

# The Benefits of Eco-Retrofit in the South East

November 2010



Benefits of a major programme of low carbon retrofit in the South East region



# Why Low Carbon Retrofit In The South East?

The South East's homes are no longer fit for purpose. They cause over a quarter of all carbon emissions in the region and waste up to £1 billion a year in unnecessary energy bills. By 2050, around two thirds of the region's housing stock is likely to be homes already built today. To meet the UK's long term carbon targets, we need urgently to invest in radically refurbishing around 85,000 of the region's existing homes, equivalent to a town the size of Basingstoke, every year.

The scale of such a programme is immense. However, it also offers an impressive range of benefits to the region. A programme of low carbon retrofit on this scale in the region would:

- Establish a market worth £460-850 million a year, over and above current spending in repair, maintenance and improvement (already worth £4 billion a year to regional Gross Value Added).
- Create between 4,100-33,000 jobs in the installation, supply and associated support of energy efficiency and micro-generation measures in the region.
- Enhance the asset value of regional homes by up to £22.4 billion.
- Liberate over £1 billion a year in energy savings to reinvest elsewhere in the regional economy – increasing as energy costs rise.
- Take at least 360,000 people out of fuel poverty.
- Save up to £80 million in regional healthcare costs and up to 3,700 excess winter deaths each year, when tackled alongside other key health hazards in housing.
- Save 3% of total regional water consumption, reducing water stress on the region's habitats and limited water supply.
- Improve regional energy security, making the region more resilient to future supply challenges.
- Future proof homes against climate change impacts including overheating.

All of this makes the case for low carbon retrofit strong and compelling, even before the impact on regional carbon emissions is considered. A major programme of low carbon retrofit in the South East would also cut regional carbon emissions by one fifth.

While regional policy-making is on the demise, local policy-making will continue to be influenced by the regional perspective which should provide a valuable source of reference and context for effective local policy-making.

This report draws together evidence to highlight the benefits of a major programme of investment in the existing housing stock for the South East region.

**“Energy efficiency is a no brainer. We need to tap in to this huge market to save people money on fuel bills, save carbon and help the economic recovery.”**

**Secretary of State for Energy and Climate Change, Chris Huhne, September 2010**

# Contents

## Section 1 – The Benefits

- *Creating Jobs* 4
- *Valuing The Asset* 5
- *Spending Less* 6
- *Reducing Fuel Poverty* 7
- *Less Water Stress* 8
- *Resilient Homes* 9
- *Energy Security* 10
- *Cutting Carbon* 11
- *Conclusion* 12

## Section 2 – The Background

- *What Is Low Carbon Retrofit?* 13
- *The General Homes Standard* 14
- *Who Is Doing It?* 15
- *Case Study: Radian Group* 16
- *Key Targets For Retrofit* 17
- *References* 18
- *Retrofit South East* 20

# SECTION 1 – THE BENEFITS

## Creating Jobs

The construction sector in the South East region is responsible for an annual economic output of £16.6 billion. Of this, nearly £4 billion is associated with repairs, maintenance and improvement (RMI) to the region's existing housing stock<sup>1</sup>. This means that currently, around £1 in every £40 of the region's total Gross Value Added (GVA) is associated with improving the region's existing homes<sup>1</sup>.

Very little of this expenditure is currently driven by energy efficiency concerns. However, with rising energy prices, and the right incentives, an increasing share of this could gradually be directed towards improvements in energy and resource efficiency. In its report *Building a Greener Britain*, the Federation of Master Builders estimates that the market for green refurbishment could be worth between £3.5 billion and £6.5 billion per year to the UK, over and above current spending on RMI<sup>2</sup>. A pro rata share of this for the South East would mean a market worth an additional £460-850 million per year to the region. At a time when unemployment figures are at their highest for well over a decade, this would provide much needed jobs for the region<sup>3</sup>.

Currently the construction sector employs 320,000 people in the South East. Despite the current economic climate, annual recruitment requirements are expected to be 2,300 over the next five years<sup>4</sup>. A major programme of low carbon retrofit could create many more. Typically refurbishing existing homes is more employment intensive, requiring more labour, and less materials, than the construction of new buildings. The fact that labour will generally be local, while materials are often manufactured outside the region, enhances the relative contribution to regional GVA. Measures like solid wall insulation and micro generation are particularly beneficial to job creation supporting many more jobs per installation than cavity or loft insulation<sup>5</sup>.

A report in 2008 by the Centre for Sustainable Energy and the Association for the Conservation of Energy showed how a major programme of low carbon retrofit in the South East region, sufficient to deliver a 40% cut in regional CO<sub>2</sub> emissions by 2016 on 1990 levels, could create 4,100 full time equivalent jobs for the region<sup>6</sup>. At a total cost of £14 billion, it would generate a Gross Value Added to the region of £4.2 billion, or approximately £1 for every £3 invested. This is before the value to the regional economy of liberated investment from household fuel savings is added in.

Other estimates for job creation are higher. The previous Government's 'Warm Homes Greener Homes' Strategy, published in March 2010 set out a series of ambitions and policies intended to create a significant new market place for household energy management. It estimates an additional 65,000 core jobs would be created between 2013 and 2020, equivalent to 8,100 jobs for the South East region<sup>ii</sup>, and potentially several times more in wider sectors and down supply chains. These roles would be met through up-skilling of existing operatives to install new measures, as well as new entrants to the job market<sup>7</sup>. More recently Chris Huhne, the Secretary of State for Energy and Climate Change, has announced the Coalition's Government's 'Green Deal' will create 250,000 jobs nationally, equivalent to a share of 33,000 jobs for the South East<sup>8</sup>.

---

<sup>i</sup> Total regional GVA was just under £170bn. Figures quoted for 2008, in 2005 prices.

<sup>ii</sup> On a pro rata basis, based on the relative number of households in the region

## Valuing The Asset

The South East has a total of 3.4 million households. At the height of the property market in 2008, the total value of housing assets in the South East region was estimated at £746 billion. Nearly a fifth of the total UK private housing assets are concentrated in the South East region<sup>9</sup>. Homes are important places not just to live abut also to work - 11% of the region's workforce (almost half a million) spend at least part of their week working from home or from a remote location.<sup>10</sup>

However, the apparent concentration of wealth masks the reality of the standard of much of the region's housing stock. In 2005, 23% of households in the South East scored the lowest Energy Performance Certificate rating of F or G – higher than the national level. Only 8% households in the region qualify for EPC ratings of band C or above<sup>11</sup>.

Currently, the energy performance of a house is not reflected in its value. However, this looks likely to change in future years. Publicity of the EPC during the property sale process will be required to become more effective. Increasing awareness of the running costs of an inefficient home, combined with energy price rises, will begin to drive consumer interest in this and demand for more energy efficient properties. Policies to provide incentives or tax breaks to more efficient homes, or even preventing sale of less efficient ones, are beginning to be considered as ways to significantly reduce carbon emissions from the existing housing stock.

The region's householders need to protect their asset value in the light of these changes.

The Royal Institute of Chartered Surveyors have begun to examine the link between energy performance and house value, and what can be done in the UK to strengthen this<sup>12</sup>. While there is little quantified research available, studies in Australia and the US have suggested that asset and rental value increases of around 3% might be experienced for highly energy efficient properties<sup>13, 14</sup>. In the South East, the average house price is £272k<sup>15</sup>. A 3% increase would correspond to around £8,100; similar to the typical over costs of achieving a 60% carbon emissions reduction when work is carried out as part of a whole house refurbishment<sup>16</sup>.

For the region as a whole, this would translate to an enhancement in asset value of £22.4 billion. This is before considering the additional value of annual expenditure liberated as a result of household fuel bill savings.

## Spending Less

The UK's 26 million households spent a colossal £33.5 billion heating and powering their homes in 2009<sup>17</sup>. The likely share for the South East region is £4.4 billion<sup>iii</sup>. Yet much of this expenditure is wasted – literally as hot air to the surrounding neighbourhood. A typical UK home loses 50% of its heat through the walls and loft<sup>18</sup>; losses which can often easily be addressed through improved insulation, or minimised through improved heating system efficiency and household behaviour. Experience has shown that implementing low and zero cost measures, supported by lifestyle change, can typically save around 25% on household energy bills<sup>19</sup>. Across the region this could liberate over £1 billion a year which could be reinvested elsewhere in the regional and the local economy.

The value of this potential saving looks likely to increase. Projections from the Government's Department for Energy & Climate Change show energy prices likely increase in real terms by between 30-50% between 2010 and 2020<sup>20</sup>. A recent Ofgem report into the costs of maintaining energy security over the next 10-15 years found that consumer bills rose under all scenarios considered, due to the levels of new investment required in ageing network infrastructure and the increasing costs of carbon. Household bills were found to be up between 14% and 60% between 2010 and 2020, according to 4 different scenarios<sup>21</sup>. Some believe price rises could be higher, with price comparison website USwitch suggesting that bills could rise from their current average of £1,250 to over £4,500 by 2020<sup>22</sup>.

As energy prices rise, the time taken to 'pay back' the original investment conversely reduces. This means the decision to invest in eco-retrofit can be seen partly as a way to insure against future price increases, creating resilient, future proofed homes. Whenever general building work or redecoration is undertaken in a home, an opportunity arises to install eco-retrofit measures much more cost effectively than if they were implemented as stand alone measures, at a later date. Delaying investment today simply means increasing the cost liability - and reducing the potential saving - for future years.

---

<sup>iii</sup> Assuming a pro rata share based on household numbers

# Reducing Fuel Poverty

For vulnerable households the value of savings in energy bills is very real. The rising cost of energy over the last four years has predominantly been responsible for fuel poverty more than doubling in the South East region to an estimated 360,000 in 2008, compared to 169,000 in 2005<sup>23</sup>. This is 10.2% of all households in the South East.

The government is legally committed to eradicating fuel poverty in vulnerable homes by 2010 and all homes by 2016 in England wherever practically possible. However, CSE & ACE have recently suggested that instead of reducing, this number could rise by 2016 to between 460,000-875,000 households, depending on four different scenarios of fuel price considered<sup>24</sup>. In other words, up to a quarter of all households in the region could need to spend more than 10% of their income in order to keep adequately warm during winter months.

Currently there are around 27,500 'excess winter deaths' in Great Britain, an incidence markedly higher than for countries with similar climates and living standards<sup>25</sup>. Statistics show that making homes cheaper and easier to heat directly reduces the number of winter deaths in older people from excess cold and significantly reduces the expenditure associated with hospital admissions for respiratory and cardiac conditions<sup>26</sup>. A recent report by BRE has estimated the total health cost of poor housing in England (housing which fails the statutory minimum standard, as defined by the Housing Health and Safety Rating System) to be estimated as over £600 million per year. The total cost to society each year may be greater than £1.5 billion<sup>27</sup>.

The South East Regional Housing Strategy highlighted the scale of the challenge particularly for homes in the private sector. Around 141,000 'vulnerable households' in the private sector live in 'non-decent' properties in the region, with the majority of these failing the Decent Homes standard on the grounds of thermal comfort.

CSE & ACE have shown that implementing all 'cost effective' carbon reduction measures to households in the South East would be sufficient to improve regional SAP levels from the current average of 53 to 69; while implementing all carbon reduction measures technically possible would increase average SAP ratings to 100<sup>28</sup>. This would be sufficient to remove every household in the region from fuel poverty, saving the NHS a possible £80 million in the region and preventing up to 3,700 excess winter deaths every year<sup>iv</sup>. Reducing fuel poverty has tangible financial value to the region's public services – at a time when savings in this sector are vitally needed.

---

<sup>iv</sup> These estimates are based on a pro rata share of the national figures quoted earlier, based on population in the region; it is acknowledged that the milder climate in the South East compared to other parts of the UK may mean this is an over estimate.

## Less Water Stress

In the South East the combination of low rainfall and high demand for water is placing intense pressure on the region's limited water resources. The region is one of the driest and most densely populated parts of the country, with per capita rainfall lower than that in Oman. Meanwhile domestic water consumption is 15 litres per head per day higher than the UK average. Many of the South East's internationally recognised wetlands depend on groundwater levels being maintained.<sup>29</sup>

The Environment Agency has shown that more than 50% of catchments in the Southern Region over-abstracted or over-licensed at low flows. By 2050 climate change could further reduce available resources by 10-15%. In a worst case scenario, it estimates a further 500 million litres of water per day may be needed in the South East river basin to meet the needs of the public, industry and agriculture by 2050<sup>30</sup>.

Reversing this trend of increased water stress will not just bring benefits – it will be essential in order to maintain vital habitats, preserve water supplies and thus enable continued growth and prosperity for the region. The South East Plan articulated that adapting the existing housing stock to use less water would be essential in the South East for these reasons<sup>31</sup>.

While the UK average water consumption is 150 litres per person per day (l/p/d), the South East's average is higher at 160 l/p/d<sup>32</sup>. In contrast the Code for Sustainable Homes level 6 standard for new construction sets a target for new homes of 80 l/p/d. Waterwise has shown how it is possible to achieve savings of 42 litres per property per day in existing dwellings converting toilets to dual-flush, installing water-efficient showerheads and tap inserts, and engaging customers to encourage behaviour change<sup>33</sup>. Across the South East this would save 143 million litres of water a day, or around 3% of total regional water consumption<sup>34</sup>.

In the future, water consumption is likely to account for the largest use of carbon emissions from domestic use, as energy efficiency standards of new homes improve<sup>35</sup>. For instance, hot water use in our homes for washing, bathing and cooking is currently responsible for over 5% of total UK greenhouse gas emissions<sup>36</sup>. Reducing hot water consumption brings the additional benefit of avoiding the energy (and hence carbon emissions) associated with heating it. Low flow showers and taps, lagging of hot water pipes and installing solar water heating can all be retrofitted to reduce hot water demand, in addition to the cold water saving measures above.

For more information see the report published by Radian Group's Water Efficiency Project, with support from the Environment Agency and the *Retrofit South East* project<sup>37</sup>.

## Resilient Homes

The South East faces particular challenges in addressing climate change and energy issues. The region is expected to experience greater climate change impacts than any other UK region: warmer, wetter winters and hotter, drier summers, with measurable sea-level rises by 2050, accompanied by more frequent extreme weather events.<sup>38</sup>

Most of the properties in the South East were designed for the climatic conditions which prevailed at the time of construction. However, these conditions have changed. For instance, projections of changing climate over the coming decades suggest that by 2050, we will experience a hot summer like that of 2003, when temperatures topped 38°C, every other year. Meanwhile summer precipitation is likely to decrease by 60%. Prolonged high temperatures risk lives for the vulnerable; in London around 600 excess deaths occurred in the heatwave of summer 2003, with 2,000 across the UK<sup>39</sup>. As overheating increases, air conditioning is likely to be used more regularly in households, further adding to the carbon emissions which cause the problem.

There are a range of measures which can be retrofitted to existing homes to reduce summer overheating. These include installing shutters, awnings and reflective blinds, improving insulation levels in roofs and walls, painting buildings light colours to increase reflectivity, reducing unnecessary heat gains from appliances, and improving security to enable windows to be left open at night. In a recent report for the Three Regions Climate Group, *Your Home in a Changing Climate*, the costs and benefits of retrofitting a range of such measures was examined. A package of measures which would dramatically reduce summer overheating and virtually eliminate the need for air conditioning was found to cost around £8,000 per household, when combined with a programme of improved insulation. While costs of the full package may appear high, simple measures such as external awnings, ceiling fans and enhancing natural ventilation were found to make a substantial difference for a relatively low cost of £2,250<sup>40</sup>. Measures to reduce water stress and reduce the risk of flooding were also examined.

The benefits to the region of integrating climate change adaptation measures into a programme of low carbon retrofit may not be felt now but will be significant in the years to come. They will ensure less strain on regional health services in summer months, protect asset value for homes that would otherwise become uninhabitable as a result of the changing climate, as well as improve another key area of regional interest: energy security.

# Energy Security

The days of access to a relatively low-cost supply of energy are coming to an end. As more of our energy comes from abroad, concerns mount over the stability and security of our energy supply.

The UK is heavily dependent on natural gas. In the South East the vast majority of homes rely on gas for their heating and hot water (89%, above the national figure of 85%)<sup>41</sup>. In 2008 the UK imported about 25% of the gas that it used, and projections suggest that by 2020 this could rise to around 60%. The previous Government's Low Carbon Transition Plan outlined measures to reduce this figure to 45% through decarbonising electricity supplies and increase heating efficiency<sup>42</sup>.

Meanwhile the South East consumes more electricity than is generated in the region. We have seen how in some instances a changing climate might increase the demand for electricity, particularly in summer months. This is combined with a rising appetite for consumer appliances, particularly in the area of information technology and consumer electronics, which has so far been offsetting efficiency gains made in other areas, such as lighting<sup>43</sup>. In addition much of the UK's electricity generating plant is approaching the end of its useful life and will require replacement in forthcoming decades.

Reliance on imported fossil fuels means greater exposure to global energy price fluctuations. This exposes the regional economy to energy price rises, as global demand for energy rises more rapidly, following the economic downturn. Constructing new generating plants is expensive – much more expensive, in overall terms than reducing energy demand through energy efficiency improvements<sup>44</sup>.

A major programme of low carbon retrofit would protect the region's households against future price rises and make the region more resilient to future supply shortages, which would otherwise risk economic losses through disruptions to commerce and industry.

## Cutting Carbon

The benefits described in earlier sections already offer an impressive array of opportunities for the South East region – sufficient to justify significant action in their own right, even before the benefits of cutting carbon emissions are considered.

Yet reducing the region's carbon footprint is not just a benefit – it is an essential prerequisite of enabling continued growth and prosperity for the region and global society as a whole.

The Stern Review, independently commissioned by Government in 2006 to assess a wide range of evidence on the impacts of climate change, including the economic costs of inaction, came to a simple conclusion: the benefits of strong and early action far outweigh the economic costs of not acting. The Review estimates that if we don't act, the overall costs and risks of climate change will be equivalent to losing at least 5% of global GDP each year, now and forever. If a wider range of risks and impacts is taken into account, estimates of damage rise to 20% of GDP or more. In contrast, the costs of action – reducing greenhouse gas emissions to avoid the worst impacts of climate change – can be limited to around 1% of global GDP each year. Stern has subsequently increased this value to 2%, following evidence that climate change is happening faster than previously thought.

2% of regional GVA (an approximation of the regional share of GDP), translates to around £3 billion per year for the South East. Household carbon emissions in the region are currently 20.4 MtCO<sub>2</sub> per year<sup>45</sup>, or 30% of the regional total<sup>46</sup>. This suggests an annual investment of around £1 billion might be an appropriate sum to target on reducing emissions from the household sector.

The report by CSE & ACE in 2008 showed that implementing all carbon reduction measures technically possible in homes in the region by 2050, would require a total investment of some £20 billion<sup>47</sup>, or £0.5 billion per year between now and then. This is half the level suggested appropriate by the Stern Review, and only an eighth of current regional spending on the repair, maintenance and improvement of existing homes in the South East.

The benefit of such a programme would be to reduce carbon emissions in the household sector by 67%. This would result in total savings of 13.7 MtCO<sub>2</sub>/yr, or around one fifth of the region's total carbon emissions. This is a valuable contribution given that in other sectors, carbon emissions reductions are likely to be harder to achieve<sup>48</sup>.

## Conclusion

The UK is now committed to legally binding carbon emissions reductions under the Climate Change Act of 80% by 2050. Given the challenges of carbon reduction in other sectors, the Government has indicated that the household sector will need to deliver reductions of more than 80%, and be decarbonised almost entirely<sup>49</sup>. This provides a major driver for low carbon refurbishment of our existing housing stock. At the regional level we need to substantially refurbish around 85,000 of the region's existing homes every year; equivalent to a town the size of Basingstoke<sup>v</sup>.

However, the benefits to the regional economy, and wider society and environment, of doing this are high and make a compelling case for action on their own – before the effects on carbon emissions reduction are considered.

Reducing households' dependence on costly, often unnecessary, carbon intensive energy consumption can help generate much needed employment, boost regional GVA, enhance household asset value, create resilience to rising energy prices and climate change impacts, liberate investment into the regional and local economy, reduce water stress, eliminate fuel poverty, while improving health and energy security.

All of this has tangible value for both public services and the region's businesses, in a time when economic efficiency is paramount and sustainable employment opportunities are urgently needed.

**So, what are we waiting for?**

---

<sup>v</sup> Based on tackling the region's 3.4 million households at a steady rate between now and 2050. In reality this number is likely to need to be higher each year as current activity is significantly lower than this.

# SECTION 2 – THE BACKGROUND

## What Is Low Carbon Retrofit?

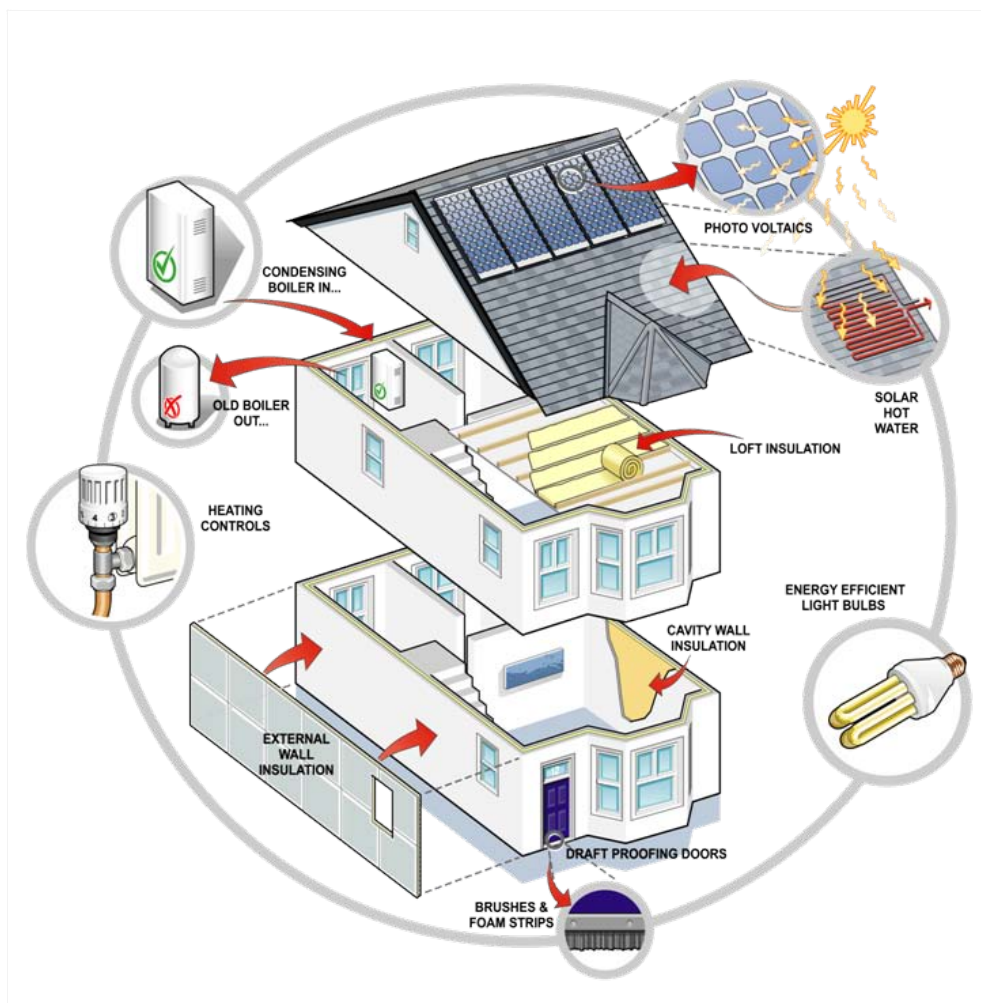
The Generation Homes Standard illustrates what is required for a typical UK house to achieve a 60% reduction in carbon emissions. It was developed by Camco with support from the Energy Saving Trust's Innovation Programme. [www.generationhomes.org.uk](http://www.generationhomes.org.uk)

### Target housing stock:

The Generation Homes Standard was developed to apply to typical UK house types, such as family semi-detached and terraced houses with characteristics around the average: 3 bedroom, 90 m<sup>2</sup> floor area, 100 mm loft insulation, partial double glazing and a central heating system.

### Target carbon emission reductions (from an individual house):

- **Relative target** of more than 60% carbon savings from an established baseline, or if not tangible -
- **Absolute target** of 2tCO<sub>2</sub> total house emissions or 0.5tCO<sub>2</sub> per occupant (if occupancy pattern deviates considerably from the average).



© Generation Homes image copyright of Camco

# The Generation Homes Standard

## Roof/loft Insulation

300mm mineral wool or ZODP equivalent.

(Remark: minimum at joists; preferred at rafter level (when re-roofing)).

## Air-tightness

5m<sup>3</sup>/m<sup>2</sup>/h @ 50pa

## Ventilation

Minimum options: Passive stack and humidity sensors or Mechanical.

Preferred option: Whole house mechanical ventilation with heat recovery and low fan power (1 W/l/s).

## Roof solar systems

Solar Hot Water and/or Solar PV.

(Remark: depends on orientation and roof space; preferred full roof integration if re-roofing).

## Walls Insulation

For semi detached and detached: 150mm external or internal insulation.

For terraced: 150mm internal or external insulation at the back and dry lining and better windows at the front.

## Windows

Performance - 1.5W/m<sup>2</sup>K at worst for the whole window; daylight transparency – 60%.

Quality - Durable, secure, sympathetic to context and from sustainable materials source

(Remark: secondary double glazing may be acceptable in difficult cases).

## Floor Insulation

Proper floor and perimeter insulation.

## Hot water and Heating

Specification - Minimum option: Grade A boiler.

Preferred options: innovative solutions such as biomass, micro CHP, Heat pumps; Solar thermal store; electric (where demand is very low).

(Remark: not combi boiler if SHW also installed; Heat pumps if off-gas grid).

## Controls

Comprehensive and user friendly controls, e.g. CHES.

## Sustainability

Water conservation measures.

## Electricity demand

Appliances - Grade A/A+/A++ only.

Lighting - Dedicated CFLs to fixed points.

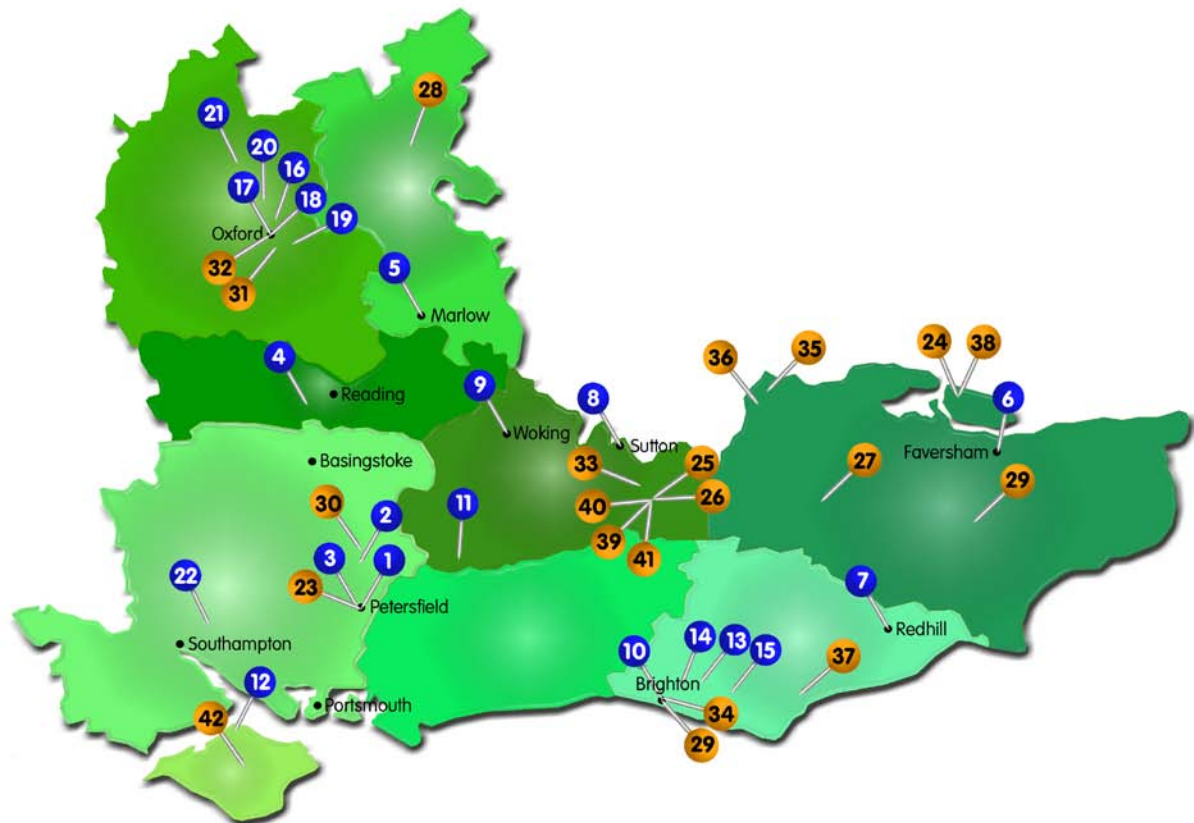
## Energy consumption patterns:

Awareness - User displays of electricity consumption.

Behaviour - Education and user manuals.

## Who Is Doing It?

The South East already has lots of practical experience! A growing number of individuals and organisations are choosing to develop low carbon retrofit demonstration projects.



Further information on these retrofit exemplars can be found on the Retrofit South East website [www.radian.co.uk/201004072131/retrofit.html](http://www.radian.co.uk/201004072131/retrofit.html). In particular, the Old Homes SuperHomes network, managed by the Sustainable Energy Academy, provides details of exemplars open to the public on [www.superhomes.org.uk](http://www.superhomes.org.uk).

Practical, hands on experience, and learning from what others have tried and tested, is the key to learning these new approaches.

## Case Study: Radian Group

As part of the Retrofit South East project, Drum Housing Association, part of Radian, is refurbishing a group of 14 properties in Petersfield Hampshire. The 1950s pre-cast concrete homes are being refurbished to a high energy performance standard reducing carbon emissions by up to 80% through installing measures such as external wall insulation, loft and floor insulation, high efficiency heating, high performance windows and doors, and solar photovoltaics, as part of a substantial whole house refurbishment. One property will be kept open for a year as a location for training and study visits.



*Borough Grove Eco 'Superhome' Showhome*

# Key Targets For Retrofit

## South East Regional Targets

At the time of commencement of this report, in 2010, the following regional targets were in place. However, Regional Spatial Strategies were revoked by the current Government on 6<sup>th</sup> July 2010; the Government announced an intention in principle to abolish the eight regional Government Offices on July 22<sup>nd</sup>, and all Regional Development Agencies, including SEEDA, are intended to be closed by April 2012. However, regional perspective is likely to continue to influence and can provide a valuable source of context for local policy-making.

**The Regional Spatial Strategy, or 'South East Plan'**<sup>50</sup>, required regional and local authorities and others to work together to help reduce carbon emissions in the region by at least:

- 20% below 1990 levels by 2010
- 25% below 1990 levels by 2015
- 80% below 1990 levels by 2050

The **Regional Economic Strategy**<sup>51</sup> included targets to reduce:

- carbon emissions by 20% below 2003 levels by 2016
- water consumption by 20% below 2003 levels by 2016

The **Regional Planning Guidance for the South East (RPG 9)** also established minimum regional targets for renewable electricity generation of:

- 5.5% (620MW) by 2010
- 8% (895MW) by 2016
- 16% (1750MW) by 2026

## Key National Targets

- The Climate Change Act sets an ambitious target of 80% for the reduction of greenhouse gas emissions by 2050 in the UK, with a reduction in emissions of at least 34% by 2020. Both these targets are against a 1990 baseline.
- The Low Carbon Transition Plan outlines the strategy for reducing emissions from homes by 29% over the first three carbon budget periods (i.e. until 2020).
- The UK's target under the EU Renewable Energy Directive is to generate 15% of UK energy from renewables by 2020. This is equivalent to a seven-fold increase in UK renewable energy consumption from 2008 levels.
- The Fuel Poverty Action Plan seeks an end to fuel poverty in vulnerable households by 2010, and a target that by 2016, as far as is reasonably practicable, no person in England should have to live in fuel poverty.

## Key Local Targets

- NI 186 - Per capita reduction in CO<sub>2</sub> emissions in the Local Authority area
- NI 187 - Percentage of people receiving income based benefits living in homes with a low and high energy efficiency rating

# References

---

- <sup>1</sup> Construction Skills Network South East, *Labour Market Intelligence 2010-2014*, Construction Skills and Experian;  
<http://www.cskills.org/supportbusiness/businessinformation/csn/csnoutputs/outputsse.aspx>
- <sup>2</sup> Federation of Master Builders, *Building a Greener Britain*, 2008
- <sup>3</sup> <http://www.bbc.co.uk/news/10604117>
- <sup>4</sup> Construction Skills Network South East – as above
- <sup>5</sup> CSE, ACE & Dr Richard Moore, *Retrofitting the Existing Housing Stock in the South East*, 2008
- <sup>6</sup> As above.
- <sup>7</sup> DECC, *Warm Homes, Greener Homes: A Strategy for Household Energy Management, Supporting Papers*, March 2010
- <sup>8</sup> DECC Press Release, *Green Deal to Create Green Jobs*, 21 September 2010,  
[http://www.decc.gov.uk/en/content/cms/news/pn10\\_104/pn10\\_104.aspx](http://www.decc.gov.uk/en/content/cms/news/pn10_104/pn10_104.aspx)
- <sup>9</sup> Halifax via <http://news.bbc.co.uk/1/hi/business/7183551.stm>
- <sup>10</sup> SEEDA, *Regional Economic Strategy 2006-16*
- <sup>11</sup> CSE, ACE & Dr Richard Moore, *Retrofitting the Existing Housing Stock in the South East*, 2008
- <sup>12</sup> RICS, *Energy Efficiency and Value Project*, March 2010.
- <sup>13</sup> Australian Government, National Framework for Energy Efficiency, *Energy Efficiency Rating and House Price in the Act*, 2008 [www.nathers.gov.au/about/publications/pubs/eer-house-price-act.pdf](http://www.nathers.gov.au/about/publications/pubs/eer-house-price-act.pdf)
- <sup>14</sup> RICS Research Report, *Doing Well by Doing Good? An Analysis of the Financial Performance of Green Office Buildings in the USA*, 2009
- <sup>15</sup> Land Registry of England & Wales,  
[http://news.bbc.co.uk/1/shared/spl/hi/in\\_depth/uk\\_house\\_prices/regions/html/region9.stm](http://news.bbc.co.uk/1/shared/spl/hi/in_depth/uk_house_prices/regions/html/region9.stm).
- <sup>16</sup> Federation of Master Builders, *Building a Greener Britain*, 2008
- <sup>17</sup> DECC, *Quarterly Energy Prices*, June 2010
- <sup>18</sup> Energy Saving Trust, <http://www.energysavingtrust.org.uk/Home-improvements-and-products/Home-insulation-glazing>.
- <sup>19</sup> Energy Saving Trust and others.
- <sup>20</sup> <http://www.decc.gov.uk/en/content/cms/statistics/projections/projections.aspx> - Annexe F
- <sup>21</sup> Ofgem, *Project Discovery: Options for delivering secure and sustainable energy supplies: Consultation*, February 2010
- <sup>22</sup> <http://www.telegraph.co.uk/finance/personalfinance/consumertips/household-bills/7146110/Ofgem-energy-bills-will-be-unaffordable-unless-200bn-spent-watchdog-warns.html>
- <sup>23</sup> *Economic Review, South East*, August 2008
- <sup>24</sup> CSE, ACE & Dr Richard Moore, *Retrofitting the Existing Housing Stock in the South East*, 2008
- <sup>25</sup> National Energy Action, <http://www.nea.org.uk/excess-winter-mortality/>
- <sup>26</sup> South East regional Housing Strategy 2008-11
- <sup>27</sup> M Davidson, M Roys, S Nicol, D Ormandy and P Ambrose, *The Real Cost of Poor Housing*, BRE Press, February 2010
- <sup>28</sup> CSE, ACE & Dr Richard Moore, *Retrofitting the Existing Housing Stock in the South East*, 2008
- <sup>29</sup> SEEDA, *Regional Economic Strategy 2006-16*

- 
- <sup>30</sup> The Environment Agency, *Water Resources Strategy for the Southern Region*, 2009
- <sup>31</sup> South East Regional Assembly / Government Office South East, *The South East Plan (Regional Spatial Strategy for the South East)*, May 2009, covering period 2006-26 - policies CC3 and CC4
- <sup>32</sup> Environment Agency, *Water for the Future*, 2005
- <sup>33</sup> Water Wise, *Evidence Base for Large-scale Water Efficiency in Homes, Phase II Interim Report*, February 2010
- <sup>34</sup> Total regional water consumption is 4,323 Ml/d in an average year, from CPRE South East, *A Water Resource Strategy for the South East of England*, 2007
- <sup>35</sup> Energy Saving Trust and Environment Agency, *Quantifying the carbon and energy effects of saving water*, 2009
- <sup>36</sup> DEFRA, *Future Water*, 2008
- <sup>37</sup> Radian Group, *Water Efficiency Project - Final Report*, May 2010.
- <sup>38</sup> SEEDA, *Regional Economic Strategy 2006-16*
- <sup>39</sup> ARUP, for the Three Regions Climate Change Group, *Your House in a Changing Climate*, February 2008.
- <sup>40</sup> As above.
- <sup>41</sup> Eaga-PCT, *Rural Fuel Poverty*, CSE 2006
- <sup>42</sup> HM Government, *The Low Carbon Transition Plan*, 2009
- <sup>43</sup> Climate Change Committee's first report *Building a Low Carbon Economy: the UK's Contribution to Tackling Climate Change, Chapter 6, Energy Use in Buildings & Industry*.
- <sup>44</sup> Energy Saving Trust and others.
- <sup>45</sup> CSE, ACE & Dr Richard Moore, *Retrofitting the Existing Housing Stock in the South East*, 2008 - the figure was 20.4 MtCO<sub>2</sub>/yr in 2005
- <sup>46</sup> Figures from DEFRA's regional statistics
- <sup>47</sup> CSE, ACE & Dr Richard Moore, *Retrofitting the Existing Housing Stock in the South East*, 2008
- <sup>48</sup> DECC, *Household Energy Management Strategy: Consultation*, 2009
- <sup>49</sup> As above
- <sup>50</sup> South East Regional Assembly / Government Office South East, *The South East Plan (Regional Spatial Strategy for the South East)*, May 2009, covering period 2006-26 - policy CC2
- <sup>51</sup> SEEDA, *Regional Economic Strategy 2006-16*

# RETROFIT

## South East

This report is part of the 'Retrofit South East' project, led by Radian, part funded by the European Regional Development Fund. The aim of the project is to develop a model for low carbon retrofit of social housing, which will help to transform businesses and reduce carbon emissions from existing housing stock across the South East region. It is using an exemplar demonstration project of 14 social housing properties in Petersfield, Hampshire, as the centrepiece for a programme of research, business assistance, awareness raising and dissemination on the theme of low carbon refurbishment.

**Further information is available on the Retrofit South East website: [www.radian.co.uk/201004072131/retrofit.html](http://www.radian.co.uk/201004072131/retrofit.html)**

**For further information  
please contact:**

**Cathy Hough at Camco**

**Email:**

**[cathy.hough@camcoglobal.com](mailto:cathy.hough@camcoglobal.com)**

**Or**

**Paul Ciniglio at Radian**

**Email:**

**[paul.ciniglio@radian.co.uk](mailto:paul.ciniglio@radian.co.uk)**



### **Project Partners:**

**Radian** (lead partner)

[www.radian.co.uk](http://www.radian.co.uk)

**Camco**

[www.camcoglobal.com](http://www.camcoglobal.com)

**Parity Projects**

[www.parityprojects.com](http://www.parityprojects.com)

**GESB**

[www.gesb.eu](http://www.gesb.eu)