

A strategy for tackling fuel poverty in Birchfield

Report to Big Local Birchfield, June 2016

Summary

Birchfield is an area of exceptionally high fuel poverty. Birchfield is also a neighbourhood in which people are less healthy than average. Residents are more prone to medical conditions that are made worse by cold, damp living conditions, such as heart disease, circulatory conditions, respiratory conditions, and mental health.

The principal factors that make Birchfield an area of high fuel poverty include: lack of insulation; low incomes; inefficient heating systems and controls; wasteful habits of energy management by some residents; expensive fuel tariffs and payment methods.

Signs and symptoms of fuel poverty in Birchfield include: households not turning on the heating when they need it; self-disconnection by people with pre-payment meters.

The type of intervention most needed to effectively solve fuel poverty in Birchfield is to insulate people's homes. This is also the most sustainable solution to fuel poverty. At present, however, only limited progress can be made in insulating Birchfield homes, mainly due to the lack of finance to do so, which has caused the insulation industry to collapse.

Interventions that are more achievable in the short term for Birchfield in developing a local solution to fuel poverty include:

- Practical help to install low-cost energy saving improvements such as draught-proofing and reflective radiator foil
- Upgrading inefficient heating systems and controls - particularly non-condensing gas boilers, older storage heaters with manual charge controls
- Raising awareness, particularly among residents whose first language is not English, about how smart meters can help residents to manage household energy costs
- Advice targeted at residents of rented properties with energy performance ratings of F and G
- Advice to residents on the savings that can be made by regularly shopping around for better fuel tariffs, and in some cases by changing payment method
- A campaign to increase the uptake of the discretionary element of the Warm Home Discount
- Advice to residents with electric storage heaters on how to use the heating controls properly and ensure they are on the correct fuel tariff
- Advice to residents on saving money on water bills, targeting those in newer homes with compulsory water meters.

There are several opportunities to bid for revenue funding to deliver advice and advocacy to residents. This could support a part-time post for a limited period. Other opportunities for job creation are virtually non-existent at present due to the collapse of the insulation industry.

The interventions proposed above would not solve fuel poverty in Birchfield. What they would do is to mitigate it, and improve the health and finances of households that received these interventions. These interventions would also lead to financial savings for the NHS through reduced need for GP visits, medication, and acute care.

Terms of reference

In February 2016 I was commissioned by Birchfield Big Local to undertake a min-feasibility study in Birchfield, with the following terms of reference:

To explore the development of an integrated community based approach to fuel poverty which aims to improve living standards and conditions for people on low incomes; improve the energy efficiency of the housing stock; and bring health and environmental benefits. The approach should also focus on resident-led action that helps develop the understanding and skills of local people. The study should answer the question – what can Birchfield Big Local do that will offer a unique approach with long term impact.

What is fuel poverty?

Fuel poverty is most commonly regarded as the inability to provide heat and power to a home Affordably. The current official government definition is known as “low income – high costs” but is widely criticised as it has led to fewer households being classed as fuel poor than was the case with previous definitions. Prior to the “low income – high costs” definition, fuel poverty was defined as being where a household needed to spend 10% or more of its income on fuel. This is a more common sense approach to fuel poverty. Fuel poverty is a complex problem with multiple causes and symptoms. Poor energy efficiency of buildings and appliances is the largest single cause. Other causes may include payment method, health factors, fuel tariff, household income.

There is also “self-reported” fuel poverty. This is where a household simply says, “we cannot afford our fuel bills.” They don't have statistics to back it up, but in our experience people who self-report that they are in fuel poverty are usually telling the truth. Self-reported fuel poverty is a valid and reliable indicator.

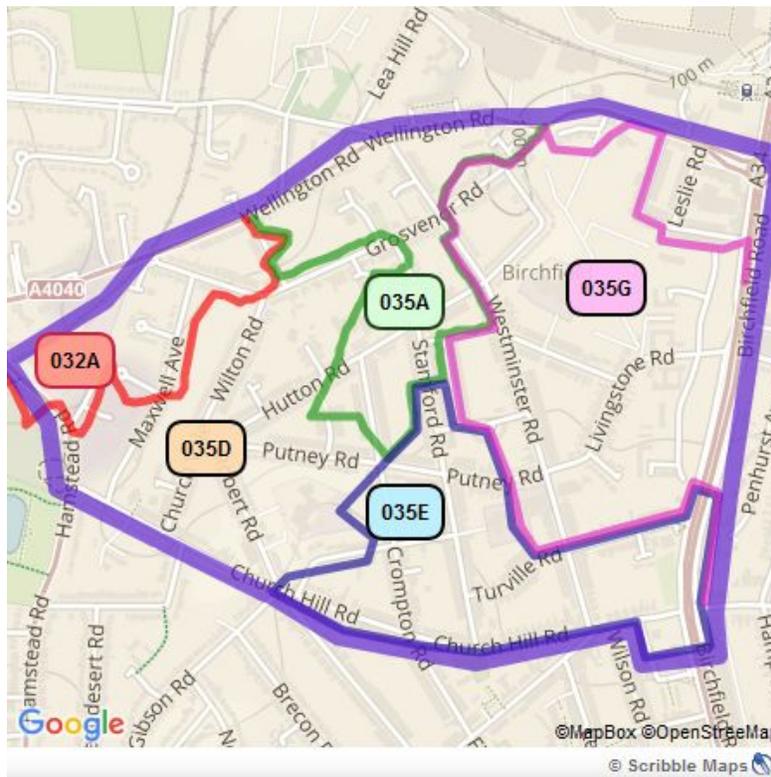
How widespread is fuel poverty in Birchfield?

Birchfield is an area of exceptionally high fuel poverty. It is one of the most deprived areas in England in terms of fuel poverty. Nearly one in three households in Birchfield is in fuel poverty

according to the official government definition. Fuel poverty is more widespread in Birchfield compared to Perry Barr constituency, compared to Birmingham as a whole, and compared to England as a whole. Perry Barr constituency has the third highest level of fuel poverty among parliamentary constituencies in England, with 22.9% of households in fuel poverty.¹ Birmingham has the highest average fuel poverty of any major local authority in England, with 18.9% of households in fuel poverty.²

The Big Local Birchfield area includes parts of five Local Super Output Areas.³ One of these LSOAs (Birmingham 035G) is the 145th most fuel poor LSOA out of 32844 in England. The average rate of fuel poverty among the five LSOAs in Birchfield is 29.4%. Some households in Birchfield are at risk of extreme fuel poverty. They have the lowest possible energy performance ratings of F and G. On some streets, as many as one in seven households fall into this category, particularly in the east of Birchfield.

Below is a map showing the LSOAs in Birchfield.



¹ The only two parliamentary constituencies with higher levels of fuel poverty are Birmingham Hodge Hill and Birmingham Hall Green.

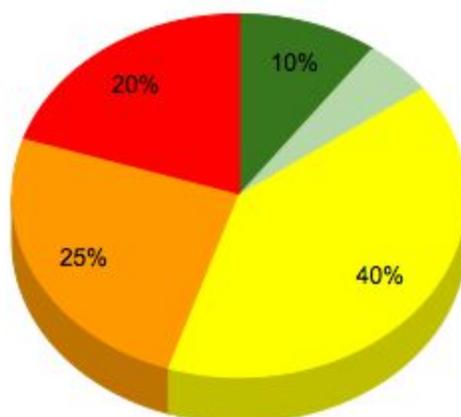
² The Isles of Scilly have a higher level of fuel poverty, with 22.4% of households in fuel poverty, but they only have 1052 households, compared to Birmingham's 412,401.

³ An LSOA is a geographical area designed to improve the reporting of small area statistics. The average size of an LSOA in England and Wales is 1,500 people. There are 32,844 LSOAs in England.

Our consultation among residents shows that people's fuel bills are not affordable. We asked residents to rank the affordability of their fuel bills.

In the following graph, red represents most unaffordable, followed by orange; dark green represents most affordable, followed by light green.

Affordability of fuel bills



These are in line with, or slightly higher than, what is predicted by government statistics. Many households are unsure about how much they spend on fuel, which is a sign that they are not attempting to manage their fuel bills or fuel use. Some households reported very high spend on fuel, including:

- one household reported paying £250 per month, i.e. £3,000 a year. This was a 5-person, 3-bedroom household with no fuel debt, paying by Direct Debit. It was a relatively well-off household that could afford the fuel bills and was at lower risk of fuel poverty.'
- another household reported paying £4,000 a year. This was a 5-person, 3-bedroom household with no fuel debt, paying by Direct Debit. It was a low-income household, renting from an unspecified housing association.
- another household reported paying £2,400 a year. This was a 6-person, 3-bedroom household with a pre-payment meter and no fuel debt. It is a low-income household renting from Midland Heart.

Without a home visit it is difficult to ascertain why these three households have such high fuel bills. There are some habits that are quite widespread that can lead to exceptionally high fuel

bills, such as setting the heating temperature too high, incorrect use of an electric immersion heater, or excessively lengthy time spent in an electric power shower.

The factors which affect fuel poverty in Birchfield are:

- Energy efficiency of the home and appliances
- Income level
- Fuel tariff and payment method
- Educational level (which is related to income level); where the head of household finished full-time activity at the age of 18 or less, there is a higher risk of fuel poverty; where it was 21 or over, there is a lower risk
- Tenure.

What do we know about housing stock in Birchfield?

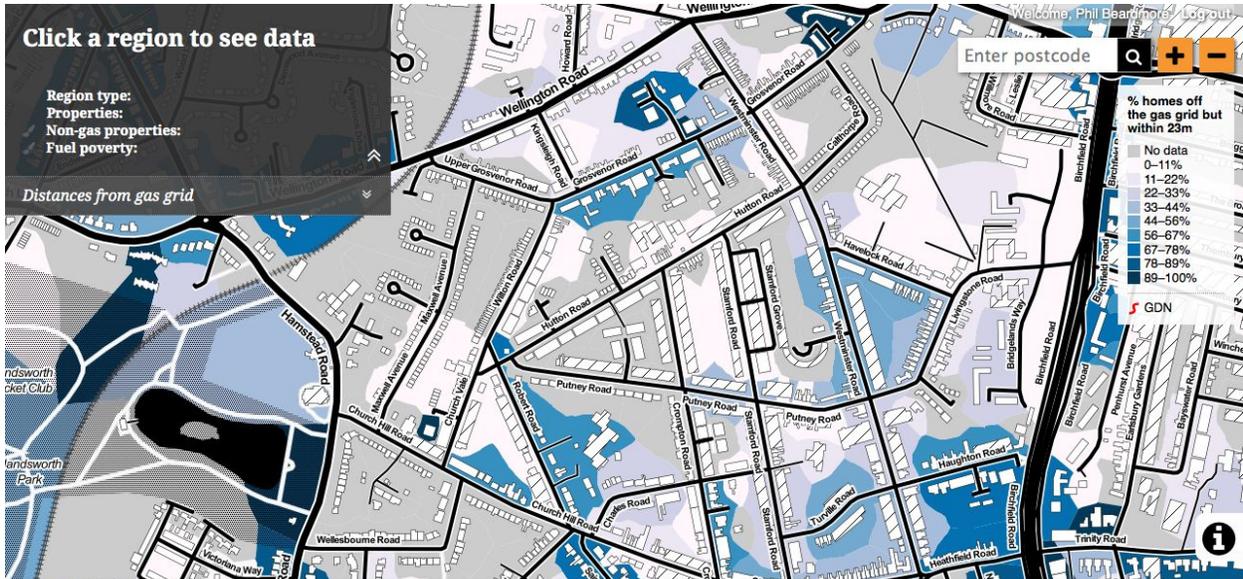
We need to understand the following elements of a home:

- the fabric of the building, e.g. walls and roof, and whether they are insulated
- windows and doors
- heating systems e.g. gas central heating, electric storage heaters
- hot water systems e.g. gas boilers, electric immersion heaters
- whether the home is heated by gas or electricity.

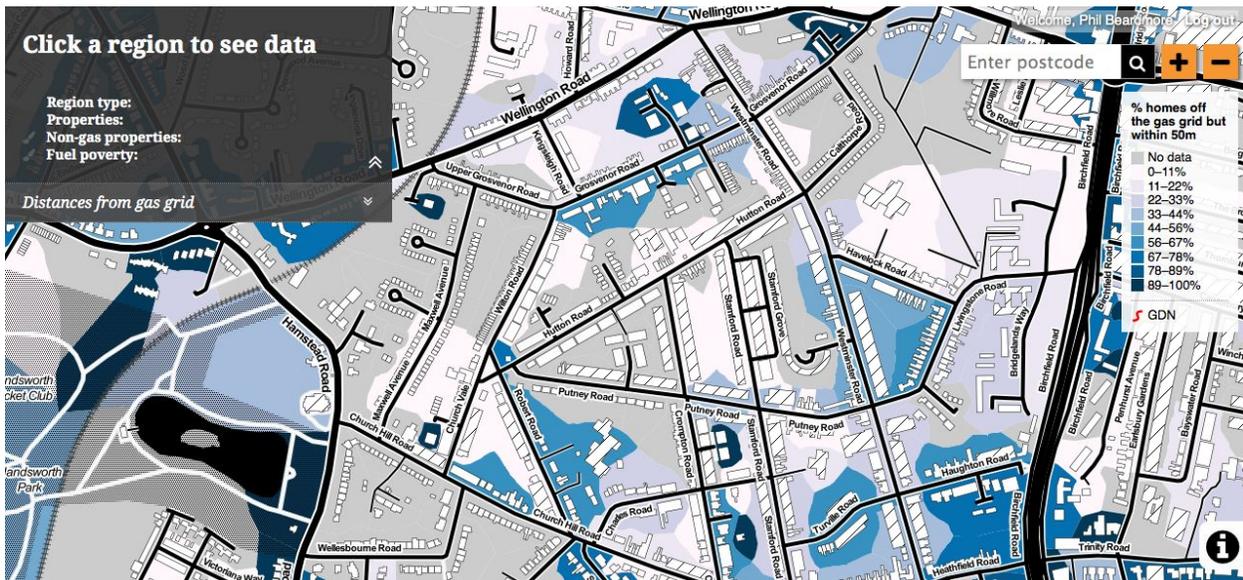
Heating fuel

We estimate that three-quarters of homes in Birchfield use gas as their main heating fuel, for space heating and hot water. Gas is the cheapest fuel for space heating and for water heating. Electricity is a more expensive and inefficient fuel for space heating and water heating. A high occurrence of electricity as a fuel for space heating and water heating is an indicator of fuel poverty.

The following maps show where the homes without gas are concentrated. The first map shows homes that are off the gas grid but within 23m of the grid.



The second map shows homes that are off the gas grid and within 50m of the grid. Distance from the gas grid is important because a home that is fewer than 23 metres from the grid, can be connected at a reasonable cost.



If a home is more than 23 metres from the grid, then the cost of connecting it to the grid becomes uneconomic. What the maps show is clusters of homes that are off the gas grid, either because they were built in the 1970s and 1980s and were never connected to the gas grid, or that they are older homes, typically houses in multiple occupation, where the landlord has chosen to install electrical heating appliances despite the availability of mains gas. Help may be available from National Grid Affordable Warmth in connecting groups of homes to the gas grid.

What do we know about health and fuel poverty in Birchfield?

Fuel poverty is a public health issue. Cold and damp housing costs the NHS £136 billion a year in England through GP visits, prescriptions, acute care. Many medical conditions are aggravated by cold and damp living conditions including COPD, CHD, respiratory conditions, and mental health.

As an indicator of Public Health in Birchfield, we have used the 2011 Census Data set, *Long-Term Health Problem or Disability, Day to Day Activity Limited A Lot*.

Lower Super Output Area (LSOA)	Number of households saying <i>Day to day activity limited a lot</i>	Percentage of households saying <i>Day to day activity limited a lot</i>
Birmingham 035G	267	9.29%
Birmingham 035E	176	9.78%
Birmingham 035D	186	9%
Birmingham 032A	133	8.15%
Birmingham 035A	148	8.11%
All 5 Birchfield LSOAs	910	8.93%
National average		8.31%

These statistics show us that most of the Big Local Birchfield area, particularly in the West and South of the area, have worse health than the national average. Two LSOAs within the Big Local Birchfield area, have slightly lower than average numbers of households with day to day activity limited a lot, however these two LSOAs include large numbers of households outside the Birchfield Big Local area. Overall, the 5 Birchfield LSOAs have 8.93% with Day to day activity limited a lot, which is significantly above the national average.

In our community consultation, 40% of households told us that someone in the household had a long-term chronic medical condition or disability. These conditions included: Type 2 Diabetes; asthma; mental health.

Overall we can say that the Big Local Birchfield area definitely has worse health than the national average.

What do we know about whether people in Birchfield try to save energy in their homes?

In our community consultation, we asked residents whether they tried to save energy in their homes. We asked them to rate their efforts on a scale of 1-5 (1= we do everything we can to save energy).

Ranking	Percentage
1 = we do everything we can to save energy in the home	25%
2	20%
3	35%
4	10%
5 = we do nothing to save energy in the home	5%

The fuel-poor can be divided into two categories according to their energy saving behaviour:

- the thrifty fuel-poor, who already do most or all of the things that help to save energy in the home; the scope for behavioural change advice among this group is limited;
- the wasteful fuel-poor, who do little to save energy in the home, and where behavioural change advice has potentially the most impact.

In our experience, the thrifty fuel-poor is usually the biggest group. Older people, and people who are settled, tend to be thrifty; younger people, and people who are not settled, tend to be more wasteful.

Our community consultation shows that the thrifty fuel-poor are a minority in Birchfield, and that there is a large body of people who are wasteful. At least half of the population of Birchfield would benefit from adopting energy saving behaviours, and therefore there is a need for behavioural change interventions.

Under- and over-occupation of homes in Birchfield

There are a large number of households that are over-occupied in Birchfield. Over the 5 LSOAs, 3.48% of households have more than 1.5 persons per room, compared to the national average of 1.08%.

Our community consultation confirms that there is a tendency to over-occupy in Birchfield. ⁴

⁴ An average of 1.38 persons per bedroom. This is a different and less robust indicator than that used by the Census but nonetheless confirms the Census figures.

Over-occupation tends to result in a household consuming more fuel than predicted. More people means more electrical appliances in use and more fuel being used for domestic hot water. The higher than expected fuel bills that result from this can cause hidden and unexpected fuel poverty that is not predicted by EPCs and other datasets.

There are fewer under-occupied homes in Birchfield than the national average. Over the 5 LSOAs, 28.7% of homes have fewer than 0.5 persons per room, compared to the national average of 53.9%. Our community consultation confirms that there are few under-occupied homes in Birchfield, with 18% of homes having fewer than 1.0 persons per bedroom. The people who are under-occupying are usually single.

Although lower than the national average, 28.7% of homes under-occupied is still significant. Under-occupation tends to result in a household having to choose which rooms to heat. Some under-occupied households will attempt to heat the whole house, which is expensive for a single person on a low income. Other under-occupied households will only heat one room, which costs less, but which leads to other social and public health problems associated with fuel poverty such as isolation.

Self-disconnection and self-rationing of fuel in Birchfield

In our community consultation, thirty-one per cent of residents reported that they ration the use of electricity or gas. Half of these were prepayment meter users. Methods used to ration fuel included: extra clothing instead of heating; not turning the heating on; watching less TV; using fewer devices. Not turning the heating on was the most widespread.

More than half of those with pre-payment meters reported running out of credit. In all instances, it was a regular occurrence, with most of them reporting that they self-disconnected once a fortnight. The households who self-disconnected every fortnight were not all in receipt of social security benefits, which suggests that working poor households regularly run out of credit. Most of those self-disconnecting live in rented accommodation.

One-fifth of residents report that they sometimes have to choose between heating or eating. Half of them were not in receipt of social security benefits, which again suggests that the working poor are at high risk. The head of household tended to be over 50 and tended not to have children. Renters were over-represented in this group.

Paying for fuel in Birchfield

Most people in Birchfield (72%) have not changed their fuel supplier or fuel tariff within the last twelve months. This means they are likely to be on uncompetitive fuel tariffs and are paying more for their fuel than is necessary.

All payment methods are present among the people who have changed their fuel supplier or tariff within the last twelve months. Renters are over-represented among people who have switched. There is no obvious trend among people who have switched.

A minority of homes in Birchfield have electric storage heaters. These homes should be on a Time-Of-Use electricity tariff, such as Economy 7. These tariffs are designed for households that use most electricity at night, such as those with electric storage heaters. There are a number of common problems with these households, including:

- Households that erroneously believe or assume that they are on a TOU tariff, but in reality they are not, which means they are paying more than they need to for electricity
- Households that are on a TOU tariff but do not use the storage heater controls to take advantage of it, so they pay more for electricity than they should.

Payment methods use by Birchfield residents

Payment method is an indicator of fuel poverty. Fuel poor homes are more likely to pay by prepayment meter and payment on receipt of a quarterly bill. Fuel rich homes are more likely to pay by direct debit.

When we consulted Birchfield residents we found the following split of payment methods:

Payment method	Percentage using payment method
Direct debit	38%
Payment on receipt of quarterly bill	28%
Prepayment meter	19%
Weekly or monthly payment plan	14%
Other	9%

This shows that approximately half of Birchfield residents are using payment methods that are expensive, namely Payment on Receipt and Prepayment meter. Payment on Receipt carries a high risk of getting into fuel debt. Prepayment carries a risk of self-disconnection. Several residents observed that owner-occupiers prefer to pay by Direct Debit, and do not like prepayment meters as they are associated with renting. Several residents also observed that Asian British households have a strong preference for Direct Debit and dislike of pre-payment meters. Renters were highly over-represented among those using Prepayment and somewhat

overrepresented among those using Payment on receipt of quarterly bill. We were told by residents who do not pay by Direct Debit that they are happy to pay other bills by Direct Debit but not fuel bills because they do not trust energy companies enough to pay by Direct Debit. We heard evidence from residents of energy companies taking Direct Debit payments without warning, plunging households into financial uncertainty.⁵

Fuel debt

Only five per cent of households reported owing money to their fuel supplier. This is comparatively low, since nationally, 14% of households are in fuel debt.⁶ It is possible that the high incidence of both Direct Debit and prepayment as payment methods is responsible for this low level of fuel debt in Birchfield.

What have other stakeholders told us about fuel poverty in Birchfield?

Birmingham City Council has 231 properties out of 3304 in the LSOAs that include Birchfield (7%). Birmingham City Council's housing stock has an average EPC rating of E 55.67, which is quite low. It is only marginally above the average rating in the private sector of 53 for Perry Barr District as a whole.⁷ This suggests that investment in energy efficiency in Birmingham City Council's stock in Birchfield lags behind that in other parts of the city. Birmingham City Council no longer has access to datasets that used to assist with identifying homes in fuel poverty. Its thermal imaging maps and cross-tenure stock condition surveys are no longer available.

Housing associations own 938 properties out of 3304 in the LSOAs that include Birchfield (28%). It has not been possible to get EPC ratings for them. These properties tend to be more modern, with some older housing association properties in the East of the Birchfield area. We received anecdotal reports from residents of housing associations living in properties that had relatively high EPC ratings but were expensive to heat due to poorly fitted windows and doors.

FamilyOptima, which is the second largest housing association after Midland Heart, reports that 97.88% of its homes meet the Decent Homes Standard, which includes a thermal comfort

⁵ Government no longer publishes detailed data on complaints against energy companies, however when the Government did so, problems with Direct Debit were a frequent source of complaint.

⁶

<http://www.telegraph.co.uk/finance/personalfinance/household-bills/10781753/Four-millionhouseholds-in-debt-to-energy-suppliers.html>

⁷

https://www.birmingham.gov.uk/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobheadername1=Content-Disposition&blobkey=id&blobtable=MungoBlobs&blobwhere=1223542389705&ssbinary=true&blobheadervalue1=attachment%3B+filename%3D88453Perry_Barr_Housing_Market_Report_2013.pdf. (2013)

standard. This figure is across FamilyOptima's stock and is not specific to Birchfield.⁸ We do not have EPC ratings for FamilyOptima's stock.

Midland Heart's annual reports do not include data on Decent Homes Standard compliance or EPC ratings. We can assume that compliance with the thermal comfort standard of Decent Homes is near universal, as is the case for FamilyOptima.

Community resilience to fuel poverty

Community resilience to fuel poverty is a recent concept that has emerged within public health. We attempted to measure the resilience of the subject community to fuel poverty using a methodology that we established for a similar project. We used as our reference point for defining and measuring community resilience, a set of indicators of community resilience developed by the Carnegie Trust in 2012.⁹ We then adapted these indicators to develop a set of fuel poverty resilience indicators,¹⁰ one of which we have used below.¹¹

We asked residents who, if anyone, would help them out if they needed it.

Family	68%
Friends	32%
Neighbours	32%
Local organisation	14%

These figures suggest that there are quite high levels of bonding social capital, some bridging social capital but little linking social capital. This may be related to cuts in public service delivery. Seventy-eight per cent of people are optimistic that they will be able to afford their fuel bills in the future.

⁸

<http://www.wmhousing.co.uk/upload/public/Documents/Corporate/Performance/Annual-report/2014-2015/Family-Optima-annual-report.pdf>

⁹

<http://www.carnegieuktrust.org.uk/getattachment/75a9e0c48d754acbafac6b1cbd6f2c1e/ExploringCommunityResilience.aspx> and published under a Creative Commons licence.

¹⁰ <http://www.localisewestmidlands.org.uk/activities/northfieldwarmhomes/>

¹¹ It would be necessary to carry out more extensive interviews with householders to fully use the Community Resilience Indicators.

What type of fuel poverty interventions are needed in Birchfield?

Building Fabric

Building fabric is the single most important factor affecting the energy efficiency and running costs of a home. The most important aspects of building fabric are walls and roofs, followed by floors, doors and windows. The graphic below shows us the areas of a typical house from which most heat is lost:



This means that the main priority for improving the building fabric is insulating the wall. Where the wall has a cavity between the two layers of brick (as is the case with most houses built after 1930) then it is relatively simple to insulate the cavity.

In the image below, we can see an external layer of brick, a cavity, and an internal layer of breeze block. Insulation is in the process of being installed in the cavity. ¹²

¹² It can be seen that the insulation touches the outer layer of brick. This would not be considered good practice nowadays as it enables moisture transfer from the outside layer of brick to the inner layer of breeze block. Nowadays good practice is to install the insulation against the inside layer of breeze block, not touching the outside layer of brick.

A cavity wall is relatively easy to identify because from the outside, only stretchers (long bricks) can be seen. Where a house was built before 1930 then it is most likely to have solid walls, with no cavity between the two layers of brick. From the outside, both stretchers (long bricks) and headers (short bricks) can be seen.



The following image is of a solid wall, where both stretchers and headers can be seen outside.



Solid walls can be insulated externally through external cladding and a render finish, or internally through internal thermal boarding.

Both cavity wall and solid wall insulation are effective measures at reducing heat loss and bringing the thermal performance of the wall up to the standard of a newly built home. Cavity wall insulation causes minimal disruption to the household and is suitable for most cavity walls. External wall insulation causes little disruption but takes longer, and internal wall insulation is the most disruptive. If a whole house has internal wall insulation then the residents need to move out or it can be done during a void period. Alternatively internal wall insulation can be done one room at a time. External wall insulation can be applied one wall at a time.

Specific issues facing Birchfield are as follows:

- most homes in Birchfield have solid walls;
- observation of cavity walls shows that many already have insulation; among the remaining homes, some of the cavities will be difficult to insulate;
- applying external wall insulation to the facade of older houses would adversely affect their appearance;
- applying external wall insulation to the gable end of terraced houses where there is an entry between terraces would narrow the entry to the point where it would not comply with Part M of the building regulations regarding disability access;
- external and internal solid wall insulation are expensive; they are beyond the reach of most homeowners and housing providers in Birchfield and the levels of ECO funding available are not sufficient to make solid wall insulation financially viable.

A summary of the pros and cons of solid wall insulation can be seen in the table below”

	Internal solid wall insulation	External solid wall insulation
Performance	Increases thermal performance to the same levels as current building regulations	Increases thermal performance to the same levels as current building regulations
Potential for insulating the whole house	Care needs to be given to ensure insulation avoids cold bridging around window and door reveals, porches, bay windows	Relatively easy to achieve whole-house insulation on interwar properties (e.g. on Robert Road – these are a minority in Birchfield), more difficult on pre-1919 properties

Disruption to occupiers	High internal disruption, can be mitigated by doing one room at a time or on voids	Time-consuming although little internal disruption; can be done one wall at a time
Planning considerations	None; internal decorative features e.g. cornices can be restored	Negative visual impact on facade of older homes with decorative features; positive visual impact on inter-war homes; cannot insulate gable end walls where there is an entry passage
Cost	Expensive, usually slightly cheaper than external	Expensive

It is difficult to see much progress being made in solid wall insulation in Birchfield under current economic circumstances.

Uninsulated cavity walls

While most homes in Birchfield have solid walls as outlined above, a minority of homes do have cavity walls. There are several clusters of homes that may not have cavity wall insulation.

Evidence that a home may not have cavity wall insulation include: an EPC that recommends the installation of CWI; observation of the lack of drilling to install CWI in homes built before the mid-1990s.

On this basis we believe that there is no cavity wall insulation at:

- Paul Byrne Court, Robert Road.

And that there is partial cavity wall insulation at:

- Louise Court, Crompton Road;
- Old Mill Grove.

It should be noted that in some cases, the cavity walls have not been insulated because of technical difficulties such as narrowness of cavities, or issues with cavity wall ties, which have until now prevented property owners from insulating these walls. Increasingly, insulation manufacturers are developing solutions for these types of cavity walls, which may be an option for any such properties that remain in Birchfield. In some instances, ownership issues may prevent the installation of cavity wall insulation in flats.

Heating systems

Most homes in Birchfield have gas central heating systems – 75.3%. This is close to the national average of 78.8%. Of these, we estimate that 65% are condensing boilers ¹³ (more efficient boilers installed since 2005) and 35% are non-condensing boilers (less efficient boilers installed prior to 2005). Some of the condensing boilers will be cheap boilers fitted under Warm Front in the first decade of this century, some of which will now be coming to the end of their useful lives. A further 7.2% of homes have “electrical central heating”, according to the Census. We believe that this refers to electric storage heaters. This suggests that around 18% of homes in Birchfield have only gas fires or on-peak electric heaters.

Replacing non-condensing gas boilers with condensing gas boilers is a cost-effective energy saving measure. In some cases, private sector households can receive ECO funding towards this although this will only cover the most straightforward of boiler swaps, and a householder contribution will be required if there is any enabling work required e.g. repositioning the boiler; new gas pipework; new radiators; asbestos treatment.

Electric storage heaters are capable of heating a home affordably if the home is well-insulated and if they are used correctly. Experience shows that most users do not understand how to use the heating controls on storage heaters correctly, which leads to high running costs. Gas is always the cheapest heating fuel and replacing electric storage heaters with gas central heating would reduce running costs. Alternatively, older storage heaters, especially those with manual controls, could be replaced with more modern fan-assisted storage heaters which are more efficient, and which have automatic controls that eliminate the possibility of user error.

At the following groups of homes, there are three pieces of evidence (the gas grid maps; EPCs; observation of the lack of gas supplies entering the buildings) which tell us that most, and probably all, of the homes do not use mains gas for heating.

- Louise Court, Crompton Road
- Wilmore House, 15 Haughton Road
- Old Mill Grove
- Manwoods Close.

EPCs inform us that these homes have electric storage heaters (probably not fan-assisted) with manual charge controls.

The following smaller clusters of homes are also likely to use electrical heating rather than gas:

- Flats above shops on corner Wellington Road/Birchfield Road
- Flats above shops on the corner of Robert Road

¹³ Based on EPC sample data

- New houses built in 2007 on Turville Road (Westminster Road end)
- Church Grove (off Church Hill Road)
- HMOs on Grosvenor Road.

All of the homes above are likely to be 23 metres or fewer from a gas main, making it cost-effective to install a gas supply and gas central heating into the home. The exception is Manwoods Close, which is likely to be greater than 23 metres and therefore it may be prohibitively expensive to install a gas main there.

On-peak electric heating is always an expensive way to heat a home. If the home is too far from the gas network for gas central heating to be a possibility, then modern fan-assisted storage heaters with automatic controls would be less expensive to run. An air source heat pump could be considered in a home that is off the gas network but only if it is well insulated. An air source heat pump should not be considered in a home that is on the gas network or which has poor insulation.

Lower cost measures

There are two specific lower-cost energy saving measures that are cost-effective to buy and to install either professionally or on a DIY basis. These are:

- radiator reflective foil, which is highly effective at reflecting heat radiated from the rear of radiators back into the room instead of it being conducted through the outside walls;
- draughtproofing of badly fitted double glazing and doors, which are reported to be widespread in Birchfield, as a result of poor installation.

Smart metering

Smart meters are due to be installed in every home in Britain by 2020 at no additional cost to the householder. There are many potential benefits to smart meters, including more accurate billing, and the opportunity to manage household energy costs. It should be acknowledged that there are also opponents of smart meters who are against them for various reasons. The following groups of people in Birchfield are at risk of low awareness about the benefits of smart meters:

- people with disabilities
- people whose first language is not English.

46.2% of households have at least one person aged 16+ who does not have English as a first language. 3,116 out of 9,594 residents aged 3 and over do not have English as their main language (32%). Among the other main languages spoken are South Asian Languages (1,941);

*West/Central Asian Languages (188); African Languages (359); Other European Language (321).*¹⁴

- people with low levels of literacy – we have seen in the community consultation that less than one-third of residents finished full-time education at the age of 21 or above, while two-thirds did not have any education beyond the age of 19.

There is a need for awareness-raising among the population of Birchfield, and particularly those in the specific groups outlined above, to ensure they get equal benefits from smart metering as the rest of the population.

Heating controls

Many homes in Birchfield have inadequate heating controls, e.g.

- electric storage heaters with manual charge controls;
- gas central heating without thermostatic radiator valves or room thermostats.

These heating controls would benefit from upgrading to:

- automatic charge controls for electric storage heaters;
- thermostatic radiator valves, room thermostats and programmers, which are routinely fitted with new gas boilers nowadays.

There is also a new generation of smart heating controls, mainly for gas boilers, that are coming on to the market which give greater control, and in some instances, are simpler to use, and save money. They include:

Co-Control replaces existing heating controls with a simple two-button 'comfort switch'. It is predominantly marketed at social landlords although it can also be used by homeowners. It can be paid for by direct debit, which removes the upfront cost and the savings on fuel bills are meant to outweigh the monthly direct debit.

Heat Genius is a smart, remote heating control saves energy by only heating rooms when you need them. It learns when you use your rooms and schedules your thermostatic radiator valves to turn on when you need heat. Your heating can be manually turned on and off from anywhere using a mobile phone, tablet or computer. It can also control hot water systems, immersion heaters etc.

¹⁴ MSOA Birmingham 035

[http://www.neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?](http://www.neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?a=7&b=6277162&c=B20+3PR&d=140&e=13&g=6361794&i=1001x1003x1004&m=0&r=0&s=1465030570978&enc=1&dsFamilyId=2528)

[a=7&b=6277162&c=B20+3PR&d=140&e=13&g=6361794&i=1001x1003x1004&m=0&r=0&s=1465030570978&enc=1&dsFamilyId=2528](http://www.neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?a=7&b=6277162&c=B20+3PR&d=140&e=13&g=6361794&i=1001x1003x1004&m=0&r=0&s=1465030570978&enc=1&dsFamilyId=2528)

Hive is a set of smart heating controls, centred around a smart room thermostat. The central heating system can then be controlled by the Hive smartphone app. Homes with high demand for space heating (e.g. 250 kWh/m² or above) would benefit from smart heating controls. Homes with lower demand for space heating (e.g. 150 kWh/m² or below) may also benefit but the return on investment should be calculated before deciding to buy.

Fuel tariff

Most people do not shop around for the cheapest tariff and the cheapest supplier. This means they end up on the most expensive tariffs. Energy suppliers give their cheapest tariffs to people who use price comparison sites to shop around, and to customers who proactively contact their supplier to find out their best tariff. These customers are known as 'savvy' customers. Energy suppliers give their most expensive tariffs to people that do not check that they are on the cheapest tariffs. These customers are known as 'sticky' customers.

The most common reasons for not shopping around are misplaced loyalty to long-established energy suppliers, and fear of losing control of household finances by changing supplier or payment method.

Households with high fuel consumption benefit most from shopping around for a new tariff. Households with low fuel consumption will still benefit from shopping around, but won't save as much as households with higher fuel consumption. Any accredited price comparison site can be used to compare prices and suppliers, as long as accurate information on current metered consumption and tariff is used in the price comparison. It is not always necessary to change energy supplier to get a cheaper tariff. Often a cheaper tariff can be obtained with the an existing supplier.

Energy company trust funds

Some energy companies have trust funds. Applications may be submitted to these trusts to clear the fuel debts of people with chronic fuel debt problems, where attempts have been made to address the debt but have failed. British Gas, npower, ScottishPower, EDF, E-ON all have such funds. E-ON's fund is open to non-E-ON customers. Smaller suppliers do not usually have trust funds.

Applications to the trust funds usually need to come from an advice worker rather than from the householder themselves. Applications are not always successful and anecdotal evidence suggests that it can take an advice worker several attempts to apply to a particular trust until they get to know what makes a successful application. One way around this for Big Local Birchfield might be to form a partnership with an organisation which has a track record in applying to the trust funds.

If an application is accepted, the trust fund will usually require some commitment from the applicant, such as commitment to regular payments in future, or to use energy more efficiently.

Warm Home Discount

Warm Home Discount is a single annual payment of £140 (including VAT) towards the cost of winter fuel bills. People who get the Guarantee Credit element of Pension Credit also qualify. Other people on low incomes may get the WHD at the discretion of their electricity supplier. Most suppliers are part of the WHD scheme, including the smaller ones. The WHD is not paid in cash but in a one-off discount on the electricity bill, or a voucher to use to buy credit for a pre-payment meter.

People who get the Guarantee Credit element of Pension Credit do not have to apply, they receive the WHD automatically. Other people who may qualify for the discretionary element of the WHD need to apply to their electricity supplier. Qualifying conditions vary between suppliers. Applications need to be made during autumn each year. Awareness of the discretionary element of WHD is low and greater takeup should be encouraged.

Crisis management

An increasingly common feature of fuel poverty is when a household is plunged into a short-term crisis due to the time taken to process social security benefit claims, or where a recipient of social security benefits is sanctioned. Either of these can lead to a situation where a household with a prepayment meter does not have any cash for food or fuel. Food banks are an increasingly common response to this but there is little or no provision for households to top up their prepayment meters until the payment of social security benefits resumes.

Some housing providers have a crisis fund which their tenants can access through the housing associations welfare officers. A fuel poverty project in Birchfield should signpost housing association tenants to their welfare officers. There is no such provision for private sector Households. The Trussell Trust, the charity who are the UK's largest food bank provider, and npower, are starting to run a fuel bank service in a number of areas. This is funded by npower. The nearest food banks providing this service are in Castle Bromwich and Cotteridge. In the medium term we can expect a growth in fuel banks as other national charities and utility companies copy this scheme. Since there is no guarantee that Birchfield will be covered by any new scheme, then in fundraising for the delivery of a fuel poverty project, Big Local Birchfield should consider including a budget for emergency prepayment meter topups for households suffering a cashflow crisis due to sanctions or delayed claims.

Water poverty

Water poverty is on the increase, especially among people with water meters. Newer homes in

Birchfield, such as Westminster Court, have water meters. New homes being built by Birmingham Municipal Housing Trust on Bridgelands Way and Burton Wood Drive, will also have water meters. Even where a home has been designed to meet water efficiency standards, e.g. Bridgelands Way/Burton Wood Drive, it is still possible for residents to waste water and to be in water poverty.

Many households with water meters do not realise they have such meters and do not understand the relationship between the way they use water appliances and the amount that they pay. Behaviour that can lead to water poverty includes: excessive time spent in the shower; washing cars; inefficient use of water in the garden.

Advice given to households at risk of water poverty can include:

- understanding which appliances use most water, e.g. power showers, washing machines, toilets; and how to use these appliances more efficiently;
- understanding the relationship between the use of water appliances and the amount paid;
- whether a particular household would be better off with a water meter or not;
- payment methods and budgeting;
- how to apply for Severn Trent's WaterSure tariff, which is a social tariff for some vulnerable customers with water meters;
- Extra Care services for vulnerable customers;
- how to apply to Severn Trent's trust fund, which helps to clear water debt;
- where to find your water meter and how to manage water consumption.

Severn Trent also occasionally give grants to organisations that give advice to people on water saving.

What existing provision of fuel poverty advice is available to residents?

Birmingham City Council's Stay Warm, Stay Well scheme ran out of funding on 31 May 2016. Birmingham City Council are looking for funding to run a reduced scheme until April 2017. City-wide organisations such as Birmingham CAB and Age UK provide fuel poverty advice but there is no fuel poverty advice service currently operating locally in Birchfield.

What type of capital funding is available for energy saving measures?

The situation with regards to capital funding for energy saving measures is not favourable and is getting worse. There are very limited opportunities for funding and Big Local Birchfield should take care to ensure that expectations are not raised that there is easy money available. This funding is means-tested and household usually needs to be on low income and in receipt of social security benefits to qualify.

Health Through Warmth will fund between 25% and 50% of energy efficiency measures in a private sector household where a resident has a chronic cold/damp related medical condition. This means that a household contribution of 50% or more is usually required. Warm Zones administer this scheme for Birmingham.

Some funding is periodically available through the Energy Company Obligation for very straightforward insulation in private sector households, such as cavity wall insulation, and loft insulation (where there is currently >75mm of insulation). Cavity wall insulation and loft insulation in such circumstances will usually be free. There are a number of ways to access this funding including contacting a utility company or installer directly. Warm Zones have access to this funding and to installers and are likely to be the most straightforward way for private sector households in Birchfield to access this funding.

Funding is also available to social housing providers for cavity wall insulation and loft insulation. Warm Zones are able to access this funding, the social housing provider must use the contractors procured by Warm Zones.

Funding is also periodically available through the Energy Company Obligation for external wall insulation. The available funding is typically between £750 and £1000 depending on the household. Since the cost of external wall insulation is typically between £5,000 and £10,000 then the available funding does not make it affordable for a low-income household. This funding can be accessed through Warm Zones. There are very few installers that bother with this funding nowadays due to its stop-start nature; Six Star Insulation in Kings Heath are one of them. It should be emphasised that this funding is not constantly available and can disappear if a household applies at the wrong time. It is not always easy to predict when it will be available. Funding for external wall insulation is not means-tested.

Funding is available for replacing old, inefficient gas boilers in the private sector with modern, efficient condensing gas boilers, but only under very limited circumstances. Only the most straightforward boiler swaps will qualify for 100% funding, e.g. where there is little or no new pipework or enabling work required. In most cases, the boiler swap will not be 100% funded and a householder/landlord will need to make a financial contribution. This leads to confusion and frustration among householders as they are contacted by installers offering “free” boilers but in most cases it turns out not to be discounted but not free. Some utility companies (e.g. British Gas, npower) will offer this to their customers (and in some cases, non-customers), Warm Zones are also able to access this funding.

Some installers now offer boiler replacement on a pay-as-you-save basis. There is no upfront payment, and the household pays for the cost of the boiler installation by monthly direct debit payment. In considering such a scheme, a household needs to take into account the following Factors:

- make and model of boiler being offered; cheaper boilers may have higher maintenance costs;

consult Which? and other consumer guides

- guarantees – a minimum of 5 years; some may offer 10 years
- installers should have Gas Safe accreditation to installer gas boilers
- what after-care is available
- the solvency of the provider
- households should take independent financial advice on the implications of entering into a credit agreement.

Big Local Birchfield has the option of a signposting partnership with a provider of a pay-as-you-save scheme. In doing so, Big Local Birchfield should carry out a level of due diligence at least as rigorous as that outlined in the previous paragraph. Big Local Birchfield should also exercise care in whether or not it has the authority to signpost, and the implications of consumer credit law. I am not an expert in consumer credit and therefore I recommend Big Local Birchfield to seek expert advice on consumer credit before considering this type of arrangement.

Job creation

In the last year there have been a number of high profile failures in the energy efficiency industry. The two biggest independent players in energy efficiency, Mark Group and Climate Energy, have both gone out of business. British Gas have closed down their insulation business. In these circumstances there are little or no prospects of job creation through the installation of energy saving measures in Birchfield. There is the opportunity of setting up an energy advice campaign. This might sustain an existing job or create a new part-time job; however the scarcity of funding means that this would not be secure.

What type of revenue funding is available for the delivery of fuel poverty projects?

At the time of writing, there are three options available:

*ScottishPower Energy People Trust*¹⁵ - gives grants for fuel poverty projects. This is an ongoing fund that can be applied to several times a year. It is very competitive and an applicant needs an exceptionally strong proposal to stand a chance of getting funded. The following factors should be emphasised in an application to ScottishPower Energy People Trust:

- The exceptionally high statistics for fuel poverty in Birchfield
- The worse than average indicators for public health in Birchfield
- The existence of a significant number of private rented properties that have F and G ratings on EPCs
- The opportunity for low-cost energy saving measures such as radiator reflective foil and draught-proofing

¹⁵ <http://www.energypeopletrust.com/content/default.asp?page=home>

- The wasteful behaviour of a large number of Birchfield residents
- The existence of clusters of electrically-heated properties and the opportunity to inform residents of the vital importance of heating controls in such properties
- The existence of a significant number of households that do not currently shop around for fuel supplies.

*SmartEnergyGB*¹⁶ is a grant programme for raising awareness of the benefits of smart metering among groups at risk of exclusion. Applications for 2016 must be made by 30 September 2016 and spent by 31 December 2016. An application from Big Local Birchfield should highlight that:

- A large number of people in Birchfield do not speak English as their first language
- Many people in Birchfield have low levels of literacy and digital skills

*Severn Trent organisational grants*¹⁷ support the provision of advice to those who cannot afford their water bills. It should be noted that this fund cannot support general fuel poverty advice. It is an ongoing programme. An application to this fund from Birchfield Big Local should emphasise the following:

- The existence of clusters of new-build properties with compulsory water meters
- Low income levels
- Large family units which exist in Birchfield increase the risk of water poverty.

Conclusions

Birchfield is an area of high fuel poverty. The factors which lead to this are:

- poor energy efficiency of buildings, especially in those homes built before 1930, the majority in Birchfield
- Poor energy efficiency of heating systems, especially non-condensing boilers in around 1/3 of homes, and inefficient electric storage heaters in a few dozen homes
- Low incomes, including the working poor
- Households being on uncompetitive fuel tariffs
- Poor health
- Payment methods, particularly Payment on Receipt of Quarterly Bill¹⁸

Many households in Birchfield are coping with being in fuel poverty; they are quite resilient and they get by, despite the hardships associated with struggling to afford the bills. There are a minority of households who are not coping very well and who lurch from crisis to crisis, with regular self-disconnection of pre-payment meters and having to choose between heating and eating.

¹⁶ <https://www.cafonline.org/about-us/our-grant-programmes/smart-energy-gb-grant>

¹⁷ <http://www.sttf.org.uk/information-for-organisations/grants-funding/>

¹⁸ Prepayment meters are less widespread in Birchfield than in some other fuel poor areas

Recommendations

In the short term, there is a need for an advice-based project in Birchfield. This project could deliver the following types of advice to the following categories of people:

- Behavioural advice on not wasting energy; most residents in Birchfield, apart from the minority who are already thrifty, would benefit from this;
- Advice on choosing a fuel tariff (including changing tariff without changing supplier); most residents of Birchfield would benefit from this;
- Advice on the correct use of charge controls on electric storage heaters, targeted at Louise Court; Wilmore House; Old Mill Grove; Manwoods Close. This should also include checking that the household are on a Time-of-Use electricity tariff;
- Advice targeted at tenants living in homes with energy efficiency ratings of F and G on their right to energy efficiency improvements from 2017;
- Help for residents currently using Payment on Receipt of Quarterly Bill, to switch to monthly/weekly payment plans or Direct Debit;
- Practical help to install low-cost energy saving measures such as draughtproofing and radiator reflective panels;
- Advice on water saving and managing water bills, aimed at all residents but targeting those on water meters, e.g. Westminster Court, Bridgelands Way, Burton Wood Drive
- Advice on how households in Birchfield can benefit from smart meters, accessible to all the population but targeted at those households that are most vulnerable e.g. those where there are adults who do not speak English as their first language
- Where a household is in fuel debt, help with agreeing a payment arrangement, and in some cases, applying to an energy company trust fund
- An autumn campaign to raise awareness, and increase take-up of, the discretionary element of the Warm Home Discount.

In the longer term, if the funding environment for energy saving measures should improve, then the following would be priorities for Birchfield:

- Replacing the remaining non-condensing gas boiler population in the private sector with condensing gas boilers
- Replace older electric storage heaters with modern, fan-assisted storage heaters with automatic charge controls
- Wall insulation for pre-1930 homes, with a mixture of internal wall insulation and external wall insulation on side and rear walls, so as to not spoil the attractive facades that characterise the area.

Phil Beardmore
Calendula Consulting
June 2016

Appendix 1

Data Quality Issues. The main data quality issue in writing this report have been:

- The non-gas maps may exclude data from independent gas transporters, which would distort their figures slightly. We have triangulated data from these maps with two other sources of information (site observations and EPCs) which means that we are confident that data in this report on non-gas properties is accurate.
- The average SAP rating for private sector homes in Perry Barr is not a robust piece of data, because Birmingham City Council has published identical figures for 10 out of 11 districts in the city.

Appendix 2

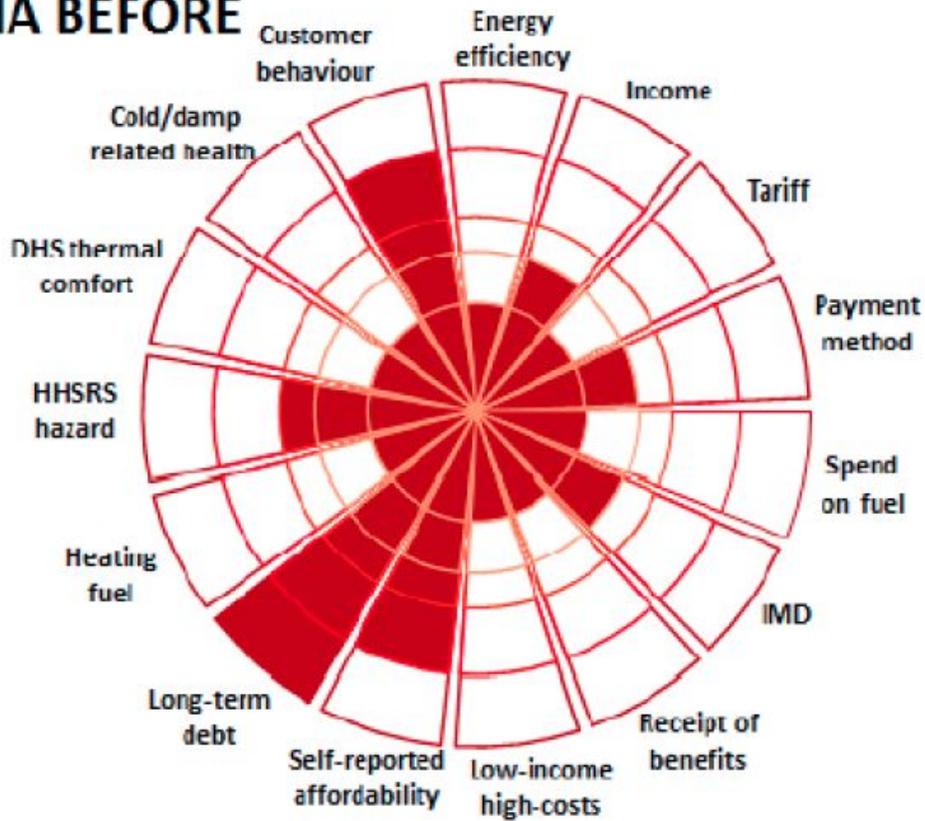
Localise West Midlands has developed a methodology for measuring fuel poverty called the fuel poverty Wheel of Fortune, which has been adopted by the Birmingham Affordable Warmth Partnership, and which has used on previous evaluations of fuel poverty projects. The Wheel of Fortune is used to measure fuel poverty, and progress made in tackling it, among the beneficiaries where there has been an energy advice intervention.

In the Wheel Of Fortune the various aspects of fuel poverty e.g. severity of cold/damp related medical conditions; level of fuel debt; energy efficiency rating; income levels and others are represented by spokes on a wheel. Proxy indicators are used where appropriate. Position on each spoke is determined by a point scale, supported by appropriate absolute or relative evidence (e.g., energy efficiency is based on SAP rating of energy advisor survey; customer behaviour a range from thrifty to wasteful based on interview responses, etc). People in fuel poverty will be characterised by indicators positioned nearer the centre of the spokes, and people with less of an issue will be characterised by indicators closer to the edge of the wheel. The closer the indicators appear to the outside of the wheel, the less risk the subject has of fuel poverty. This data can be typically gathered during the intervention and also by desktop research. The datasets used can be adapted according to the resources of the project to gather data. The Wheel enables us to take a before and after picture to visually show what the intervention has achieved and clearly to identify and visualise specific problems or strengths rather than reducing a complex problem to a single averaged out indicator as other methods do. It also enables us to build an individualised picture of the unique way in which fuel poverty affects an individual household and how varied are the symptoms of fuel poverty from household to household.

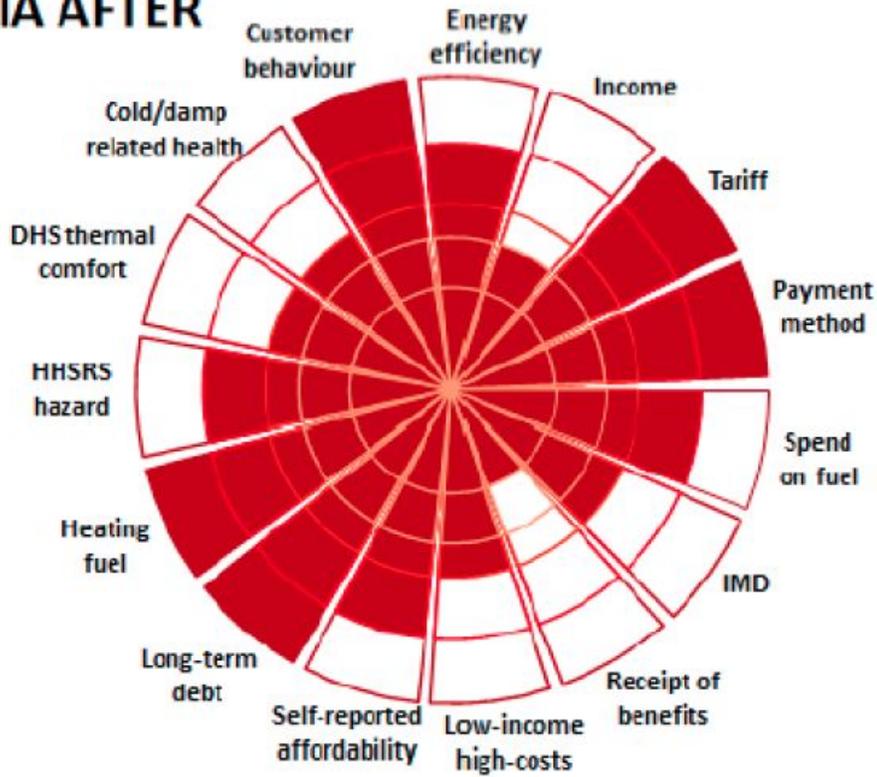
We recommend the Wheel of Fortune as a methodology for measuring before and after progress in the delivery of future fuel poverty interventions in Birchfield.

Below is a fictitious example of the use of the Wheel of Fortune to record fuel poverty. This is a before and after example, showing what happens before and after a fuel poverty intervention. The closer each spoke is to the outside of the wheel, the lower the risk of fuel poverty.

CELIA BEFORE



CELIA AFTER



Copyright issues

The Community Resilience to Fuel Poverty indicators are open source and may be freely used. An acknowledgement to Localise West Midlands should be given. The Fuel Poverty Wheel of Fortune may only be used with the permission of Localise West Midlands.