



**esd**

Part of the Camco Group

# Generation Homes: The Woodfields Project

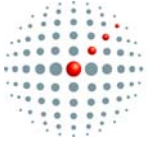
Advanced Low Energy Refurbishment, Drum Housing

**Presentation to “RIBA South East:  
Housing Retrofit – Make the most  
of what you’ve got”**



**11<sup>th</sup> November 2008**

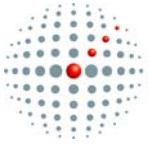
**Arnout Andrews, Principal Consultant**



## About ESD

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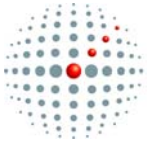
ESD is a global market leader in the provision of low carbon energy and sustainable development solutions. The company was established in 1989 to develop policies and implement projects to help mitigate climate change. We provide consulting services to undertake carbon assessment, management and reduction projects to create a sustainable low carbon society.



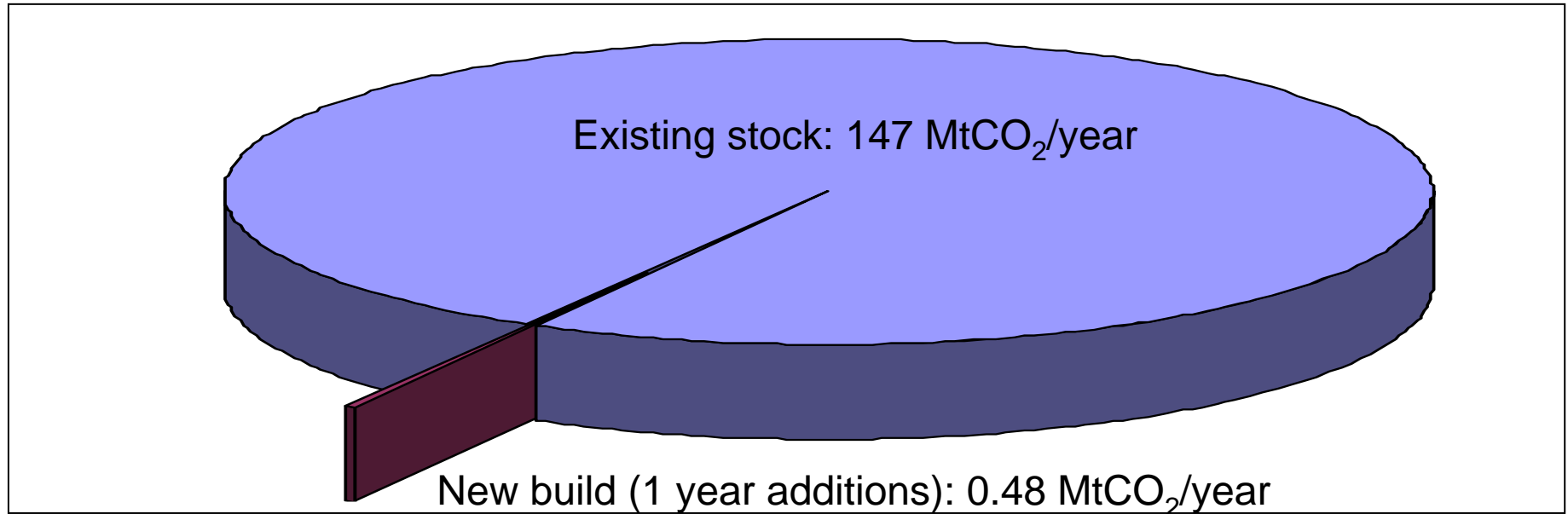
## The UK's existing housing stock

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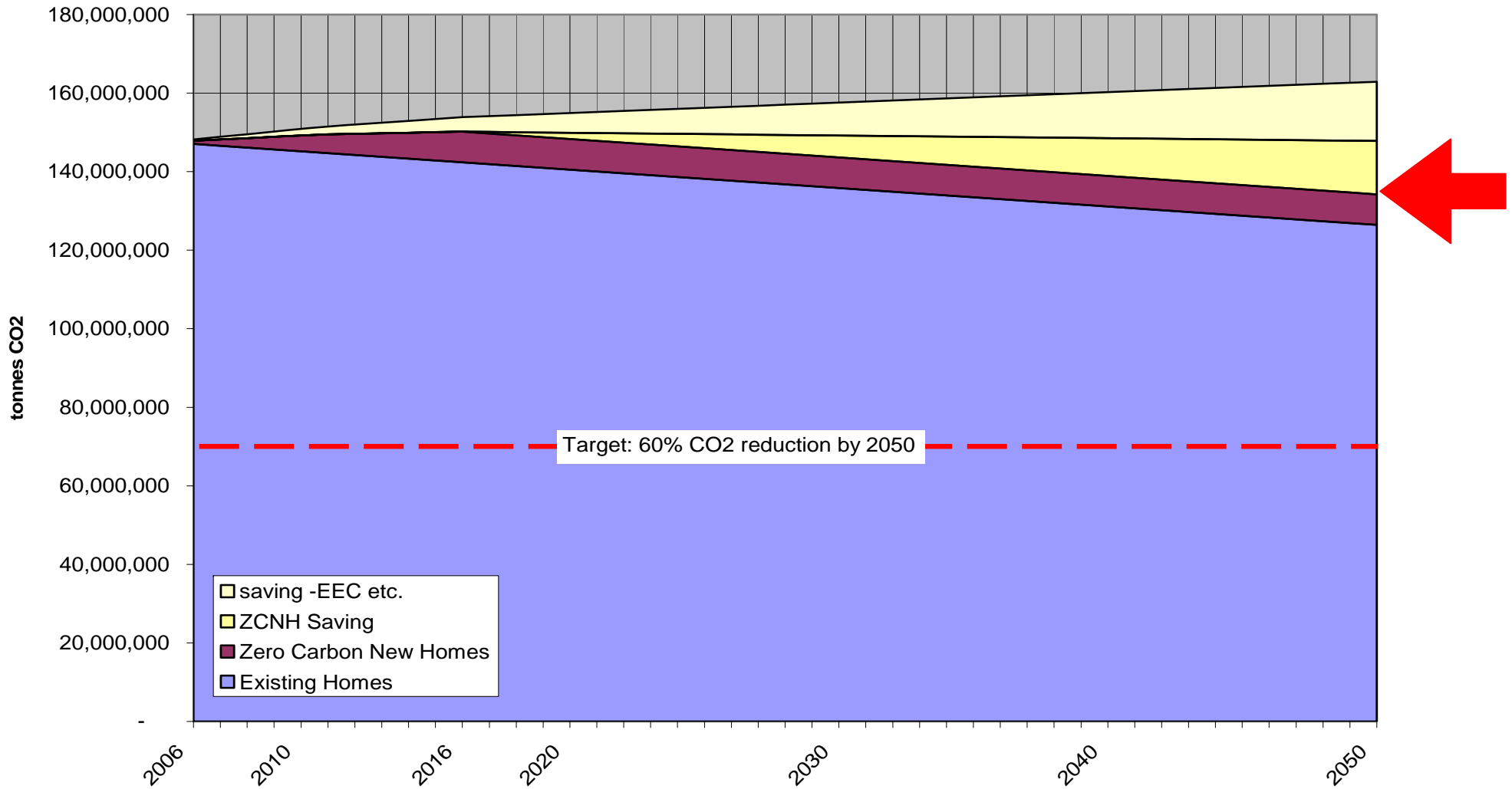
## The big picture



- Housing stock ~26 million dwellings
- New build ~200,000 new properties a year
- 85% of our existing homes are still expected to be lived in by 2050
- Over a quarter of the UK's carbon emissions come from existing homes
- Fuel poverty ~ 4 million people

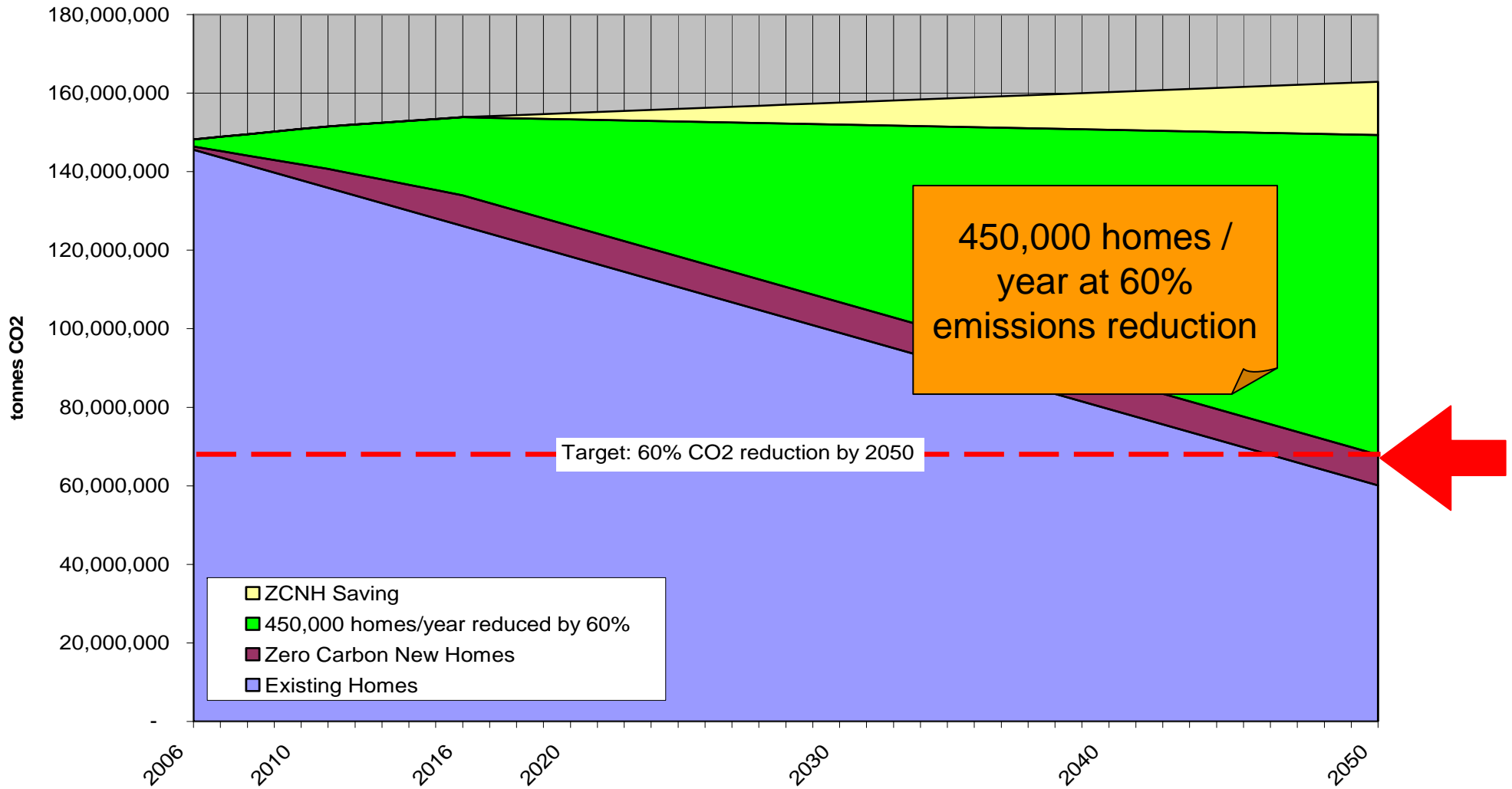


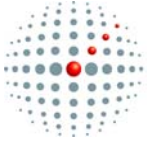
## Zero Carbon New Homes from 2016





## Needed to Hit 60% reduction by 2050





## Existing homes

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“We need 10 years to develop technologies in new homes before applying to existing homes”

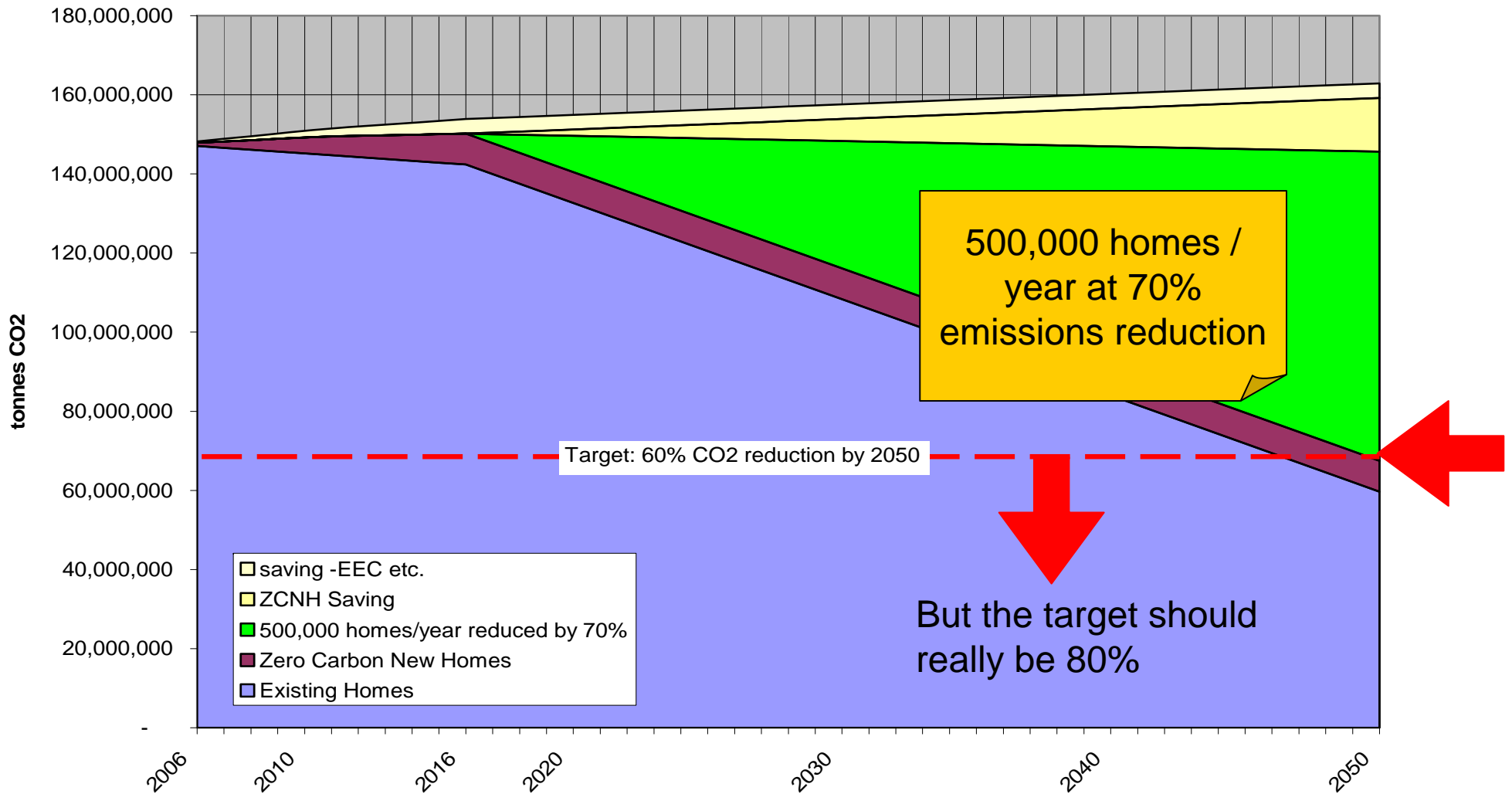
Do we?

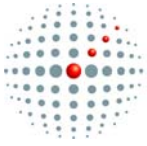
Can we really afford to be this relaxed?





## Tackle Existing Homes from 2016





# The Generation Homes Project

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Large-scale **demonstration** schemes

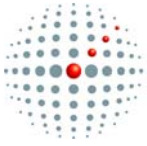
Target the **social housing sector**

Target the **most typical** housing types

Aim for property **clusters**

[www.generationhomes.org.uk](http://www.generationhomes.org.uk)



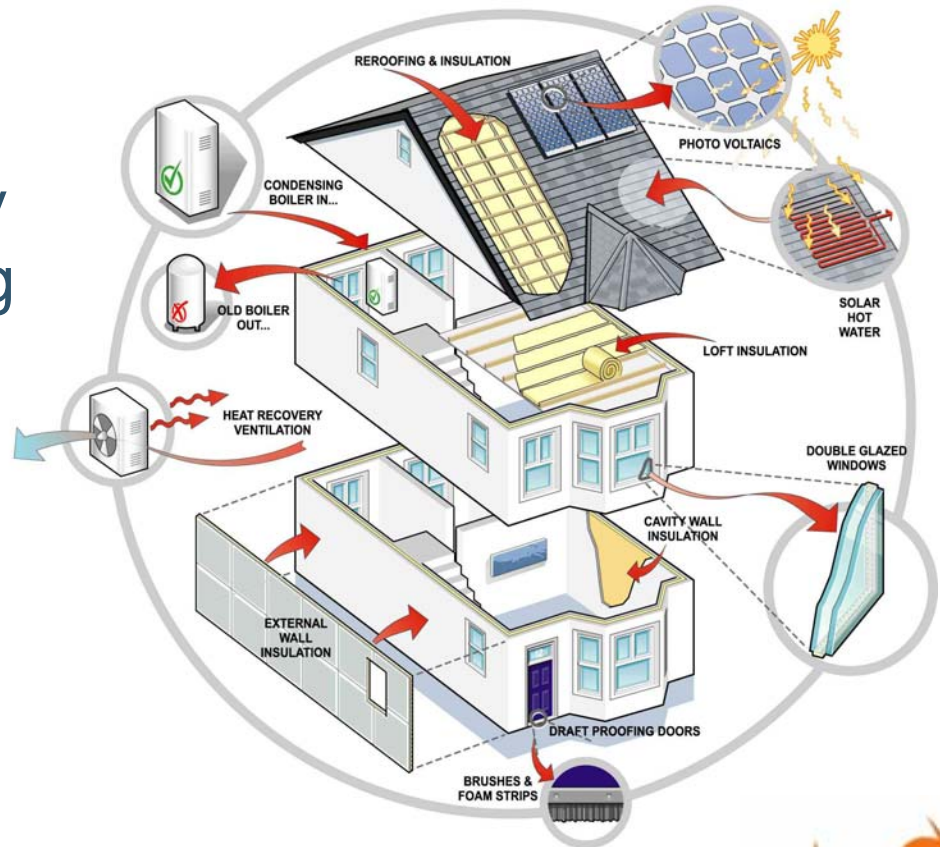


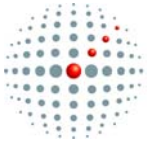
# ESD's Generation Homes Project

Aim to establish a **systematic approach** to reducing carbon emissions from existing houses by **more than 60%** through deploying **integrated low-carbon technical solutions** as part of **major refurbishment work**.

As a result, individual houses will emit **no more than 2 tCO<sub>2</sub>/year**, which is the **Generation Homes standard**.

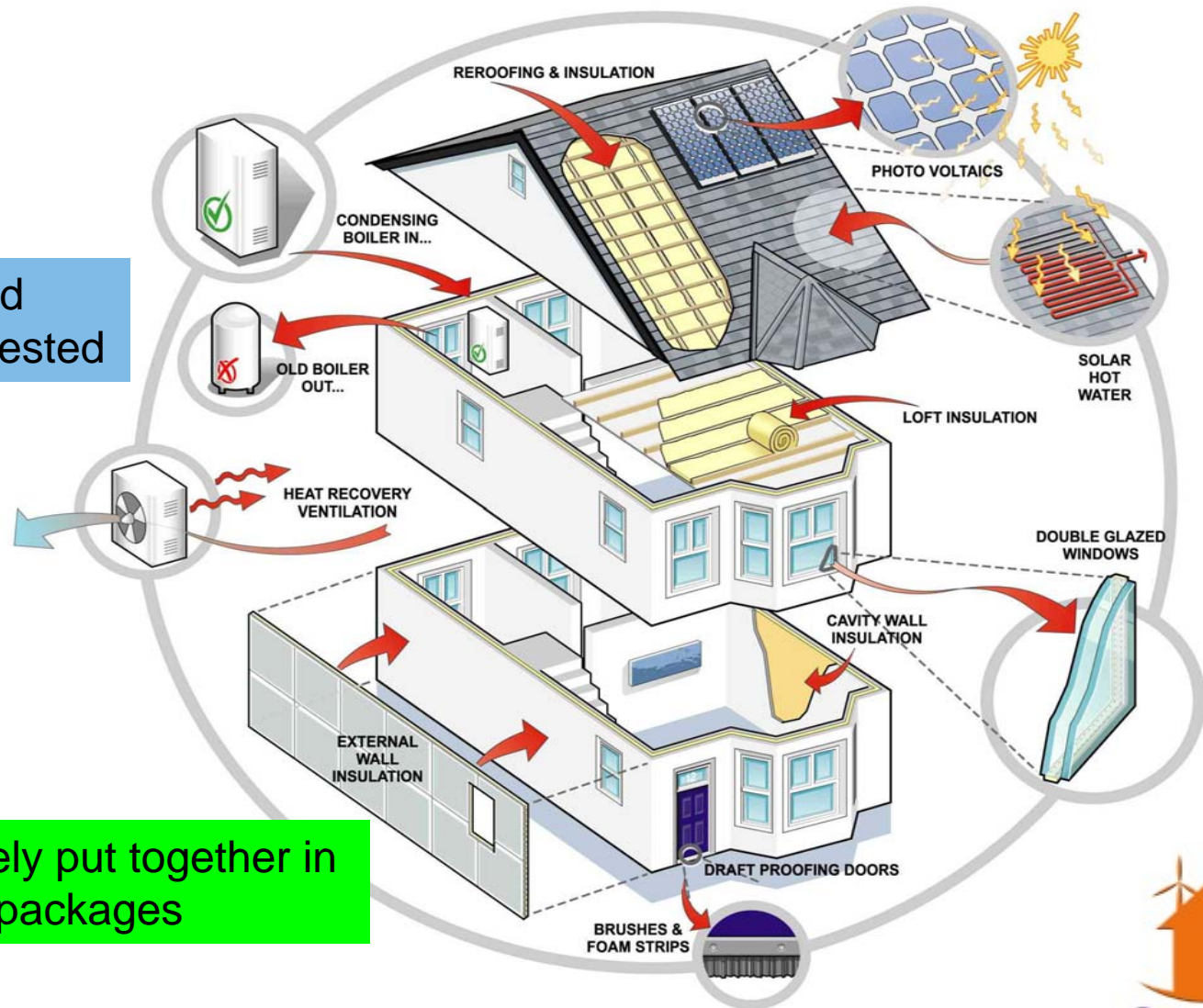
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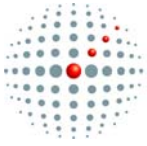
# The Generation Homes Project

Most already exist and have been tried and tested



But they are rarely put together in comprehensive packages

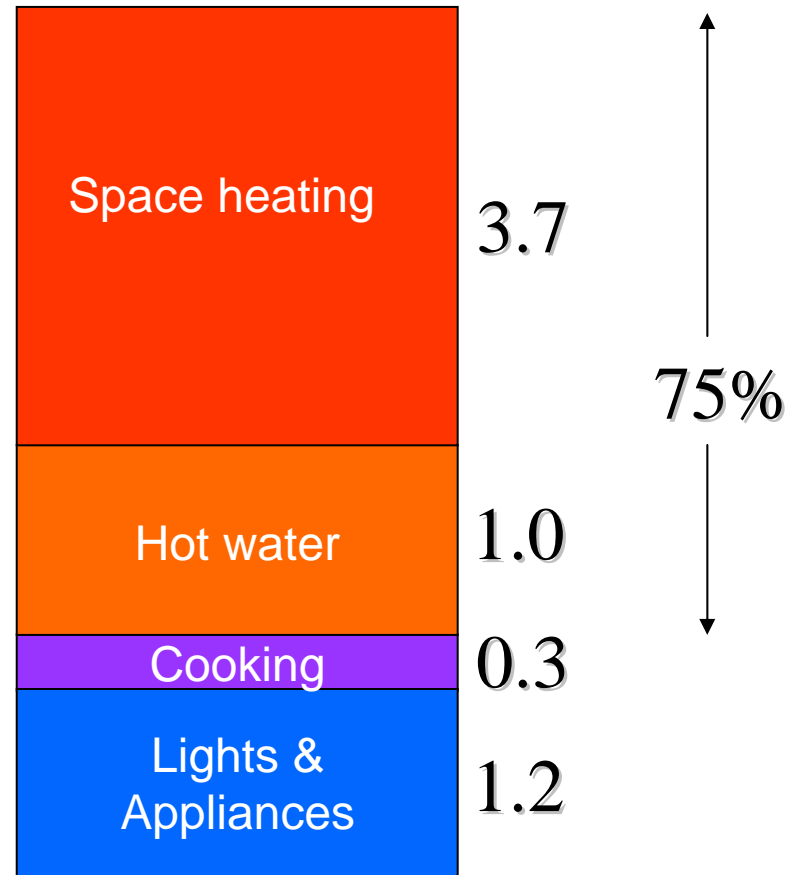




## Typical 3 bed semi



6.2 tonnes



**UK 2050 target of 60% reduction = 2.5 tonnes emitted**

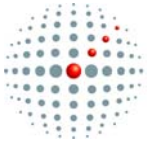
**(confusion with %'s and 'regulated' & 'unregulated' energy)**



# Generation Homes: Woodfields Low Energy Refurbishment

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## About Drum Housing

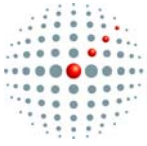
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- Part of the Radian Group since Dec 06
  - Oriel, Windsor & Drum equal size partners
- Own and manage 15,500 homes in Hampshire
- Build approx 800-1,000 new homes pa
- Construction spend approx £85m pa
  - new build, maintenance and repairs
- Collectively large consumer
  - of natural resources and creation of waste
- Strong reputation
  - for CSR, sustainability, innovation, design and MMC – GOLD award 2007



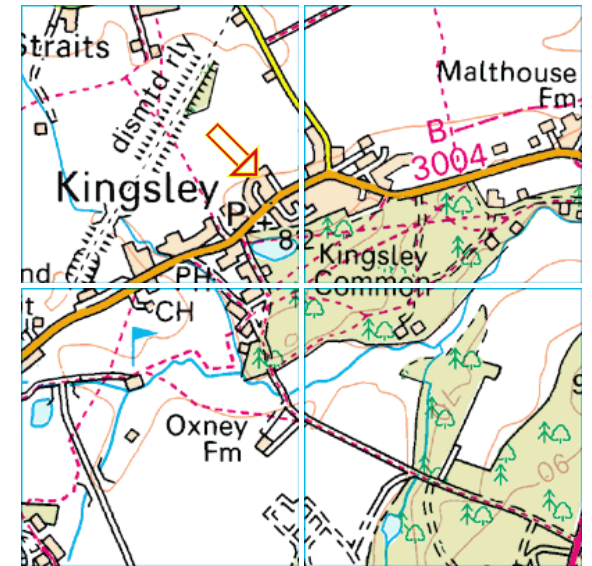
Drum Housing





# Generation Homes: Woodfields Low Energy Refurbishment

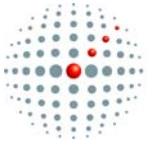
- Completed in April 2007
- Six 3 bed semi-D houses on one site in Kingsley, Hampshire.
- 1950's cavity wall construction in rural area, off gas grid



Demonstration



The 2007 South East **Low Carbon Awards**



## Generation Homes: Woodfields Low Energy Refurbishment

- Six properties still owned by Drum Housing – rest in private ownership







## Generation Homes: Woodfields Low Energy Refurbishment

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- Cavity Wall, Double glazing & Loft Insulation

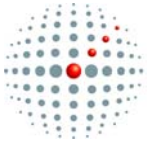




# Generation Homes: Woodfields Low Energy Refurbishment

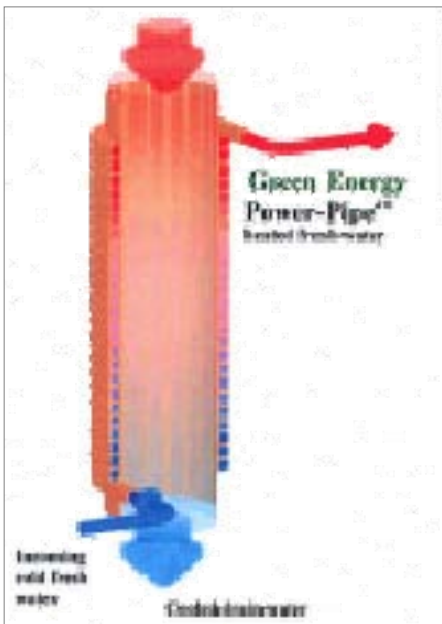
- Ground Source Heat Pump & Solar PV





# Generation Homes: Woodfields Low Energy Refurbishment

## ■ Waste Water Heat Recovery

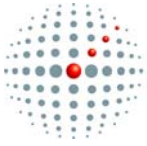




# Generation Homes: Woodfields Low Energy Refurbishment

## ■ Draughtproofing and Air Tightness





## Generation Homes: Woodfields Low Energy Refurbishment

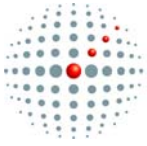
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### Costs and financing:

- Cost per property about £23,000
- Total cost of project £150,000, (Drum cost reduced by grants & subsidies)

### Results and feedback so far:

- Projected 75% CO<sub>2</sub> saving against the baseline (9.8 tCO<sub>2</sub>/year to 2.4 tCO<sub>2</sub>/year)
- Awaiting full evaluation
- Tenants happy with new systems



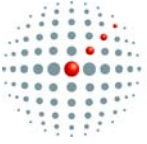
## Existing Homes Alliance “Declaration on Existing Housing”

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“Establishing a major programme of **exemplar low energy refurbishments** would help kick start the development of a supply chain, stimulating innovation and skills development, inspiring action and encouraging substantial investment. An exemplar programme should target at least 100,000 homes within 3 years, and **500,000 homes within 5 years.**”

As an initial action it should include:

- **1,000 exemplar houses** showing homeowners that transformed houses will be attractive, feasible and aspirational
- A programme of ‘whole street’ refurbishments, covering at least **5,000 properties** and targeting areas of high fuel poverty concentration”



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[www.generationhomes.org.uk](http://www.generationhomes.org.uk)  
[www.existinghomesalliance.org](http://www.existinghomesalliance.org)