

The Highgate Society
‘Creating an Energy-Chic Home’

**Assessing the Way Forward
for your Home – a Whole
House Perspective**

8th February 2017

Russell Smith

Parity Projects





- Education
- Expat
- Fantasy Games
- Fashion
- Features
- Food & Drink
- Gardening

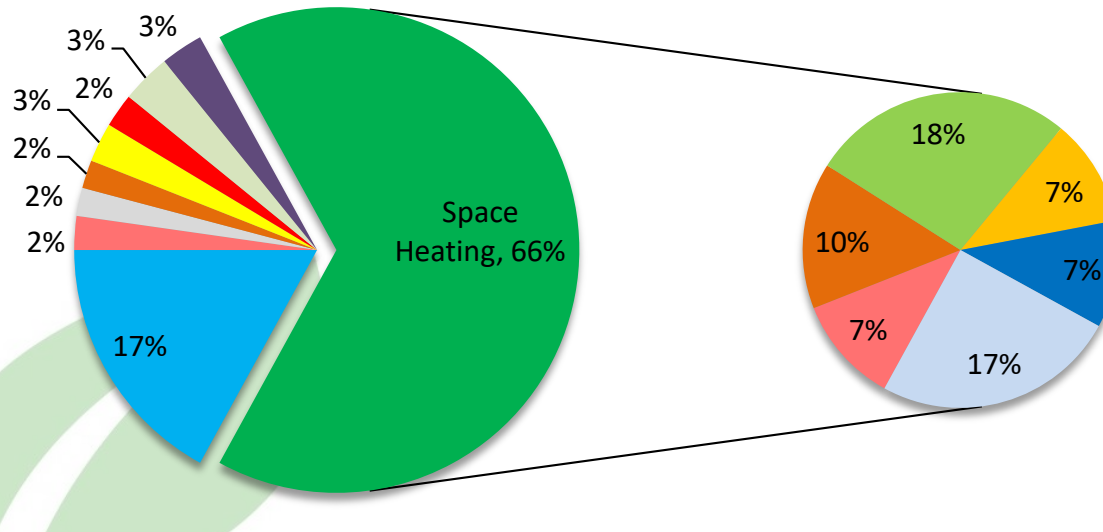
Of course, eco-houses are an ecohome of the future was



**Winners of Building Magazine's 2007
Award for Sustainable Refurbishment**



The basics



Key (large pie charts)
(labelled clockwise in numbered order)

1		Space Heating
2		Hot Water
3		Cooking
4		Consumer Electronics
5		Computing
6		Cold Appliances
7		Wet Appliances
8		Lighting
9		Miscellaneous

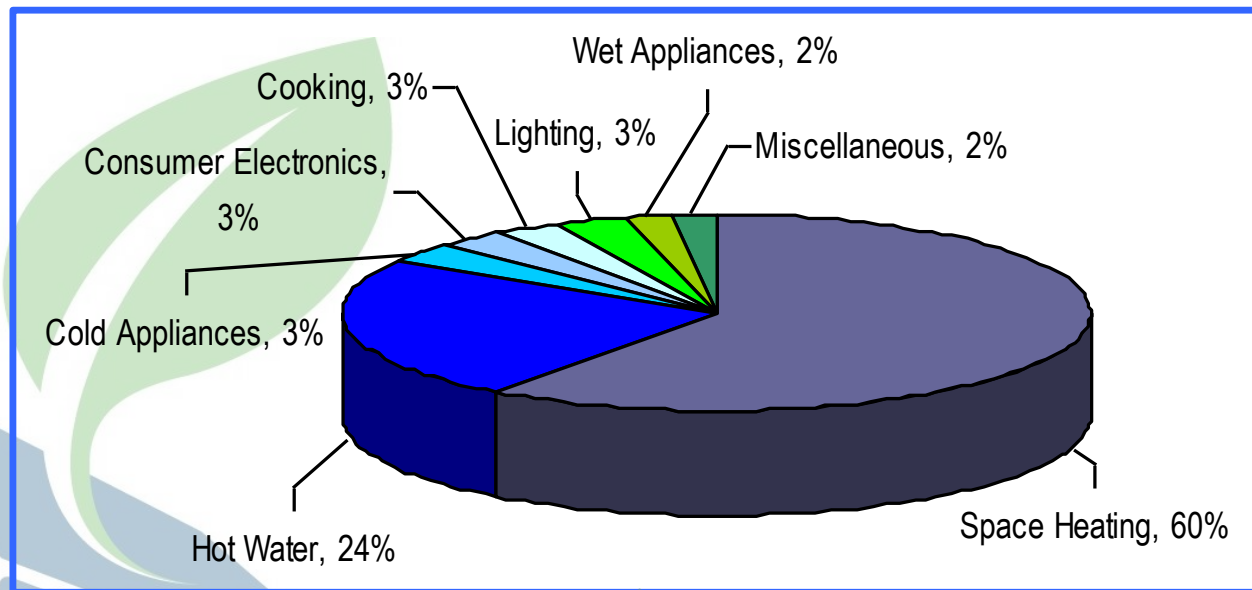
Key (small pie charts)
(labelled clockwise in numbered order)

1		Windows
2		Doors
3		External Walls
4		Ground Floors
5		Roof
6		Draughts

**The Building
Physics**

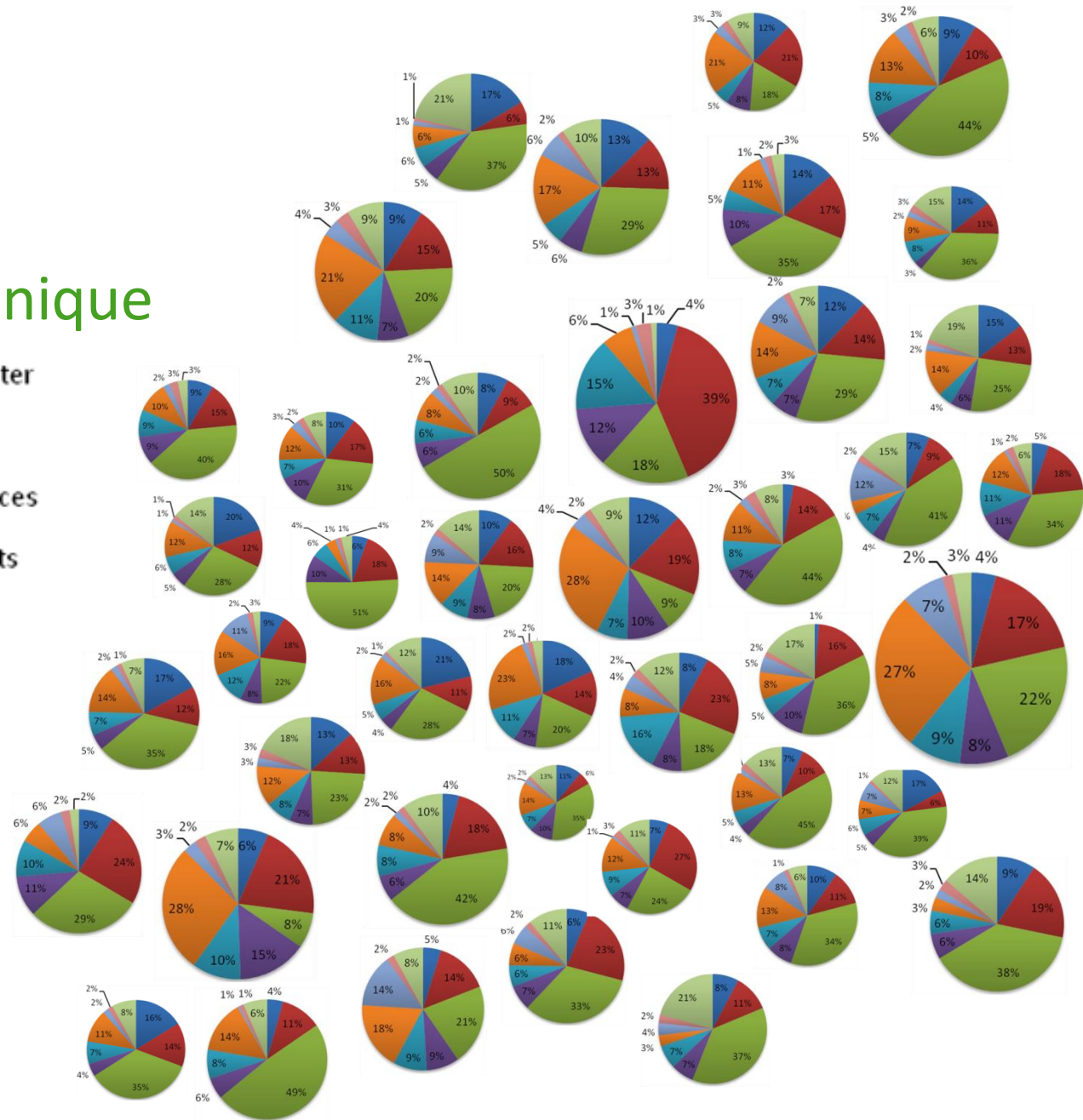
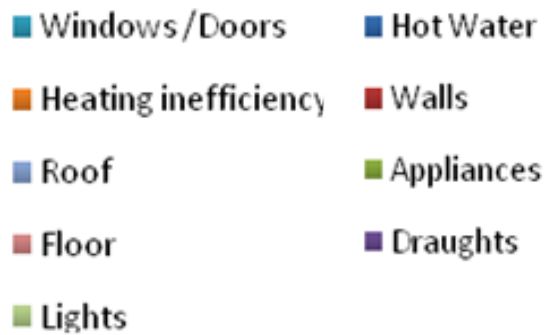
**The Lifestyle of
Users**

Weather



**Energy
Consumption**

Every home is unique



Strategy



A Whole House Plan

report prepared for

2 [redacted] lens, Hampstead

version 1.0

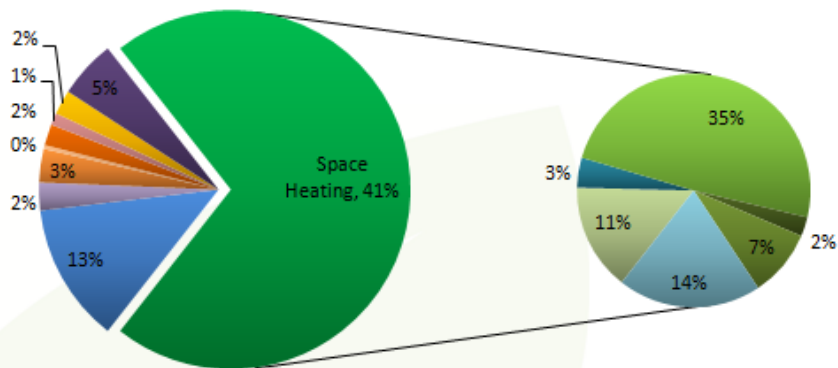


parity
home energy
masterplan

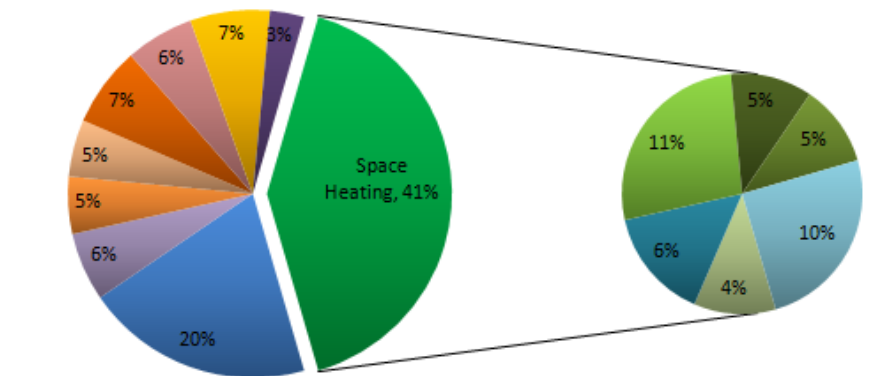
w a g z r e l b i g u

ANNUAL FUEL COSTS		
FUEL COSTS	YOUR HOUSE	UK AVERAGE
ANNUAL	£2,550	£1,345

YOUR HOUSE
21,498 kWh (3,583 per person)



UK AVERAGE
22,800 kWh (8,350 per person)



- Hot Water
- Cooking
- Consumer Electronics
- Computing
- Cold Appliances
- Wet Appliances
- Lighting
- Miscellaneous
- Windows
- Doors
- External Walls
- Ground Floors
- Roof
- Draughts

- Draughts
- Lights
- Windows/Doors



4.4 NO BRAINER

For this Masterplan the 'no brainer' threshold for individual measures has been set with a payback of 7 years.

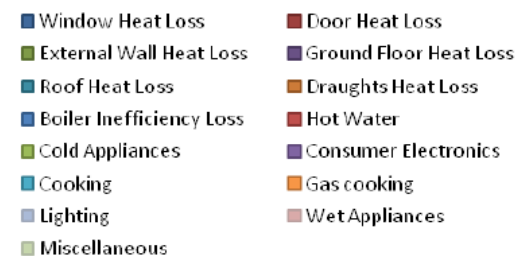
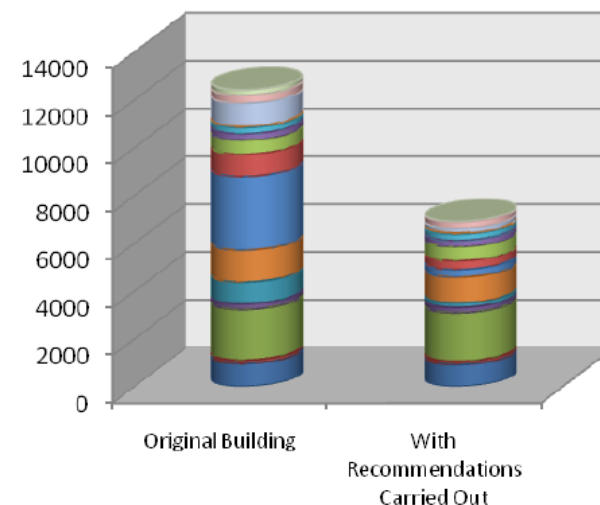
RECOMMENDED MEASURES

	DIY	Professional
Only wash clothes at 30 degrees	●	
Systematically replace all remaining inefficient lamps with efficient compact fluorescent lamps	●	
Thoroughly draughtproof loft hatch	●	
Thoroughly draughtproof cellar door	●	
Draughtproof all doors and windows		●
Add 50mm PIR or equivalent to the ceiling of the flat roof		●
Install a modern highly efficient condensing boiler		●
Turn down thermostat by 1 degree	●	
Zone the upstairs of the house using TRVs and set thermostat to be 1 degree lower than downstairs	●	
Install Low Flow shower heads on all showers running off the mains hot water		●
Add additional insulation to the hot water cylinder	●	

STATISTICS

Estimated annual saving	£1,126
Estimated cost of measures	£3,160
Estimated annual CO ₂ saving	44% - 5.52 tonnes
Estimated annual energy reduction	45%
Estimated Payback Period	2.8 years

ANNUAL CO₂ – BEFORE AND AFTER



Cost and Complexity v Emissions



67	SUITE - No Brainer	
77	SUITE - Some Consideration	£
87	SUITE - Green Halo	£1
85	SUITE - No Brainer	
86	SUITE - Some Consideration	£

CostUsed | IC_BaseCarbon | IC_Carb



740.5
1279.8
479.1
569.1
2874.9
1351.1
1386.6
18037.3
10425.6
14527.6
12935.7
1284.3
2664.3

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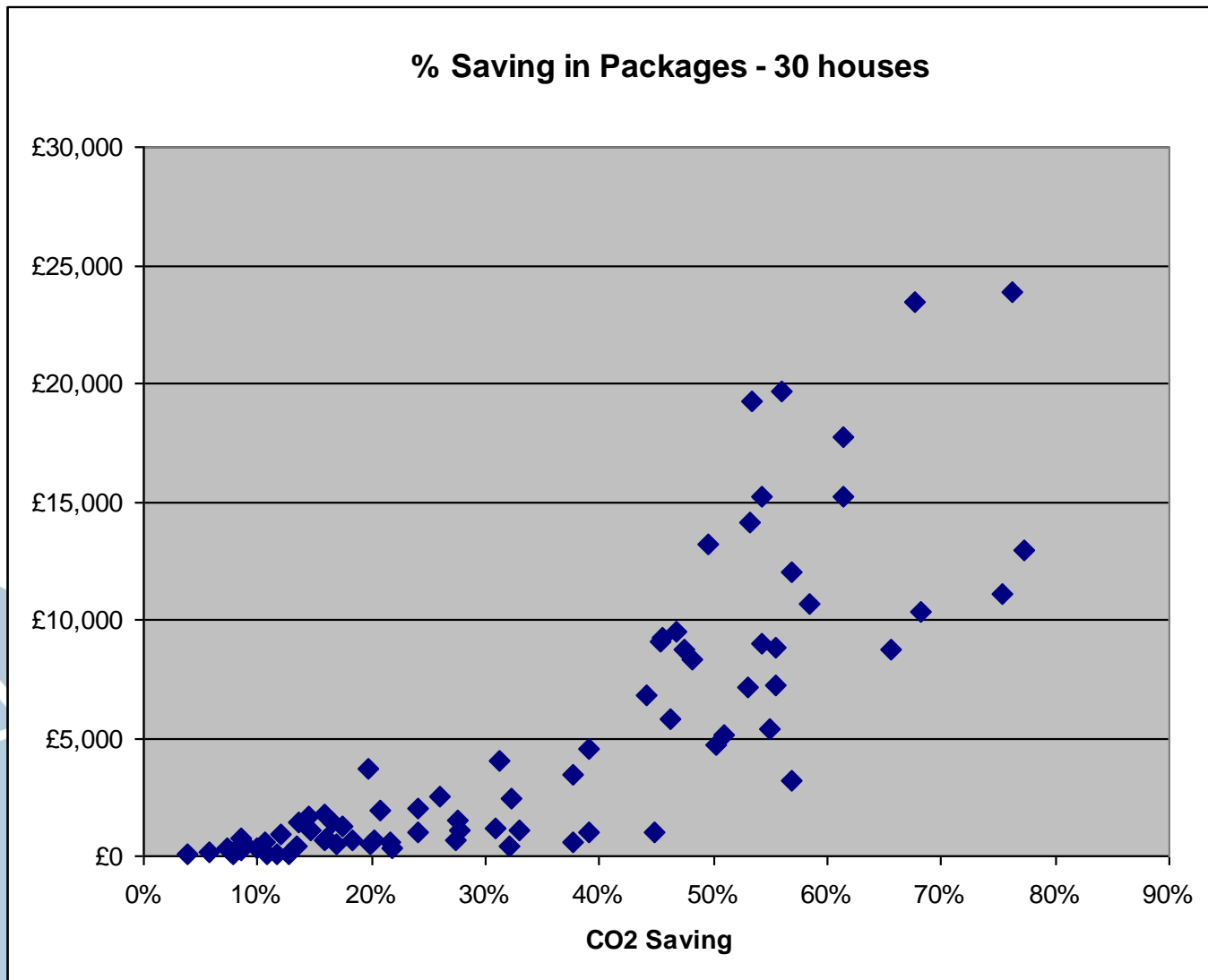


£13,178.29	9580.17	4751.0
£1,430.00	9580.17	1585.6
£4,566.73	9580.17	3741.2
£5,101.25	6631.14	3374.7
£612.00	6631.14	1437.1
£1,047.67	6631.14	2588.9
£4,028.00	14737.43	4590.0
£630.00	14737.43	1579.6
£1,648.00	14737.43	2131.6
£23,439.00	15792.33	10694.8
£120.00	15792.33	1842.2
£3,700.00	15792.33	3105.5



202.7	77.9	62.6	20%
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Cost and Complexity v Emissions



Designing the retrofit:

Looking at individual ingredients is easy

- Fabric upgrades
- Ventilation
- Heating and hot water
- Renewable technology
- Water saving, water recycling

Concocting a successful recipe requires an expert

- **Fabric upgrades** – existing condition? Incidental weather? Internal conditions? Target u-values
- **Size of heating system** – controls to suit the fabric behaviour?
- **Airtightness** – air quality, ventilation required
- **Futureproofing** – will we get an opportunity to add a particular measure again?

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Thank you

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