Plenary 4

Reaching Zero Carbon: The Next Decent Homes

Speakers: John Kiely, Savills & Richard Lowes, RAP

Room: Main Hall

National Housing Maintenance Forum

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savills

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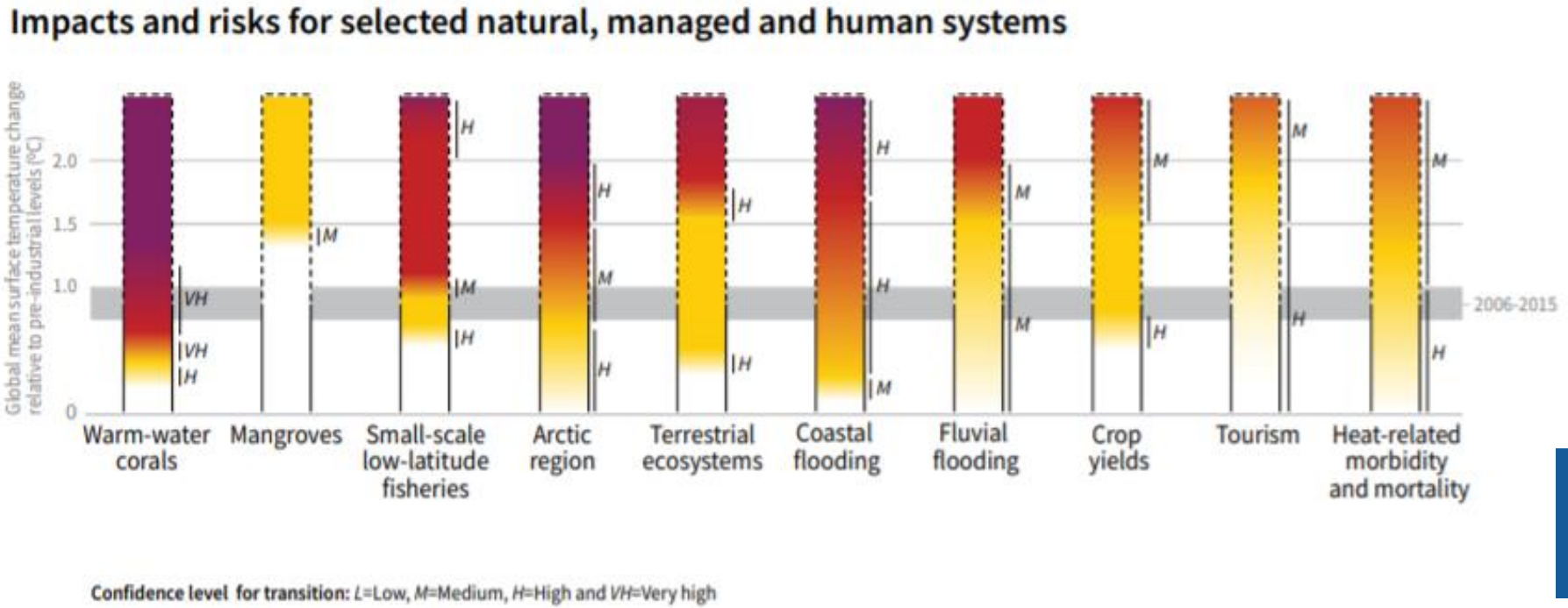
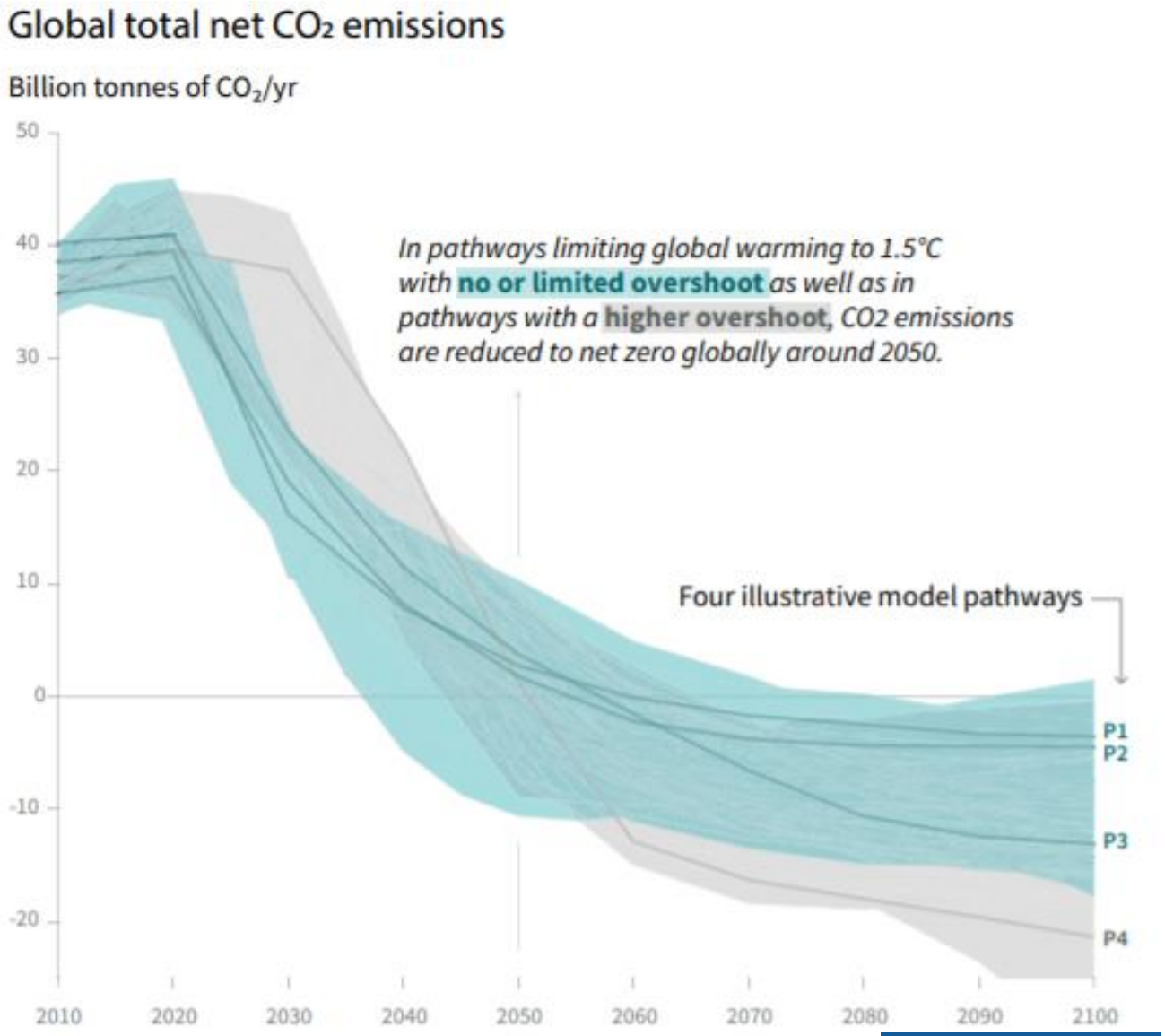
Why net zero?

- The 2015 Paris agreement's goal is to **limit global warming** to well below 2, **preferably to 1.5 degrees Celsius**, compared to pre-industrial levels.
- Reducing greenhouse gas emissions is central to this goal.



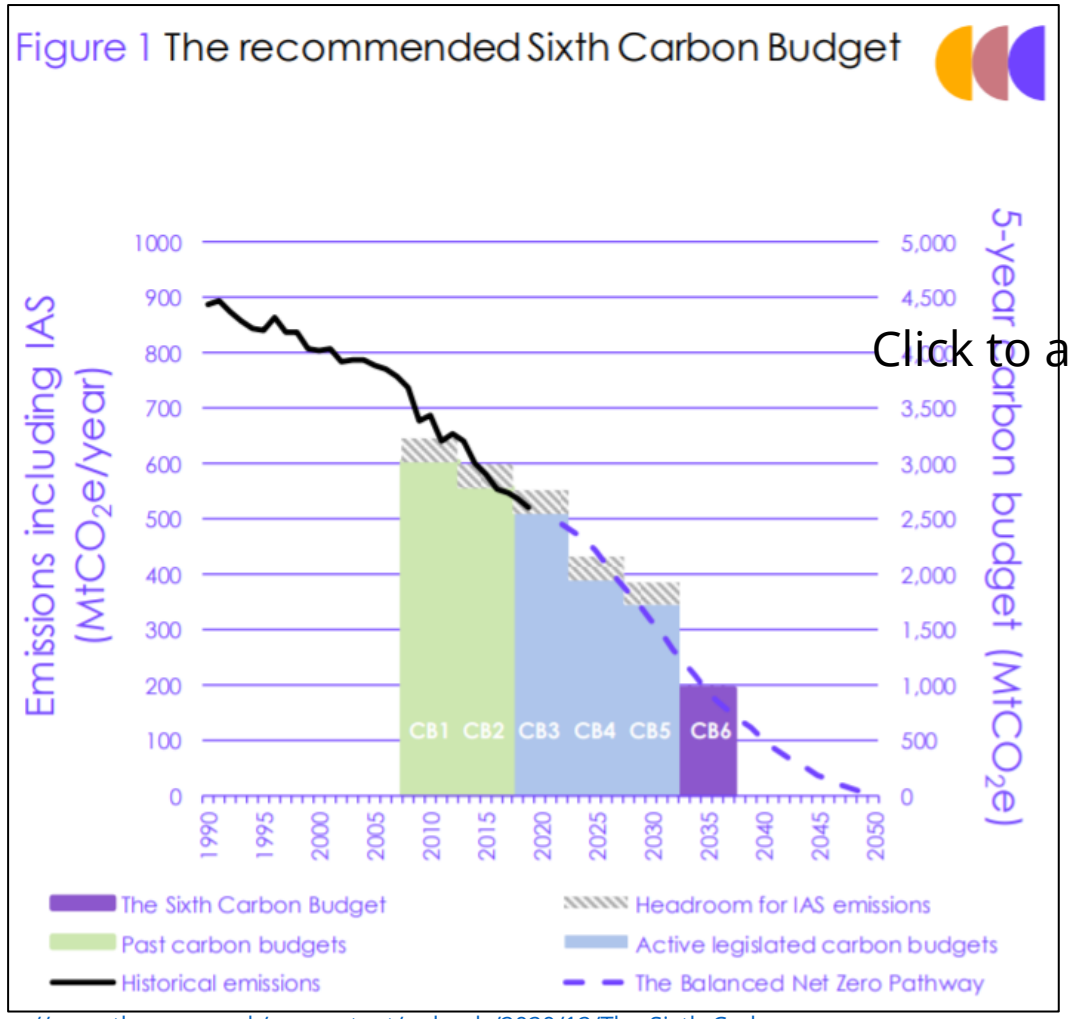
Meeting Paris requires rapid and sustained emissior reductions.

- This would reduce the quantity of greenhouse gases in the atmosphere, reducing the warming impact.
- For developed countries, the implication is basically the need for greenhouse gas emission neutrality by 2050. I.e. net zero.



https://www.ipcc.ch/sr15/

The Paris agreement implications for buildings in the UK



https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf

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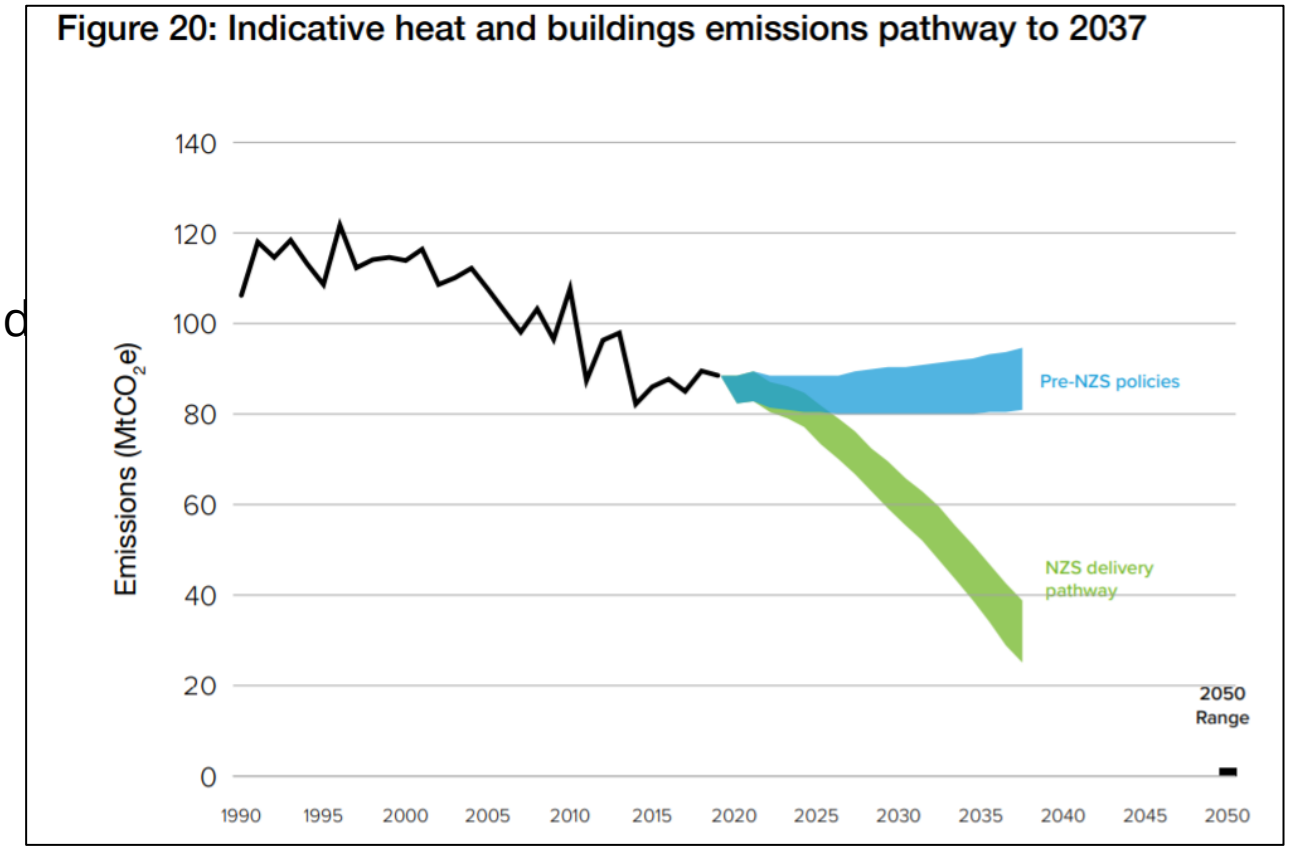

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033990/net-zero-strategy-beis.pdf

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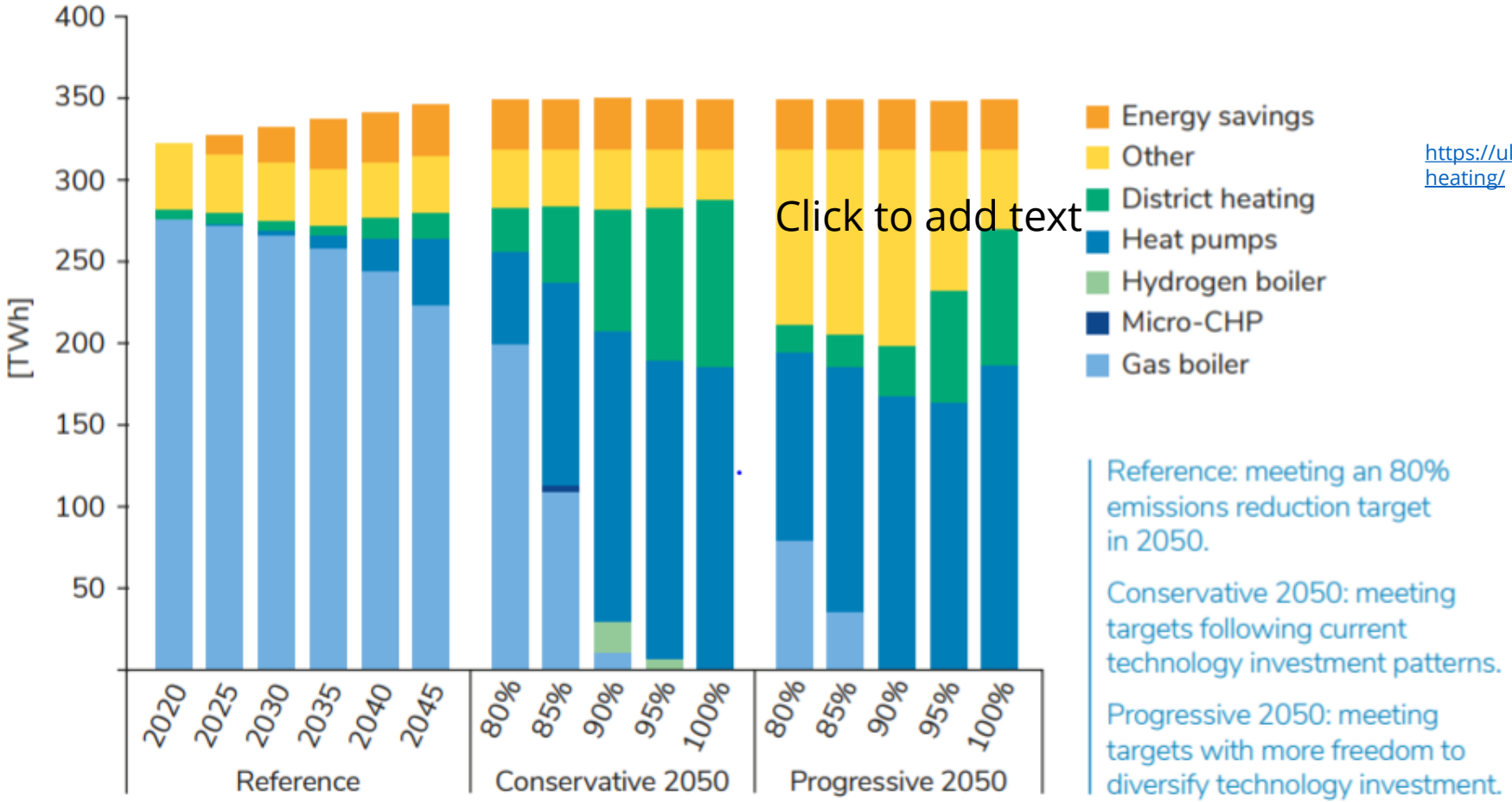
What does a cost effective zero carbon heat mix look like?

Figure 2 Heat technology change under different emissions reduction targets



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https://ukerc.ac.uk/publications/net-zero-heating/

Reference: meeting an 80% emissions reduction target in 2050.

Conservative 2050: meeting targets following current technology investment patterns.

Progressive 2050: meeting targets with more freedom to diversify technology investment.

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What policies are under discussion?

1. Fossil fuel boiler installation bans
   - Oil 2026, gas 2025?
2. Rebalancing of energy costs
   - Carbon tax, removal of levies, tax reductions
3. 'Long-term regulatory standards to upgrade Privately Rented Homes to EPC C by 2028 and considering setting a long-term regulatory standard for Social Housing, subject to consultation.'
4. Heat mapping and zoning
5. Market based mechanism for low carbon heat

If implemented, such policies should make low carbon heating the cost-optimal choice, but:

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How hard can it be?

Replace gas heating with electric heat pumps – job done

BUT – will result in mass fuel poverty, whilst electricity costs 4 times as much as gas….

So – fabric first

Base case - 650,000 HA homes currently with EPC worse than C brought up to that level. Assumes 15% will be redeveloped. LA stock is additional

But

Would impose significant increases in energy costs on residents unless electricity costs are reduced, and heat pumps become more efficient.

Central case - aims to achieve decarbonisation with no change in residents' fuel costs and comfort.

Maximum energy efficiency case – includes installing PV where possible

Base Case – Heat & Buildings Strategy

- Achieve EPC-C by 2030 and then replace gas heating with heat pumps 2030-2050. Assumes currently 39%< EPC C, all post 2000 built are EPC C+. Costs are HA sector only, e/o current Business Plan provision for heating, fabric replacement etc and exclude VAT

- Under the current SAP methodology, the substitution of electricity for gas will reduce the EPC rating, in some cases below C.

£35,821,593,596

Central Case – Affordable Thermal Comfort

- Achieve EPC-C by 2030, replace gas heating with heat pumps 2030-2050 and continue to improve the fabric to ensure that the EPC rating remains at C or better and residents experience minimal difference in expenditure on heating. Costs are HA sector only. Applies to virtually 100% of retained stock. Costs are e/o BP and exc VAT.

£48,762,026,596

Maximum Energy Efficiency Case – achieving net zero

- Retrofit homes to achieve maximum practically achievable SAP and minimise energy demand and then replace gas heating by 2050. Add renewables to houses/bungalows. Costs are HA sector only, e/o BP and exclude VAT. Applies to almost 100% of existing stock.

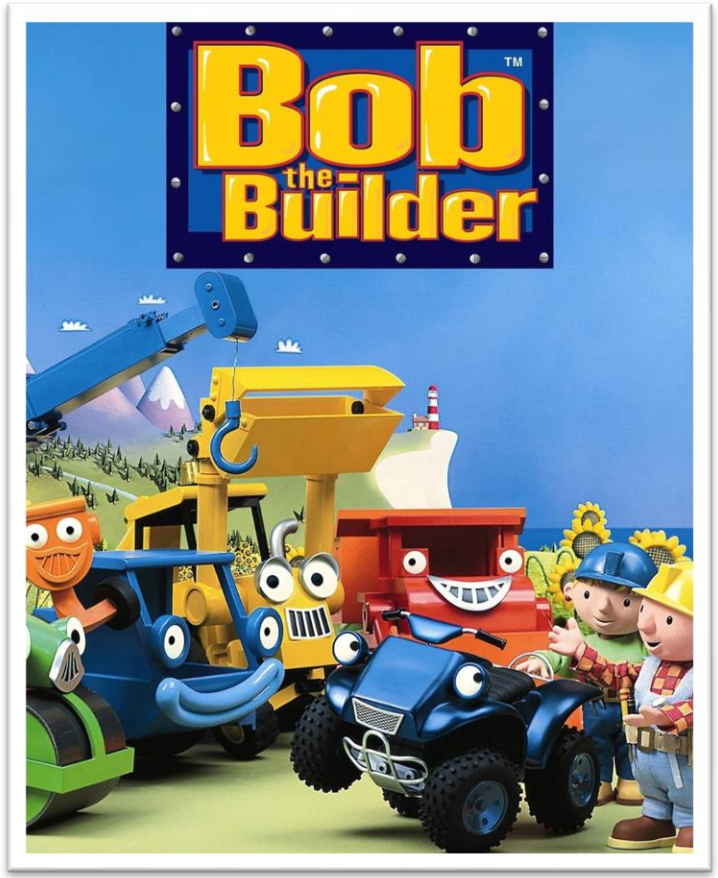
£58,271,526,596

So, can we deliver ?

- Maintaining DHS to 2050 - £129bn
- Add exceptional costs – fire risk, compliance etc ??
- Decarbonisation – say additional £80bn to all social homes inc LA over next 28 years
- Total spend therefore £209bn+
- Historic Decent Homes/LSVT spend on same stock –c.£80bn+ in say 10 years
- So, we've done it before ???

So – what's stopping us ?

- **Do we know what we're doing ?**
  - EPC C - SAP 69 or SAP 80?
  - **OR** – carbon emission reduction 80% or 100%, OR / EPC A,B, / min emission pu / link to fuel bills / kWh/m2 target ???
- Smarter approach - variable standards per property type ?
- **To All** our housing stock ?
- **Convincing residents** to put up with all the hassle
- Who can actually build it all ?
- **Money** !



Lessons learnt to date

- Poor and/or incomplete data
- PAS 2035 compliance is hard work – expanded survey and adds extra cost
- Contractors not ready yet – design uncertainty, capacity, skills etc.
- Costs way over budget - 30% average and up to 50% above my estimate figures !!!
- BEIS funding has strings attached – plus only £3.8bn
- All usual delivery challenges – planning, supply chain, access etc

How hard can it be?

How hard can it be?

Towards a Strategic Approach – Step 1

- DH was set out on a plate – this is more complex
- Understand your stock – what has a long term life, what's needed to meet EPC C ?
- We need to plan this properly
- Be prepared to bid for SHDF - will be competitive so differentiate yourselves; bidding process rightly demands accurate data
- Consider procurement and delivery – a long way to go

Towards a Strategic Approach – Step 2

- Assess finances – grant funding, current SHDF caps at £10k/12k per dwelling, other funding streams.
- In-house delivery capacity and skills at right cost base ?
- Tenant consultation and education critical
- Need good data
- Don’t build new homes that will need retrofitting !

Must form part of wider Asset Management Strategy – MAKE THE RIGHT DECISIONS TODAY

Yes, this is hard and quite costly

- But it is possible, with very good household and climate outcomes.
  - Energy efficiency and PV will reduce bills and can significantly offset heat pump running cost increases (if there are any).
  - I have done just this, taking a E41 to a B82.
- This is capital intensive but benefits accrue in perpetuity. Can you reflect that in your business model?

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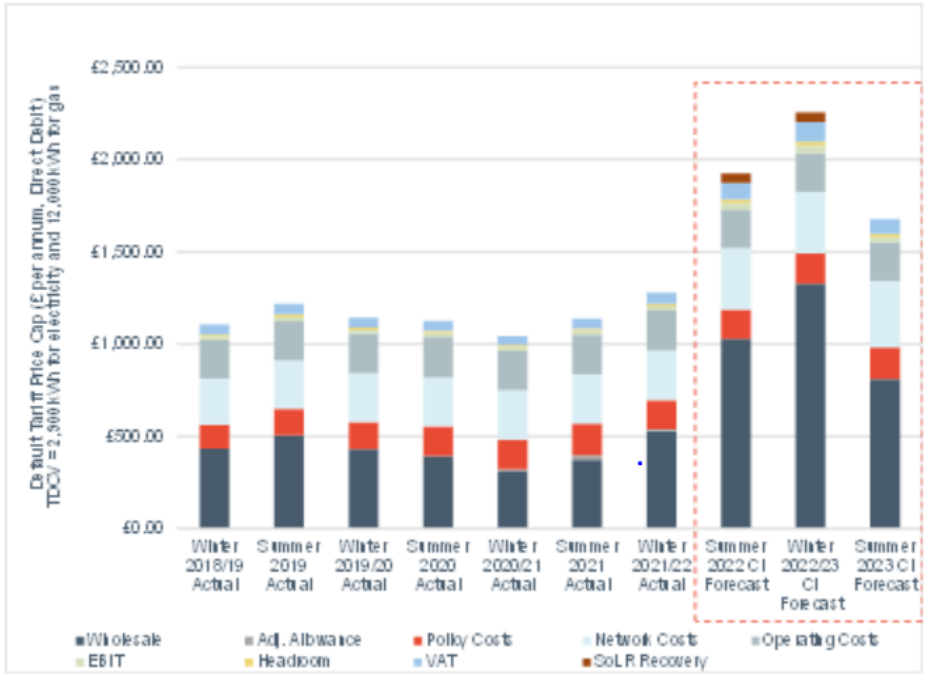
Enter the gas price crisis

Figure 1: Forecasts for the default price cap level in the next three cap periods (dual fuel direct debit)



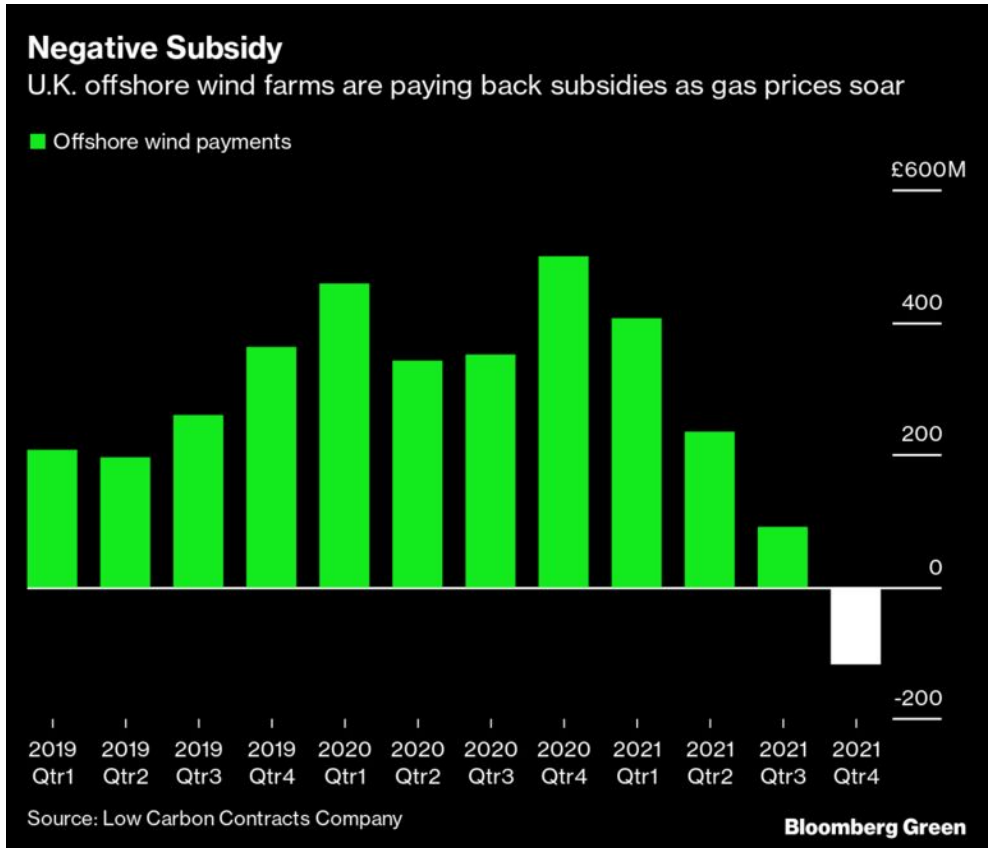
- Suddenly things that did not make financial sense before do, in particular:
  - Energy efficiency
  - PV

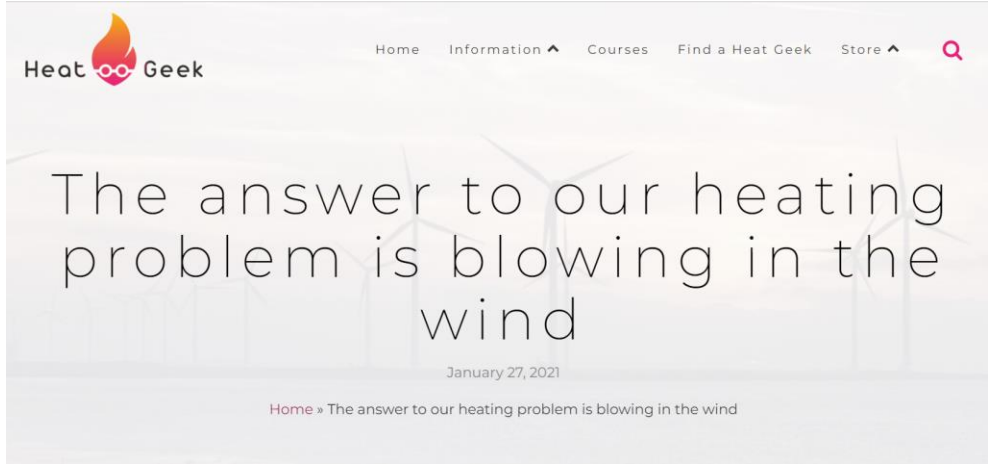
- The whole economics of the transition have shifted with renewables reducing prices, and expected to further reduce prices.

- The gas/electricity cost differential, has reduced and could reduce further meaning heat pumps may make financial sense in more cases.

Onshore wind may be our saviour

- The UK is targeting 40GW of offshore wind capacity by 2030.
- The agreed cost was expected to reduce wholesale costs before the huge price increases, now the cost reduction will be even more significant.





It now feels like it might be irrational to not do net zero ASAP.

- However, the economics need to be realised by a supportive policy environment. The transition will not deliver itself.
  - Heat planning/mapping of some sort is needed.
  - Regulation is needed to.
  - Capital is needed for those without access e.g. fuel poor households, struggling LAs.
- But all in all it increasingly looks like delivering net zero would be a sensible national strategy for environmental, economic and energy security reasons.

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Is there a solution ?

- MORE MONEY WOULD HELP – sector cannot fund fire remediation, NZC & build new homes !
- Clearly additional Govt funding inc reduce VAT burden
- Plus – changes to HA accounting conventions & existing funding covenants
- Should beneficiaries contribute – warm rents ?
- Encourage industry to expand and upskill – meaningful long term funding needed
- Greater regen – are all existing homes fit for the future ?