

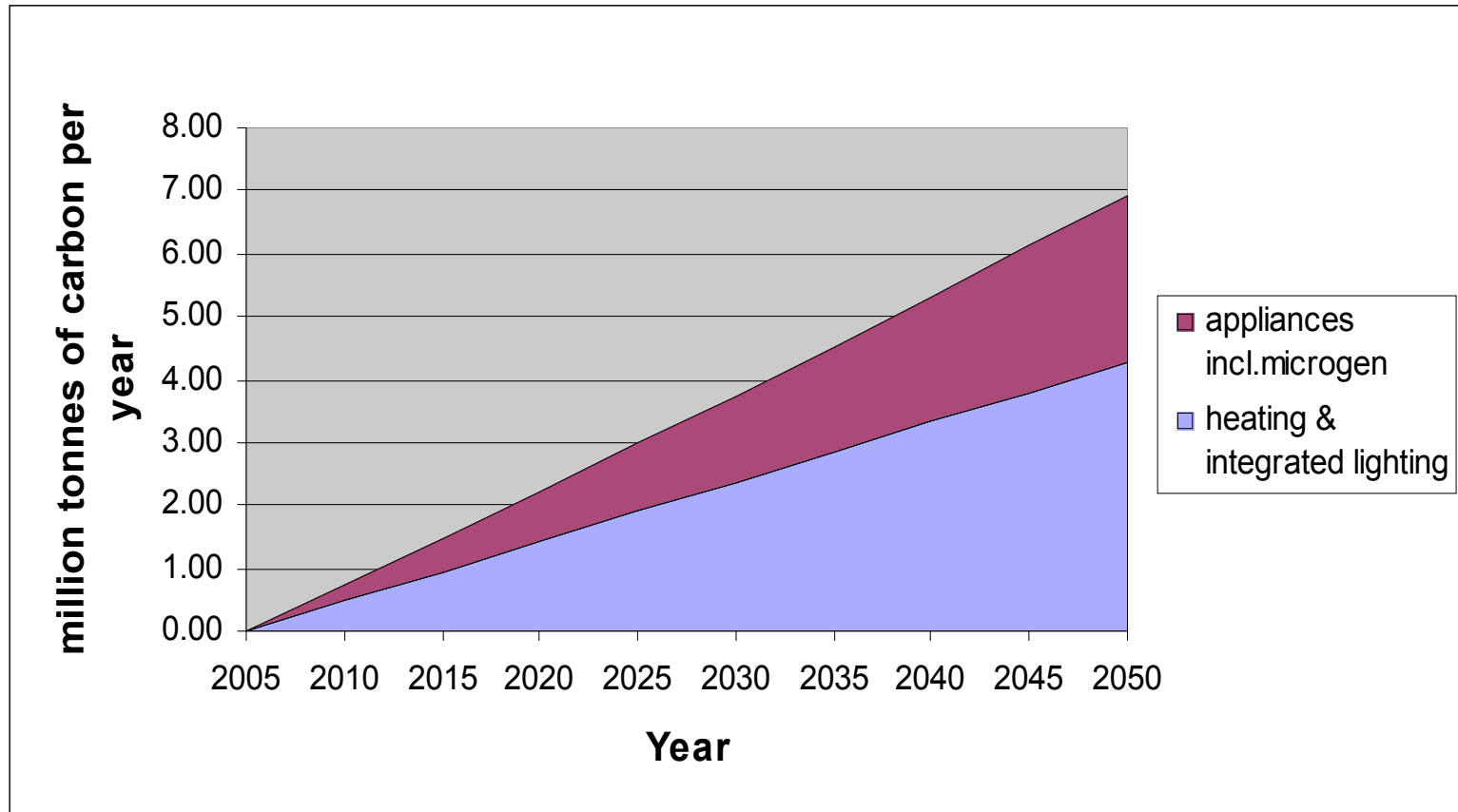
# Pathway to Zero-Carbon Homes

Zoltan Zavody  
Energy Saving Trust

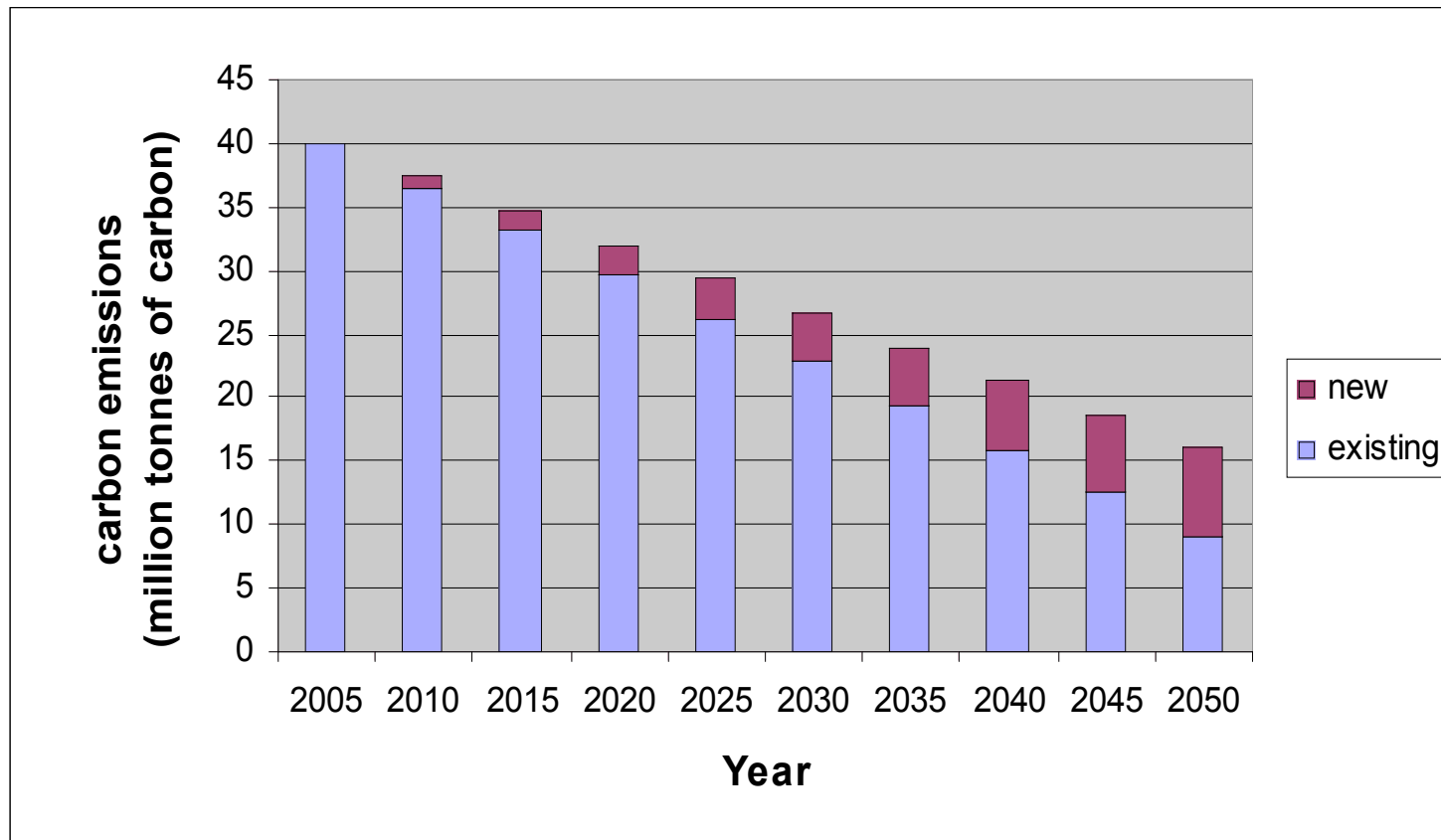




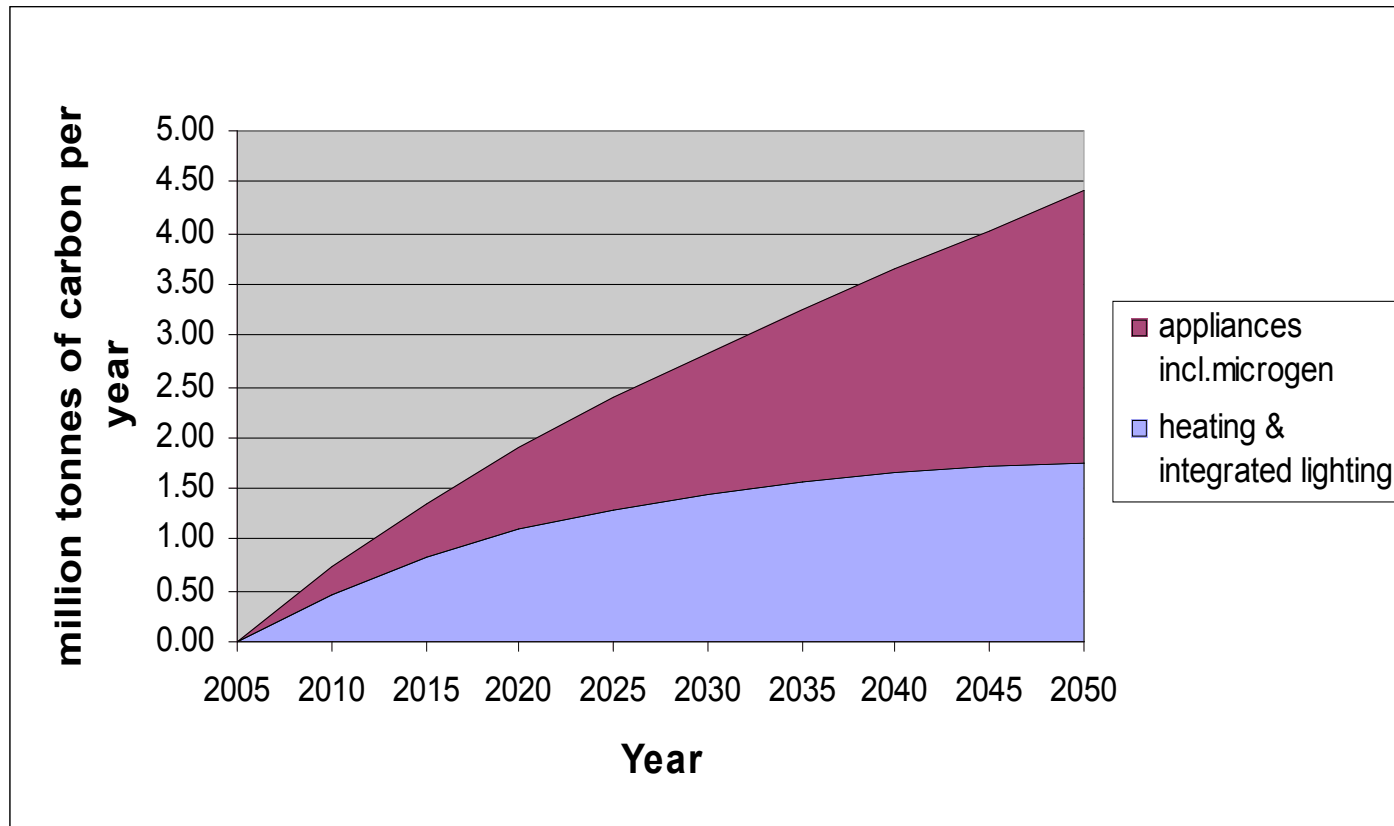
# Cumulative Newbuild Emissions: Build As we Do Today



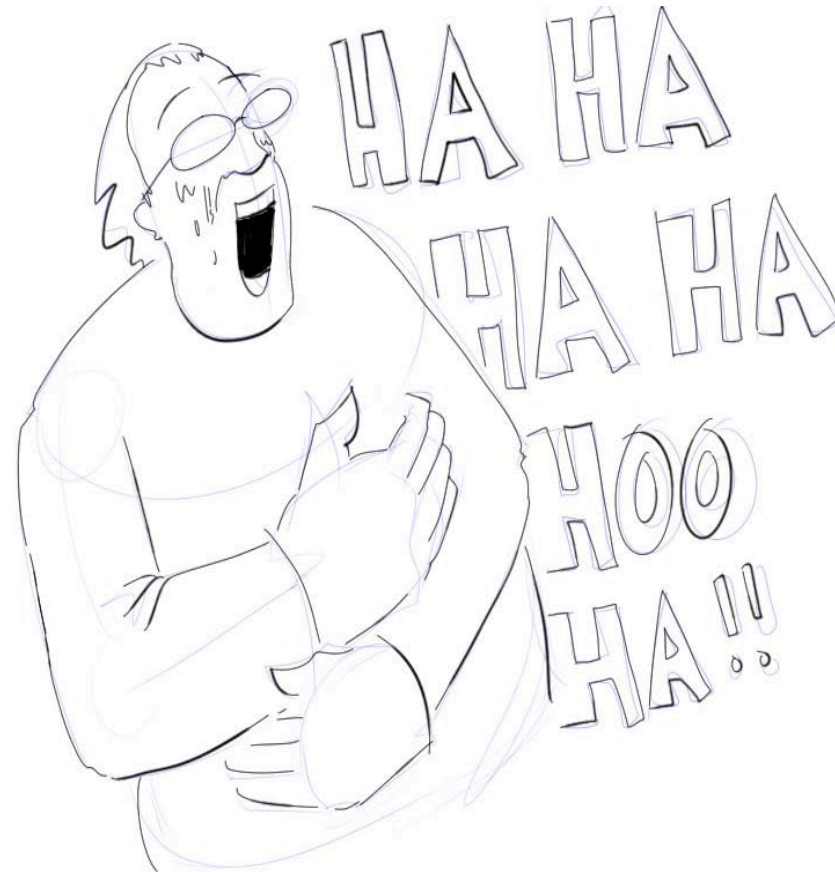
# Reaching a 60% Reduction in Emissions from the Housing Stock



# Cumulative Newbuild Emissions: “Business As Usual Improvements”



# “Zero-Carbon in Ten Years”





# “Zero-Carbon” – The Government Definition

- Net carbon emissions resulting from all energy used in the dwelling is zero.
- Heat Loss Parameter  $< 0.8\text{W/m}^2\text{K}$ .
- On or offsite additional new renewables capacity.
- Capacity equivalent to a specific  $\text{kWh/m}^2$  of floor area. [provisional]



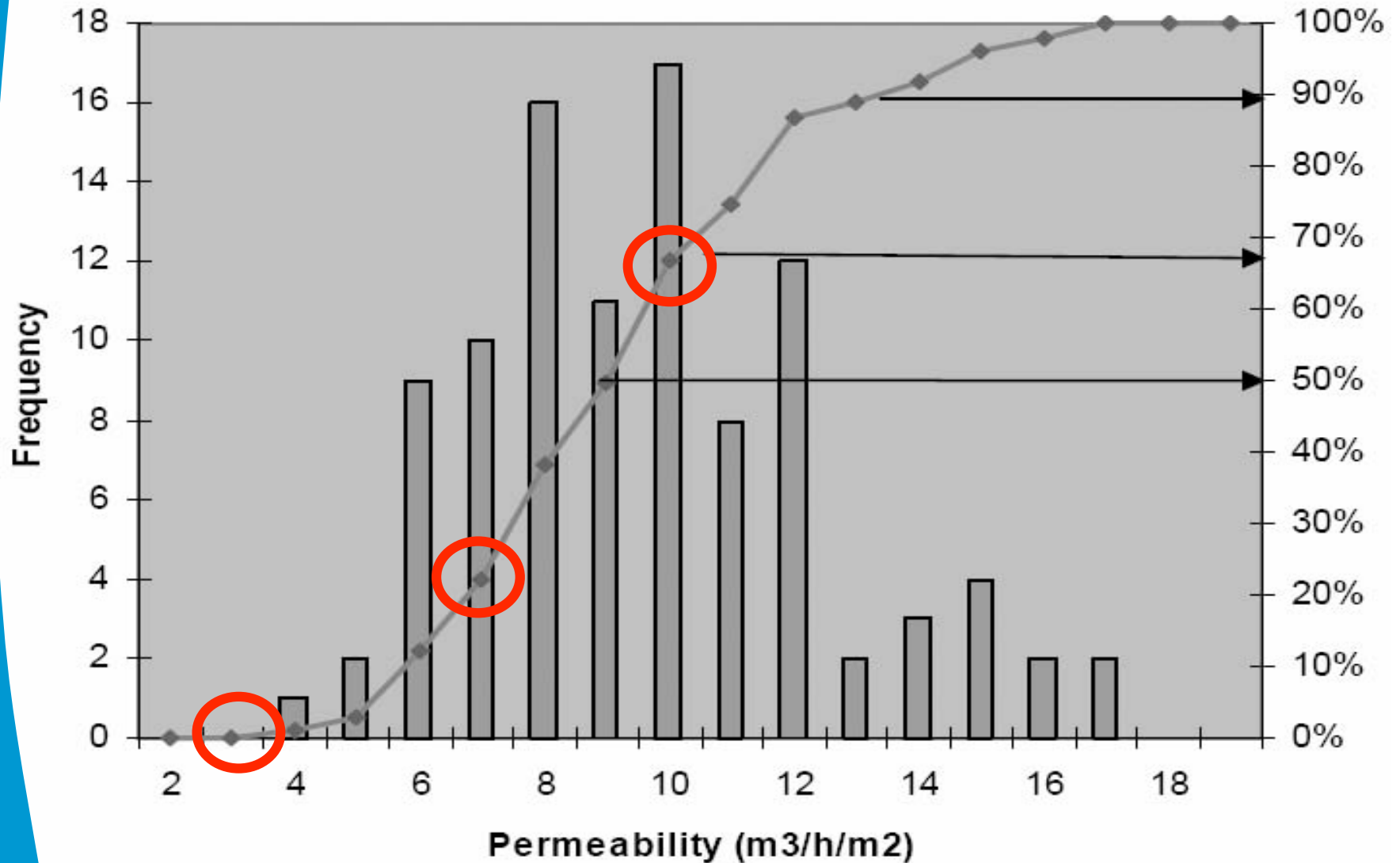
# Milestones

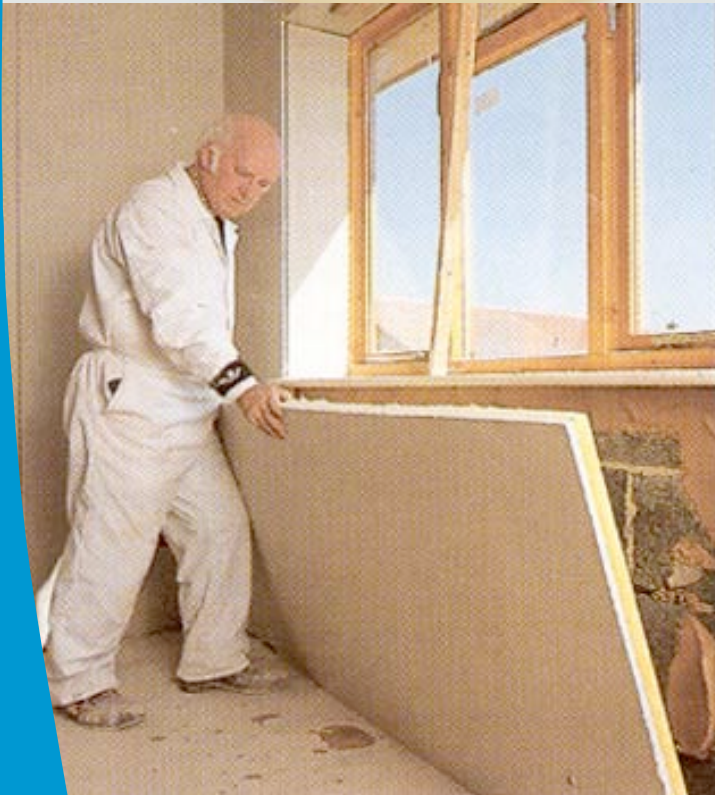
- 25% lower carbon emissions under Part L by 2010
  - 44% lower carbon emissions under Part L by 2013
  - zero-carbon overall (including appliances) by 2016
- ➔ three levels of the “Code for Sustainable Homes.”

# How to Build a Low-Carbon Home?



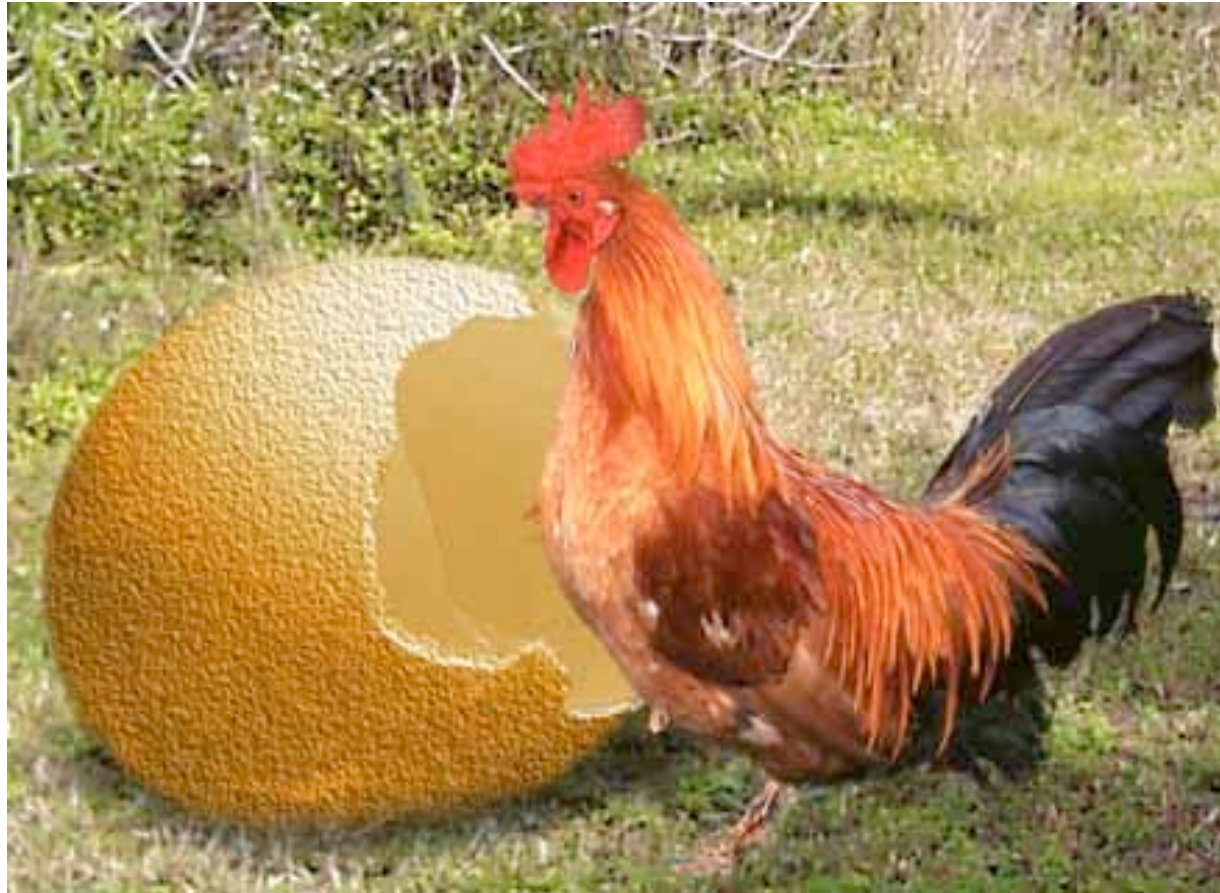
# Airtightness - How do current homes perform?

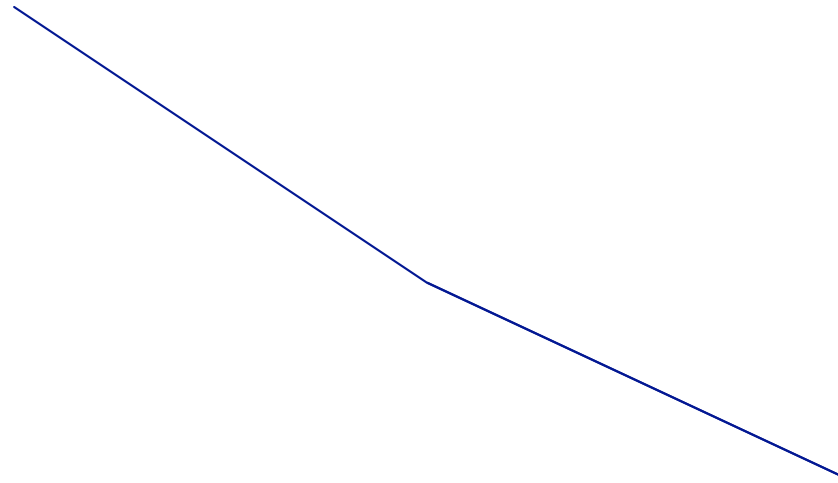
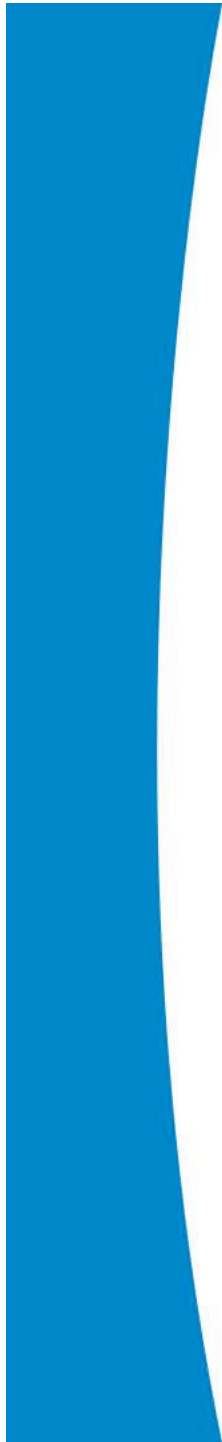




U-value / airtightness







U-value/  
fan power- efficiency

# Grid decarbonisation?





# Developer → ESCO?



# Temperature Profile of High and Low Thermal Mass Homes



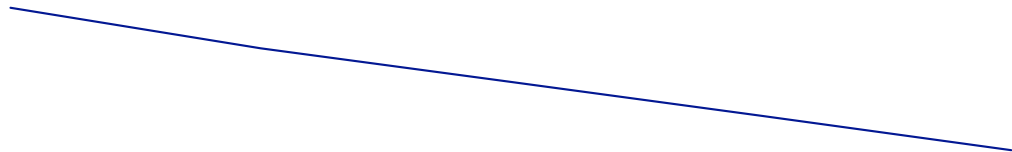
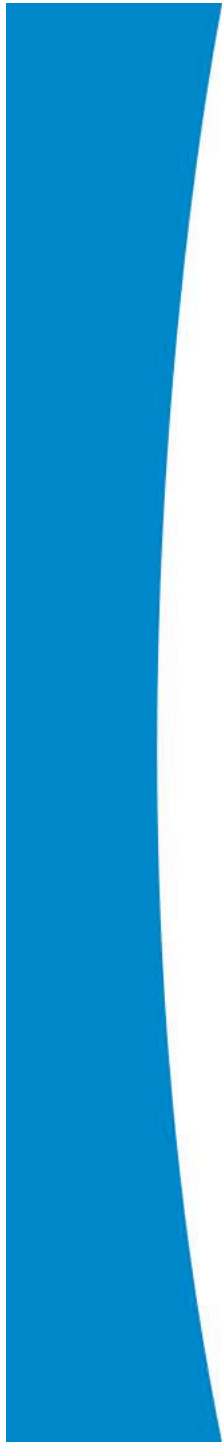
# Ongoing Issues

- what is *actual* performance
- what works, what doesn't
- training up all sectors of the industry
- on-site vs off-site clean energy generation
- securing investment in new products
- advance notice of detail of Building Regulations
- uncertainties of climate change
- planning system: encouragement or confusion
- consumer pull vs regulatory push
- liveability, attractiveness
- *note: we already know the answers for level 3!*

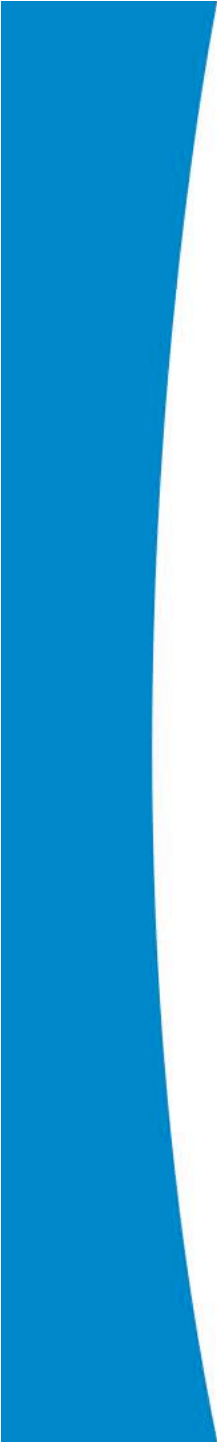
# Summary

- Newbuild housing is important.
- Energy efficiency needs to go in first.
- This needs a highly skilled workforce.
- Government needs to set a “scientific” framework.
- This includes clarity on approach to risk and uncertainty.

# Questions



U-value/ Detailing Y-value



# Cumulative Newbuild Emissions: Beyond Zero-Carbon



# **“Business As Usual” Emissions from Typical Newbuild Home**

# Allowable Emissions from Newbuild Home on Zero-Carbon Trajectory