

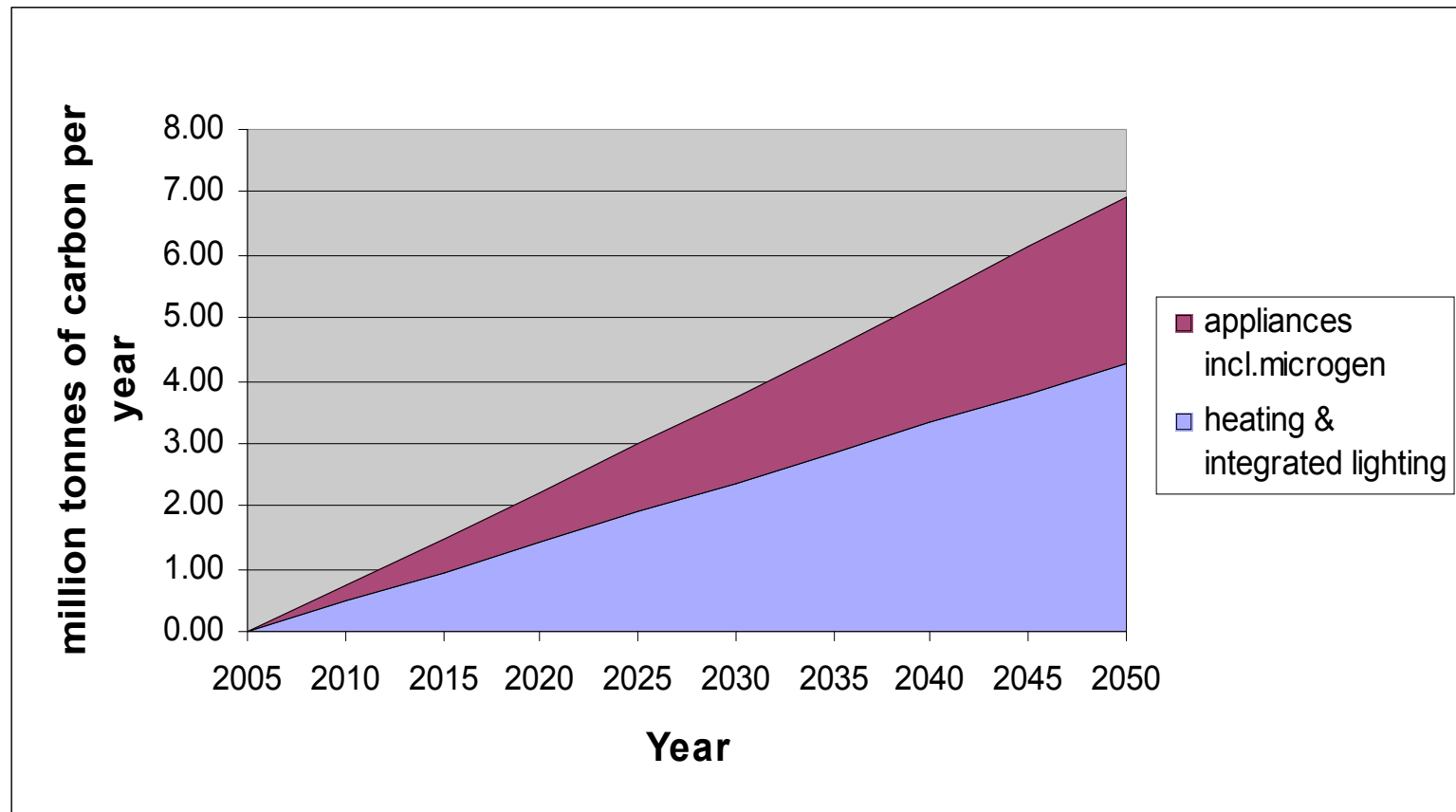
Pathway to Zero-Carbon Homes

Zoltan Zavody
Energy Saving Trust

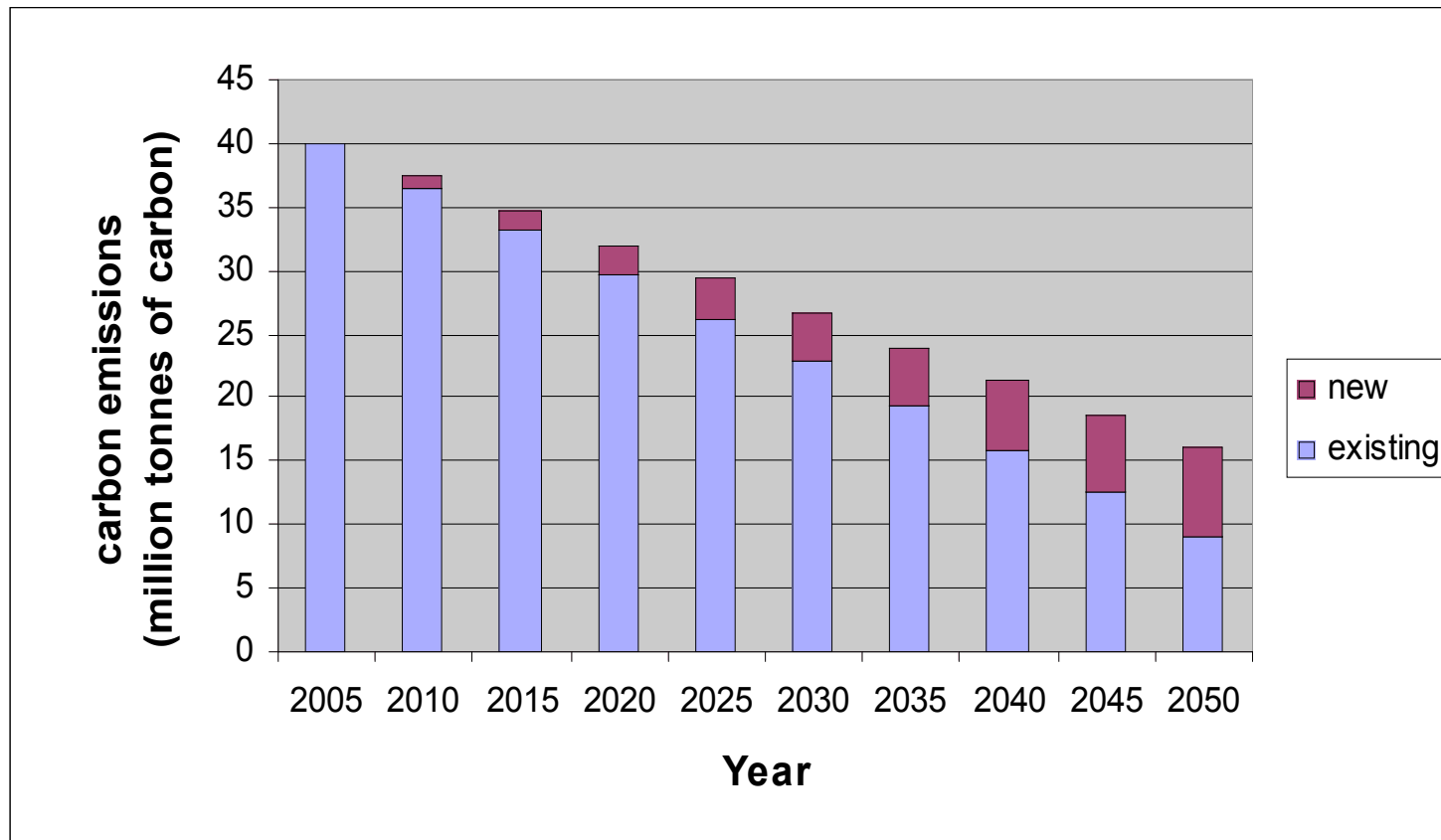




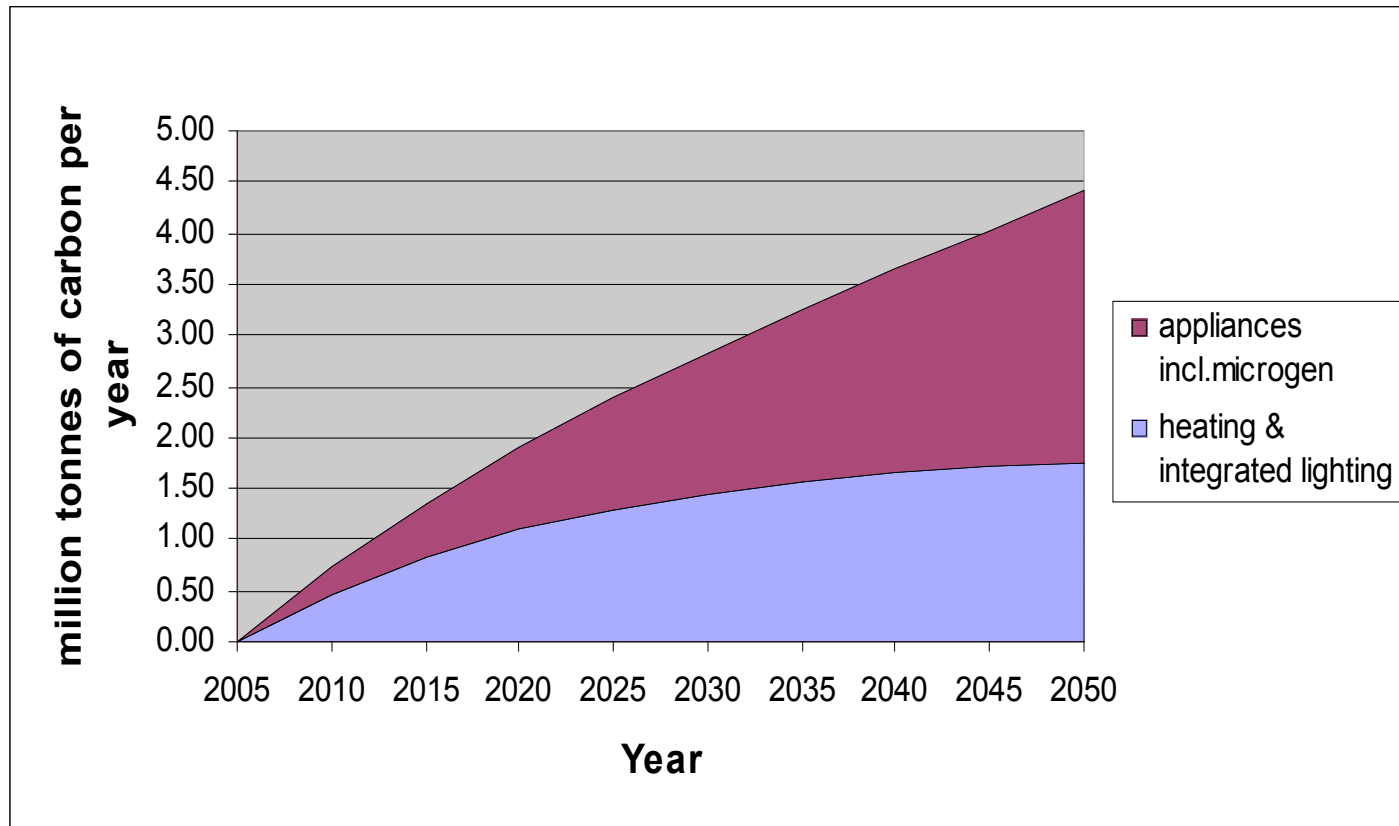
Cumulative Newbuild Emissions: Build As we Do Today



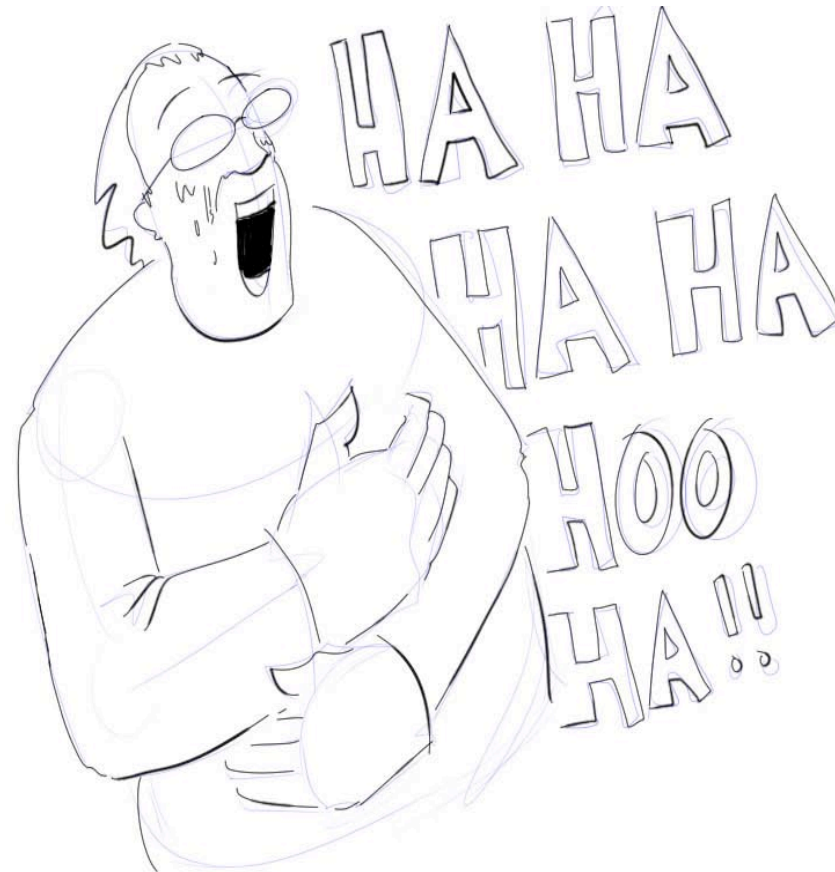
Reaching a 60% Reduction in Emissions from the Housing Stock



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 kWh/m^2 of floor area. [provisional]

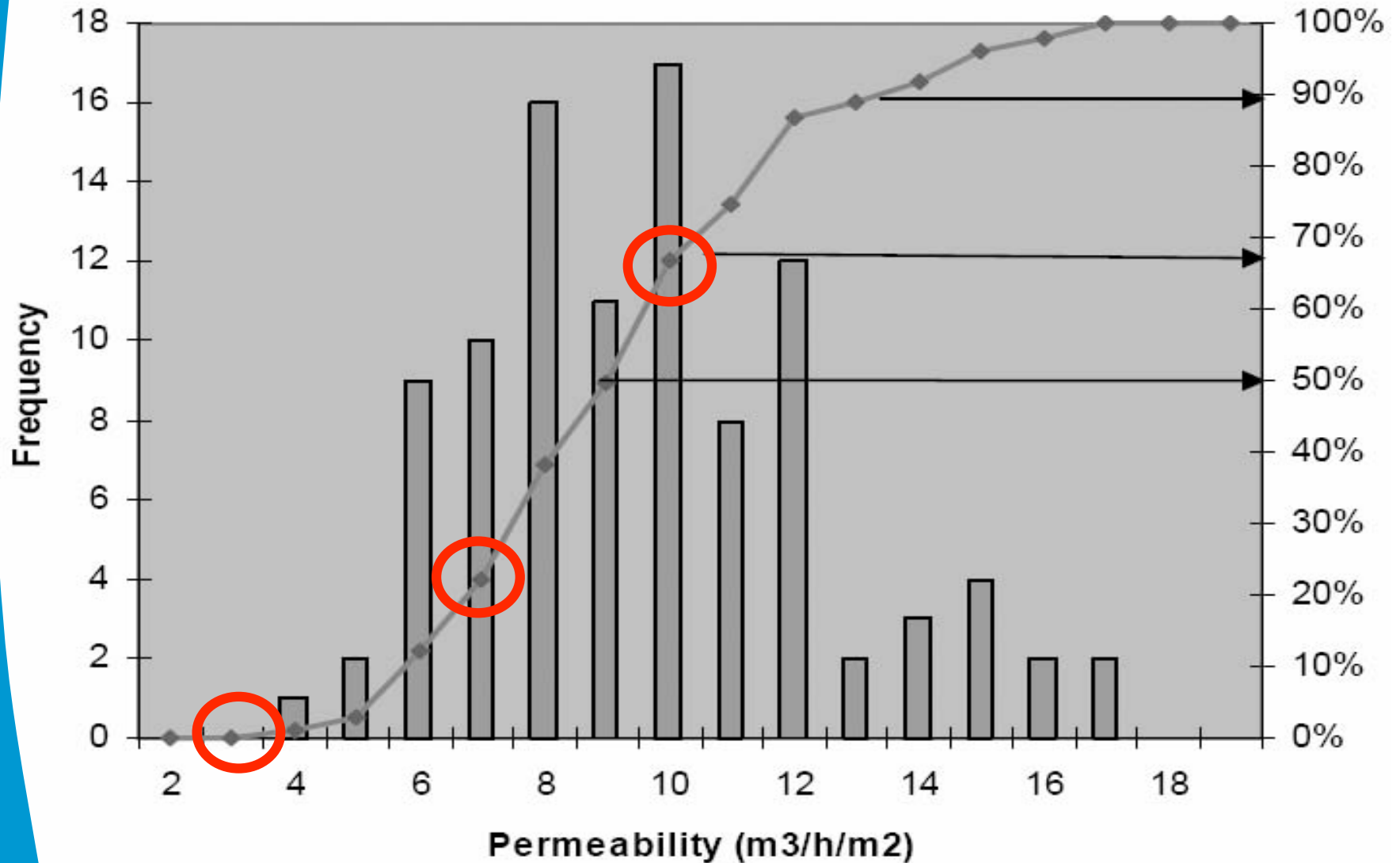
Milestones

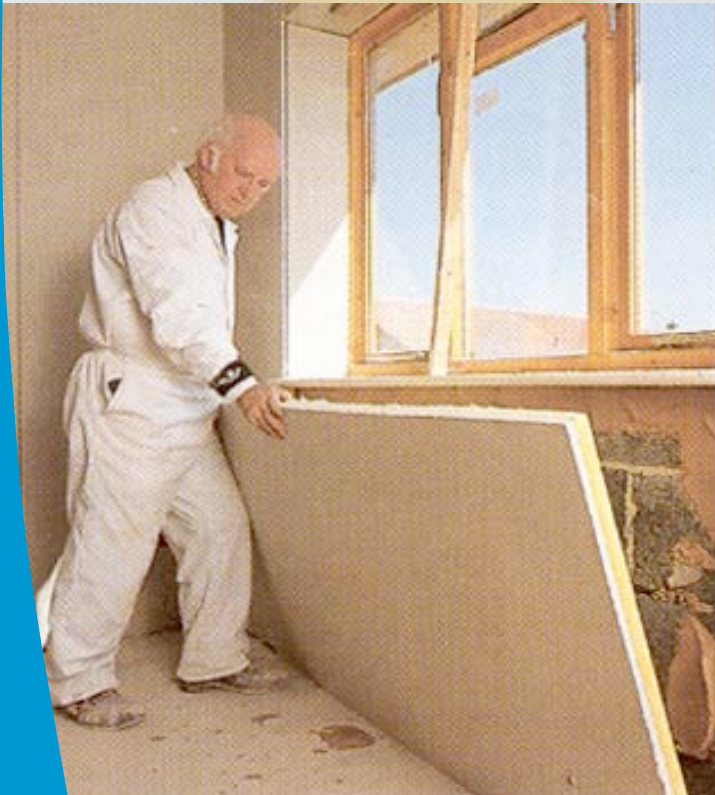
- 25% lower carbon emissions under Part L by 2010
 - 44% lower carbon emissions under Part L by 2013
 - zero-carbon overall (including appliances) by 2016
- ➔ three levels of the “Code for Sustainable Homes.”

How to Build a Low-Carbon Home?

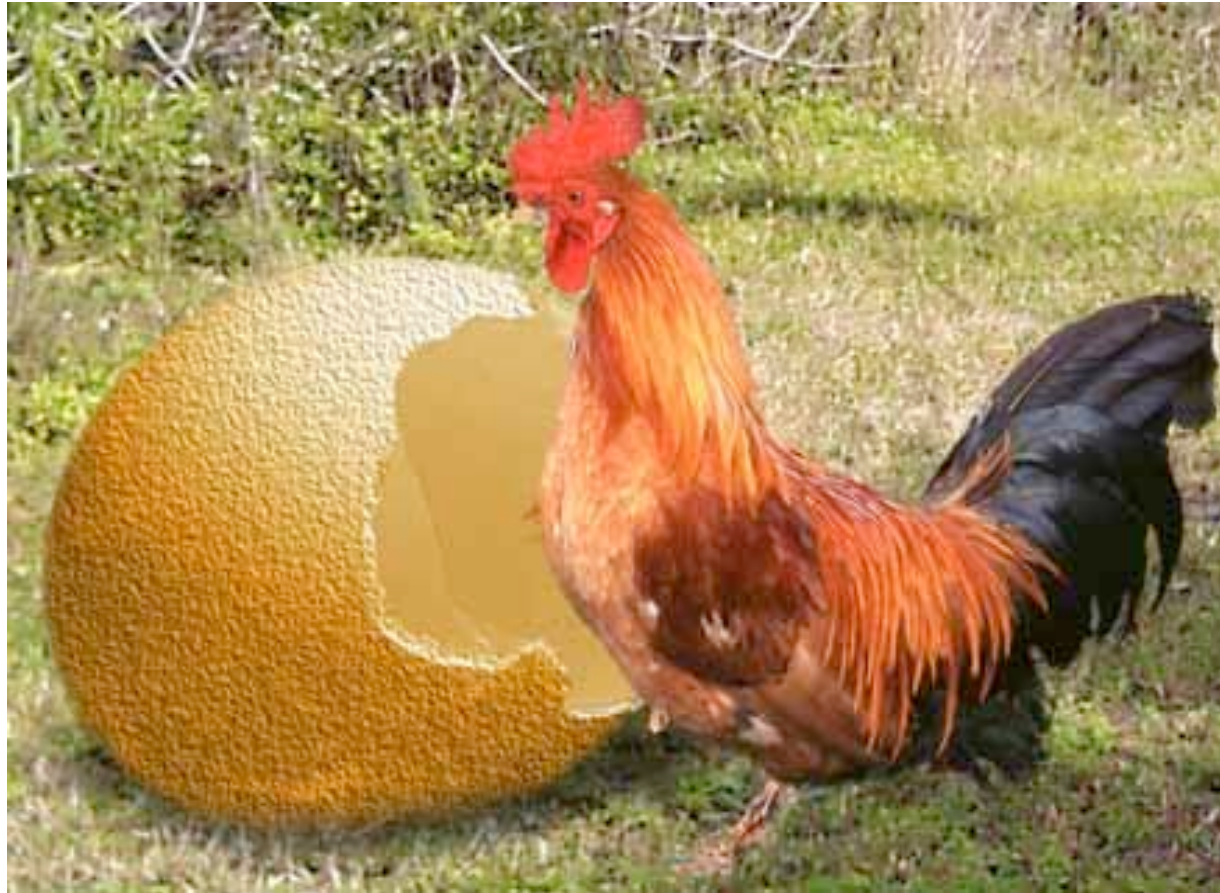


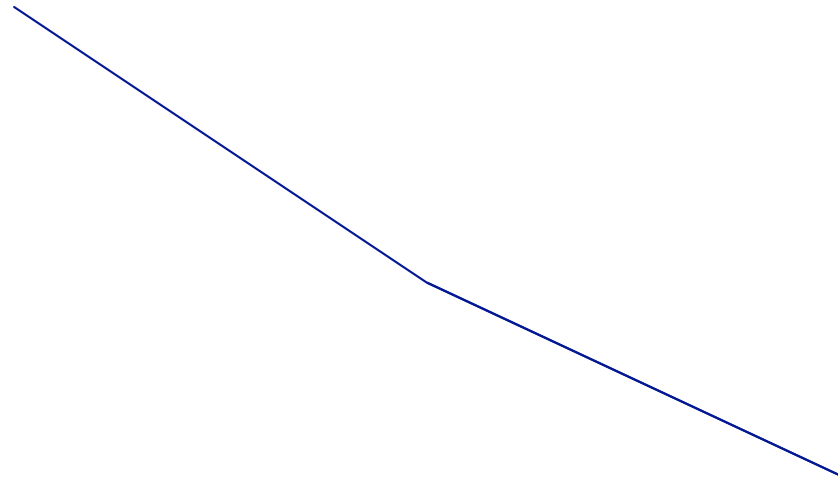
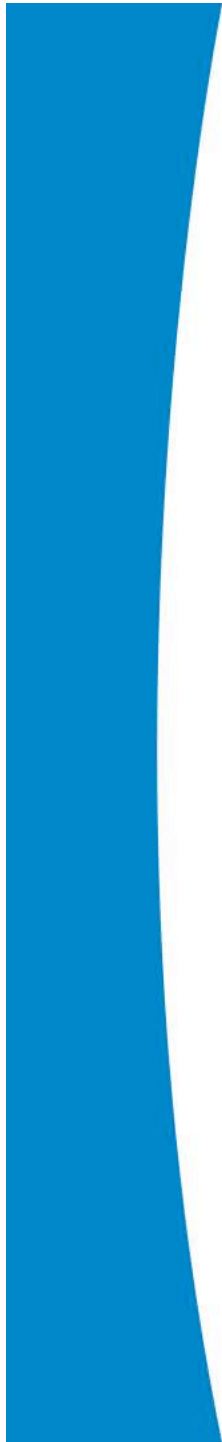
Airtightness - How do current homes perform?





U-value / airtightness





U-value/
fan power- efficiency

Grid decarbonisation?



Developer → ESCO?



Temperature Profile of High and Low Thermal Mass Homes



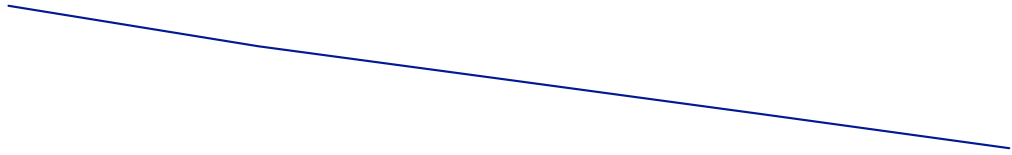
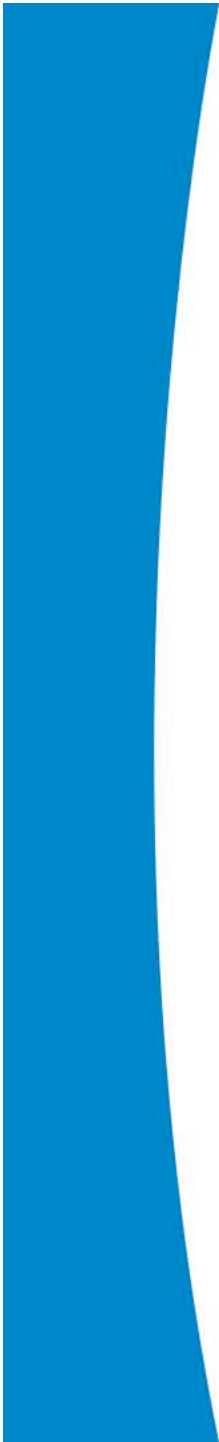
Ongoing Issues

- 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

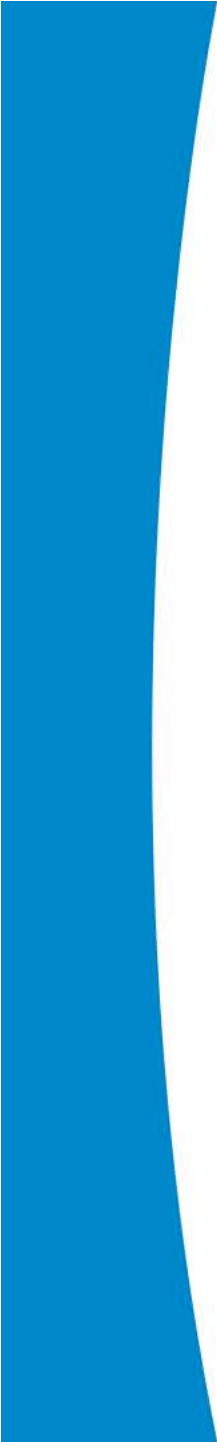
- Newbuild housing is important.
- Energy efficiency needs to go in first.
- This needs a highly skilled workforce.
- Government needs to set a “scientific” framework.
- This includes clarity on approach to risk and uncertainty.

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