Home Energy Conservation Act: Further Report

March 28th 2013

LONDON BOROUGH OF
RICHMOND UPON THAMES

Contents

1. Introduction

The Home Energy Conservation Act 1995 (HECA) indicates the ability that local authorities possess to significantly improve the energy efficiency of residential accommodation in their area. Under the requirements of HECA, in July 2012, the Department for Energy and Climate Change (DECC) requested that all local authorities in England publish a report on the measures they propose to implement to meet the needs of the HECA act.

DECC has set the deadline of 31st March 2013 to publish the first of these reports, known as a "further report". Subsequent reports known as "progress reports" must be published at two-year intervals following this date.

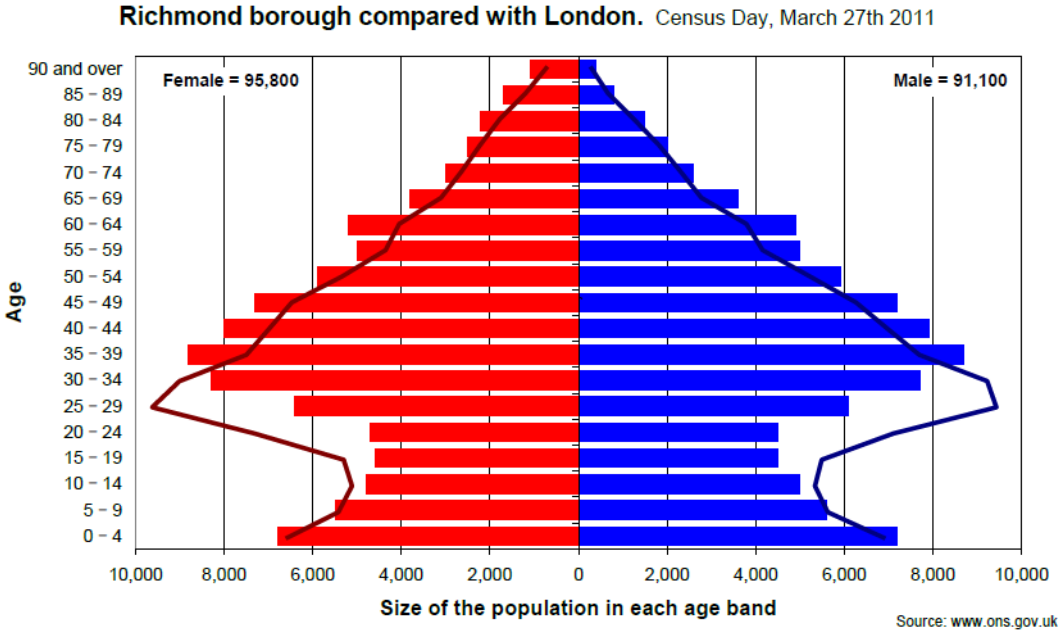
This document sets out Richmond Council's strategic objectives in improving the energy efficiency of homes in the borough, current trends and the actions the Council will take to help achieve a significant reduction in carbon emissions and fuel poverty.

1.1 Borough Profile

The London Borough of Richmond upon Thames is a prosperous, safe and healthy borough covering an area of 5,095 hectares (19.67 sq miles) in southwest London. The main town centre is Richmond, with four district centres at Twickenham, Teddington, East Sheen and Whitton. Richmond has a wealth of architecturally interesting buildings, and the Borough as a whole has nearly 1200 nationally Listed Buildings, 72 Conservation Areas and many Buildings of Townscape Merit which all contribute to the heritage of the Borough.

The population of 187,000 residents, broken down in the pyramid diagram below shows the age/sex structure of Richmond borough (females Red and males Blue in 5-year age-bands). The line around the outside shows the age/sex distribution for London.

Figure 1 Borough age profile



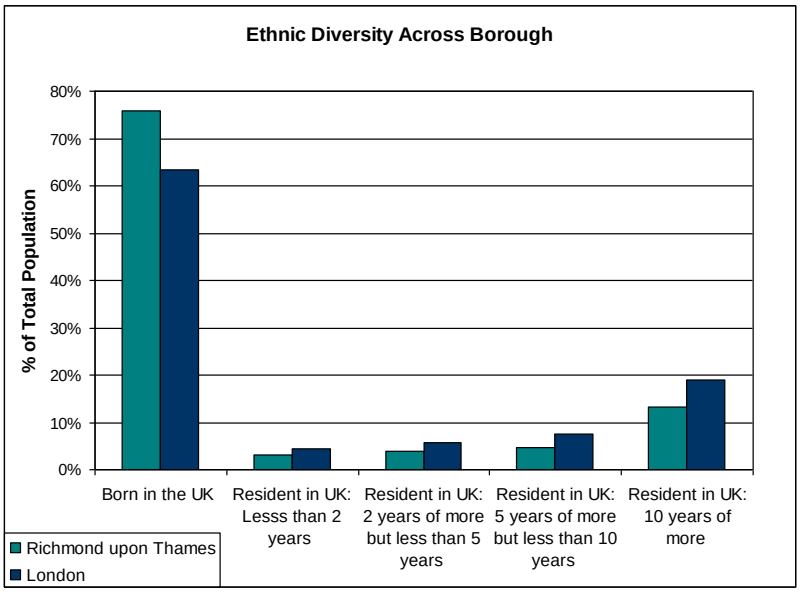
The population of Richmond has risen by 8.7% since the last census in 2001 from 172,000 to 187,000. The largest proportional increase of the population in Richmond between 2001 and 2011 was in the 60-64 age bracket which increased by 49%. There was also a significant increase in the number of people aged 90 and over (up 27%) demonstrating the increasingly ageing population in Richmond.

According to the 2011 Census, there are 79,800 households in the London Borough of Richmond upon Thames. This represents an increase of 3,700 (4.9%) households in the period since the 2001 Census.

The population in Richmond is a relatively diverse borough when compared with England and Wales as a whole, but is one of the least ethnically diverse boroughs in London (shown in graph below).

Richmond is one of the few London boroughs that have no council housing. This service is provided by a number of Social Housing Providers, of which Richmond Housing Partnership (RHP) is the largest, with approximately 10% of the borough housing stock under its control.

Figure 2 Borough diversity



Source, Richmond Profile, Census, 2011

The prosperity of the population may account for the higher level of energy consumption within the borough in comparison with other less affluent London boroughs.

But despite this apparent affluence, Richmond, as is the case in most local authorities, has some small areas of relative deprivation that reduces the quality of life for those residents affected. Improving energy efficiency and tackling fuel poverty, which reduces energy consumption, is one solution to reduce deprivation and inequality. Upgrading household heating provides the additional benefit of improved health, through the reduction of damp and mould growth, which reduces the release of harmful mould spores that are implicated in the cause of various respiratory diseases.

2. Where do we want to get to?

2.1. National strategic targets

The requirement to improve the energy efficiency of homes stems from the national requirement to reduce carbon dioxide (CO_2) emissions, as set out in the Climate Change Act 2008 [1] that established a legally binding target to reduce the UK's greenhouse gas emissions by at least 80% below base year levels by 2050, and the government's Carbon Plan, published in 2011[2]. The Carbon Plan sets the following targets in relation to housing:

- to reduce greenhouse gas CO_2 emissions by 29% by 2017, 35% by 2022, and 50% by 2027 – for buildings this means a reduction between 24% and 39% lower than 2009 levels by 2027;
- to insulate all cavities and lofts, where practical, by 2020;
- by 2030, between 1 – 3.7m additional solid wall installations and between 1.9 - 7.2m other energy efficiency installations;
- by 2030, 1.6 - 8.6m building level low carbon heat installations such as heat pumps (Government modelling suggests that 21 - 45% of heat supplies to buildings will need to be low carbon); and
- by 2050 emissions from UK buildings to be "close to zero".
- The government has also set a target of eradicating fuel poverty in England, as far as reasonably possible, by 2016. Fuel poverty is currently defined as those households that need to spend more than 10 percent of their income on home energy to provide adequate heating and hot water.

2.2. Local strategic targets

Richmond's Climate Change Strategy, 2009, aims to improve the fabric of existing buildings and housing stock, and improve the uptake of energy efficient boilers, heating controls and appliances, to reduce energy demands and alleviate fuel poverty

The Strategy recognises that Richmond has high a high proportion of properties with poor energy efficiency standards, where there is great potential to reduce carbon emissions. The number of potential measures and their carbon savings are shown in Table 1.

Richmond's Community Plan 2007-2017[3], sets out a number of priorities for developing and maintaining Richmond as an attractive place to live, including the following priorities, some of which are relevant to improving the energy performance of housing:

[1] DECC, 2008, http://www.decc.gov.uk/en/content/cms/legislation/cc_act_08/cc_act_08.aspx
[2] DECC, http://www.decc.gov.uk/en/content/cms/tackling/carbon_plan/carbon_plan.aspx
[3] London Borough of Richmond (2007), 'Community Plan 2007-2017': http://rio/community_plan_2007_-_2017.pdf

Community Plan Priorities

1. Tackling disadvantage and inequalities

Improving energy efficiency in housing will assist this objective by reducing household expenditure on fuel and therefore reducing fuel poverty.

2. Being the greenest borough in London

Reducing domestic carbon emissions from housing will help mitigate climate change.

4. Growing up in Richmond upon Thames

Properly heated homes contribute towards the health and wellbeing of children and young people.

5. Creating a healthy and caring Richmond upon Thames

Comfortable, well-heated homes reduce the likelihood of illness, particularly for more vulnerable groups such as the young and old, and helps to reduce "bed blocking" in hospitals.

6. Creating a vibrant and prosperous Richmond upon Thames

Improving the energy efficiency of the borough's Housing stock may continue to develop the local low carbon economy through training, employment and supply chains.

7. Improving access and participation

Working with community partners to promote energy efficiency improves assistance and outreach for disadvantaged groups

The table below illustrates the potential opportunities identified for improvement, and the carbon savings they would bring if installed.

Table 1 Potential measures and their carbon savings

(Source; HEED, HEC data)

Measure	Potential Number of Installations	Total Saving (tCO_2)
Solid Wall insulation	24,500	46550
Cavity Wall Insulation	4,500	2475
Loft Insulation	17,500	12600
D Rated to A Rated Boiler	8,500	11550
E Rated to A Rated Boiler	27,500	305
Single to Double Glazing	500	5780
Solar PV	13,200	15840

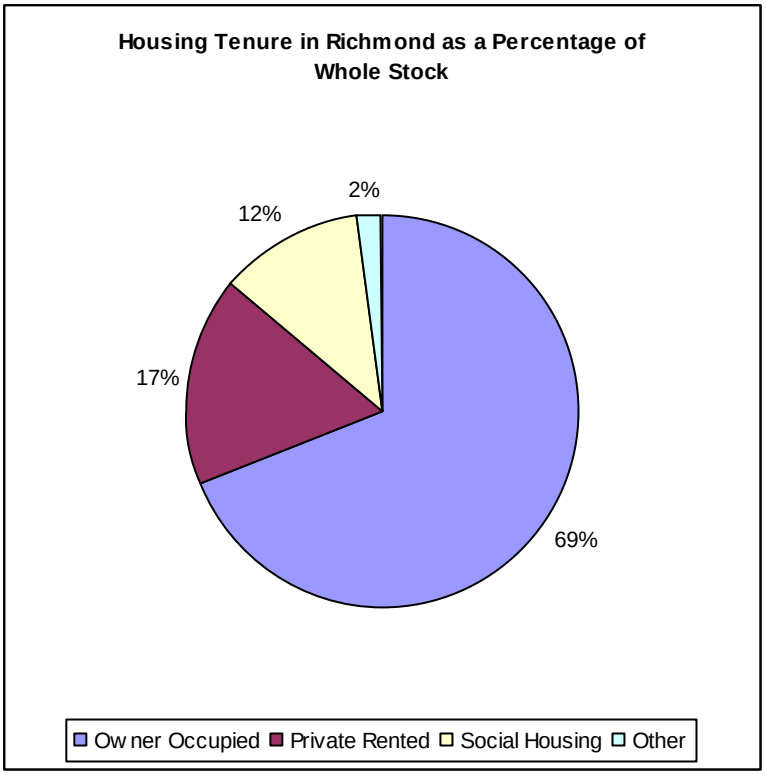
3. Where are we now?

This section provides an overview of current trends in Richmond in terms of housing stock, energy use and CO_2 emissions, fuel poverty and health indicators relating to cold-related illness.

3.1. Housing Stock in Richmond

The chart below shows the tenure as a percentage of the housing stock and the overall number in each sector.

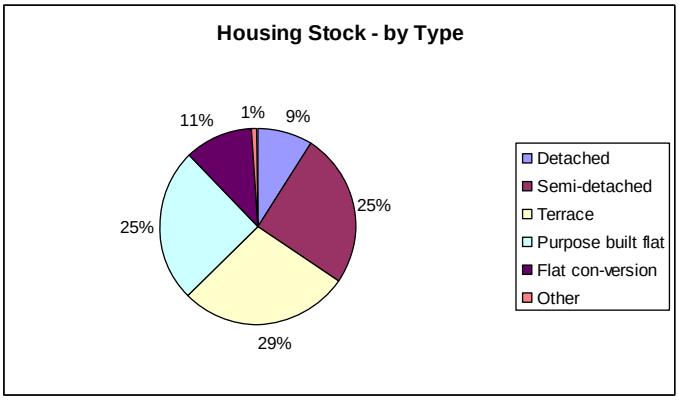
Figure 3 Housing Tenure by Sector



Tenure	Number in Richmond
Owner Occupied	55,062
Private Rented	13,566
Social Housing	9,576
Other	1,596
Total	**79,800**

Within the borough the housing stock is made up of the following housing types[4]:

Figure 4 Housing Stock by Type



Stock Type	Number	Percentage
Detached	7182	9
Semi-detached	19950	25
Terrace	23142	29
Purpose built flat	19950	25
Flat conversion	8778	11
Other	798	1
Total	**79800**	100%

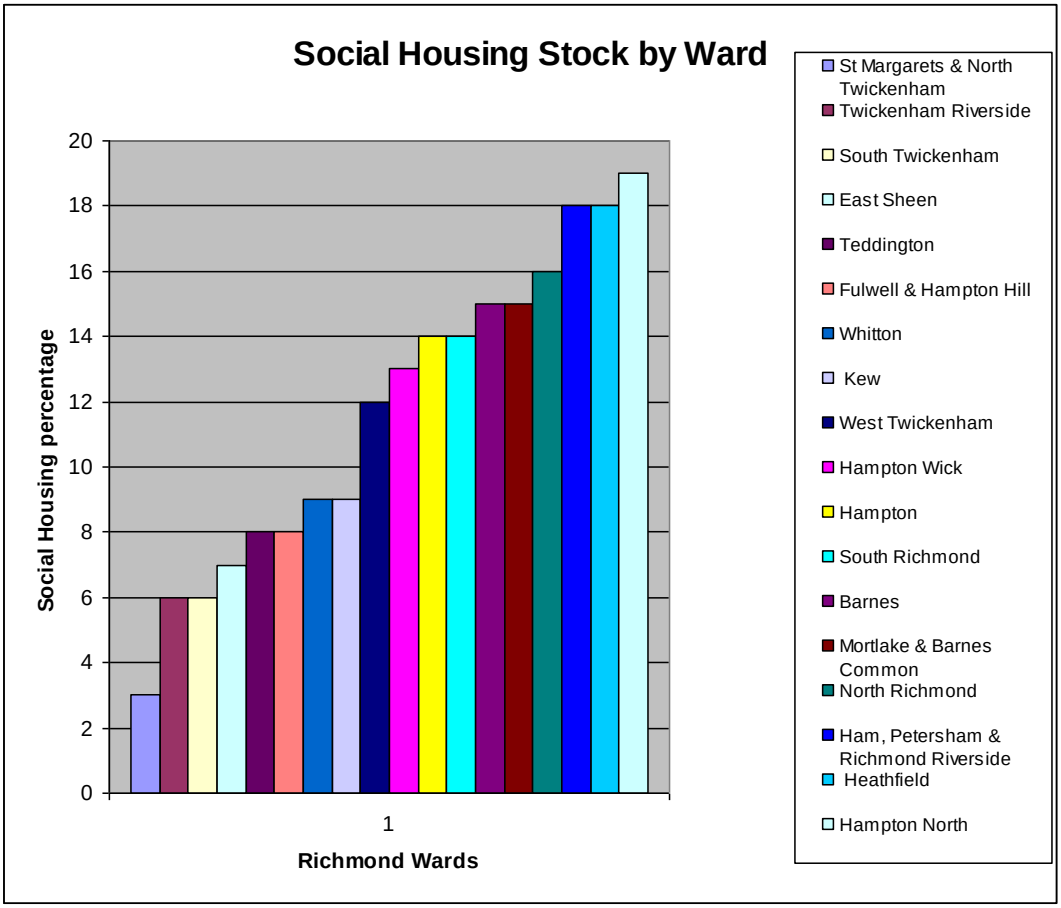
[4] Source; London Borough of Richmond upon Thames, Housing Strategy, 2008-2012

There are high levels of owner occupation in the wards of Whitton, West Twickenham, St Margarets & North Twickenham, South Twickenham, East Sheen and Fulwell & Hampton Hill. In comparison, private rental is widespread in the following wards; Twickenham Riverside, South Richmond, Kew, St Margaret's & North Twickenham and Barnes. Social housing meanwhile, is most prevalent in Hampton North, Heathfield and the Ham and Petersham wards[5].

Richmond upon Thames has the fourth smallest social rented sector in Greater London with 12% of the borough's housing stock, the Greater London average is 15%, and for the whole of London social housing comprises 26% of the stock.

Social housing tends to have better energy efficiency than other sectors due to legislation over the past few years aimed at Social Landlords, for example the Decent Homes Standard. Privately rented homes generally have the worst overall energy efficiency; therefore improvement of the private rented sector will be one of the objectives of this report. However, as owner occupied property is by far the largest proportion of the boroughs housing stock, there will be a continued effort to bring about improvements to this sector wherever possible.

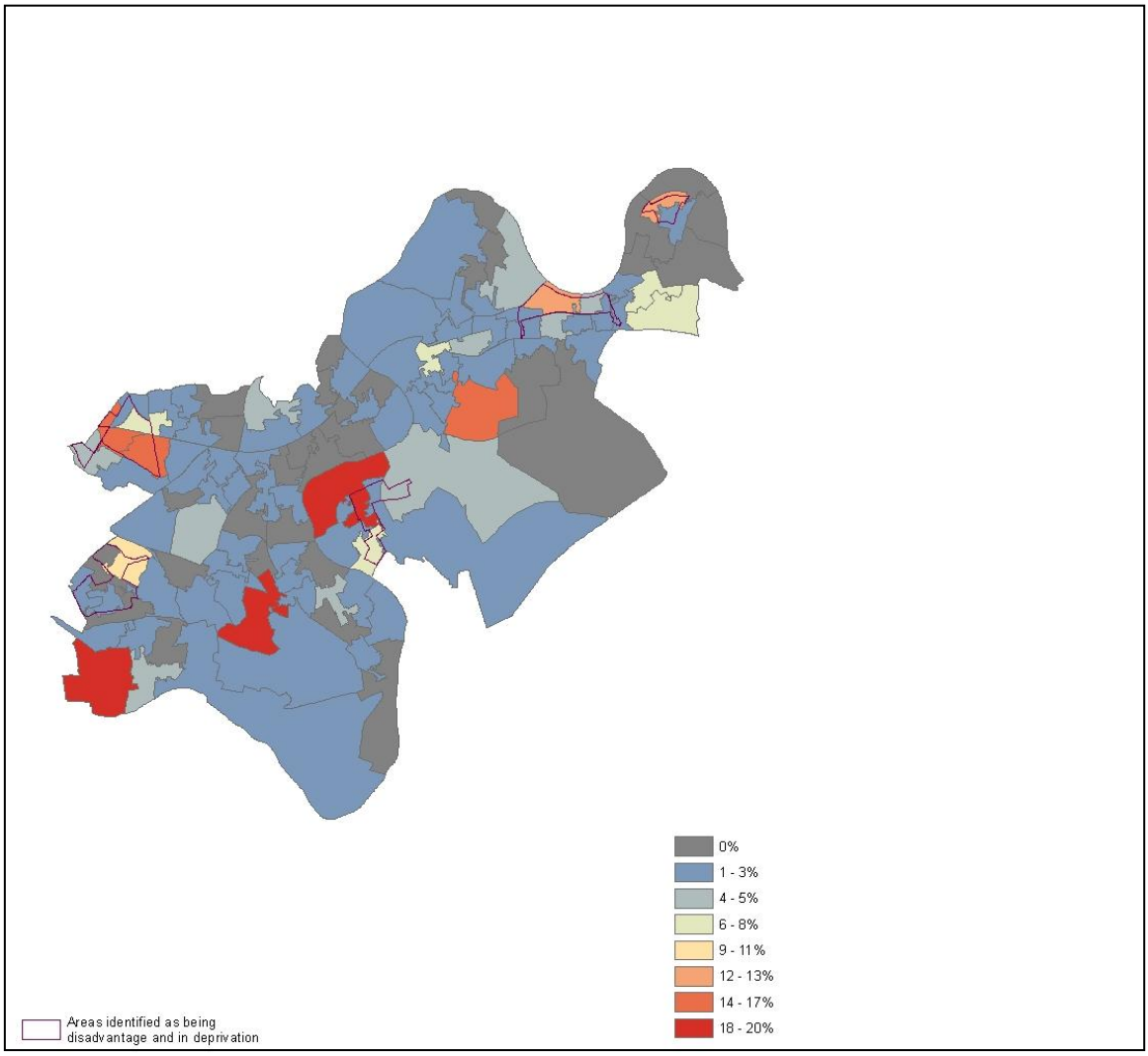
Figure 5 Social Housing Distribution by Ward



(Source; London Borough of Richmond upon Thames, Housing Strategy, 2008-2012)

[5] London Borough of Richmond upon Thames, Housing Strategy, 2008-2012

Map 1 Concentration of Social Housing

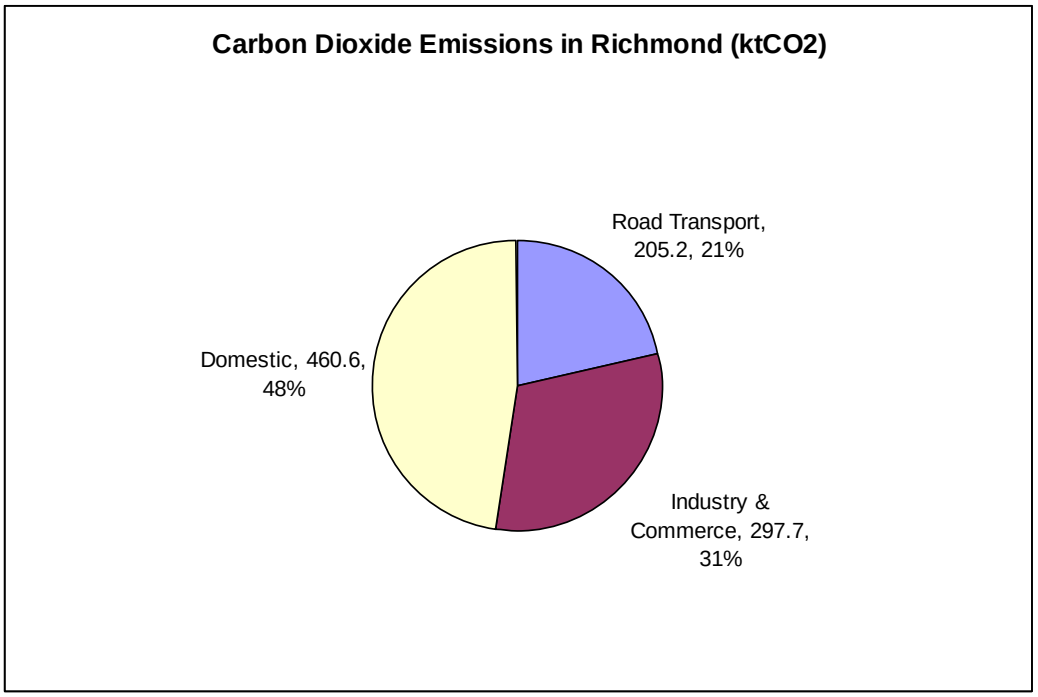


3.2. Energy use and CO_2 emissions

Energy consumption in housing is currently the largest source of CO_2 emissions in Richmond, at 48% of the total. Between 2005 and 2010 there was a 4.6% decrease in domestic carbon emissions, and a reduction of 9.8% for all carbon emissions in the borough, which equates to a 700kg decrease per capita, for all emissions, during the period. Emissions from all sources in Richmond on a per capita basis are lower than the London average, but domestic per capita emissions are greater by approximately 300kg/yr[6]. Accompanying the decrease in emissions, the population of Richmond increased by 8.5% (14,669 additional residents) between 2001 and 2011, and the number of households with a least one resident increased by 4.7% from 76,146 to 79,800 (3654 additional households).[7]

[6] DECC, Local and Regional CO_2 Emissions Estimates for 2005-2010 (6222), Pub 2012
[7] Census 2011

Figure 6 Carbon Dioxide Emissions within Richmond

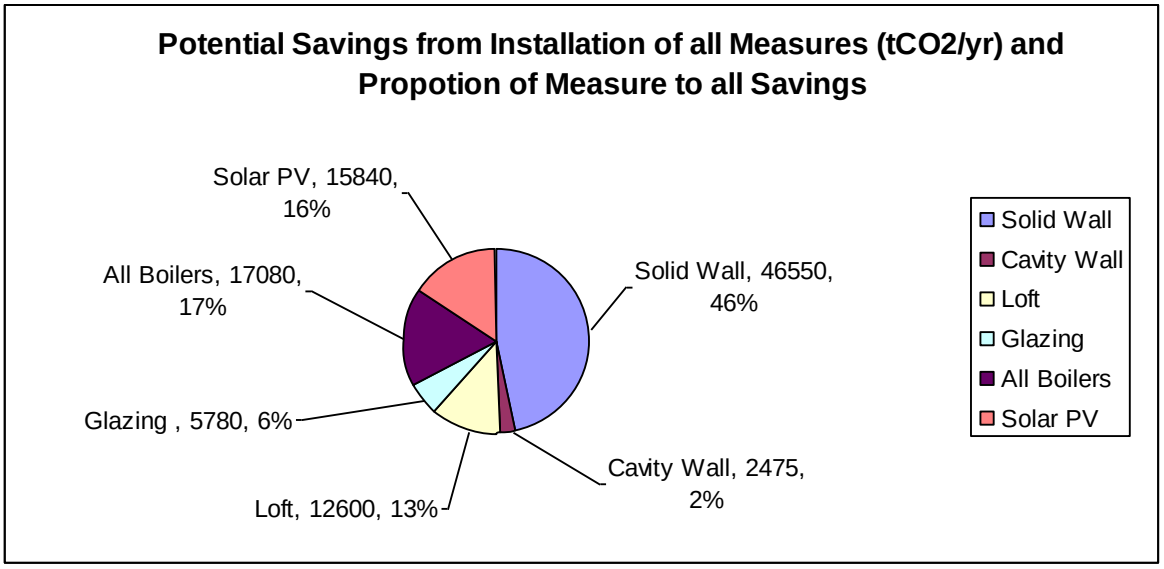


(Source DECC)

To achieve a 34% reduction in CO_2 emissions across the borough by 2020, which is in line with national targets, the weighted emissions resulting from housing will need to decrease at a rate of 2% per year.

Analysis of previous energy efficiency improvements within the borough, and of the 96,200 potential of measures available, show a saving capability equal to 17% of domestic emissions and 8% of total emissions. The potential measures and their contribution to emission reduction are shown in the following chart.

Figure 7 Energy Saving Potential by Measure



(Source HEED HEC data)

Data from the Energy Saving Trust and previous energy reduction schemes indicates that within the borough there are still a large number of lofts and cavity walls without insulation, as shown in the graph above. If just these relatively low cost measures were installed to Richmond's housing stock, then the estimated annual energy bill savings would amount to in excess of £27m and over 60,000 tCO_2.

However, in order to meet Richmond's local strategic targets and achieve even wider socio-economic benefits, harder measures such as solid wall insulation must be installed where possible. Averaging the estimates from diverse data sources indicates that if all measures available were installed it would lead to a 20% reduction in domestic carbon emissions[8], 3% greater than the required target; demonstrating the high level of effort that will be required to meet the borough target.

The table below shows the decrease in domestic energy consumption over time, which is encouraging as the borough population rose between 2001 and 2011.

Table 2 Fuel Consumption in Richmond (Domestic only)

Fuel Consumption in Richmond				
2005	**2006**	**2007**	**2008**	**2009**
Domestic Gas Sales per Consumer (KWh)				
20,145	19,457	18,984	18,500	17,135
Domestic Electricity Sales per Consumer (KWh)				
4,603	4,541	4,492	4,379	4,336

Source:
http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/en_effic_stats/en_effic_stats.aspx

3.3. Fuel poverty

Definition of fuel poverty

A fuel poor household is currently defined as one which needs to spend more than 10% of its income on fuel used to heat the home to an adequate standard of warmth. In England, this is defined as 21^C in the living room and 18^C in other occupied rooms. The government has set a target of eradicating fuel poverty in England, as far as reasonably possible, by 2016.

During the 2012 review of Fuel Poverty, the Hills Report's [9] conclusions were that; the way in which the scale of Fuel Poverty has been measured is flawed, which has given a misleading impression of the trends and the effectiveness of policies designed to tackle it.

The report's proposals were that measurement should be in line with the Warm Homes and Energy Conservation Act 2000 (WHECA)[10]. This Act states that we should be concerned about individuals in households "living on a lower income, in a home that cannot be kept warm at reasonable cost."

[8] Climate Energy analysis of HEED and Postcode data
[9] Hills, 2012,
http://www.decc.gov.uk/en/content/cms/funding/fuel_poverty/hills_review/hills_publicat/hills_publicat.aspx
[10] http://www.legislation.gov.uk/ukpga/2000/31/section/2

The report makes the following recommendations; Government should adopt a new indicator of the extent of fuel poverty under which households are considered fuel poor if:

- They have required fuel costs that are above the median level; and
- Were they to spend that amount they would be left with a residual income below the official poverty line.

In summary under the revised definition; a household would be in fuel poverty when it is paying more than the typical costs to heat a home of a similar type, and in doing so is placed below the poverty line.

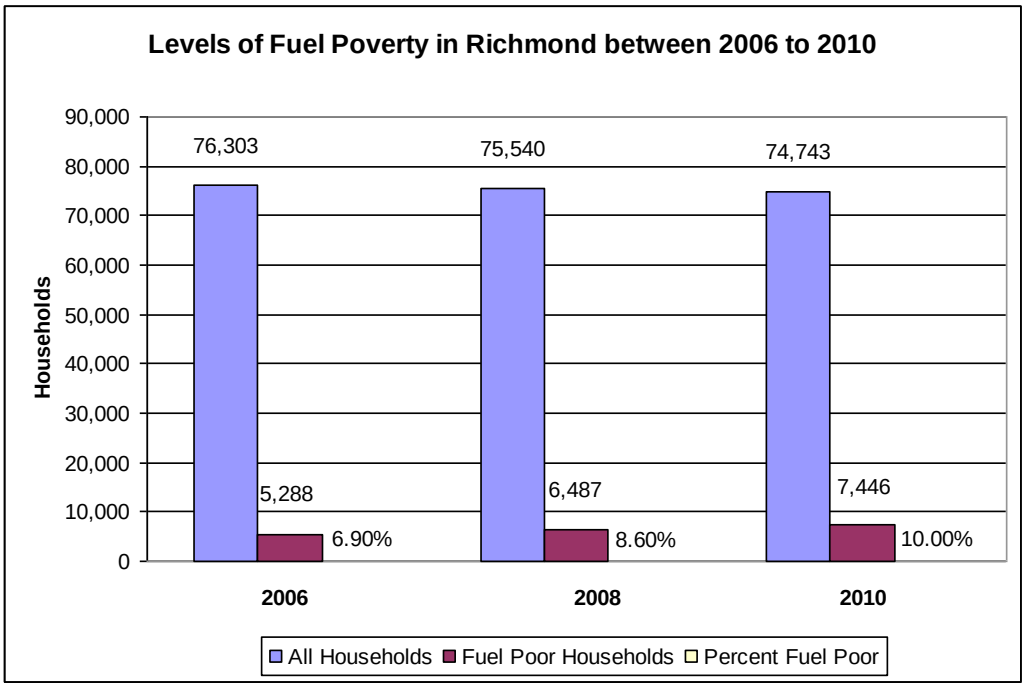
The Government is currently minded to adopt the Hills' methodology of using 'Low Income High heating Cost' (LIHC) as the basis for defining fuel poverty, and as such details are included for information.

Fuel Poverty in Richmond

Fuel poverty data from 2010 compiled by DECC, and shown in Table 3, indicates that 7446 or 10%[11] of households in Richmond are fuel poor, an increase of 1.4% on the 2008 DECC data, which shows a persistent rise in numbers since 2006. As energy costs have risen at a greater rate than inflation and wage increases in the intervening years, it is reasonable to expect that fuel poverty has also increased, and will continue to increase for the foreseeable future under current expectations.

Examined in perspective though, of the 326 Local Authorities (England Wales) Richmond has the 303rd lowest level of fuel poverty, and within London's 33 boroughs, Richmond has the 26th lowest level of fuel poverty, which although admirable, still leaves a great amount of work to be done, if we are to eradicate fuel poverty by the target date of 2016.

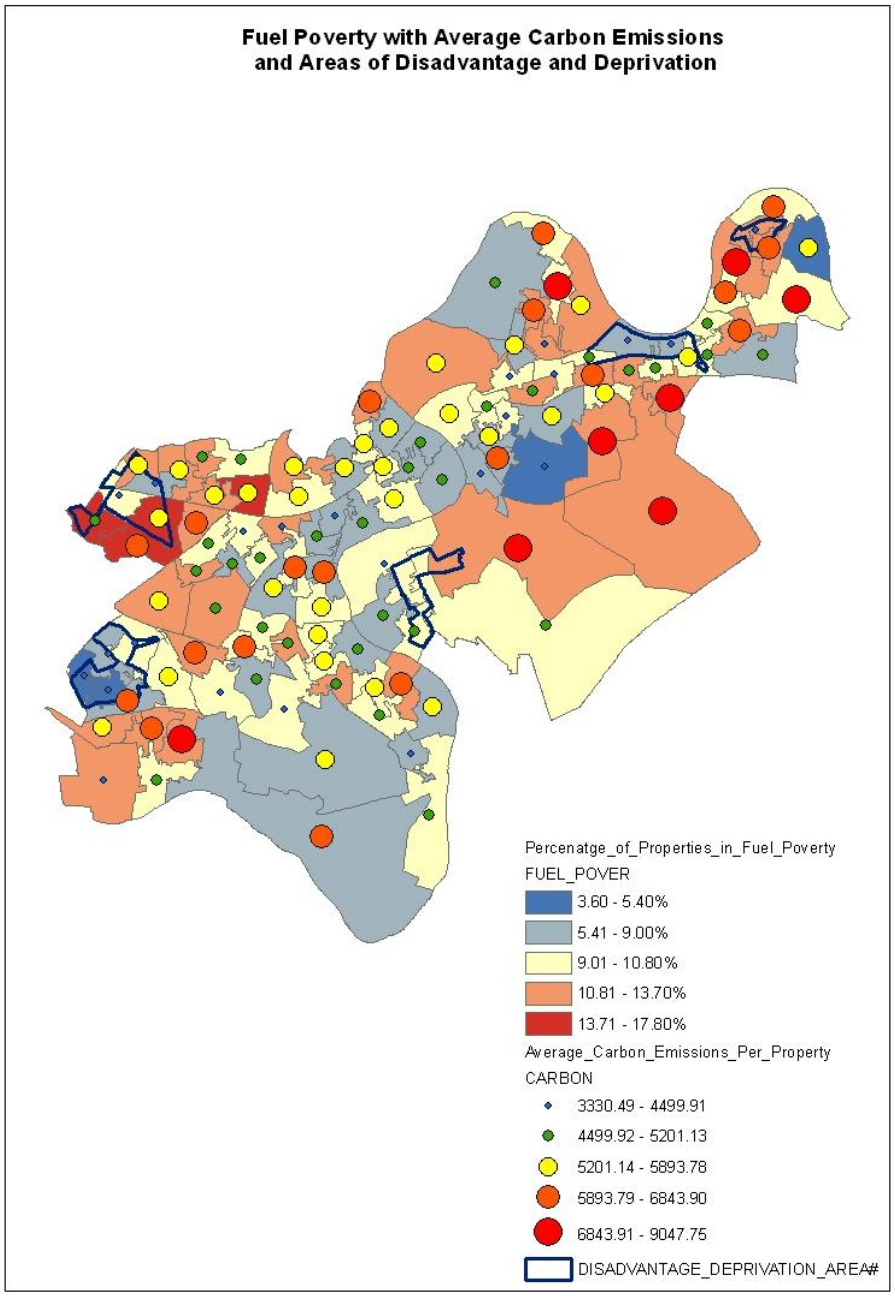
Figure 8 Fuel Poverty Levels 2006-2010



(DECC, 2012)

[11] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/49445/5267-fuel-poverty-2010-subregional-data.xls

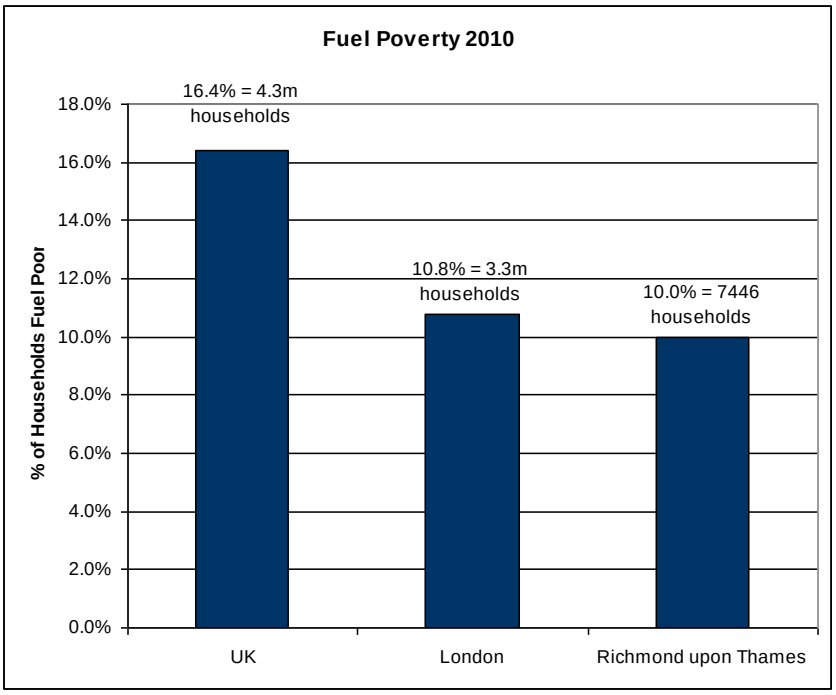
Map 2 Fuel Poverty, Carbon Emission, and Deprivation Comparison



The map above shows the concentration of fuel poverty within the borough overlaid with average carbon emission data. High levels of emissions from properties within areas of fuel poverty or deprivation indicate that large quantities of fuel are being used to power relatively modest homes, and that work is required to improve the energy efficiency of the those properties, which will reduce emissions and help to alleviate fuel poverty.

Further analysis of the data used to compile the map above, along with other recently collected information, will enable more targeted provision of information to homes and promotion of energy efficiency initiatives that are specific to neighbourhood requirements within the borough.

Figure 9 Fuel Poverty Comparison; Richmond, London, UK 2010



(DECC, 2012)

Table 3 Fuel Poverty in Richmond 2006-2010

Year	No. households	No. fuel poor households	% of fuel poor households	Document Ref. (DECC)
2006	76,303	5,288	6.9%	URN 09D/792
2008	75,540	6,487	8.6%	URN 11D/0023
2009	74,701	7,028	9.4%	URN 11D/918
2010	74,743	7,446	10.0%	URN 12D/086

http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/en_effic_stats/en_effic_stats.aspx

3.4. Health

In Richmond during 2011, Office for National Statistics tables indicate that there were approximately 59 Excess Winter Deaths[12](EWD) the measure of a higher than normal level of deaths during cold weather. Defined as the difference between deaths in winter months and the corresponding average over the non-winter months (more people die or are admitted to hospital during the winter months than at other times). Compared with many other European countries the UK has a poor record for EWD; in 2003, Finland, with a colder winter climate than the UK, had an EWD of 10%[13], by comparison the UK had an excess rate of 19% amounting to 37,000 additional deaths.

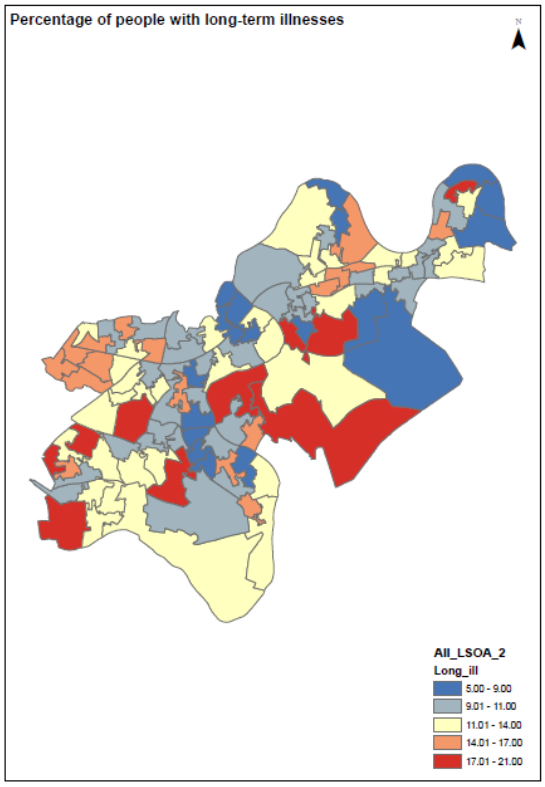
Raising the energy efficiency of homes in Richmond will help to reduce EWD and contribute to the reduction cold related illnesses that disproportionately affect vulnerable residents in

[12] Ref: Table 3 http://www.ons.gov.uk/ons/rel/subnational-health2/excess-winter-mortality-in-england-and-wales/2011-12--provisional--and-2010-11--final-/ewm-reference-tables.xls

[13] (N. Lewis, Surrey i, JSNA, People and Society Section - Excess Winter Deaths, 29/03/2013), http://www.surreyi.gov.uk/ViewPage1.aspx?C=resource&ResourceID=672&cookieCheck=true&JScript=1

both young and older age groups. Comfortable well heated homes play a significant role in general health wellbeing, in part due to increased internal temperatures, which help reduce the occurrence of condensation and moulds that release toxic spores which pose risks for those living in cold, damp conditions. This in turn helps to reduce the burden on the NHS and other social services. Working in partnership with local health bodies and other agencies, those most at risk will be targeted to receive information and assistance to improve their homes.

Map 3 Distribution of Long Term Illness Across the Borough



Both the Hills Fuel Poverty Review[14] and the London Assembly report on fuel poverty "In from the Cold?[15]", clearly set out the links between fuel poverty and health deprivation and it is evident that energy efficiency programmes can help reduce health inequalities as well as generating savings for residents through lower fuel bills.

[14] http://www.decc.gov.uk/en/content/cms/funding/fuel_poverty/hills_review/hills_publicat/hills_publicat.aspx
[15] http://www.london.gov.uk/sites/default/files/Fuel%20poverty%20-%20Final%20report.pdf

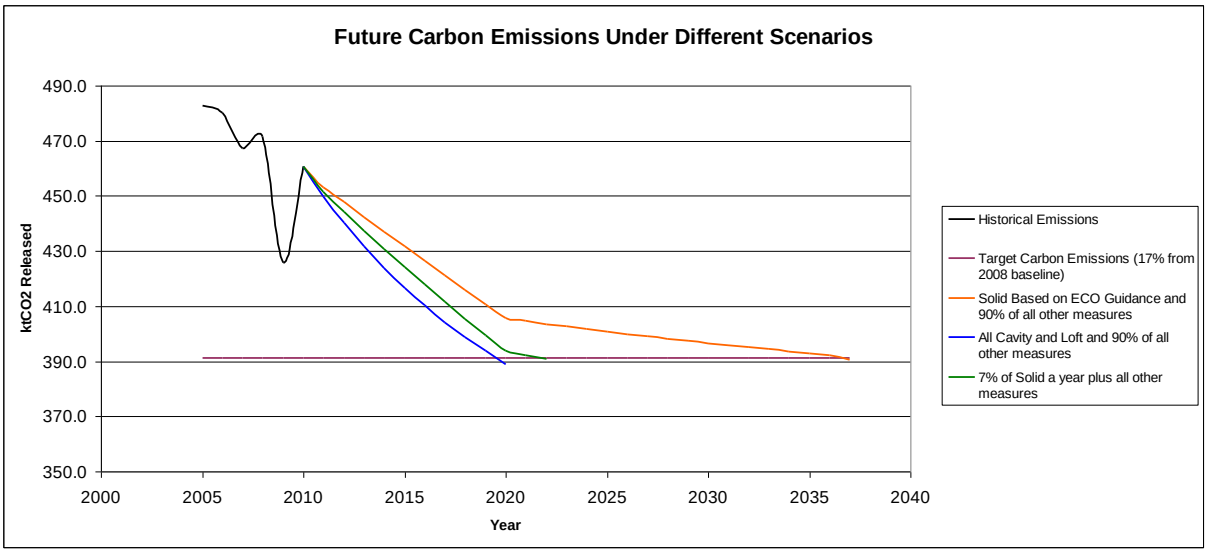
4. How will we get there?

The preceding information demonstrates the scale of the challenge to retrofit Richmond's homes to improve their energy efficiency and assist the borough meet its strategic objectives.

The chart below sets out various scenarios for action to meet the 2020 target. The "blue line" representing a course of action that would require all lofts and cavity walls to be filled, and 90% of the other measures available to be installed by 2020 is a particularly challenging target, especially the necessity to insulate such a high percentage of solid wall properties.

In Table 4 the number of measures shown and the carbon savings arising will be those required to meet the conditions of the "blue line "scenario, which in terms of this analysis is the option that will enable Richmond to meet its energy efficiency targets.

Figure 10 Carbon Emission Reduction Scenarios



(Source HEED, HEC)

Table 4 Potential Measures and Carbon Savings Arising[16]

Measures	Potential Number	Carbon Factor	Total CO_2 Saving (tCO2/yr)
Solid Wall	24,500	1.90	46550
Cavity Wall	4,500	0.55	2475
Loft	17,500	0.72	12600
Glazing	8,500	0.68	5780
Boiler	28,000	0.61	17080
Solar PV	13,200	1.20	15840
Total	**96,200**		**100325**

The action plan set out below details how Richmond will begin to address this challenge through improving data, accessing funding and working with partners to provide value for money and facilitate delivery of energy efficiency projects.

[16] HEED, HEC data

4.1. Action plan

Objective	Actions	Responsible	Completion due	Progress update
1. Energy data				
Improve quality and scope of data held by Richmond to support delivery of energy efficiency programmes	Engage contractors to provide data for HECA report	Sustainability Team	Apr-13	Data provision almost complete
	Compile and analyse existing data from DECC and energy efficiency projects	Sustainability Team	Apr-13	Compilation and analysis in progress
	Load data on to corporate GIS to improve understanding of domestic energy efficiency and aid targeting of projects	Sustainability Team / Community Engagement / Corporate GIS	June-13	Mapping in progress
2. Social housing				
Develop collaborative working with Social Landlords, to help increase the energy efficiency of homes, improve access to funding, enable the sharing of data, and increase the installation of relevant energy efficiency measures	Investigate working with local Social Housing providers to maximise funding for the improvement of energy efficiency in properties	Sustainability Team / Social Landlords	May-13	Signposting to ECO opportunities being led by the Greater London Authority
	Encourage social landlords to provide relevant data regarding the energy efficiency improvements made to their housing stock and provide details of planned projects to determine potential CO_2 savings and level of GD / ECO funding	Sustainability Team / Social Landlords	Ongoing	Awaiting feedback from RSLs

Objective	Actions	Responsible	Completion due	Progress update
3. Private Housing				
Access funding to provide measures for low income households and areas	Identify ECO eligible households and areas for SWI, boiler replacement etc. via data analysis and mailings	Sustainability Team	Review in May	In Progress
	Continue to access capital funding from LBRuT to deliver a Coldbuster grant programme. Identify delivery partner to refer householders to funding	Home Improvement Agency – Coldbuster Funding	Review in March 2014	Richmond is currently working with Climate Energy to deliver Coldbusters funding
Enforcement	Inspect and take enforcement action on sub standard housing requiring insulation or heating improvement.	Private Sector Housing Team		Ongoing
Promote uptake of energy efficiency measures via Green Deal and ECO	Identify preferred approach to delivering Green Deal in Richmond from May 2013	Sustainability Team		Seeking authority to procure a Green Deal Provider
	Promote Green Deal and Big London Energy Switch service via council tax mailing	Communications Team / Sustainability Team		Auction date 9 April 2013. 1500 residents registered (by end of March)
	Green Deal promotion to increase early uptake using Dept of Energy and Climate Change (DECC) Green Deal grant funding	Sustainability Team	April 2013	Mail-out to 17,000 households in March 2013; web page; leaflets in GP surgeries, libraries, information via Community Groups and Richmond Account
	Offer 200 free Green Deal Assessments			Offered March 2013 on a first-come first-serve basis
	Ensure Council communications channels provide appropriate advice and information to householders	Sustainability Team / Contact Centre / Communications Team	Review in March 2014	Ongoing
	Work with private landlords to raise awareness of funding routes and measures.	Sustainability Team Richmond Landlord's Forum	April 2014	Will take place once Green Deal provider is selected

Objective	Actions	Responsible	Completion due	Progress update
4. Planning				
Remove perceived barriers to retrofit in planning system	Investigate ways to facilitate and promote solid wall insulation. Liaise with planning to write a guide for residents wishing to install SWI	Planning Dept / Sustainability Team	Review in April 2013	Initial meetings held and training delivered to Planners Feb 2013
5. Business				
Investigate how to stimulate the local low carbon economy and increase employment opportunities through energy efficiency work	Signpost Richmond Businesses to Green Deal information and opportunities Investigate possibility of involving local low carbon sector in Green Deal work	Sustainability Team/ Greening Business Programme / Economic Development Team	Review April 2013	Greening Business Programme provides 12 hours of free support to SME's and runs until April 2014 and publicises opportunities. Information circulated through Economic Development Team
6. Community Projects / Pan-London Schemes				
Support communities to reduce their energy consumption	Make £15,000 available for community led CO2 reduction and engagement projects Ongoing support to Ham and Petersham Low Carbon Zone	Sustainability Team/ South West London Environment network (SWELN)	Sep-14	Establishment of Mortlake Block Champions Project – completion April 2014 to undertake 50 home energy assessment
To provide lower cost tariffs to Richmond residents to reduce fuel poverty and increase awareness of energy consumption	London Borough's Collective Energy Switching Scheme; the Big London Switch. Publicity and marketing campaign to encourage residents to switch to lower cost supplier.	Sustainability Team/London Borough of Kingston/ Big London Energy Switch	Review May 2013 if future switches go ahead	Mar 2013 publicity leaflet for Switching and GD sent with Council Tax Notice

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5. Appendix A.

Abbreviations

DECC	Department for Energy and Climate Change
ECO	Energy Company Obligation
EST	Energy saving Trust
HEC	Home Energy Check
HECA	Home Energy Conservation Act 1995
HEED	Home Energy Efficiency Database
JSNA	Joint Strategic Needs Assessment: Department of Health
SWI	Solid Wall Insulation
SWLEN	South West London Energy Network
WHECA	Warm Homes and Energy Conservation Act (2000)

Definitions

Collective Switching	Collective bid by London Councils in 2013 to provide residents with a lower cost energy tariff and a simplified method to change supplier, promoted as The Big London Energy Switch.
ECO	Energy Company Obligation creates a legal obligation on energy suppliers to improve the energy efficiency of households through the establishment of three distinct targets: 1 Carbon Emissions Reduction Obligation (CERO) Focused on hard to treat homes and measures that cannot be fully funded through the Green Deal. Solid wall insulation and hard-to-treat cavity wall insulation are the primary measures that will be promoted under this target. 2 Home Heating Cost Reduction Obligation (CRO) Energy suppliers are required to provide measures which improve the ability of low income and vulnerable households (the 'Affordable Warmth Group') to affordably heat their homes 3 Carbon Saving Community Obligation (CSCO) Focused on insulation measures and connections to district heating systems for domestic energy users that live within an area of low income. There are none of these qualifying areas in Richmond
Green Deal	Finance mechanism that enables consumers to install energy efficiency improvements without up-front capital costs. The loan for improvement work is repaid via electricity meter over a fixed term. Golden Rule states that loan repayments should be less than the cost of energy saved.
HEC/HEED data	Home Energy Check is a resident completed form that collects data about the fabric and energy efficiency equipment of a home. In Richmond approximately 50% of the borough has been surveyed using HEC's. The Home Energy Efficiency Database is a repository of HEC's and other relevant information that is maintained by the EST and is available to local authorities to assist improvement decisions.

Index of Multiple Deprivation

The overall index is constructed from a set of domain indicators which are weighted and combined together. 2007 & 2004 Domains:

- Income deprivation,
- Employment deprivation,
- Health deprivation and disability,
- Education, skills and training (children / young people sub-domain, skills sub-domain),
- Barriers to housing and services (wider barriers sub-domain, geographical barriers sub-domain),
- Crime,
- The living environment (the indoors living sub-domain, the outdoors living sub-domain).
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Long-Term Illness

This dataset shows the usual resident population by a self-assessment of their general health over the 12 months before the Census. The dataset also shows the usual resident population by whether they provide any unpaid care, and if so, how many hours a week they provide that care. A person is a provider of unpaid care if they give any help or support to family members, friends, neighbours or others because of long-term physical or mental health or disability, or problems related to old age. Source Census 2001

LSOA

Lower Super Output Areas (LSOAs) are units of geographic boundary developed by the Office for National Statistics and are aggregations of Output Areas. Output Areas are subdivisions of 2003 wards and each contains approximately 125 households (300 residents). LSOAs are the next largest area up and each contain a minimum population of 1,000 persons and on average (mean) contain a population of 1,500 persons. There is a total 32,482 LSOAs in England.

Postcode Level Data

This obtained from various borough wide schemes and other sources. These are as follows:

- Renew
- Coldbusters
- Ham and Petersham Low Carbon Zone
- Warmfront
- Warmzone
- HEC

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