Accessing the Energy Company Obligation for 'Hard-to-Treat' homes in Marlborough Community Area

A report on eight case studies of Hard-to-Treat homes in Marlborough Community Area

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Thermal imaging by Jake Seaward, St John's School

External wall insulation of a rural home in West Somerset, Sedgemoor and Taunton Deane council areas, funded by the local authorities and managed by the Centre for Sustainable Energy, saving up to 2 tonnes of CO2 per year http://www.cse.org.uk/projects/view/1154

Executive Summary

- The Energy Company Obligation (ECO) places legal obligations on the larger energy suppliers to deliver energy efficiency measures to domestic energy users. ECO is intended to work alongside the Green Deal to provide additional support in the domestic energy sector, with a particular focus on vulnerable consumer groups and 'hard-to-treat' (HTT) homes.
- Wiltshire Council (WC) has identified more than 1,000 dwellings in the private sector (rented and owner-occupied) in Marlborough Community Area (MCA) that are housing families that are likely to be in fuel poverty because they have inadequate heating and ineffective insulation.
- WC has also identified 795 households, in MCA, that are likely to be in fuel poverty, because of social isolation, low income, chronic health problems, age and structure of their dwellings (mainly in the social and private rented sector).
- Transition Marlborough (TM) has prepared case studies of eight households that are vulnerable to fuel poverty because they live in HTT homes.
- These case studies represent the main causes of fuel poverty in MCA, i.e. solid walls and/or expensive, inefficient heating systems in Marlborough town, which is on the gas grid and in surrounding villages, which are off the gas grid.
- It is evident that the hundreds of households that are represented by these case studies are eligible for ECO funding in order to retrofit their homes and make them more energy efficient.
- TM facilitated a meeting in Marlborough Town Hall on Thursday 30th January, with representatives of Eon, British Gas, Aster Social Housing, WC, Community First and Marlborough Town Council (MTC) to discuss ways of accessing ECO funds for MCA.
- A series of recommendations were made during this meeting and these will be presented to the Energy Minister, Rt Hon Greg Barker, when he visits Marlborough on Tuesday 11th February.
- Recommendations to the Energy Minister and WC, include establishing a fund to provide free Green Deal Assessments and working with an energy supplier to set up a pilot project in MCA to retrofit up to 1,000 HTT homes, see page 14.

Accessing the Energy Company Obligation for 'Hard-to-Treat' homes in Marlborough Community Area

What is the Energy Company Obligation?

The Energy Company Obligation (ECO) is a Government designed scheme intended to reduce the UK's energy consumption and support those living in fuel poverty, by requiring energy suppliers to provide households with energy efficiency improvements. ECO was launched in January 2013 to support those in or at risk of fuel poverty and to provide insulation for 'hard-to-treat' (HTT) properties. It is composed of 3 obligations:

- **The Carbon Saving obligation (CSo)** is available for energy efficiency measures in hard-to-treat homes, i.e. packages of measures that include solid wall or HTT, cavity wall insulation.
- **The Carbon Saving Communities obligation, (CSCo)** targets areas of low income, defined using the bottom 15% of Lower Super Output Areas from the Indices of Multiple Deprivation in England, Wales and Scotland. Suppliers are required to deliver 15% of their overall CSCo to rural, low income households in settlements with a population size under 10,000.
- **Affordable Warmth** targeted at the poorest and most vulnerable consumers who are likely to be in fuel poverty. Only those in private tenure and in receipt of a qualifying benefit will be eligible.

See: https://www.ofgem.gov.uk/environmental-programmes/energy-companies-obligation-eco

Although Marlborough Community Area (MCA) is rural and Marlborough town has a population of less than 10,000, it's residents are not eligible for CSCo, because crime levels are too low, educational opportunities are too high and there are insufficient households in receipt of welfare benefits. Nevertheless, there are many local households that are in fuel poverty mainly because they live in HTT homes, as a result of one or more of the following defects:

- Inadequately insulated because it has solid walls/tiled timber walls and/or requires bespoke double glazing (being Grade II listed/ in a Conservation Area).
- Off the gas-grid, using high cost, carbon dense oil/LPG-fired central heating or inefficient, electric night-storage heaters.
- Using high cost, inefficient, electric night-storage heaters, despite being on the gas grid.

Wiltshire Council's evidence of widespread energy inefficiency and fuel poverty in MCA

1. 'Non-decent', energy inefficient houses in the private sector (owner-occupied and rented)

According to Wiltshire Council's Private Sector House Condition Survey, 2010, 34% of houses in MCA are 'non-decent', based on the known ages of the buildings:

- 985 dwellings (16%) have inadequate thermal comfort (inadequate heating and ineffective insulation).
- 743 (12%) are excessively cold (energy rating of <55) too cold for vulnerable people, i.e. those over 65 years, young children, the sick and disabled.
- 528 (10%) are causing vulnerability to fuel poverty.
- 364 (7%) are housing families that are already in fuel poverty.

2. Fuel Poverty, especially in rented accommodation

Wiltshire Council's **Fuel Poverty: Analysis and Segmentation Report (Dec 2012)** identified 795 vulnerable households in MCA, based on the 'Mosaic' national model, which uses a combination of the

following indicators:

- Social isolation
- Low income
- Long term health problems
- Low household density (under occupancy, property age, problems with property)

447 of these vulnerable households are in the 'older group' (over 65 years) while 348 of them are in the younger group (18 to 35 years) and are situated in areas with a high density of social housing or in private rented flats and houses, especially along Marlborough High Street.

Fuel Poverty is more common in rural areas

According to the Association for the Conservation of Energy, there are more than twice as many children living in fuel poverty in rural areas (14.2%) than there are in urban areas (5.9%). This is because they they are more likely to be using costly electricity or non-metered, carbon-dense fuels to supply their heating:

http://www.ukace.org/wp-content/uploads/2013/02/ACE-and-EBR-fact-file-2012-02-Families-and-fuel-poverty.pdf

In Wiltshire, the current rational of ECO implementation is prioritising peri-urban households (in Trowbridge, Salisbury and Swindon) rather than the more vulnerable off gas-grid rural households.

What are Hard-to-Treat Homes?

In this report, homes are categorised as HTT because the cost of improvements would not comply with the Green Deal's 'Golden Rule', i.e. *the cost of energy-saving improvements should not exceed the expected savings made on the household's energy bill*. Many homes in MCA need energy-saving improvements, such as solid wall insulation and more efficient boilers, including district heating, which would cost much more than any savings that could be made on their energy bills in the short-term and are thus considered HTT. These homes are eligible for ECO grants.

In MCA, hard-to-treat homes are found in the following areas:

- Solid wall, terraced cottages in Kennet Place and St Martins.
- Solid wall houses, built before the 1920's, including in St Johns Close.
- Converted flats along Marlborough High Street.
- Most houses that are off the gas grid, in surrounding villages.

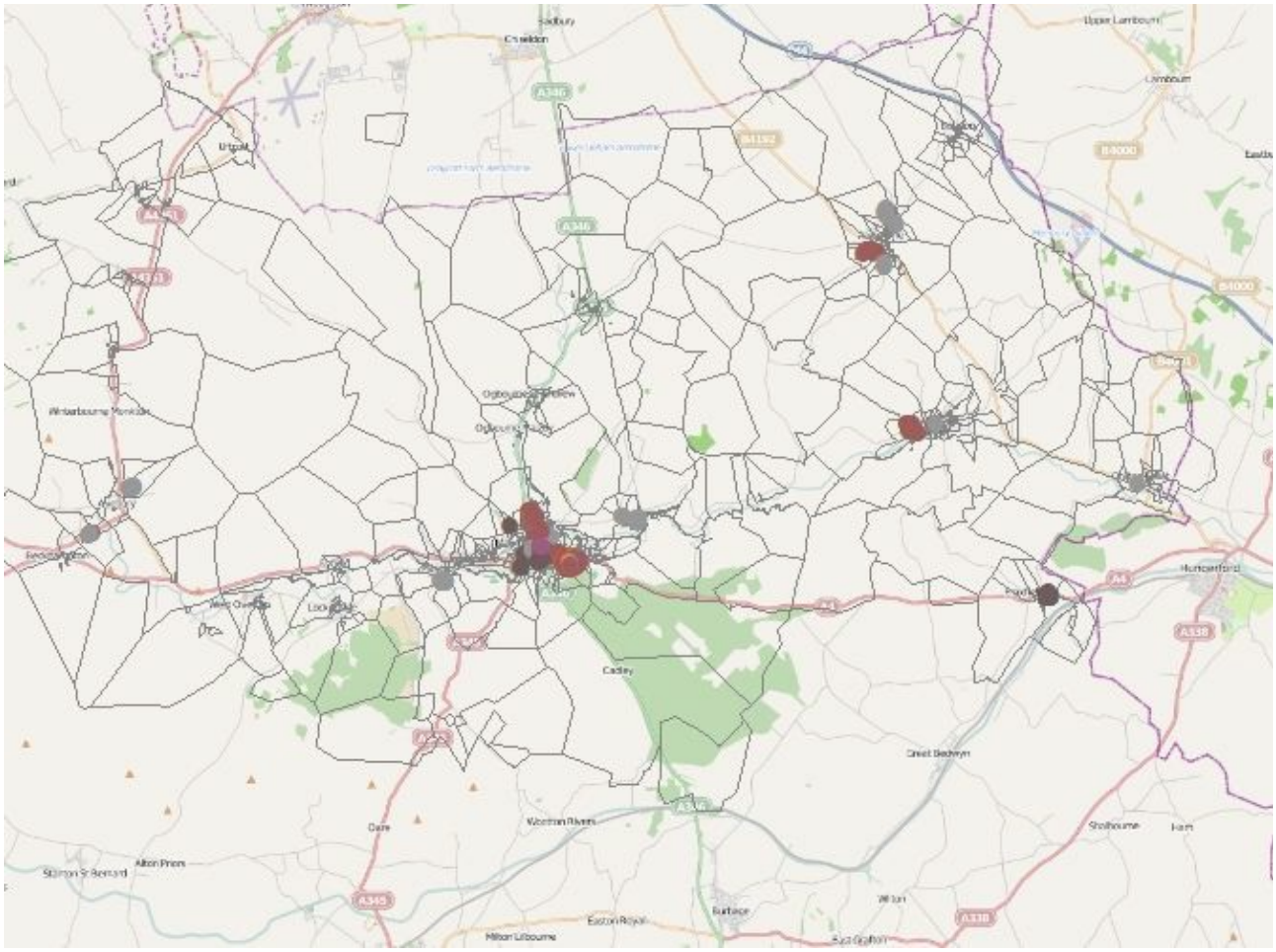
Energy-efficiency measures that are recommended for HTT homes

- Replacing old gas and oil boilers with condensing ones.
- Replacing oil heating with biomass boilers (including district heating) ground or air source heat pumps, in off gas-grid areas.
- Installing external/internal insulation into solid or non-traditional wall dwellings .
- Installing solar water heating where the roof is appropriate.
- Installing double glazing where necessary.

A complete retrofit could cost up to £10,000 per dwelling and would cut both fuel bills and carbon emissions by at least 40%.

Examples of Hard-to-Treat homes in MCA

Eight HTT homes were selected for this study because they represent each of the main types of domestic energy inefficiency and causes of fuel poverty that are found in MCA. Each householder was interviewed about energy efficiency and the monthly cost of heating their home. Temperatures in the living room and bedrooms were taken in the evening, when the heating was on and the outside temperature was between 8 and 10°C. Thermal images showing areas of excess heat-loss from the fabric (roof, walls, windows and doors) of each of the dwellings were made by Jake Seaward (with guidance from Keven Chappell, Senior Thermographer) using a Flir, digital, thermal imaging camera, courtesy of St Johns School. The coloured images were taken from the outside and the grey images were taken inside the dwelling.



Marlborough Community Area: Showing concentrated areas of fuel poverty (red, black & grey spots) (Wiltshire Council Mosaic Report, 2012)

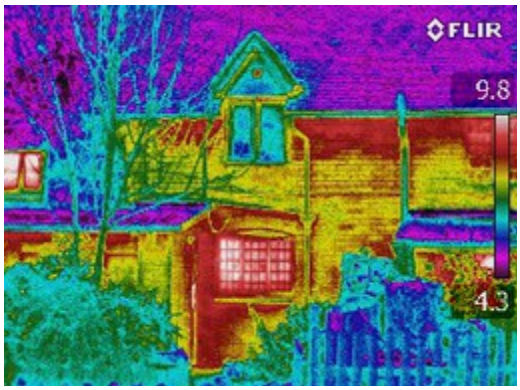
1. Three HTT homes in MCA villages, that are off the gas grid

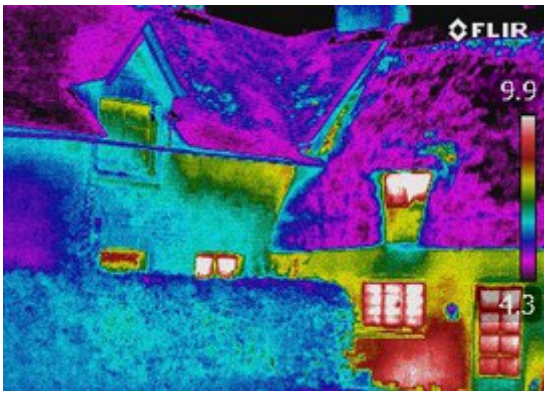
(i) Cadley village, privately rented house

100 year-old, 2 bedroom, terraced house, mostly single glazed, with non-insulated, solid walls.

- Oil-fired central heating, plus an open log fire. Oil is used sparingly to save money.
- Living room evening temperature: 17°C
- Bedroom temperature: unheated, ambient
- Monthly energy bill: £119
- More than 10% of income.

Thermal imaging: Showing areas of excess heat-loss (white, red, yellow and green) from walls, windows and doors.





Solution: Houses in this terrace need solid wall insulation and double glazing. They are not on the gas grid so would benefit from a biomass district heating system.

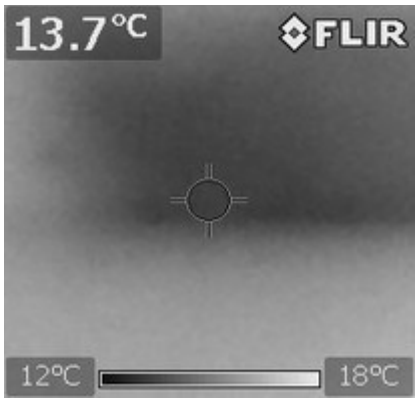
(ii) Clench Common, hamlet: social housing (Guinness Hermitage)

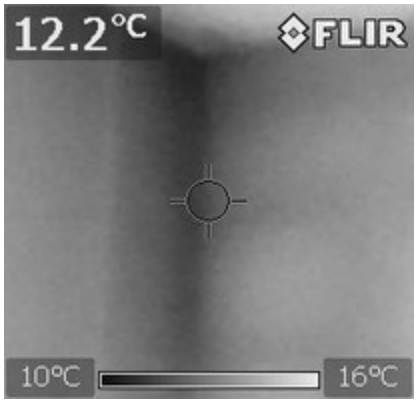
50 year-old, 3-bedroom, end terraced house, with non-insulated cavity walls and ill-fitting windows.

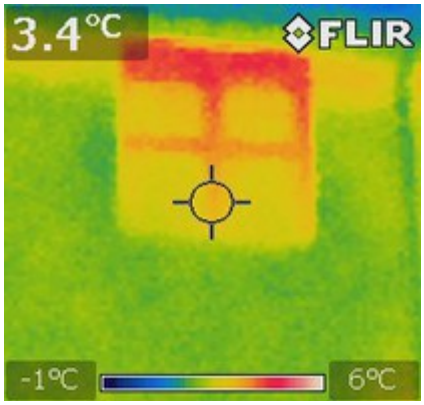
Condensation was reported in the bedrooms and hallway.

- Storage heaters, with Economy 7 electricity
- Living room evening temperature: 19°C
- Bedroom temperature: unheated, ambient, approximately 10°C
- Monthly energy bill: £180
- More than 10% of income (tenant was in debt last year, due to big energy bill).

Thermal imaging: Showing areas of excess heat-loss through internal (black and dark grey) walls and from external walls (red and yellow).







Solution: Cavity wall insulation and a biomass district heating system is needed for this terrace.

(iii) Durley village: privately rented house

85 year-old, 2-bedroom, detached house, single glazed, with metal-framed, ill-fitting windows, non-insulated, solid walls downstairs and a timber framed, tile clad roof which forms the walls of the first floor, also ill-fitting doors.

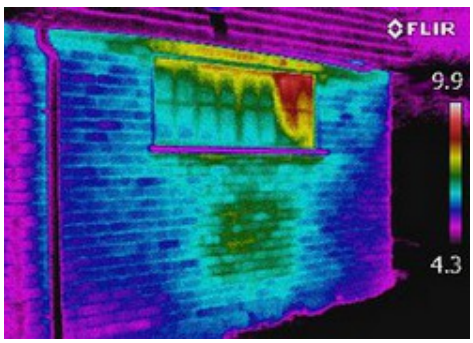
Rain water runs down the tiled, first floor walls and collects in a gutter, just above the ground floor windows. Also has a poorly constructed, timber extension.

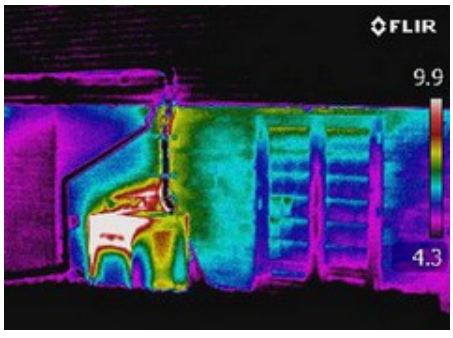
Drafts through floor boards and electric sockets were reported.

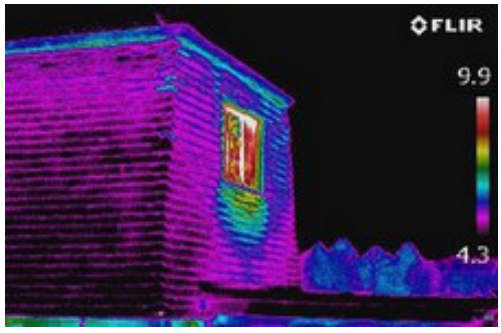
- Oil-fired central heating, used sparing to avoid high bills.
- Living room evening temperature: 16°C.
- Bedroom temperature: unheated, ambient (less than 10°C in Winter).
- Monthly energy bill: £140 (would cost £300 per month to keep the house at 21°C).
- Sometimes more than 10% of income.
- Tenants include a baby.

Green Deal Assessment outcome: Thicker loft insulation and cavity wall insulation needed. 'Cavity wall insulation could increase damp problems'.

Thermal imaging: Showing areas of excess heat-loss (white, red, yellow, green and pale blue) from walls and windows.







Solution: Biomass boiler and cavity wall insulation, including internal wall insulation for the 'hard-to-treat' tiled 'walls'.

2. Five HTT homes in Marlborough town, that is on the gas grid

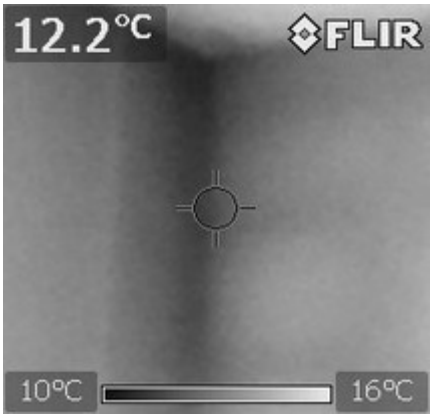
(i) High Street: privately rented, converted flat

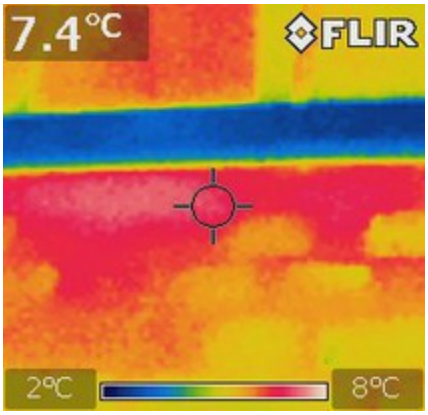
200 to 500 year-old, 3 bedroom, first and second floor-flat above a shop and public right of way. It has non-insulated, timber framed walls with tile cladding, ill-fitting, single-glazed windows, including a louvered bathroom window.

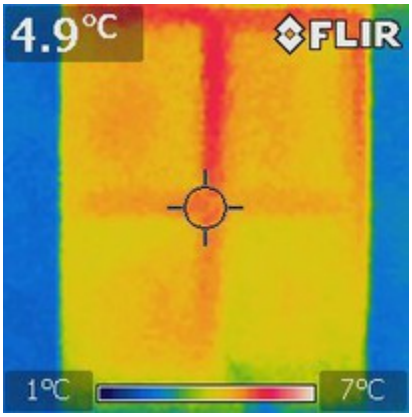
- Gas-fired central heating.
- Living room evening temperature: 19°C (RH: 64%).
- Bedroom temperature: 16°C .
- Bathroom temperature sometimes goes down to 8°C during Winter.
- Monthly energy bill: £104.
- Sometimes more than 10% of income.
- Tenant is over 70 years-old.

Green Deal Assessment outcome: Internal, solid wall insulation, double glazing, condensing boiler, flue gas heat recovery device and draft-proofing needed. Estimated cost: £10,855 to £24,995.

Thermal imaging: Showing areas of excess heat-loss (black and dark grey) through internal walls and (white, red and yellow) from external walls and window.







Solution: Internal solid wall insulation, condensing boiler and bespoke double glazing in keeping with the age and style of the property.

(ii) Kennet Place: privately owned, cottage

200 year old, riverside, 2-bedroom, terraced cottage, with non-insulated, solid front wall and 40 year-old, poorly insulated, extension at rear.

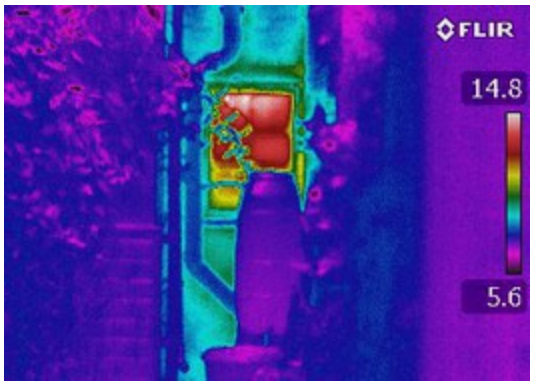
Prone to dampness.

Single glazed, sash windows (any changes are restricted because of 'Grade II listed' status).

- Gas-fired central heating.
- Living room evening temperature: 19°C.
- Bedroom temperature: maintained above 14°C.
- Monthly energy bill: £104.
- Approximately 10% of income.
- Owner-occupier is over 65 years-old.

Green Deal Assessment outcome: 'The walls cannot be insulated as it would increase condensation'.

Thermal imaging: Showing areas of excess heat-loss (white, red, yellow and pale blue) through walls, windows and door.



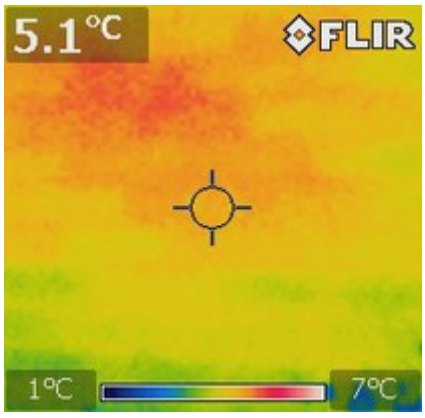
Solution: All houses in Kennet Place need solid wall insulation and bespoke double glazing, which fits with Grade II listed status.

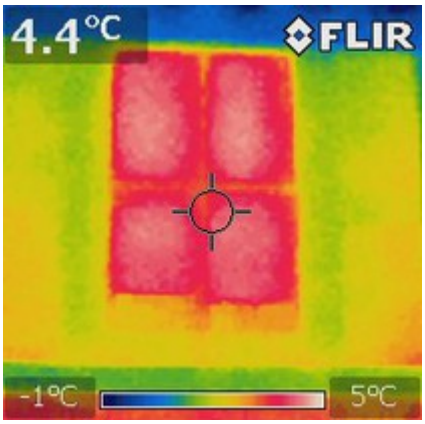
(iii) St John's Close: privately owned house

90 year-old, 3 bedroom, semi-detached house with double glazed windows and non-insulated, solid walls. Front door is double glazed. Drafts from ill-fitting, single-glazed back door.

- Gas fired central heating, plus electric heater for day-time use in living room.
- Central heating not on between 10am and 4pm.
- Living room evening temperature: 16°C (RH: 61%).
- Bedroom temperature: 18°C (RH: 61%).
- Monthly energy bill: £49.
- Owner occupier is 95 years-old and wears an outdoor coat when she is indoors.

Thermal imaging: Showing areas of excess heat-loss (white, red and yellow) from walls and door.





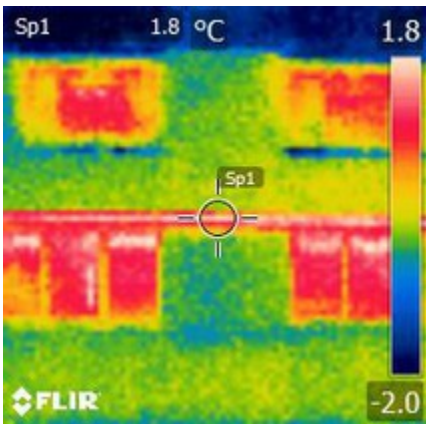
Solution: Solid wall insulation, in common with all 30 houses in St John's Close, also double glazed back door.

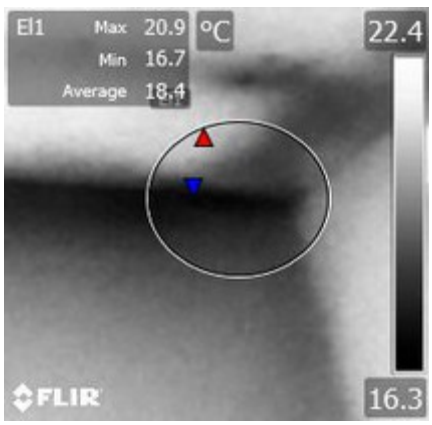
(iv) St Margaret's Mead: social housing (Aster)

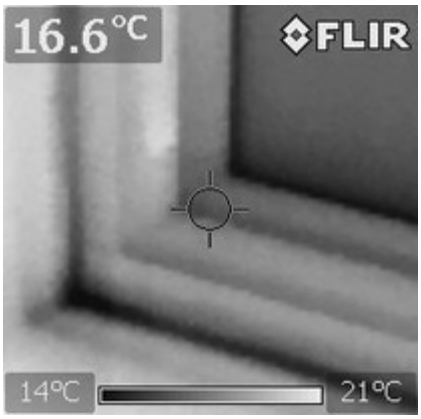
50 year-old, 2 bedroom, double glazed, first floor flat. Timber and tiled roof extends to the top of the ground floor. Rain water runs down the first floor 'walls' and collects in a gutter, just above the ground floor windows.

- Night storage heaters, using Economy 7 electricity, with a key meter.
- Heaters are left on continuously to prevent condensation.
- Living room temperature: 23°C (RH: 57%).
- Bedroom temperature: 24°C (RH: 57%).
- Monthly energy bill: £200.
- More than 10% of income.
- Tenants include a toddler.

Thermal imaging: Showing areas of excess heat-loss (white, red, yellow and green) from external walls and (black and dark grey) through internal walls and windows.







Solution: Gas-fired central heating with condensing boiler and 'hard-to-treat' internal wall insulation.

(v) Orchard Road: Social housing (Aster)

80 year-old, 3 bedroom, semi-detached house, with cavity walls and double glazing.

- Night storage heaters, never used due to high cost.
- Tenants obliged to use Economy 7 electricity (npower) which has a higher day-time tariff (19.44p per kWh) than the standard tariff (16.42p per kWh) with a key meter (npower Economy 7 standing charge is 23p per day, compared with its standard standing charge of 11p per day).
- Tenants use an open fire and buy 4 bags of coal (@ £21 per bag) each month, to heat the living room only.
- Living room evening temperature: 20°C close to fire, 18°C away from fire (RH:56%).
- Bedroom temperature: unheated, ambient (RH:>80%).
- Monthly energy bill: £124.
- More than 10% of income.

Solution: Gas-fired central heating with condensing boiler, solar thermal panels for hot water.

Conclusion and Recommendations

More than 1,000 dwellings in MCA require retro-fitting with solid wall insulation and/or low carbon, energy-efficient, heating systems. Most of these dwellings are eligible for ECO funding because the high cost of the retro-fitting breaks the Green Deal's 'Golden Rule'. On Thursday 30th January, TM facilitated a meeting with representatives of Aster Social Housing, British Gas, Eon, Community First, WC and MTC to discuss ways of accessing ECO funds for MCA. This meeting came up with the following recommendations:

- More than twice as many children are in fuel poverty in rural, than in urban areas. Therefore, the Carbon Saving Communties' Obligation (CSCo) should target dwellings that are off the gas-grid in rural areas, where big carbon savings can be made. Multiple indices of deprivation, such as crime levels and educational attainment, are unsuitable proxies as they do not reflect levels of domestic energy inefficiency.

- The 33% cut to the Carbon Saving Obligation (CSo) should be restored, such that 80,000 dwellings (rather than 25,000 dwellings) can be fitted with solid wall insulation each year, providing longer-term savings of 40% on household energy bills and a reduction of approximately 2 tonnes of CO2 per year from each dwelling.

- WC should obtain funding (e.g. from 'Green Deal Communities') to enable fuel-poor households to have free Green Deal Assessments, especially those who are in the private rented sector.

- WC should link with an energy supplier that is willing to use ECO funds to retrofit HTT homes it in its villages and towns. Policies that reduce fuel poverty will also reduce associated stress levels and ensure that more people are fit for work.

- A pilot project which aims to retro-fit up to 1,000 HTT homes using ECO funds, should be set up in MCA with support from WC, MTC and TM.

- WC should support Community Energy Companies, especially those that are willing to raise local investment to install district heating systems in off gas-grid premises.

- The carbon floor price should be retained in order to support low carbon power generation and the revenue used 'to help make homes super-energy efficient – with excellent insulation, renewable energy and modern boilers', see: http://www.energybillrevolution.org/whats-the-campaign/

- Energy policies should be sustainable to encourage investment. Long-term investor confidence is required to really get the ball rolling as this has suffered in recent years.