



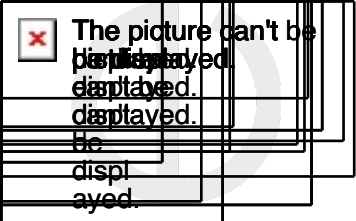
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A different environment

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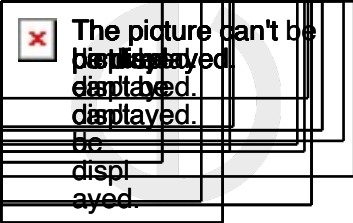
Zero Carbon – the sector response

Nicholas Doyle



Clients



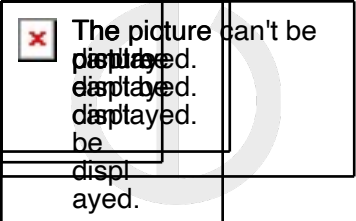


Client focus

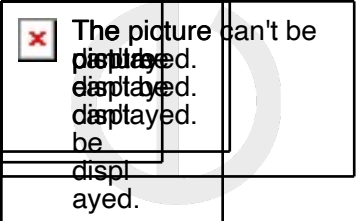
EXISTING HOMES - BAND C AND NET ZERO	      
NEW HOMES	     
STRATEGY	       
INTERNAL ENGAGEMENT	    
POLICY	   
TECHNOLOGY	    
WIDER INFLUENCE	  

What's happening....

Net Zero Carbon 2050



A changing landscape



The changing landscape

Housing Landscape

- 2021 - Part L revisions
- 2022 - Decent Homes to include carbon reduction
- 2025 - No new gas connections
- 2025 - Future Homes standard
- 2030 - Band C for existing
- 2050 - Net Zero Carbon
- The emergence of Environmental, Social and Governance
- Significant shift in role of housing in working and transport

A different environment

A generational change

- How we build homes
- How we manage homes
- How we view homes
- The role of homes

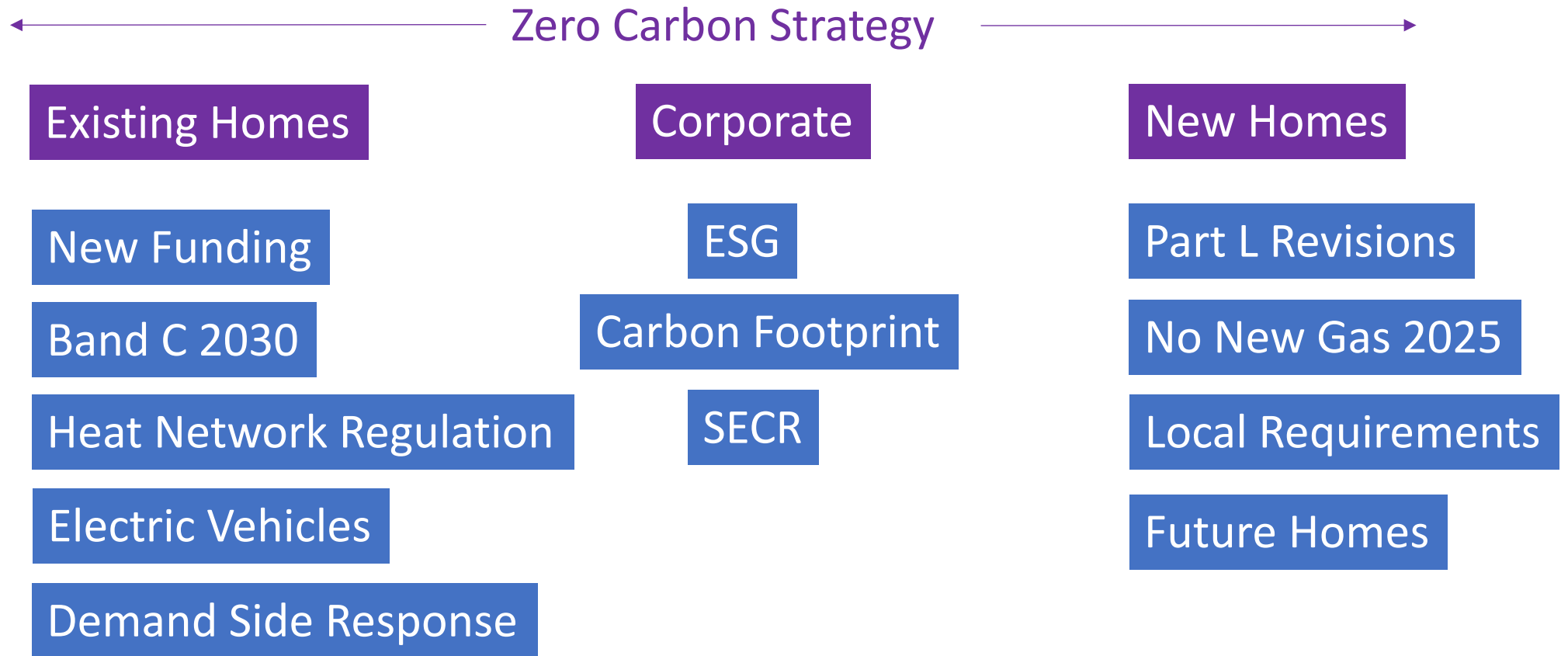
How different organizations respond to these changes

- The challenges
- The opportunities
- What this means for them
- This is as much management if not more than technical

What does net zero carbon mean for the sector?



Bringing it together...



A sector case study

- A 30,000+ housing provider
- Mix of general needs and specialist – a range of heat networks.
- A strategic approach – new homes, corporate and new homes
- Good data but not perfect
- Wanted a range of scenarios – BAU, Band B, Band C and Zero Carbon
- Wanted visibility on the challenge and the opportunities
- Approach
 - Reflected their corporate culture
 - Internal team fully engaged – from management to development
 - Created a zero-carbon pathway with action plans for existing homes, corporate activities and new homes

A sector case study

- Only 10% could be whole house retrofitted
- Heat networks - significant issues –
 - Performance
 - Costs
 - Service
 - Compliance – deadline of 27th November 2021
- Costs for zero carbon for existing – circa £1bn to 2050
- Developed a phased approach that maximized current investment, external funding and allowed flexibility – in line with the main principles

Principles

1. No 'unicorns' or 'silver bullets'
 - Available, trusted technologies and approaches
 - No untrusted 'savior' technologies
2. No 'one-way streets'
 - Flexible and adaptable
 - Not closing off opportunities for adoption of future technologies or approaches
3. No regrets
 - Multiple benefits (e.g. carbon reduction, fuel poverty, improved satisfaction, air quality)
 - Recognising the opportunities coming down the line – energy data, electric vehicles

The performance challenge

In simple terms...

- Fabric
- Heating and hot water
- Renewables

In complex terms...

- Balance between cost and complexity
- Different tenures, different solutions
- Solutions will always be site specific
- The supply chain is playing catch up
- There is no one agreed definition of zero carbon
- It will challenge organisations to think about the choices
- Growing development of whole house planning, phased delivery approach

Challenges - Heating

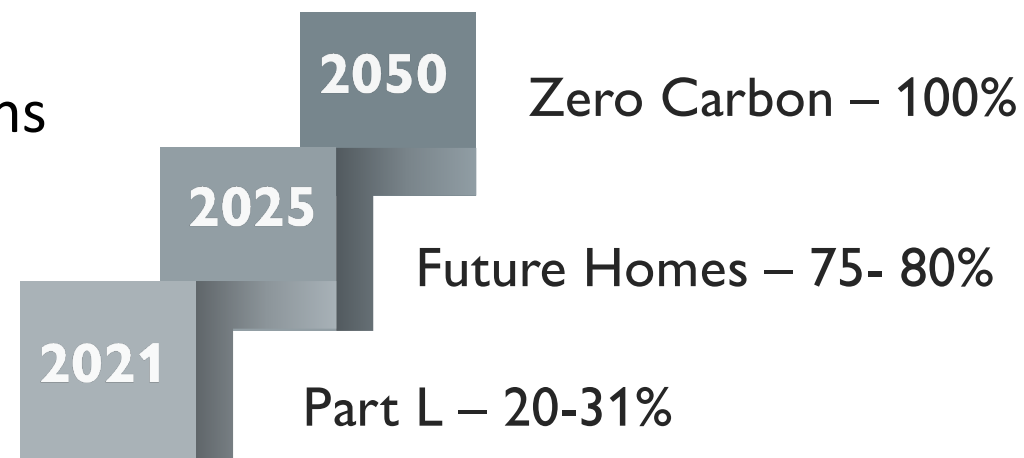
	Opex	Capex	Co2	Customer costs
Ground Source HP	High	High	Low	Low
Air Source HP	Med	Med	Low	Med
Electric Heating	Low	Low	High	High
Heat Network	High	High	Med	Med

New Homes - New National Housing Standards

New Housing Standards

- 2021 - Part L revisions
- 2025 - No new gas connections
- 2025 - Future Homes
- 2050 - Net Zero Carbon

Carbon Reduction



New Homes - same challenges – different approach?

- Heating remains the challenge
- Offsite manufacture to deliver air tightness and ventilation
- Should we skip over Future Homes to high performance fabric (passivhaus performance)?
- Drive down need for heating
- Embed management data into homes
- Long term management advantages
 - Simple heating – not always heat pumps
 - Manage comfort and air quality
 - Lower capex and opex
 - Open options for EV charging, Grid balancing, warm rents
 - Data to deliver asset management based on performance not elements
 - Information to support customers

The dangers

- The sector continues to just be a purchaser
- Does not develop collaborative approach
- Does not develop real research and development
- Does not recognise that this is much wider than housing
- That this is 'done to' the sector
- Does not take an active approach to policy development
- Does not see the bigger picture and opportunity

Conclusions

Homes – how we build in them, how we live in them, how we manage them is changing dramatically.

- The technical challenge is straightforward
- The real challenge - cost, choices and compromises
- We must design to manage not design just to build or just to deliver
- Cost is still an issue, supply chain is still an issue
- Optimised investment and maximized funding will be important
- There will be new opportunities, especially around finance
- Data and renewable will be a key part delivering for the environment, customers and landlords
- We building safety and Decent Homes 2.0 we are seeing a new Asset Management emerging - built on performance delivery, better data and focused investment.

The winners will be those that plan and invest now to address the challenges and maximise the opportunities.



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