eligible households was DWP benefit data. However, as this group was likely to include a number of non-benefit claimants which would not be captured by using DWP data, the programme had to employ additional means to raise awareness of both the scheme and how to access the help available. As well as using data, the scheme used a high profile marketing campaign and employed the services of charities and voluntary and statutory networks to help publicise the scheme.

The final report of the Digital Switchover (DigitalUK, 2012) provides some useful summary statistics on the impact and costs of the scheme. In total, over 5 years, the programme sent 23 million letters and had direct contact with 7.1 million people, 1.3 million of which took up the help required. From these figures, it could be assumed that the response rate from the campaign was around 30%, although this is based on the simplifying assumption that direct contact was exclusively a response to a letter. The overall conversion rate (those taking up help) was 6% and proportion of eligible people contacted who took up the offered help was 19%.

The total cost of the scheme was £260m. This works out at around £190 per customer helped. For the interests of targeting though, the figures suggest that to contact 7.1 million eligible people the cost was £40 per person. This is based on the assumption the total cost went on consumer engagement, when it also covered the provision of help itself. It is worth remembering that Help Scheme also made use of a network of volunteers; targeting was achieved primarily through using DWP benefit data but with additional work on the ground using community group involvement.

## 6.1.3 Carbon Emissions Reduction Target (CERT)

Part of the requirements placed on energy companies during CERT were targets for installing energy efficiency measures in Priority Group (PG) and Super Priority Group (SPG) households. As the programme proceeded, identifying and targeting PG and SPG eligible households who

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were living in housing suitable for CERT measures became increasingly difficult (Energy Retail Association, 2011). This was a combination of a number of factors: Narrow eligibility criteria for the target population and a lack of data among energy suppliers to identify this group; lack of engagement in energy efficiency within this target group; and limited knowledge concerning which homes were suitable for insulation measures (i.e. information on wall type and existing levels of wall and loft insulation)..

While the costs of identifying eligible people towards the end of the CERT programme are commonly stated as being around £200 per successful identification, the current research was unable to find any supporting document and stakeholders from the energy industry were unable to substantiate these figures.

Earlier in the scheme, DECC estimated that the total cost of the programme to October 2011 was about £3.9 billion (in 2010-11 prices) or about £140 per household (House of Commons, 2013).

The Centre for Sustainable Energy (CSE) was running an energy advice service during CERT; towards the end of the programme energy companies were willing to pay in the region of £150-200 (and upwards) for each SPG referral. Although these costs were certainly influenced by pressures to meet targets towards the end of the programme, they are nevertheless indicative of what energy companies were willing to pay to find suitable eligible households.

Both these figures are comparable with the anecdotal figure commonly mentioned. Compared with the costs of running the more ambitious and more involved Help Scheme for the Digital Switchover, this information suggests that there is considerable potential for reducing the costs of identifying eligible households. While some of this cost reduction could be achieved through a clearer set of eligibility criteria, the increased use of data will also help to reduce these costs. This is discussed in more detail at the end of this section.

## 6.2 Cost-benefits of data sharing

Ultimately, the decision on whether to use data matching to target help and support at vulnerable and low income customers will depend on the cost benefits of the data matching relative to the alternative approaches. More precise, accurate and efficient identification of fuel poor households has the potential to reduce costs incurred by energy companies trying to find and engage those eligible for a particular policy. This in turn could result in a reduction in levies placed on all energy consumers' bills. While the policy itself might only directly target a proportion of the population, the reduction in energy costs for all households could be considered a wider societal benefit.

The actual cost benefit of increased data sharing is very difficult to determine with any certainty. Calculating this requires knowledge of the data itself, legislative issues, data processing practicalities (e.g. storage, processing and maintenance) and evidence based

knowledge of how more accurate the targeting from using such data will be. A well monitored pilot project may be useful in generating some costs and impact data to inform the evidence base.

However, a study by Platt et al. (IPPR, 2013) suggest that the inefficiencies of targeting fuel poor using HHCRO and CSCO elements of the ECO result in approximately 80% of the total expenditure on these policies is not being spent on LHC fuel poor households, as shown below in. The figures suggest that more accurate targeting of fuel poor households could: a) reduce the overall cost of the policy; b) increase the number of fuel poor being targeted; or c) have both of these impacts. Although the report points out, with the example of changes made to Warm Front in 2011, that a narrowed eligibility criteria using proxies has in the past lead to a reduced overall coverage of the fuel poor, difficulties in identification eligible households and a proportion of the available policy funds being unspent.

**Table 6.1: Targeting coverage/leakage and funding allocation of ECO policies to fuel poor and non-fuel poor households (IPPR, 2013)**

Type of Org	% of households in this group not in fuel poverty	Total projected spend on obligation (millions)	Total budget going to non-fuel-poor homes (millions)	Total budget going to non-fuel-poor homes (%)
<b>ECO HHCRO</b>	73%	£350	£254	73%
<b>ECO CSCO</b>	86%	£190	£163	86%
<b>ECO HHCRO AND CSCO combined</b>	-	£540	£433	80%

Using data more effectively has the potential to eliminate the need to narrow the eligibility criteria if focused on better identification of the actual fuel poor, due to increased accuracy of targeting. Although this will have some associated administration costs outlined above, it should result in overall net savings in the cost of the policy. However, during the course of the research, none of the stakeholders consulted had the required level of understanding regarding potential cost savings or all the knowledge required to quantify cost savings. A representative from the Law Commission specified that expert economists working alongside policy experts would be needed to work out the costs of such schemes and therefore the resulting cost benefits of new data targeting programmes. As such, this should be seen as an important and specific piece of work to undertake, and a key recommendation from this work is that further analysis involving policy makers and economists should be undertaken to develop better understanding of potential cost savings to be gained from increased data use. This should be used as a specific piece of evidence to further support the use of more data.

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Nevertheless, some solutions which would directly or in-directly reduce costs in the long-term are discussed below. Some of these, such as a central data repository, might incur initial set-up costs that over time might be recuperated through the resulting savings achieved through more efficient targeting and less annual administration requirements. It is recommended that this be explored in the piece of work suggested above.

## 6.3 Data costs

In the UK, there is a wide range of freely available data through organisations such as the Office for National Statistic, data.gov.uk, the UK Data Archive or Neighbourhood Statistics (a list of some relevant data available from these sources is included in the appendix). In addition, organisations such as energy companies and local authorities will hold their own sets of data which may be relevant for certain programmes. Alternatively, third party or external organisations may provide useful data for a fee.

Whether data used is free or purchased at a cost, obtaining the data presents only one stage in its use and other data storage considerations and processing steps will contribute to the total cost of producing a useful dataset for targeting. These all need to be considered when calculating both the total cost of data matching and the overall unit cost per matched record.

The tasks which result in additional costs beyond the purchase of the data can include some or all of the following:

- Searching for the required data sources
- Understanding the legal implications of using the data and whether it is possible to match with other sources. Alternatively, obtaining legal assistance.
- Procurement costs – while some data will be free to obtain, there may still be administrative staffing costs incurred through time spent obtaining data.
- Understanding the software requirements, purchasing that software and receiving any necessary training on its use.
- Building and maintaining a database, including:
  - Cleaning data to remove any conflicting or missing information, to correct spelling mistakes or data in incorrect columns, to add a unique identifier, etc.
  - Matching data to each other – a simple task if there is a common unique identifier, but a much more complex and less accurate process if using, for example, address details only.

We consider some of these issues below. However, in many cases, and as suggested by several of those interviewed in the research, the resource requirement for data matching is often a preventative barrier that may be overcome where an organisation places a high priority on the final dataset, or the use of data is seen as a critical path in the delivery of a scheme. The cost of

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data-matching was cited as a contributing factor for not extending the core group for the Warm Home Discount (Consumer Focus, 2011).

### 6.3.1 Understanding legal requirements

When considering the use of new potential sensitive or personal data (or existing data that has not previously been used in a programme) a lack of familiarity with the legal requirements of data-sharing is likely to present significant cost implications as it requires staff resourcing and time to fully understand them or legal advice to provide the knowledge and guidance. While the main legal considerations are discussed in Section 4, it is important to note that interpreting and understanding these have significant time requirements and associated costs. This can also feed into a wider institutional culture that prevents further data usage (Ministry of Justice, 2012).

### 6.3.2 Purchasing data

While some relevant data to targeting the fuel poor is freely available (as mentioned above) several useful sources of data have upfront purchasing costs. This is commonly most applicable to private sector data such as EPC data held by Landmark<sup>24</sup>, household data owned by Experian or Smart Meter data owned by energy companies. Most of this data describes housing conditions or concerns energy consumption rather than socio-demographics, as the list of data sources shows in section 8.4 in the appendix.

However, in some instances the costs are not prohibitive and are affordable for stakeholders such as local authorities and NGOs. The costs of purchasing EPC data from Landmark vary between 3p and 10p per property depending on the level of detail. If the costs are one-off upfront costs in the first year of a programme that is schedule to run for a number of years, then these become more cost effective.

### 6.3.3 Software requirements

National programmes containing millions of records are likely to require server databases such as Microsoft SQL Server or Oracle, rather than desktop databases such as Microsoft Access or FileMaker Pro. While the latter are relatively inexpensive, they lack the power and security options likely to be required from large databases, potentially containing personal and/or sensitive information. Server databases have significantly higher costs but are capable of handling large volumes of data and are more flexible, being able to handle significant increases in amounts of data and accommodating more users. A disadvantage is that they require more technical knowledge to administrate, which again is likely to increase costs.

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<sup>24</sup> An attendee of the workshop, who had previously purchased EPC data from Landmark, informed us that the costs varied between 3p and 10p per property depending on the level of detail.

## 6.3.4 Local energy housing databases – Durham CC

Local authorities can often have a relatively good understanding of the costs of targeting fuel poverty through practical experience of delivering services and running housing improvement schemes. A useful description of using data to target fuel poverty in a local area is laid out in a report by Durham County Council: “Targeting Fuel Poverty - *How to use a local energy housing database to target fuel poverty - a practical guide for Local Authorities*” (Durham CC, 2010).

The report provides a breakdown of the costs involved in producing a housing level ‘energy efficiency’ dataset, how it was used to target certain households and what the benefits of producing such a database are. Costs aren’t provided for the data itself but the majority of the datasets used were freely available to local authorities.

### Box 6.1: Costs involved in setting up a local energy efficiency database (Source: Durham CC, 2010)

#### Setting up the database

According Durham CC, If the database setup process is managed from within the organisation, an in-house process will incur staffing costs from employing one officer full-time for 12 months and one part time project manager for 6 months. Additional costs will result from liaison and input from other key officers including IT, Local Land and Property Gazetteer and Admin Support.

Alternatively, the database set up could be externally contracted out to a consultant. This was estimated to cost approximately £5,000 to £8,000 in 2010.

Finally, ongoing database maintenance beyond the initial set up period would require an additional 2 days per month officer time and 2 days per month admin time.

#### Capital Investment:

The Durham database used a combined SAP processing software and database package which costs approximately £3,500, with optional software maintenance support costing an additional £500 per annum.

Table 6.2: Data used to produce the East Durham Energy Efficiency Housing Database

SOURCE OF HOUSING ENERGY DATA	TYPE OF DATA	COSTS TO LOCAL AUTHORITIES (where known)
Eaga plc – Warm Front Scheme	Whole house energy data set on individual properties	Free
Energy Saving Trust – DIY Home Energy Check	Whole house energy data set on individual properties	Unclear if any
Building Control –	Partial data sets for individual	Free



<b>Building Notices</b>	properties including installation records of: cavity wall insulation, new central heating boilers, new double glazing	
<b>Warm Zones / Area Based Schemes / Community Energy Saving Programme (CESP)</b>	Whole house energy data set on individual properties	Free
<b>Carbon Reduction Target / Fuel Utilities</b>	Insulation schemes	Unclear if any
<b>Insulation Contractors</b>	Property specific data on insulation measures installed	Free if sub-contracted by LA, otherwise unknown
<b>Registered Social Landlords</b>	Property specific housing stock database	Unclear if any
<b>Council Properties</b>	Property specific housing stock database	Free
<b>Planning Departments</b>	New build properties	Free

The following benefits are cited as being a direct result of using the database:

- **Improved Access to External Funding** - the database was used to lever £5.75 million of external energy efficiency and fuel poverty funding into Durham in 2009/10. It is not clear how much funding would have been obtained without using the database. The net financial impact of the database is likely to be lower than this figure.
- **Improved uptake in Energy Efficiency Measures** - 40% improvement in uptake of energy efficiency measures through use of the database in East Durham, primarily associated with an increased targeting efficiency and better allocation of resources.
- **Clearer understanding of progress made in reducing fuel poverty** - the increase can be analysed within the database to indicate the numbers of properties that have been brought out of fuel poverty as result of targeted programmes supported by the database.

## 6.4 Seeking Consent

Alternatively, primary data can be collected by an organisation or on the behalf of an organisation by a third party. For example, from door-to-door surveys, benefit claim forms, letters from energy companies or through referrals to energy advice centres. In many of these cases, and unless there is a legal gateway for it to happen, consent will need to be obtained in

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order to use personal data for specific purposes, as discussed in sections 4 and 5. However, obtaining consent presents its own challenges and can often add significant costs to the process, depending on the method of data collection and seeking consent.

In the majority of circumstances, gaining consent can add significant administrative costs. It might require sending letters and establishing a call centre for referrals or, in the case of the Warm Home Discount broader group, to verify a household's eligibility. Sending letters and requesting consent can be a time consuming and costly process that can often result in low response rates (DWP, 2011).

In addition, when consent is obtained it is almost exclusively only granted for a specific purpose and over a specific time frame. Re-consent for a similar process in future or a different process using the same data will have to be gained.

Nevertheless, consent based approaches remain a valid approach for fuel poverty alleviation programmes. More is discussed on improving consent based approaches in Section 8.3.

## 6.5 Solutions

### 6.5.1 Pre-verification of proxy data

Pre-verification would involve using known proxies of a policy to automatically flag eligible households or individuals. This would eliminate the step that currently exists in the ECO HHCRO policy where ESAS passes on details to the DWP and awaits processing of this information to confirm eligibility. This has two negative impacts: firstly, it adds additional administrative costs; secondly, the timescales involved have been cited as a contributing factor to losing customers who no longer wish to proceed with an intervention, home visit or efficiency assessment. Pre-verification therefore could reduce administrative costs and result in a higher conversion of referrals and take up of measures. It also has the potential to bypasses the data protection concerns associated with wider data sharing (CSE, 2014b).

Pre-verification has already been successfully trialled by the Energy Saving Advice Service (ESAS) and the Home Energy Efficiency Programme for Scotland (HEEPS). For a GB-wide scheme a link with DWP would be required and a process that ensures the data is shared and matched sensitively. Energy UK, the trade association for larger energy suppliers, is in the process of setting up data-checking service for ECO.

### 6.5.2 Central data repository

A central information repository is one potential solution to the problems of data sensitivity issues, supported by energy suppliers consulted in the research, the NEA and Ofgem. A central repository could hold a set of DWP data that was not published or in the public domain but

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could nevertheless be used to identify low income households. DWP data entering the repository could also undergo a pre-verification process (see above).

In addition to proxies on low income, the repository could contain a range of other data regarding energy efficiency (including existing information on schemes and measures installed) and vulnerability (potentially including health data or just cold-weather related health proxies).

The main disadvantage with this suggestion is the initial costs in setting up the repository, obtaining the full set of data and the initial construction of the central database system. In addition the data would be subjected to current legal protections if it was deemed to be 'disclosive' and allow the identification of individuals (NEA, 2011). However, small-area data sufficient data for some degree of targeting would be available that would circumnavigate this issue.

### **6.5.3 A national data dictionary**

NEA recommends the creation of a national data dictionary. While this would have several benefits, the cost savings it would offer are based on the savings arising from producing a national database from locally collected information. However, existing data could also be processed and 'cleaned' to match the format proposed in the data dictionary, allowing a number of existing datasets to be matched more seamlessly when bringing together data in the central repository mentioned above.

### **6.5.4 Area-based approach supplemented with new data collection**

This approach is considered by Platt et al. (IPPR) and is discussed in much more detail in Section 8.2. The general basis for such a programme is to use freely available areas-based data to identify areas deemed to contain, for example, high numbers of fuel poor households (DECC stats), low income households (IMD data) or high numbers of households receiving benefits (Neighbourhood Statistics). This data is usually available at Lower Super Output Areas (LSOAs) typically containing around 600 households. Fresh data could then be collected in these areas from individual Green Deal assessments paid for by the deliverer of the scheme, not the household.

The targeting costs could be reduced by using existing data, albeit with a simultaneous reduction in targeting accuracy. For instance, this could include EPC data, local authority or private housing condition housing stock data. This would not contain income data but could identify the most inefficient housing in these areas reducing the need to assess all housing in the area.

In areas with fuel poverty levels at 20% or more and assuming all households are assessed, one fuel poor household would be identified for every 5 assessments conducted and this represents the inefficiency of the process. Assuming assessment costs are approximately £150,

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then a successful identification of a fuel poor household would represent an upfront cost of £750. This is a considerable cost and needs to be considered in the context of the specific programme it would be used. However, for a scheme considering the installation of energy efficiency measures worth several thousand pounds, the majority of the finances available for improvement measures (which would represent the bulk of the policy costs) could be allocated to fuel poor households. In addition, the costs of identifying the fuel poor will have covered an energy assessment which will have determined the most suitable measures for the property.

## 6.6 Benefit system changes

In many existing programmes, various benefit data is used as key proxies as eligibility criteria for identifying and targeting those in society that the programme is aiming to help. For example, benefit data is currently used in both data matching (e.g. WHD) and eligibility checks (e.g. HHCRO and rural CSCO elements of the Green Deal) – Table 1.2 in the introduction provides a break-down of each proxy used in recent or existing policies. Aggregated benefit data to special geographical areas can also be used in identification of areas likely to contain high proportions of fuel poor households. It is a key proxy to low income and is likely to play an increased role in future endeavours to use data to target the fuel poor.

However, the introduction of Universal Credit means that there are broad and significant changes happening in the benefit system. In the course of an interview, a government department representative highlighted that developing additional data systems using both old and new benefits systems would add additional costs to data matching, both now and in the future, requiring two sets of data management and matching systems handling each types of data. A pragmatic approach might be to wait to develop any data matching processes until Universal Credit is universal across all benefit claimants from 2017 onwards. Processes set up using old benefit data that is being phased out would have to be migrated to the new benefit systems, alongside a data matching process that used the new benefit system.

## 6.7 Conclusions

- Increased use of data will have additional financing requirements from capital, staffing, procurement, software and database maintenance costs. In addition, there may be some costs involved in understanding any legal implications of using data, either through internal staffing resources or from using external legal expertise.
- A simple cost benefit assessment will likely be a key factor in deciding the future direction of increased data usage, but there are also a number of additional positive impacts that will occur including societal, health and environmental benefits. These may become important factors when designing future schemes.

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- Some information on data usage costs is available for several recent and current policies and programmes. These include the Warm Home Discount, CERT, Digital Switchover Help Scheme and Durham CC's 'Local energy Housing Database' (used to target fuel poverty). The evidence suggests that costs for data matching range from £0.14-£4.00 per record for an automated-style government matching process with no data costs (Warm Home Discount), to approximately £140 - £200 for a more manual and wider data matching process, such as those used for the Digital Switchover and CERT schemes.
  - None of the policies that tackle cold homes have been specifically targeted at the fuel poor per se, but have used proxies to identify those likely to be experiencing fuel poverty. Certain schemes have been more successful than others with the proportion of fuel poverty households reached ranging from 19% for the Winter Fuel Payments to 69% for the post-2011 Warm Front. The main existing fuel poverty policy, the ECO Affordable Warmth, is estimated to be approximately 40% efficient at targeting fuel poor households (Table 1.3). The inability of policies to accurately target the fuel poor should be considered when determining the cost-effectiveness of data usage.
  - A number of different options have been suggested to reduce the costs of data matching. These include a process of pre-verifying proxy data (e.g. benefit claimant data), a central data repository and a national data dictionary. Others have suggested a new approach that collects new data and combines this with existing data for use in area-based schemes. All of these have their advantages and disadvantages, but all offer increased accuracy in targeting the fuel poor.

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## 7 Institutional culture

This section looks at a number of barriers that institutions involved in data sharing face before drawing on some of the suggestions for the future and some recommendations. Of particular note are the reasons how and why some institutions struggle to be proactive with regards to data-sharing. The stand out message from the literature and interviews with stakeholders is that there is currently a lack of clarity regarding the rules for data sharing in terms of what can and cannot be shared legally. As discussed above in Section 4, consent is not always required to share personal data even without a specific legal gateway. . However a high level of uncertainty exists within institutions regarding which data sets *can* be shared and with whom, both internally and externally, meaning lawful opportunities to share data are often missed.

### 7.1 ICO Guidance

The regulatory framework and guidance provided by the Information Commissioner’s Office (ICO) forms the bedrock for how institutions, government bodies and private companies all handle data management. The primary function of the ICO is to uphold the Data Protection Act (DPA) and ensure the security of personal data for the benefit of all individuals. Data security and data sharing are seemingly contradictory goals that require a delicate balancing act so extreme caution from the ICO is to be expected. The ICO guidance therefore urges restraint regarding data sharing in the specific document it provides on the subject. This is demonstrated in the Data Sharing Code of Practice (Davidson et al., 2013) which includes a long list of detailed questions that need to be considered by any institution prior to data-sharing attempts including: “could the objective be achieved without sharing the data?” (p.14). This links to the conditions required by the Data Protection Act in its Schedules 2 and 3 (see Section 4.1.1). In practice the term ‘necessary’ is highly open to interpretation as, depending on how a fuel poverty scheme is designed and delivered, the required data sets will vary. It may be that data sharing is not absolutely “necessary” to deliver fuel poverty initiatives but without it a scheme may be more likely to be poorly targeted and incur additional costs.

There are two specific legal requirements required to ensure data protection that have particularly notable implications for data sharing:

- Data can only be shared for a distinct purpose
- Data cannot be retained for longer than necessary to fulfill the purpose for which it was collected<sup>25</sup>.

While crucial for data protection, these provisions prevent the free flow of information, including between separate Government departments. DWP clearly states that data sharing is

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<sup>25</sup> This can be as much as 7 years depending on the purpose and the law.

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not permissible just because data is ‘nice to have’ (Department for Work and Pensions, 2011) as all data held must be for a specific purpose (Information Commissioners Office, 2011a). However access to particular data sets could support innovation and lead to holistic solutions. Examples of these include the multi-agency packages described by Pleace et al. (2006) which include more joined up services within government and ‘win-win’ solutions. The challenge therefore is to find ways of working with data protection provisions that maximises outcomes for the public and consumers.

A lack of standardised wording for obtaining permission from individuals means data sets, which include personal information and proved useful targeting one social initiative, cannot be retained for use in a similar or complementary scheme without express consent (Administrative Data Taskforce, 2012).

## 7.2 Institutions involved in data-sharing and fuel poverty

An NGO/Consumer group interviewed as part of this research suggested that willingness to share data varies between different areas of government: Some areas within government have been overly cautious and have mistakenly believed that the ICO would not allow any of the data for which they are responsible to be shared, even when anonymised. Other government departments would like to share personal data without considering possible alternatives. The main government bodies concerned with fuel poverty are discussed in more detail below.

### 7.2.1 Department for Work and Pensions (DWP)

As most fuel poverty initiatives rely on benefit data being used as proxies to find relevant persons DWP is often seen as the ‘top of the chain’ as far as accessing data regarding fuel poverty is concerned. More than one interviewee considered that DWP is quite conservative in their attitude to data sharing. This is perhaps understandable given the personal and sometimes sensitive nature of the data. As discussed previously in Section 4 of this report, it seems any data-sharing that involves personal information a new legal gateway such as that created for the WHD. However, an interviewee from DWP stated that the Cabinet Office is keenly aware of ‘political sensitivities’ and how things will be perceived by Parliament and the wider public. The interviewee explained how other attempts to share data for better targeting of social initiatives have encountered stumbling blocks. These include the fire brigade wanting to find vulnerable households who live far from a fire station and the Age Concern charity seeking information regarding low income pensioners. Although the WHD has proved very popular, concerns about public perception within government mean that developing future data-sharing legislation for fuel poverty, as for any social purpose, will not necessarily be straightforward.

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## 7.2.2 Department for Energy & Climate Change (DECC)

Despite being the government body responsible for fuel poverty, the personal data that relates to fuel poverty proxies resides with DWP so DECC would need to negotiate with them to ensure data is made available for better targeting. An interview with DECC raised the problem that there is insufficient data on the condition of properties. The fragmented NEED database, for which DECC is responsible, contains data from the Energy Savings Trust, the Valuations Office Agency and Experian (Department of Energy and Climate Change, 2012). As each of these data sets are susceptible to error in their own right, NEED is unfortunately a culmination of all these potential errors. Better data in this area could provide alternative data sharing opportunities for targeting fuel poverty that did not require sharing personal information. However creating a more consistent, reliable database would be extremely costly and time consuming as it would require consulting large numbers of the population regarding the state of their property.

## 7.2.3 Local Authorities

Local Authorities (LAs) engage with fuel poverty both through national schemes such as ECO and their own local schemes which form part of their broader objectives to improve their locality. LAs have a vested interest in tackling fuel poverty as doing so can result in far-reaching benefits such as reduced pressure on local NHS and care services. There is however, significant disparity in the performance of LAs which is often due to councils' different respective interpretations of the legal framework. Opportunities for mutually beneficial goals do sometimes occur but in an ad hoc rather than systematic fashion. This point was raised in several interviews with organisations that work closely with multiple local authorities, highlighting the different levels of understanding. One interviewee described the situation:

*Sometimes...you have a local authority who is very happy for the housing team and the benefits or welfare rights team to share information...You then have other local authorities that don't fully understand or have access to the guidance... then you've got a situation where you've got the housing or the energy efficiency teams having a bit of a fight with the people in the benefits team because they won't tell them which of the residents are on which benefits so they can't then send targeted mail shots for assistance for example.*

Interview with Fuel Poverty Charity Representative

## 7.2.4 Energy Companies

There is frequently strong opposition in the private sector to data sharing on the grounds it potentially damages profitability and competitive advantage; energy companies are unlikely to welcome additional data sharing proposals that require them to supply data to a third party. An example would be extending the Freedom of Information Act (FOIA) to businesses so that the priority service register could be made available to relevant groups. Energy Companies



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recognise the benefits of data sharing for targeting social initiatives, such as ECO but an interview with one of the Big 6 energy companies showed they are likely to be wary of accessing personal information for this purpose themselves. Aware of a generally negative public perception of their industry, their concerns were that doing so would be to add to negative perceptions from the public and is part of the reason why retrofitting activities are usually outsourced rather than done in house.

## 7.3 Institutional barriers to data-sharing

### 7.3.1 Insufficient Clarity

The key point made by interviewees is that the current guidance lacks clarity with regard to what data can and cannot be shared. This problem was also highlighted in the literature, with calls for greater clarity on procedures and protocols (Davidson et al., 2013). Institutions are highly susceptible to different interpretations of what is legally allowed and what is not. Local authorities are particularly prone to this problem. Public Health England similarly reported problems identifying vulnerable groups due to poor communication regarding data sharing between organisations (Public Health England, 2013). This occurs on both the institutional level i.e. ‘the official line’ which may differ between organisations, and the individual level which is highly subjective and may not correspond to what others within the same organisation believe to be correct. The result is huge potential for misunderstandings and uncertainty (Yang and Maxwell, 2011).

The ICO conducted a public consultation regarding data sharing in 2011 but the subsequent response to the comments received reveals minimal commitment to action on the issue (ICO, 2011b). The two biggest concerns raised by respondents to the consultation regarded the lack of clarity for what kind of data-sharing activity is included in the current ICO guidance and a request for more detailed or industry specific recommendations. The ICO responded to these concerns by stating that “the code is necessarily quite broad” and because the Data Sharing Code of Practice is applicable to a wide range of institutions “it was not possible or appropriate for the code to include detailed guidance to cover every organisation and every possible sharing scenario” (Information Commissioners Office, 2011b, p.1).

### 7.3.2 Organisation Structure

Based on the literature and supported by those interviewed who have attempted to access data from external organisations, most institutions lack clear lines of responsibility and accountability for the handling of personal information on a day to day basis. Typically there is just one member of staff who is responsible for ensuring that DPA is adhered to and not everyone within an organisation is necessarily aware of who this is or when they should be consulted as this is not necessary for them to complete their day-to-day responsibilities. This

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person is often at a junior level meaning in situations where they are asked for advice they are unlikely to feel sufficiently empowered to challenge the status quo. It can be argued that responsibility should be held by someone in a senior position within an organisation to ensure that complex decisions are not shied away from (Thomas and Walport, 2008). The current situation means organisations are liable to suffer inertia rather than promoting a proactive approach to data sharing.

### 7.3.3 Risk Averse Culture

Interviews suggest that many institutions within government may suffer a low ‘appetite for risk’ leading them to usually err on the side of caution (Eurim, 2004). It was not possible to determine whether or not this is primarily an issue of the individual being unwilling to take a chance or if the issue is embedded within institutional culture; more research is required to better understand this area. There is also unwillingness to report mistakes due to uncertainty of what is allowable and what is not. Organisations have become more inclined to lean inwards and avoid sharing data due to fear of reproach for doing something wrong, especially if it may be illegal and result in fines (Cairns et al., 2011). The strong focus on security of information and hefty penalties for data breaches fosters a culture of fear that is highly risk averse. LAs in particular demonstrate differing levels of motivation to investigate data sharing for fuel poverty strategies. As one interviewee stated:

*...it's a fear thing - I think they (local authorities) are afraid of misusing data or doing something illegal so the default position is to not share anything.*

Fuel Poverty Charity Representative

This leads to a greatly reduced willingness to enter uncharted territory (Department for Energy and Climate Change, 2013a) and find new ways of working or to try out different solutions that require data from sources outside of the organisation. Another possible factor linked to the problem of fear, specifically in government departments, is the rise in the number FOI requests. Birkinshaw (2010) notes that there is a general feeling based on experience in the public sector that the FOI Act has eroded trust as it reveals the government’s shortcomings leading to greater unwillingness to share data.

### 7.3.4 Human Behaviour

There are a number of human behavioural factors that affect the culture of institutions and their capacity for openness. In addition to a sometimes limited knowledge and understanding of guidance, individuals may also experience uncertainty in knowing how to find out what is allowable and how to improve knowledge and understanding. Another problem is a potential unwillingness to take on what is perceived as an additional work load, such as ensuring the appropriate safeguards are in place, especially when there is a lack of potential to receive credit for the effort. This is particularly problematic where a data-sharing exercise benefits

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only one side involved in the exchange with no clear advantage for the other party who is likely to be the one facilitating the process, thereby creating an asymmetric rewards system.

### **7.3.5 Trust and Cross working**

Human behavioural factors reinforce the need for joined up services and mutually shared goals so that both parties involved benefit and simultaneously build trusted relationships between stakeholders. Shared goals may also help break down another barrier, identified by Yang & Maxwell (2011), that government is composed of different subcultures that may transcend the department level, and people with similar skill-sets are less likely to trust those they consider outside of their circle.

An interviewee made a similar point saying that information is often shared on an ad hoc basis, usually verbally in meetings. This more informal communication method is likely to be between two trusted parties and less likely to be permanently recorded leading to a reduced concern of any negative repercussions. This links to an additional problem that tacit information may go unexplained due to assumed knowledge so that in cases where data has been successfully shared it is hard to analyse.

### **7.3.6 Technical Barriers**

With regards to local government, the problem of cuts to council funding are well known. Data sharing is a complex process that requires significant resources in terms of staff time, expertise and appropriate IT systems which many LA's are currently unable to provide. An interviewee from the Information Sharing Centre for Excellence notes that many institutions do not hold information in a form which can be shared systematically. The issue of IT is a particularly pressing problem for data sharing as different IT systems in multiple government departments hinders the ease of transferring information. The Open Data White Paper recognises both of these problems (Cabinet Office, 2012), but without additional funding and a focus from national government to ensure uniform IT systems, this problem cannot be easily resolved.

## **7.4 Future directions and recommendations**

### **7.4.1 Clearer Guidance from Government**

With so many institutional factions potentially restricting the flow of information, the lack of a clear framework seriously undermines the confidence and motivation of institutions to attempt new data sharing possibilities. The priority of the ICO as an institution is, quite rightly, to protect personal data and ensure its security; the responsibility for ensuring there is a clear code, particularly for government bodies detailing how to approach data sharing in a proactive way, should not therefore automatically be their responsibility. An NGO/Consumer group interviewed raised the possibility that Government could provide a clear strategy and ensure it

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is coherent with ICO guidelines thereby creating a consistent approach. Another stakeholder suggested a need for a separate statutory body to take responsibility for data sharing. This possibility was also identified in the literature (Davidson et al., 2013) as currently there is no one organisation responsible for managing data sharing. Many different departments are involved in some way, such as IT and legal departments, but currently these all refer to the ICO when questions of data sharing arise. In the current environment, where there are tendencies towards not sharing data, any guidance document produced by Government would have limited impact without a designated body to uphold it.

## 7.4.2 Leadership

In addition to institutions ensuring that those in charge of data management are at a senior level, these members of staff need to place a higher priority on the benefits of data sharing instead of only focusing on the drawbacks of data breaches. As stated above there are usually multiple departments within any one institution involved in information governance such as the legal team and the IT team, but none of these have a vested interest in solving issues with data sharing. This leads to a default position of saying, “No” to requests due the risk aversion and human behavioral factors discussed above.

A priority for any new senior staff member responsible for data sharing should be new training programmes for all staff to counteract the current pervasive attitude and ensure all employees have some understanding of the positive (as well as the negative) possible outcomes that can be achieved through data sharing. In addition, all staff should be aware of who is responsible for data management and the appropriate lines of communication required to find out more when necessary. Strong leadership is required within institutions not only to ensure data sharing attempts are not hampered by risk aversion and uncertainty, but to develop closer partnerships between relevant organisations. There is a pressing need within government for more joined up services which will likely include more data sharing. There are signs that this is improving, such as DECCs stated intention to work more closely with other government departments which has been well received by the Local Government Association (Local Government Association, 2013).

## 7.4.3 Encouragement for Proactive Solutions

In addition to increasing clarity and leadership, subtle changes are required within institutions to address the culture of risk aversion and other human behavioural factors discussed above. A key issue is that of blame and the possibility of reprimand for sharing data incorrectly. A statutory body would be well placed to ensure that individuals feel confident they would be given the opportunity to defend their actions and explain how they were open regarding their intentions, why they judged the purpose to be valid and that they ensured appropriate safeguards were in place. The statutory body would need to be an independent public authority, as the ICO is, that would be motivated to facilitate data sharing to achieve social

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objectives in ways that achieve greater efficiency with regards to cost, targeting and long term results. The ‘appetite for risk’ will not change overnight but less emphasis on blame for mistakes could go a long way towards redressing the balance in favour of more data sharing. Cultivating an environment where people are less afraid to attempt new ideas as part of various social initiatives, including fuel poverty, would facilitate greater openness regarding the possibilities for data sharing.

#### 7.4.4 More Focus on Successful Data Sharing

Leading on from this, there is equally a need for greater focus on the success stories of data sharing and how previous projects have generated successful results. This will also increase awareness of which data sets can be shared, provided legal requirements are adhered to, and how this can often create mutual benefits for numerous stakeholders. Wherever possible such innovation should include appropriate reward systems in order promote future endeavours. Data sharing creates possibilities but equally important is ensuring flexibility for those administering fuel poverty initiatives. The Local Government Association and the NEA recognise the need for such flexibility for Local Authorities to ensure the best solution for a particular local context is found (National Energy Action, 2011). Increased flexibility facilitates greater working with those who possess local knowledge in small communities. Public Health England (2013) considers this an important feature for fuel poverty initiatives, as did one interviewee in terms of successful scheme delivery such as referrals to local projects. Examples of successful data sharing are given below.

### 7.5 Case studies

**Oldham Council** is aiming to create a fuel poverty database of local residents to better identify households at risk of fuel poverty based on their potential to experience health problems. Pleace et al. (2006) also discuss the potential for databases, whereby various organisations supply the relevant data but access to personal information is limited to particular persons. Different login details would grant access to different levels of data to ensure that certain people see only limited data necessary to meet their requirements (Pleace et al., 2006). Streamlining information in this way could save a lot of time necessary to handle a specific data request every time and reduce confusion regarding who is permitted access to what.

**Blackpool Council** is working with their local NHS service by using their flu mailing lists to inform people about the various options available to them if they are suffering fuel poverty. There are plans to extend this to a direct referral pilot with local GPs. This is a very different way of approaching data sharing; while databases centralise information and limit access, the NHS’s flu mailing list provides minimal personal data so that those administering the fuel poverty initiative only know that people are susceptible to flu and therefore likely to benefit from a warmer home. None of the patients’ medical condition records are shared so privacy is preserved.

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## 7.6 Conclusions

- Institutional barriers to data sharing must be understood within the context of the current legal framework. The current legal regulations state that maintaining data security is the top priority; in practice this can inhibit attempts to instigate data sharing initiatives. This is partly due to a misconception ingrained at the institutional level that the sharing of any data breaches data protection, rather than understanding that it is allowable in certain cases but not others.
- A new institution that acts specifically to clarify, advise and advance data sharing for socially progressive schemes is recommended by several parties. This would involve advocating a more nuanced attitude towards data sharing possibilities and fostering an institutional culture that actively promotes potential data sharing opportunities.

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## 8 Future schemes

From the research presented here it is evident that increased data usage to better target the fuel poor and implement more effective government policy is, on the whole, desired. However, the specific data to use and the particular methods of obtaining, matching and using data are intrinsically linked to the type of approach taken to implement certain policies and award a particular benefit to households. During the course of the research, three generally distinct approaches were identified as possible options: 1) a targeted legislative approach; 2) an area-based approach; and 3) a consent-based approach. These concepts were presented to attendees at the stakeholder workshop, who were asked to consider how these approaches might be designed, what data they would use and what the current barriers were to achieving these aims. This section uses a summary of the discussions held during the workshop as a basis of the suggestions, with further supported evidence from additional material in the literature and responses from stakeholder interviews.

The three potential approaches are briefly described below and summarised in Figure 8.1:

- **Targeted legislative approach** – building on the successes of the Warm Homes Discount, this approach could see a similar policy use additional datasets to both better target the fuel poor and award a larger variety of benefits. Given the perceptions of policy makers with regards to data sharing, and the need for analysis on a case-by-case basis, this may mean that a targeted approach at household level without consent would require a specific legal gateway and a clearly defined purpose for the data.
- **Area-based approach** – an area based approach skirts the issue of legal data requirements as it typically uses aggregated data supplemented by other address level data available to practitioners running specific programmes.
- **Consent-based approach** – this would be a programme that seeks to gain explicit consent from the data subjects in order to use their personal data for specific purposes, clearly described at the point of gaining consent. This negates the need for a specific legal gateway.

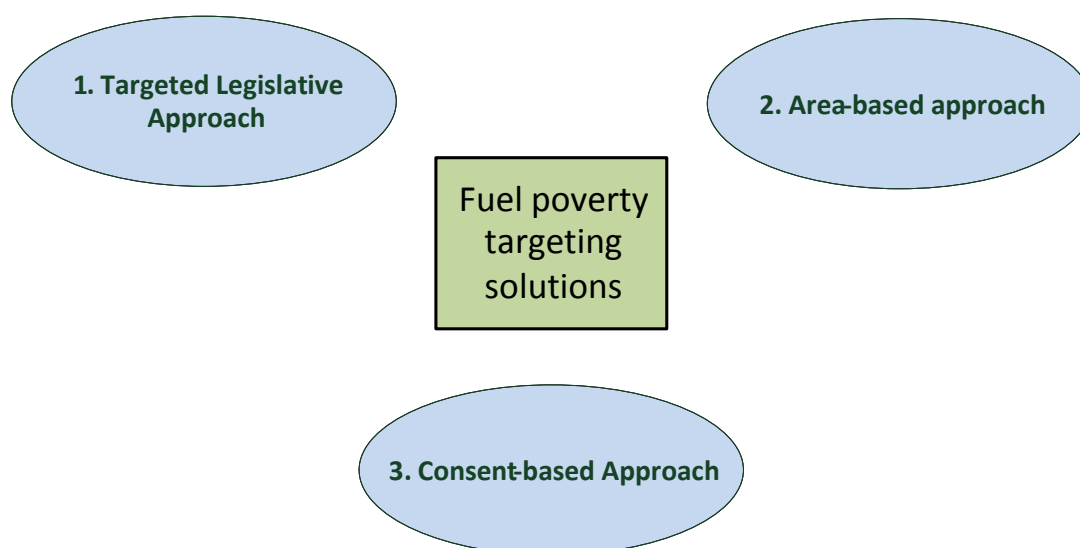
Further details of each solution are discussed in turn below, including the potential data to be used, any legal requirements and the advantages and disadvantages of each solution. A list of data sources and associated information is provided in the Appendix, which should be referred to for specific information about a dataset mentioned in this section. A number of factors will determine which data is used for each scheme; in particular, the scheme or policy and its associated benefit. It should be noted however, that certain datasets may be applicable for use in more than one of the approaches described here.

For any scheme aiming to use data to target individuals with a benefit, the following questions should be addressed:

- Which groups need to be targeted (e.g. low income, vulnerable, all households in cold homes etc.?)
- What benefit will these households receive?
- What data will help identify these households or the areas where they exist?
- Who holds this data?
- Would statutory powers be needed to access or use this?
- How would this data be used or matched with other existing data?

Additionally, the approach should be designed to garner trust and confidence from a public perspective in order to ensure successful interaction with the policy.

**Figure 8.1** Three potential approaches to target fuel poverty



## 8.1 Targeted legislative approach

The first potential solution is to use the model of the Warm Home Discount (WHD) scheme and introduce legislative gateway(s) to facilitate specific, additional, data sharing and linkage. An advantage of this option is that consent of individuals involved is not required and therefore engagement and associated costs are kept to a minimum. A legislative gateway for data sharing for energy efficiency schemes, as opposed to cash lump sums as in the case of WHD, is sometimes seen to require additional justification because the targeting of an individual household for efficiency measures does not guarantee that a benefit will be realised: the household could refuse the offer or the home itself may not be suited to the measures.



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Three main types of potential scheme using this approach are:

- WHD-style reductions in energy bills for a wider low income group
- Address-level targeting of fuel poor households with energy efficiency scheme
- Address-level targeting of vulnerable fuel poor households, i.e. those likely to be the most at risk from adverse health impacts of living in cold homes

A number of arguments can be advanced for the establishment of new legislation to support these approaches.

Firstly in the case of energy efficiency schemes, it is largely accepted that most of the low-hanging fruit have already been reached. For example, CERT focused heavily on social housing meaning that many of the worst remaining properties are now in the private rented sector. These households are difficult to engage with and it can be argued that data sharing is therefore necessary to reach them to ensure that some of the most vulnerable households within the UK acquire a decent level of insulation as part of efforts to combat fuel poverty.

Secondly, it can be argued that legislation is justified in order to address inequities created by current energy policy which is found to be regressive as much of the costs are paid through levies on consumers' energy bills rather than through taxation. As a consequence, lower income households pay more towards implementation of policy as a proportion of their income. This is exacerbated if low income consumers also stand to benefit less from the policies themselves (Croft et al., 2012 and Preston et al., 2013). For example, modelling by Preston et al. (2013) has found that in the current policy framework, by 2020 the richest 10% of households will see an average reduction of 12% (£182) on their energy bill whilst the poorest 10% will see an average reduction of 7% (£69). Critically, the size of this inequity depends largely on whether a household benefits directly from policies, for example receiving by financial support for installing energy efficiency measures as part of a CERT or ECO scheme. So individual policies can be more or less regressive depending on how they are designed and how effective the compensating mechanisms are. The Warm Home Discount is progressive because it is so well targeted on lower income households. CERT, and now ECO, can only be progressive also if low income groups, currently paying proportionately more of their income towards these policies, take the offers of subsidised measures targeted at them. Without good targeting and engagement of fuel poor groups, translating into the installation of measures that ultimately will save money and make vulnerable consumers warmer, these policies become regressive. Hence legislation on data sharing could be justified if it was able to ensure that those parts of energy policy aiming to retrofit low income homes were fair as a result.

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### 8.1.1 Data and Targeting

For a policy based on the Warm Home Discount model of data use with an automated payment, the primary sources of data will be those which identify low income or vulnerable households (or both) but would widen the data sources currently used. In addition, a secondary set of data that either demonstrates or at least indicates that a property is likely to have high energy costs will aid better specific targeting of the fuel poor. For a policy aiming to reach low income households with energy efficiency measures, use of this secondary set of data becomes more important.

- **Data to determine income status and vulnerability to fuel poverty impacts.** Ideally this would include direct income data or, more likely, would be a mixture of proxies for income such as benefit data, household composition (age profile of occupants), health data to identify the long-term sick or disability status, derivable from benefits data. Legislation would be needed to use and share this personal data.
- **Data indicating the energy efficiency status of a property.** This could include information from energy efficiency assessments such as EPC data, or proxies for high fuel bills such as age of property data (with older properties indicating solid wall construction) or whether the property is off the gas grid. In addition, data on past energy efficiency schemes such as Warm Front provide address level information on previous measures installed which could help eliminate any properties which as recently had significant insulation or heating improvements. Legislation may not be needed to use or share these data, but some data may only be accessible by certain practitioners (e.g. Warm Front data is only accessible by Local Authorities) and currently costs could be involved in obtaining data such as EPC ratings (see Section 6).

#### Data ownership

A Warm Home Discount-style scheme should follow the pattern previously set and use national data on income status and vulnerability to ensure a full and even coverage of the country. This data will almost exclusively be owned and held by government departments, predominantly the Department of Work and Pensions, HM Revenue and Customs and the Department of Health (for vulnerable persons likely to be affected by living in cold homes).

For practitioners of schemes focusing on installing energy efficiency interventions, additional national data on energy consumption and efficiency status is held by companies such as Landmark, energy suppliers and the Land Registry. As discussed previously, Landmark hold EPC data for a significant proportion of homes in the country, costing approximately 3-10p a record. While information on the accessibility and costs associated with accessing other data mentioned here was not obtainable in the research, but this data should nevertheless be considered.

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Other historical scheme data is available from a number of data owners. For example, Warm Front installation data is held by Carillion and is accessible to local authorities who can then pass this data on to data handlers and other sub-contractors of the authority.

### **Central data repository**

Considering the information above, it seems that a targeted-legislative approach would likely benefit from the existence of a central data repository (see Section 6.5.2). This would create an address level dataset of homes identified as being low income and would be compiled from a number of different datasets provided by different organisations and departments. It could grant different types of organisations different levels of access to the data. For example, practitioners of a fuel poverty policy could be provided with the basic details of eligible households without exposing their specific sensitive information. A legal gateway for establishing data sharing protocols could include the establishment of the Central Data Repository and should include tight restrictions on the data use.

## **8.1.2 Overall Considerations**

There are several advantages of this style of approach. Firstly, a version of this system is already in place and a precedent has already been set in the form of the Warm Home Discount. Offering bill reductions through automatic payments to a wider low income group should prove to be relatively cheap, have general public support (there have been no complaints received through the WHD scheme's lifetime) and have a tangible benefit to recipients, justifying the additional use of data. Sending an automated payment is a relatively simple and established process and there is little cost involved in direct engagement with households. However, this latter point is dependent on the levels of manual data matching and verification that may be required to ensure all those eligible receive the payment – if that is the intended outcome. In addition, this approach negates the need to engage directly with the majority of households and as a result is likely to have significantly lower targeting costs than other approaches.

Nevertheless, there are also some issues worth discussing which are listed below. None of these are necessarily prohibitive barriers but warrant some consideration.

### **Technical and Accuracy issues**

An expansion of the current system could require data matching of multiple datasets that indicate low income status of households. Increasing the amount of data matching will potentially require additional processing and could result in reduced rates of successful automated matching due to inconsistencies and errors in the data. However, this is something that may be overcome – or at least reduced - by the existence of a central data repository.

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Furthermore, the circumstances of those receiving the Pension Credit guarantee, the proxy used for the WHD, are likely to be more stable than people on working-age benefits that could be used as proxies for low income status. For example, the incomes of those currently out of work and on job seekers allowance may fluctuate significantly on a year to year basis. Although this isn't a significant barrier, a system incorporating additional benefit data would need to be more fluid in accounting for households' changing circumstances.

## Legal issues

A new legal gateway would be required, which could take considerable time to action. The legal precedent for the sharing of pension credit data for the Warm Home Discount was set in the Pension Act 2008. The first reading of this bill was on 5<sup>th</sup> December 2007, with it receiving royal assent on 26th November 2008. The first year of the Warm Home Discount was the financial year 2011-12, which suggests that any similar new policies could take up a number of years from preparation of the bill to seeing the policy in action.

## Public perception

During the course of the Warm Home Discount, there is evidence to suggest that customers seem happy with the process and have no general objection to the sharing of data between government and energy companies (as mentioned above, neither party have received complaints from recipients). However if this type of scheme was more widespread, and used larger amounts of personal data, public support might lessen due to privacy concerns. Our survey research shows public support is slightly lower for data sharing where there is not an automatic, guaranteed benefit.

## Cost issues

The scope of any such project and the planned coverage will directly impact on the total costs of the policy, i.e. if awarding a cash payment to a group of households the maximum total spend will be the individual payment multiplied by the total number of eligible households. If limited funds are available, then there may need to be narrowed criteria for receipt of the benefit in order to reduce the coverage. This is more relevant if there is an automatic financial benefit.

## 8.2 Area-based approach

Targeting a fuel poverty alleviation scheme begins with the need to identify those on low incomes and with high modelled fuel costs as a result of the energy performance of their home i.e. those who fuel poor according to the LIHC definition. DECC's fuel poverty strategy (Department for Energy and Climate Change, 2013a, p.19) also describes how those who are most vulnerable to the effects of fuel poverty through suffering disproportionate impacts to health and wellbeing should be prioritised in schemes. The most acute vulnerability is

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generally found amongst the elderly, very young and disabled. Therefore, identifying vulnerable groups entails collection of further data on demography and health indicators.

But often this data is unknown, or unavailable or of a personal nature and therefore inaccessible. To address this, proxies are used for fuel poverty, such as receipt of a means tested benefit. However, work by the IPPR describes how existing proxy-based methods for identification of fuel poor households suffer from very high levels of leakage whereby many of those flagged by the proxy are not in fact fuel poor. For example, IPPR find that 72% of those in receipt of Warm Home Discount are not fuel poor. In addition, some proxies do not have a wide coverage of fuel poor i.e. they only capture a small percentage of fuel poor households. As a consequence, fuel poverty schemes built around identification and targeting based on proxies can be highly inefficient with a significant proportion of the policy budget spent on non-fuel poor groups.

Instead, IPPR propose a “house by house” approach whereby fuel poverty status is accurately determined by conducting a Green Deal-type Assessment to determine modelled energy consumption and the household’s income is determined at the same time. The assessment proceeds from one door to the next working street by street. The leakage from this approach is from non-fuel poor households receiving a free or subsidised Green Deal Assessment. Despite the cost of this leakage, calculations by IPPR suggest that the approach would be much more cost-efficient than existing proxy-based methods for targeting fuel poverty.

Such an approach has no data sharing or linkage as such, although if a recent EPC or GD assessment had already been conducted for the property this could be made available and avoid the need for a repeat of the assessment and the associated cost. Where data sharing could be useful would be in determining which general areas are more likely to have higher concentrations of fuel poverty – which streets to start the street by street approach in.

IPPR’s proposals are an instance of an area-based approach which avoids the legal requirements of the DPA by effectively generating primary data on income and energy performance using a door to door approach where this data is gathered consensually. Area-based approaches can largely avoid data privacy issues as they only require area statistics, for example on income, health and housing performance, to identify areas where there is a high likelihood of fuel poverty. The scheme agents will then use various channels, particularly, going door to door encouraging that resident in the area to take part. It may be that the scheme will only offer measures to those that are eligible once they have identified themselves or alternatively the scheme may be designed so that all residents of a certain area are offered measures regardless of their status (the ECO Carbon Saving Communities policy being an example of this). There will clearly be greater “leakage” in the latter design but there are also positive aspects to this approach, particularly in social housing. As one interviewee said:

*I think the view of social housing providers is that there was no point chasing the fuel poor round the housing stock. It’s better to have a programme of improving energy*

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*efficiency of properties on a structured basis and then it doesn't matter very much who lives there. They discovered that in some case they had spent a lot of money on things like internal drylining, then the tenants had moved and 6 month later the property was occupied by people on a much higher income. So at that point they decided to take a more strategic housing stock based approach*

Consultant and member of the government's fuel poverty methodology group

## 8.2.1 Data and Targeting

Area-based approach involves using national and local level data that does not require consent to use or match with other data to build-up a picture of a certain area to identify likely fuel poverty 'hotspots'. The more data that is used, the clearer the picture and the more the precise the targeting can be or smaller the area that can be targeted. Relevant data exists at various geographies<sup>26</sup>:

- **Census Output Area (COA).** Census output areas are the lowest geographical level for which census statistics are produced. On average they contain around 125 dwellings and in England there are 181,408 COAs. They have been designed so that they contain either entirely urban or entirely rural postcodes.
- **Lower Layer Super Output Areas (LSOA).** These combine between four and six COAs and contain between 400-1,200 households. In England there are 32,844 LSOAs. The Index of Multiple Deprivation (IMD) datasets and Neighbourhood Statistics (NeSS)<sup>27</sup> are published at LSOA geographies, as well as the reporting of other small area statistics.
- **Middle Layer Super Output Areas (MLSOA).** MLSOAs are a collection of typically five LSOAs and contain between 2,000 and 6,000 households. Across England, there are a total of 6,791 MLSOAs.

Each COA, LSOA and MLSOA has a unique code which enables straightforward data matching to other data for the same areas and enables a detailed picture to be built up of an area's socio-demographic indicators quickly and simply. The table below lists some examples of data that could be used to help target fuel poverty interventions. Postcode data can be matched to OA data using freely available lookup from the ONS.

However, household level data will also be important in supplementing area level data and focusing schemes at certain types of the fuel poor or vulnerable. Bearing this in mind, a second list of potential sources of data available at household level are provided in table 8.2.

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<sup>26</sup> <http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/census/output-area--oas-/index.html>

<sup>27</sup> <http://www.neighbourhood.statistics.gov.uk>

**Table 8.1** Examples of area level data that could assist with targeting fuel poor households in an area-based approach

IMD income domain	Income	LSOA	Source
Off gas	Housing characteristics	Postcode	DECC
Housing benefit claimants	Income proxies	LSOA	ONS
Council tax benefit claimants	Income proxies	LSOA	ONS
Long term sick and disabled (benefit claimants)	Vulnerability proxies	LSOA	ONS
Other benefits	Income proxies	LSOA	ONS
Health statistics	Vulnerability proxies	LSOA	Local Authorities and NHS trusts (health and wellbeing boards)
Income	Average Income data	MLSOA	GOV.UK
Fuel poverty data	Sub-regional fuel poverty data	LSOA	DECC

**Table 8.2** Examples of household level data that could assist with further targeting fuel poor households

Data	Type of Data	Owner	Purchase costs?	Statutory powers required?
SAP data	Housing energy efficiency	Local authorities and Housing associations	?	No – not personal data
Housing stock data	Housing Efficiency	Local authorities and Housing Associations		
EPC data	Housing Efficiency	Landmark	Yes (3-10p a record)	No
Local authority data on tenants	Household information	Local authority	?	?
Council tax benefit claimants	Income proxies	Local authority		
Council tax arrears data	Income proxies	Local authority		
Fuel bill arrears	Other	Energy companies	Likely (£ unknown)	Likely

Data	Type of Data	Owner	Purchase costs?	Statutory powers required?
<b>Social tariffs</b>	Income proxies	Local authority and energy companies		
<b>Blue Badge status</b>	Vulnerability proxy	Local Authority		
<b>Health practice register data</b>	Vulnerability proxy	NHS, PCT, GPs	Unknown	Likely
<b>PS enforcement</b>				
<b>Private sector housing stock condition survey</b>	Housing Efficiency			
<b>Long term health data</b>	Vulnerability proxy	Health Care Trusts		
<b>Long term health data</b>	Vulnerability proxy	GPs		
<b>Priority Services Register</b>	Vulnerability proxy	Distribution Network Operators and Energy Suppliers	Possibly - depends on whether consent was given	

Considering this list of data sources, it is clear that local authorities could play a key role in accessing this data and providing information on the fuel poor households in their area. Access and data sharing issues for household level data of this nature could therefore present a barrier to the use of some of the data, depending on who the practitioners of fuel poverty alleviation programmes are. For example, much of the data is of a personal or sensitive nature, so private sector organisations such as energy companies are unlikely to be able to access income or vulnerability proxies held by local authorities without a specific legal gateway. However, if local authorities are involved in the identification of potential recipients of fuel poverty schemes then they are likely to be able to use some or all of their own data, as well as local knowledge of the area and professional relationships with local charities and service providers.

### Data matching considerations

In house expertise would be required to perform matching on areas and addresses to area (potentially just postcode as individual addresses not required for this approach). This would require specialist skills using database software and also GIS mapping of the areas within a region.



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Alternatively, and to combat the inequalities in access to data from different users, this approach might benefit substantially from a central repository of data storage, containing address and area matched data from the lists above. Users of data would not need to see any person or household level specific data, just that individual addresses or a proportion of address in a certain area had met some of the proxy criteria (income, vulnerability, housing efficiency). The idea of an independent third party data holding organisation has been suggested by respondents during this research and in the literature reviewed. This needs careful consideration, design and approval from authorities and may itself also need legislative backing.

## 8.2.2 Overall Considerations

An area-based approach has a number of benefits in terms of using data. Firstly, a large amount of suitable data is freely and publically available and presents no significant legal or cost implications. Furthermore, there is no consent required to use this data as it does not contain or disclose personal information. Finally, the use of area statistics and identification of groups of households may help deliver to particularly disengaged sections of the population; those who with very low incomes that do not claim benefits and would otherwise not be picked up if low income proxies from government records were used.

The key to the overall success of a project will also be a well-designed engagement policy to ensure high levels of take up. However, this is considered beyond the bounds of the discussion here. Below we consider some of the data and targeting issues associated with an area-based approach.

### Technical and Accuracy issues

Area data is essentially summary statistics or averaged data. The potential pitfalls of using this data are that it can mask or generalise proxies in what can be extremely heterogeneous areas, particularly in inner city areas. In rural areas, small area statistics cover wider geographical areas which could also miss pockets of rural deprivation. The best way to combat this is to use as much area level data as possible from as many different sources, triangulating all that is known about certain areas and supplement with local address level data where possible to highlight households likely to be the most eligible for a policy in those areas.

However, this alludes to another issue: if area-based approaches are to be predominantly the remit of local authorities, then they are likely to result in patchy interventions nationwide as a result of varying resources, funding, expertise and working relationships in different regions. However, this is an existing problem that expands well beyond the delivery of energy efficiency schemes and should not be considered a barrier to their implementation, more a policy design consideration.

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## Legal issues

Much of the secondary or supplementary household level data mentioned here is sensitive and/or personal and could not be easily accessed by anyone other than local authorities. For example, individual health data held by the local NHS HCTs and GPs. However, justification for the use of the data by local authorities could be through their responsibility of a duty of care to residence in their authority.

## Public perception

A lot of potential sensitive data is aggregated to an area level and not attributable to individual households or persons. As a result, potential privacy concerns about personal data are largely bypassed. Aggregated and summary health data statistics are also available at area level so these could be used instead of household level data from HCT and GPs. However, if a policy or scheme is seeking to target vulnerable households, it requires some understanding on the health situation of individual households or public acceptance may reduce. In this instance, experiences and learning from the NHS *care.data* programme should be fed into scheme and policy development.

In addition, several stakeholders felt that this approach could potentially create a negative perception or ‘postcode lottery’ stigma for areas identified as eligible. However, no evidence of this for the ECO CSCO has been found, so it remains to be seen whether this is an issue.

## 8.3 Consent based approaches

The final kind of approach that this research has considered is one that obtains expressed consent<sup>28</sup> from the individuals. A consent-based approach would be needed if personal data were to be used in a data linkage or sharing exercise to establish whether or not, an individual was eligible for benefits under the proposed scheme and – as the law in most cases currently stands – a legal gateway to facilitate data sharing and linkage was *not* in place.

In the context of this research, and when thinking about how to design and deliver fuel poverty schemes which make use of linked/shared data, the discussion around this approach was the vaguest during the stakeholder workshop. We suspect this is because the idea of collecting consent in a data linkage or sharing exercise is so broad and could take many forms and have different applications; without knowing the exact nature of the fuel poverty initiative or policy

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<sup>28</sup> **Expressed consent** is clearly and unmistakably stated, rather than implied. It may be given in writing, by speech (orally), or non-verbally, e.g. by a clear gesture such as a nod. Non-written express consent not evidenced by witnesses or an audio or video recording may be disputed if a party denies that it was given.

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(for example the exact target audience(s) and the data needs required), it is almost impossible to consider how it might work in any detail.

Nevertheless, such schemes have existed in the past and the current Energy Company Obligation (ECO) scheme uses the Energy Saving Advice Services (ESAS) whereby consumers provide personal information and give their consent for this information to be used to match to eligibility criteria in order to ascertain whether they are eligible for a grant.

This section has not sought to explore specific sets of data as the approach itself relies on individuals providing their own data and consent for this to be matched to some of the existing data mentioned in the previous two sections. Instead, we consider some of the benefits and issues that need to be addressed in order to run a consent-based approach which would experience greater successes and more efficient fuel poverty targeting than similar previous examples.

### **8.3.1 Overall Considerations:**

The advantages of a consent-based scheme are that it negates the need for any additional legal gateways and the explicit consent of individuals removes the majority of privacy concerns. A broader benefit is an increased public awareness of the issues (i.e. fuel poverty and cold homes) that occurs as a result of a well-managed process of engagement and marketing.

Herein lies the key to the success of such an approach; a well-designed engagement policy is needed to gain the consent of a large number of eligible households. This, along with other issues, is discussed below.

#### **Improved Gateway and checking eligibility**

Something that any future consent-based approach for data matching should do is to both increase the number of people referred energy efficiency schemes, currently typically to ESAS, and to broaden the referral process to capture a wider section of the public.

Engagement strategies, including via ESAS, could be more effective if there was a more clearly defined benefit, as there was with Warm Front but which ECO (being at supplier discretion) does not allow.

At the stakeholder workshop, there were some suggestions for a more efficient means of checking for eligibility for energy efficient measures or monetary benefits than was in place (for ECO). The idea was that there should be a joined up approach to collecting consent where

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individuals need only provide information once. The ‘Tell Us Once’<sup>29</sup> initiative used for births or deaths was mentioned as an example of such an approach.

Examples of how this has been done in other contexts include prompting consumers to sign up to the organ donation register when applying for a driving license. A suggestion that was put forward in the stakeholder’s workshop was for an option of consent to use an applicant’s data to determine whether they might also be eligible for additional energy efficiency improvements when making claims for benefits, or in the future, when signing up for Universal Credit.

## Marketing and Engagement

Historically, consent-based schemes rely on people coming forward to have their eligibility status checked, and this approach has a number of limitations:

- a) There is complete reliance on the motivation of those involved to want to take up the potential benefits, such as energy efficiency measures;
- b) The success of the scheme, and who it engages, relies completely on the marketing and engagement strategy to make people aware of what they may be entitled to;
- c) There is a risk that individuals will make assumptions about what they may, or may not, be eligible for.

The obvious short-comings of such a scheme are its inability to capture the less proactive members of the public, who are often those who require the most assistance and/or are the most vulnerable. The ECO scheme has received such criticism.

There are numerous opportunities for gathering consent from the public, some of which will have already been explored and utilised by energy companies to deliver past or current schemes. For example, there are a range of different marketing channels, such as supermarket loyalty cards, post office users, and other well used services, that could be used as a gateway to consent. In addition, information could be provided on energy bills using consumption data and matching with priority service register records; data which is all owned and maintained by energy companies. However, existing research should be drawn on to understand the levels of trust for each service and which options are likely to be the most successful.

A two-step consent process may also be a possible solution. Here, initial limited consent would be obtained for further contact to occur in the future. This has the potential to capture a wider number of people and allow for direct contact from practitioners of a policy or scheme. The second stage of obtaining consent would be obtained through a conversation whereby the

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<sup>29</sup> <https://www.gov.uk/tell-us-once>

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implications and details of what exactly one is giving consent for can be clearly explained by a phone operator.

Whichever approach is used to increase the levels of obtained consent, the method for doing so must explicitly state the way in which data will be shared, with who and to what ends. For example, the information contained with the consent must specify which government departments, private companies and any other organisations data will be shared with. This transparency should be motivated by the desire to improve public trust in such an exercise and increase public engagement.

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## 9 Conclusion

This report provides the findings from a study which aimed to explore how increased data use might enable suppliers to improve the targeting and effectiveness of fuel poverty initiatives. The study looked at the opportunities for data sharing that exist and identified the barriers and risks associated with these. The study involved:

- A **desk review of existing literature** to unearth what is already known in relation to how data sources can be used to target fuel poverty initiatives;
- Thirteen qualitative **stakeholder interviews** to provide additional information to support and add to the findings from the literature review;
- A **stakeholder workshop**, to refine and clarify the key research findings. This was attended by 14 representatives from a number of relevant fields such as energy, legal, government, academia and the consumer sector.
- **Legal advice** to provide greater clarity on the legal issues raised through the research

The research used a conceptual framework to guide all stages of the research, covering five broad themes: 1) Accuracy, 2) Technical, 3) Legal, 3) Ethical and Public Perceptions, 4) Cost, and 5) Institutional Culture. The summary conclusions from each of these themes are presented in turn below.

The findings presented here and throughout this report represent the range of views expressed in the stakeholder interviews and workshop, as well as evidence from the literature sources that were reviewed. The research evidence should be interpreted in this light.

### Policy context: Fuel Poverty as a real problem in today's society

- Fuel poverty is recognised as a major problem for society. The government has responded in the last few decades with a number of legislative changes, for example the Warm Home and Energy Conservation Act 2000 and the publication of the Government's Fuel Poverty Strategy for England. More recently, the government has pledged to focus their efforts on ensuring that households defined as 'fuel poor' reach a certain standard of energy efficiency.
- There are a number of national policies that are designed to tackle fuel poverty, such as the Warm Home Discount Scheme, Cold Weather Payments, Winter Fuel Payments and the Energy Company Obligation. Some of these already use existing data about individuals as proxies to identify fuel poor households. The Warm Home Discount Scheme, for example, uses DWP data on those receiving the Guarantee Credit element of Pension Credit benefit as a proxy for low income pensioners.
- At a local level, some local authorities have been using local area data to build local fuel poverty databases (one example is the East Durham Housing Energy Database), and to target fuel poverty schemes.
- Other schemes not targeting fuel poverty have sought to identify vulnerable households in the UK using existing government data, notably the Digital Switchover Help Scheme.

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## Accuracy and Technical Issues

- Under the two broad themes of Accuracy and Technical Issues, the research set out to explore how accurately records about individuals or households can be matched across data sets and which IT systems and structures are needed to support any data sharing and linking.
- Data required for fuel poverty policy targeting needs to be able to identify both households that are low income and/or vulnerable and living in inefficient housing. Accurately identifying households that are in fuel poverty is complicated and requires significant amounts of data, and as such, proxies are often used (for example Pension credit for low income pensioners). Proxies, however, need to accurately identify those who might be eligible, and capture individuals in ‘real-time’ because a person’s financial circumstances can be changeable and people can move in and out of poverty.
- The way data are collected can have direct impacts on the quality of the information itself, which has consequences for the comparability of different sources reporting the same type of information.
- In linking data records, a process known as ‘data linkage’, care needs to be taken around how the link, or match, is achieved. The ideal is where a unique identifier exists (such as a Unique Property Reference Number (UPRN) or National Insurance (NI) Number), however this isn’t always available. Usually a combination of personal identifiers is used such as name, date of birth, or postcode.
- Facilitating the linkage of administrative databases on a national scale can involve millions of records requiring software and hardware with suitable processing and management capabilities. There are a number of different software packages available however the decision on which one to use will be framed by considerations such as the existing skillset within the organisation, the number of licences required and training required.
- Where data are processed and transferred between organisations, the technological capability is needed to allow for appropriate data encryption and security. In addition, organisations involved need to be trained and skilled accordingly.

## Legal considerations

- The two areas of the legal framework surrounding data sharing which are relevant in the context of fuel poverty targeting, as explained in detail in Section 4, are;
  1. Public Authorities specific powers to share data, and whether there is a need to create more such powers
  2. The Data Protection Act 1998, which applies to all organisations involved in sharing data, regardless of whether they have specific data sharing powers
- There is uncertainty among policymakers about the level and type of benefit to individuals needed to justify data sharing without consent. This research has identified that legal advice is needed on this issue in relation to fuel poverty specifically.
- Where the data sharing is required by statute (i.e. on the basis of a “gateway”, public authorities can generally share personal data (including sensitive data) without the need to

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obtain consent from the affected individuals – though providing an ‘opt-out’ in case of sensitive data sharing is considered good practice.

- Where the data sharing is legitimized on the basis of an implied or discretionary statutory power, public organisations could also arguably share non-sensitive personal data without consent, provided that the sharing is “necessary for administering justice, or for exercising statutory, governmental, or other public functions”. However, in such cases, public bodies need to assess the appropriateness of this legal ground on a case-by-case basis. Organisations relying on an implied or discretionary statutory power to share *sensitive* personal data will likely be required to obtain explicit consent (i.e., an opt-in approach).

While the lawyers’ analysis indicates that express powers, or statutory “gateways”, may not be necessary to carry out data sharing without consent for every fuel poverty initiative, policy makers interviewed for this study believe that this is the case; they are uncertain about the level and type of benefit to individuals needed to justify data sharing without consent. They therefore see any future data sharing as likely to require specific legislation to enable it.

## Ethical concerns and public perceptions

- There appears to be a common set of requirements set out in the literature, where consent is required to share and link data. These include ensuring that consent is transparent, has been informed and truly states the benefits to the individual.
- Several issues need to be considered where consent of the data subject is required. These include the fact that the exercise is likely to be administratively heavy, that the success of any targeted scheme will rely on the engagement of individuals involved and that there may be a need to collect re-consents if the data are to be used for different future purposes.
- There appears to be mixed evidence in relation to how the public perceive data sharing and factors such as the motivation of those involved (i.e. the organisations) and the security procedures in place have been linked to attitudes around such exercises.
- Comfort levels amongst the public, according to this research, can be influenced by:
  1. what the public think about who the data are to be shared with (i.e. the organisations) and for what reason;
  2. the type of data being shared and how personal this is perceived to be; and
  3. assumptions about existing sharing of data and the perceived trust in the organisations or bodies sharing the data.
- Whilst evidence exists to suggest that the public can be sceptical about what is involved in a data sharing exercise, there is also research that suggests that data sharing can be acceptable to the public and specifically some findings that have focussed on support for data sharing where energy companies are involved.

## Cost



- There are a number of costs associated with using data which are detailed in chapter 6. These include the cost of obtaining data: whilst some data are free, obtaining data can still entail procurement costs and staff resources. Data storage and software requirements, data processing steps and understanding the legal requirements will also contribute to the total cost of producing a useful database for fuel poverty targeting.
- The resource requirement for data matching is often a preventative barrier that may be overcome where an organisation places a high priority on the final dataset, or where the use of such data is seen as a crucial path in the delivery of a scheme.
- Where consent must be sought to link data sources held on an individual, there are associated administrative costs which could be quite significant if consent is to be obtained from a large number of individuals.
- While the overall spending on programmes or schemes which use matched data for targeting is often available, little freely available knowledge exists about the specific costs of data use. This cost depends on whether the matching process is automated (as is the case in the Warm Home Discount Scheme), or manually performed.
- The actual cost benefit of increased data sharing is very difficult to determine with any certainty as this requires knowledge of the data itself, legislative issues, data processing practicalities as well as evidence around the impact of using such data in targeting. Additional research is needed to gain a better understanding is needed of the potential cost savings to be gained from increased data use. This would require a better understanding of the targeting costs of existing programmes, which is limited by a lack of transparency in supplier obligations.
- Some solutions that would reduce costs in the long-term include a process of pre-verification proxy data, the creation of a central data repository, a national data dictionary and an area-based approach supplemented with new data collection. The details of these are discussed in more detail in Section 6.5 and Section 8.

## Institutional culture

- There is currently a lack of clarity within institutions regarding the rules for data sharing in terms of what can and cannot be shared legally. Guidance is available, for example from the Information Commissioner's Office (ICO), though this can be difficult to interpret because of the vague terminology that is used.
- According to what was found in this research, the culture within organisations varies in relation to willingness to share data. Some government departments, for example, have are considered to be very cautious and take a notably conservative approach to data sharing.
- There are a number of institutional barriers that this research has identified. These include 1) *insufficient clarity* with regard to which data can and cannot be shared, 2) *organisational structure* in that most institutions lack clear lines of responsibility and accountability for the handling of personal information, 3) the presence of a *risk adverse culture*, 4) *human behavioural factors*, 5) *trust and cross working*, and 6) *technical barriers*.

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- Institutions would benefit from clearer guidance from the Government which lays out a strategy that links with the ICO guidelines, creating a consistent approach. It has also been suggested that there is a need for a separate statutory body to take responsibility for data sharing.
  - Within organisations and institutions there should be leadership to take charge of data management, backed by senior management to give higher priority to the benefits of data sharing. As well staff training should be provided and staff made aware of who is responsible for data management within the organisation. Subtle changes are also needed within institutions to address the culture of risk aversion and some of the other human behavioural factors outlined in Section 7.3.4.

## Future Schemes

- This research has identified three generally distinct approaches to fuel poverty targeted schemes:
  1. **A targeted legislative approach** – building on the successes of the Warm Homes Discount, this approach could see a similar policy use additional datasets to both better target the fuel poor and award a larger variety of benefits. However, existing legal frameworks, particularly the Data Protection Act, mean that a targeted approach at household level without consent would be likely to require a specific legal gateway and a clearly defined purpose for the data.
  2. **An area-based approach** – an area-based approach largely bypasses the issue of legal data requirements as it typically uses aggregated data supplemented by other address level data available to practitioners running specific programmes.
  3. **A consent-based approach** – this would be a programme that seeks to gain explicit consent from the data subjects in order to use their personal data for specific purposes, clearly described at the point of gaining consent. This negates the need for a specific legal gateway.

Section 8 of this report is based on a summary of these stakeholder discussions and research findings on how these approaches might be designed, what data they could use and what the current barriers were to achieving these aims.

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## 9.1 Consent based approaches

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# Appendix

## 9.2 Data sources

The table below lists a series of data or data sources that have been identified during the course of the research that have the potential to allow enhanced targeting of fuel poverty initiatives in the future. We have provided any cost or access information where available, but there remain some knowledge gaps.

Data source	Information held	Coverage	Lowest geography (and common Identifier)	Data owner	Costs of data (where available)	Access issues
<b>Energy Performance Certificate (EPC)</b>	Energy efficiency data	8-9 million homes in UK	Address level (common identifier not know)	Landmark	3-10p per record	None known
<b>Off Gas Grid</b>	A list of postcodes with no connection to the gas grid	All off gas post codes in Great Britain	Postcode	Xoserve	Free	None known
<b>NEED</b>	Address level data on average energy consumption	England	Address level (common identifier not know)	EST	Not applicable	Not available for purchase

<b>Sub-regional fuel poverty statistics for England</b>	Numbers and percentages of households in fuel poverty by area	England	Lower Super Output Area (LSOA)	DECC	Free if registering use of data with the UK Data Service	None known
<b>Energy Follow-Up Survey</b>	Data on energy use and behaviour matched to English Housing Survey records	England	Weighted survey data	DECC	Free if registering use of data with the UK Data Service	None known
<b>The Family Resources Survey</b>	Income and benefits (official statistics)	UK	Weighted survey data	DWP	Free if registering use of data with the UK Data Service	None known
<b>Benefits and tax credits data (1)</b>	Address level information identifying any benefits a household may be receiving	UK	Address level (common identifier not know)	DWP and HMRC	Not applicable	Would require additional legislation for sharing and matching with other sources
<b>Benefits and tax credits data (2)</b>	Small area statistics	UK	Lower Super Output Area (LSOA)	DWP and HMRC	Free	None known
<b>Census data and Neighbourhood Statistics</b>	Summary and aggregate information on people and properties	UK	Census Output area (COA) and Lower Super Output Area (LSOA)	ONS	Free	None known



<b>Index of multiple deprivation</b>	Series of indices indicating levels of deprivation. <b>Income domain</b> indicator likely to be of most use.	UK	Lower Super Output Area (LSOA)	DCLG	Free	None known
<b>ECO Carbon Saving community (CSCO) areas</b>	List of bottom 25% IMD areas	UK	Lower Super Output Area (LSOA)	DECC	Free	None known
<b>Experian Household Profile</b>	Modelled information on household types	UK	Address level (UDPRN)	Experian	Purchase costs unknown but high	None known
<b>Warm Front (Carillion)</b>	Details on measures installed during warm front, plus some property information	UK	Address level (address matching required)	Carillion	Free	Only available for access by local authorities but can be shared with their partners and sub-contractors
<b>Building control data</b>	Details on works conducted on housing stock in the local authority	UK	Address level (address matching required)	Local Authorities	Free	Unknown. Possible only available for local authorities but likely to be able to share with partner organisations and sub-contractors
<b>National land and property gazetteer</b>	Central repository for addresses and building co-ordinates	England and Wales	Address level (UPRN)	NLPG	GeoPlace (Partnership between Local Government Association (LGA) and	

						Ordnance Survey
<b>Smart meter data</b>	Half hourly data on gas and electricity consumption in domestic properties	UK	Address level (MPAN)	Energy suppliers	Unknown but likely to have high costs	Not known, likely to be heavily restricted due to commercial sensitivity and personal information.
<b>Priority service register</b>	List of customers eligible for priority services	UK	Address level	Distribution Network Operators and energy companies	Not applicable	Not available
<b>Heat consumption data</b>	Energy consumption data from heating fuels	UK	Address level (MPAN)	Energy suppliers	Not applicable	Not available