



UK ZERO CARBON HUB

Allowable Solutions:

A Regulatory Framework for Offsetting CO2 Emissions through Financial Assisted Mechanisms

Rob Pannell - Director of the Zero Carbon Hub





The Zero Carbon Hub



FACILITATING THE MAINSTREAM DELIVERY OF LOW AND ZERO CARBON HOMES

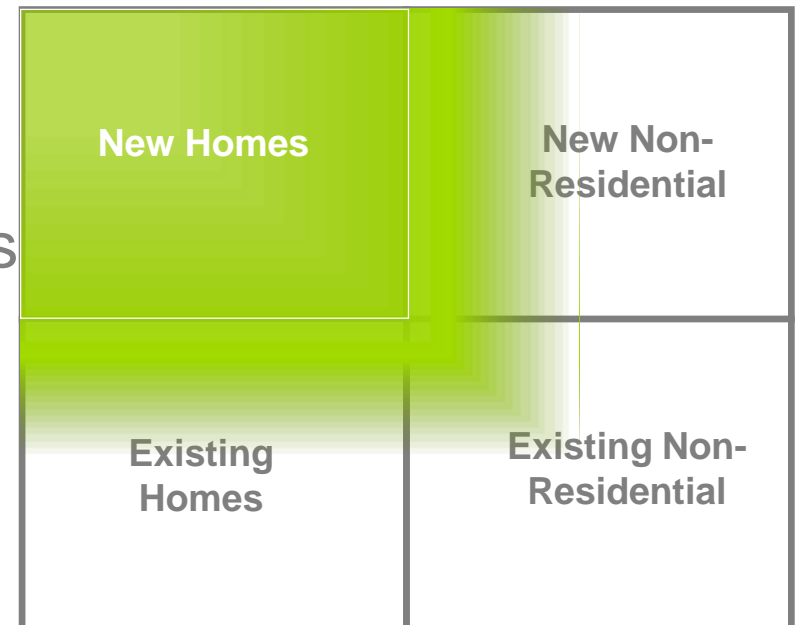


ROLE OF THE ZERO CARBON HUB

PURPOSE AND STRATEGIC OBJECTIVES

“Facilitate the mainstream delivery of low and zero carbon homes in the UK”

- Provide leadership and create confidence
- Reduce risk and clear obstacles
- Disseminate information



The Journey to Zero Carbon



Part L 2013 Update



Housing Standards Consultation



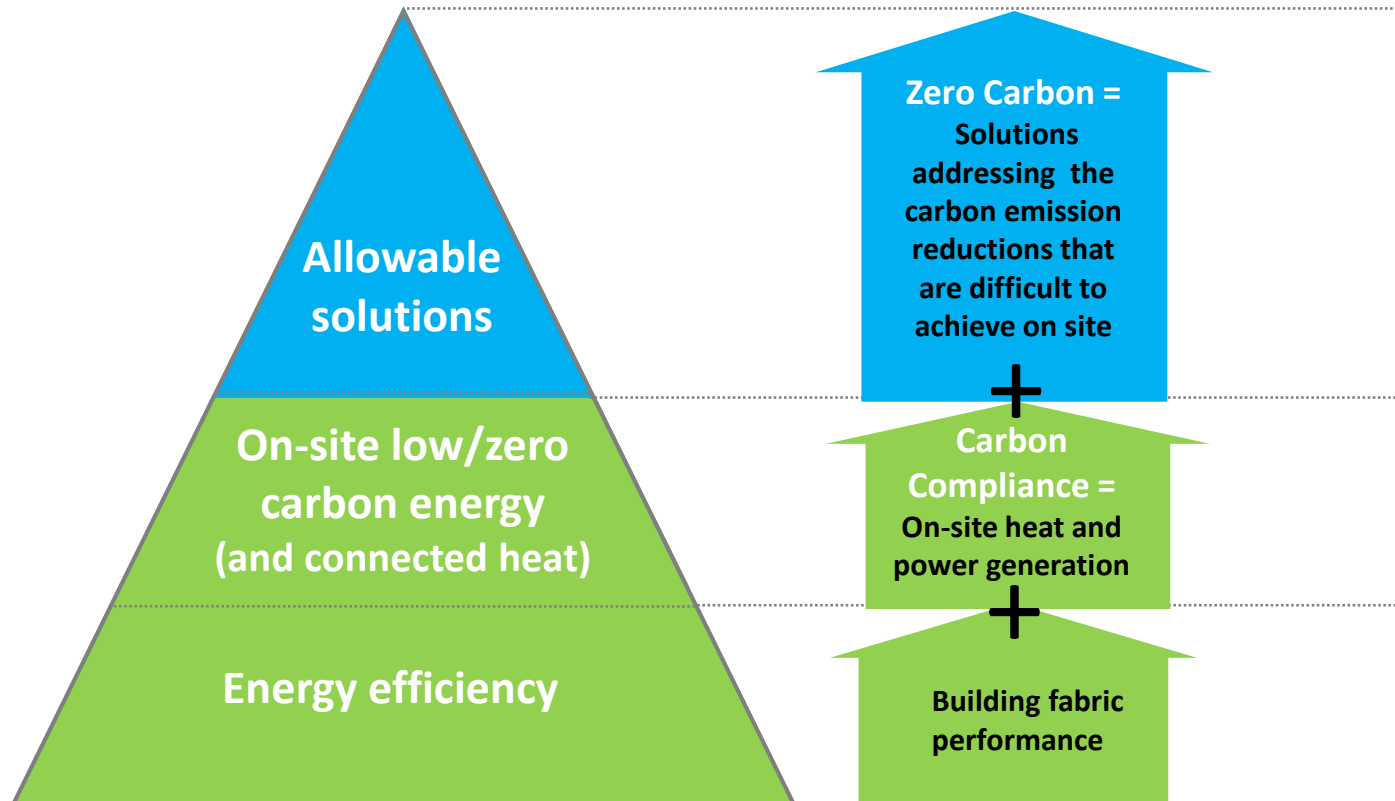
Allowable Solutions Consultation

2016





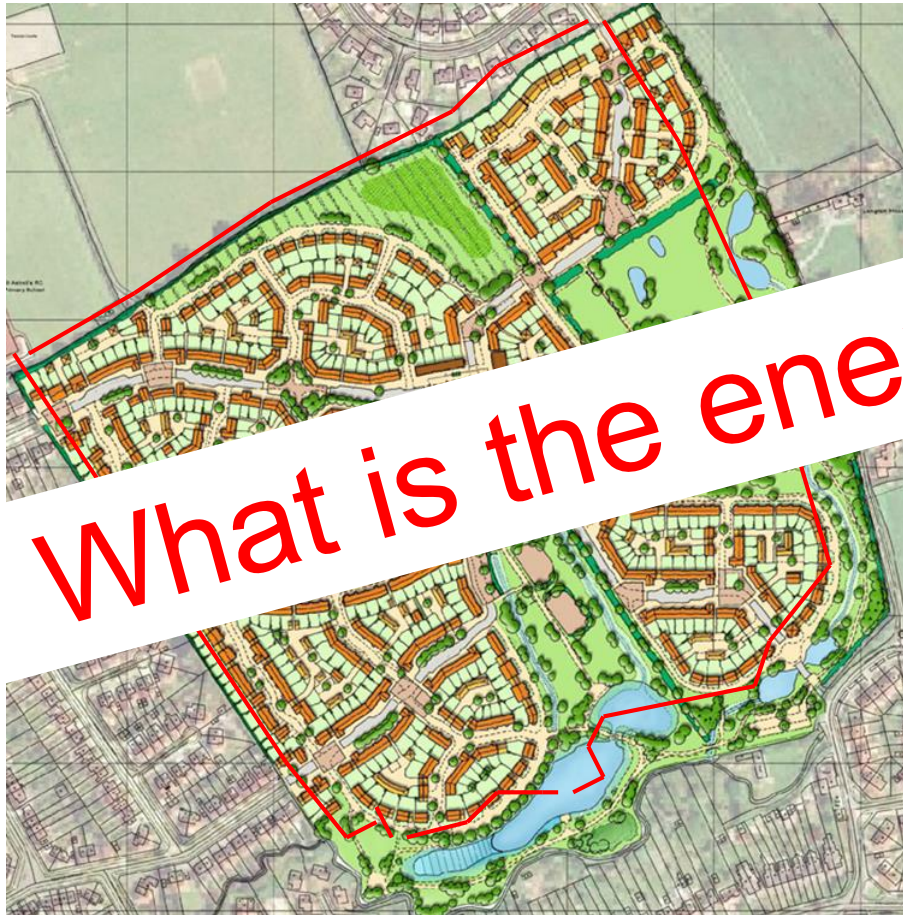
ZERO CARBON DEFINITION



The Zero Carbon Hierarchy – stepped progress towards a workable definition.



DEVELOPMENT LAYOUTS



What is the energy strategy?

Site Conditions:

- Access
- Location (regional weather)
- Ground conditions
- Flood risk
- Existing

Building:

- Dwelling type mix/ density
- Built form considerations - roof pitch, building height etc
- PV and solar panels
- Local Renewable targets

Site Layout:

- Dwelling types
- Design for solar technologies:
 - Orientation for solar technology
 - Roof pitch
 - Over-shading

Other:

- Localism

... network
... wind



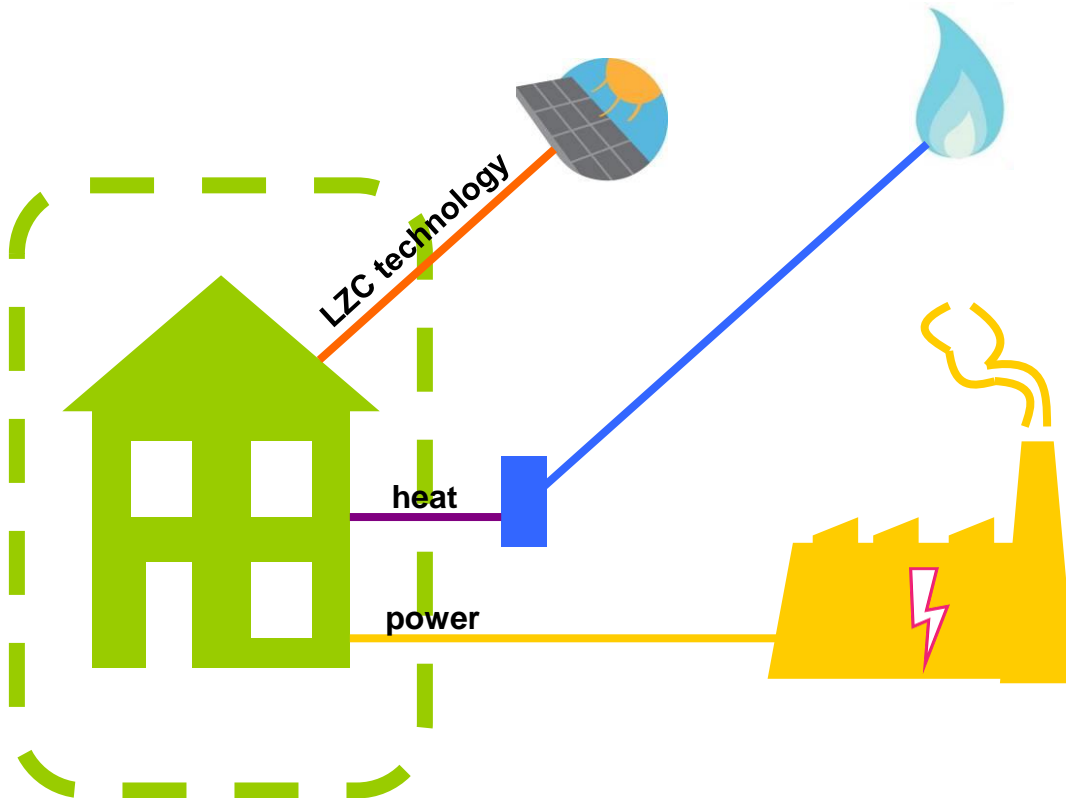
The Fabric Energy Efficiency Standard



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THE ENERGY EFFICIENCY STANDARD



Energy Efficiency Standard

- Building fabric U-values
- Thermal bridging
- Air permeability
- Thermal mass
- Solar, metabolic, lighting & appliance gains



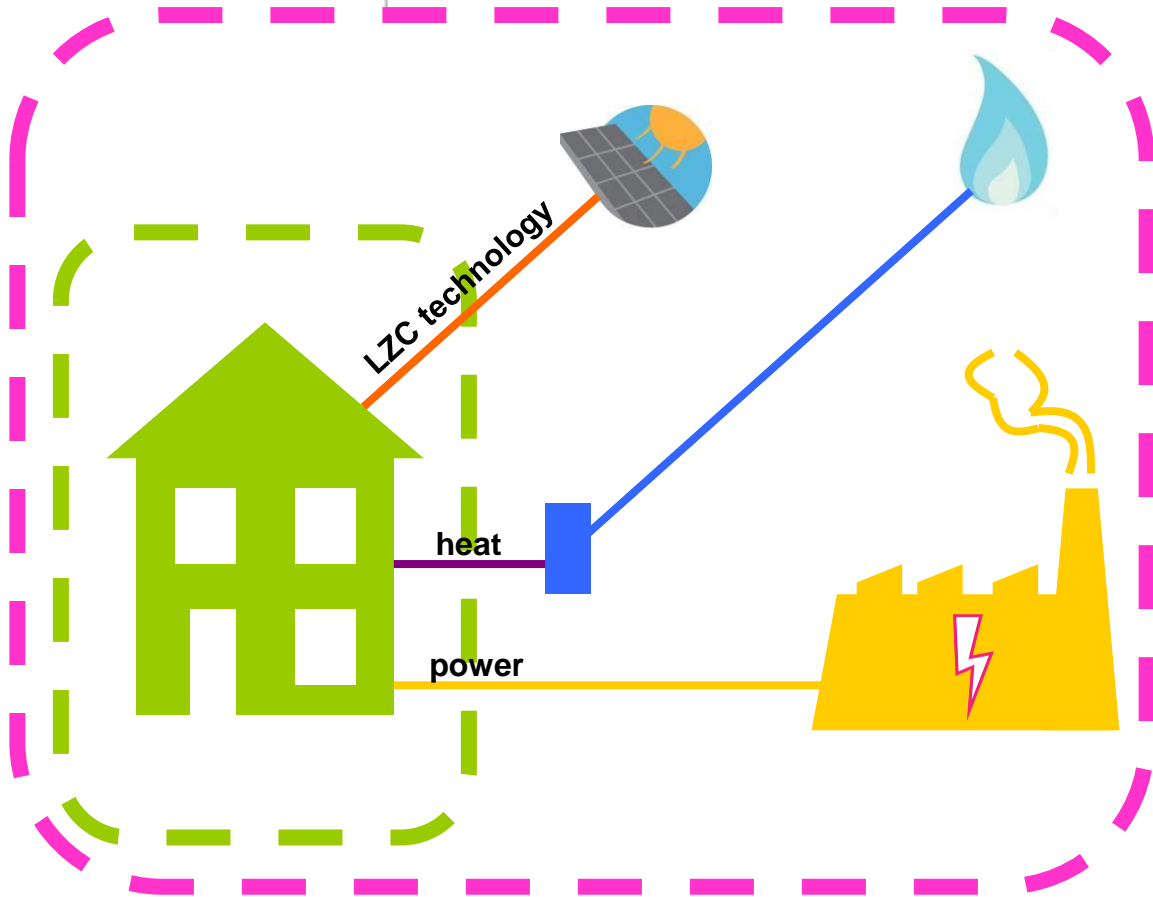
The Carbon Compliance Standard



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CARBON COMPLIANCE STANDARD



Energy Efficiency Standard

- Building fabric U-values
- Thermal bridging
- Air permeability
- Thermal mass
- Solar, metabolic, lighting & appliance gains

Carbon Compliance Standard

- Heating / cooling appliances (boilers, etc)
- Mechanical ventilation
- Hot water
- Active controls
- Fixed lighting
- All LZC technologies



Allowable Solutions



FACILITATING THE MAINSTREAM DELIVERY OF LOW AND ZERO CARBON HOMES





ALLOWABLE SOLUTIONS

- Allowable Solutions are off-site projects or measures that reduce carbon emissions which may be supported to offset some of the emissions from the new houses
- Recognises it's not always technically feasible, cost-effective or affordable to mitigate all emissions through on-site measures like fabric insulation, energy efficient services, or renewable energy
- Government is looking to develop a scheme which helps deliver cost effective carbon savings to meet carbon budgets; helping tackle climate change; providing broader green benefits; at a reasonable cost to industry



ALLOWABLE SOLUTIONS: Design Principles

- House builder decision on how to meet obligation
- Framework to provide choice and flexibility
- Carbon savings should be additional
- Allowable Solutions should deliver cost effective carbon savings
- Minimise administration whilst ensuring robust verification
- Options : leave AS delivery simply for LA decision
or a mandated LA delivery scheme (ruled out in consultation)



Design Principles for Allowable Solutions

Cost effective

ZC On-site not always cost effective or technically feasible then.....

House builders decide

Additional CO₂ savings



Choice and flexibility

Minimal overheads



ALLOWABLE SOLUTIONS: Measures

- Criteria based approach rather than exclusive list
- Issues/questions for criteria:
 - non traded v traded sector measures
 - built environment or wider scope?
 - spatial parameter?
- Criteria proposed:
 - complementarity
 - market additionality
 - cost effectiveness
 - verifiable carbon impacts
 - UK based projects.

- | |
|---|
| <ul style="list-style-type: none">A) Prescribed list (<i>menu</i>)B) Criteria based (<i>list of rules</i>) |
|---|

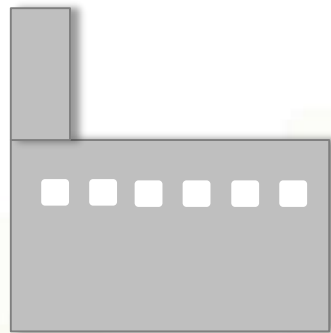


Traded and Non-Traded Emissions

In terms of carbon abatement, the economy is divided into

Traded

Non -Traded



Power generation
(EU ETS)



Heat
transport, waste & agriculture

At this point not minded to limit AS sectors



ALLOWABLE SOLUTIONS: Pricing

Price cap proposed rather than single fixed price so market can bring forward AS measures at lower price

Three pricing scenarios:

- linked to carbon price floor (£36 per tonne)
- linked to non traded carbon values (£60 per tonne)
- linked to proxy for on site measures (£90 per tonne).



£36

£90

£60



Implications of the choice

Example Allowable Solution cost per dwelling type

	Detached	Semi	Mid terrace	Flat
Low (£36)	£1275	£910	£910	£825
Central (£60)	£2125	£1510	£1510	£1375
High (£90)	£3185	£2265	£2265	£2065
<i>Residual tCO₂</i>	<i>35.4</i>	<i>25.2</i>	<i>25.2</i>	<i>22.0</i>

Consider – This is in addition to FEES and CC costs



ALLOWABLE SOLUTIONS: Delivery Routes

- Doing more on site
- House Builder DIY
- Contract with third party delivery:
 - direct contract
 - matching scheme
 - brokerage scheme.
- Fund:
 - “Funder of Funds” like Green Investment Bank model?
 - Collection model for Allowable Solutions funds.
(Implementation issues)



A range of delivery models

100% On site

Beyond Carbon
Compliance



How do I achieve compliance?

D.I.Y

Retrofit, heat networks,
Beyond Part L banking

**3rd Party
Contracting**

Direct, LA, matching,
brokerage

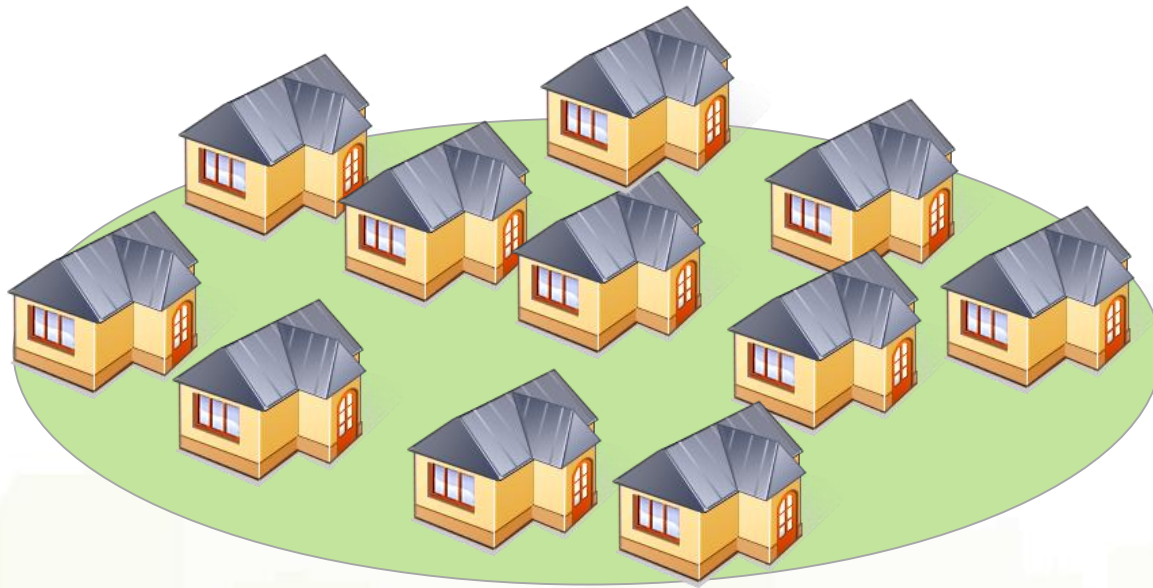
Invest in a Fund

Managing a portfolio of
projects

Carbon still to be abated via Allowable Solutions will be calculated using the NCM



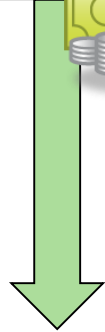
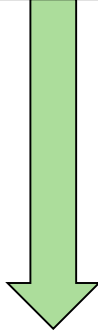
What could the D.I.Y approach look like?



Renewable heat or energy schemes

Improving existing buildings

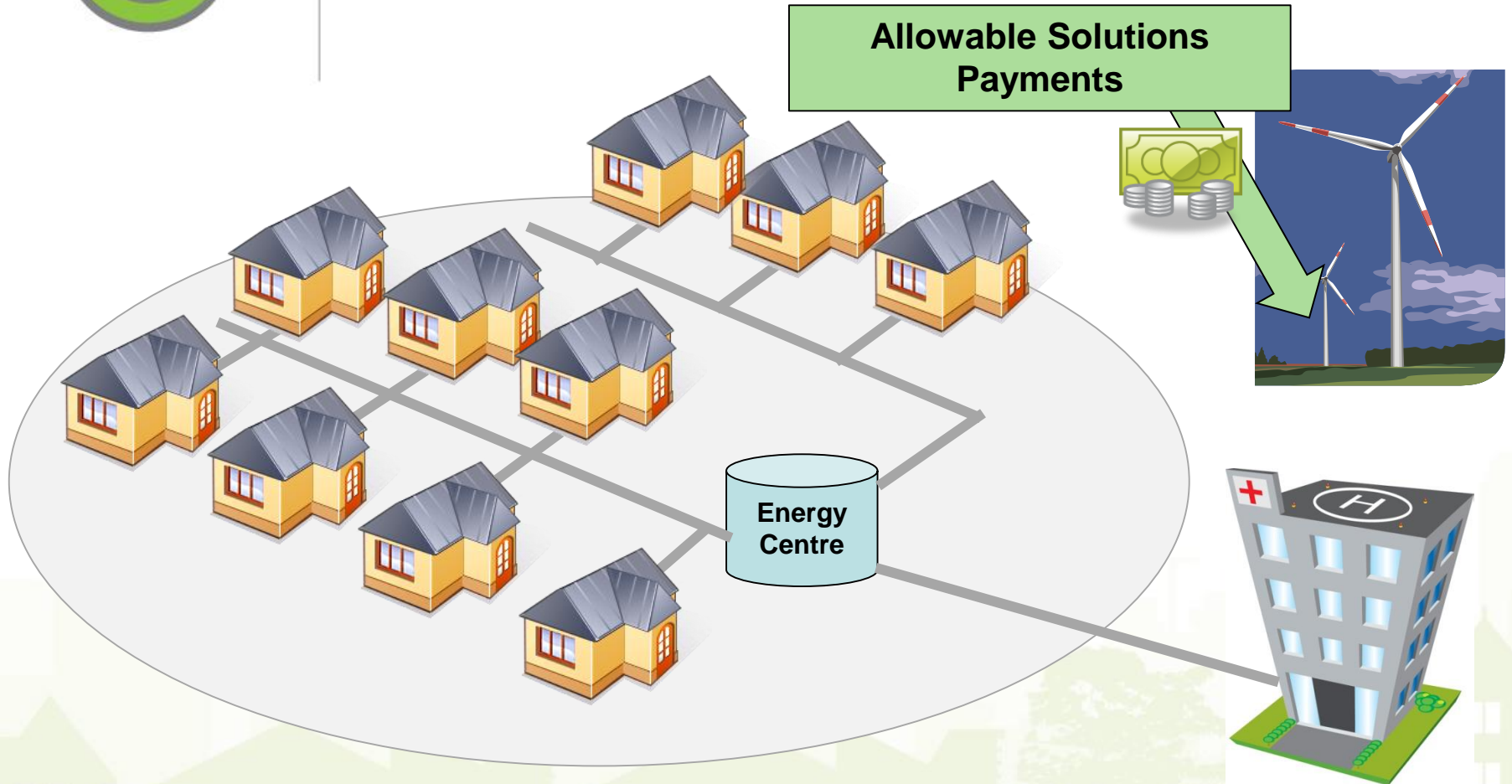
Allowable Solutions Payments



Upgrade an earlier development which already has planning consent 'Banking'



What could 'direct contracting' look like?



Matching or Brokerage Service?

Private contractor or Local Authority to extend an existing district heating network

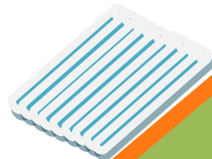


What could count as an Allowable Solution

Investment in offsite LZC (financial return)

Continue carbon compliance onsite

Export LZC heat (and cooling?) to existing stock



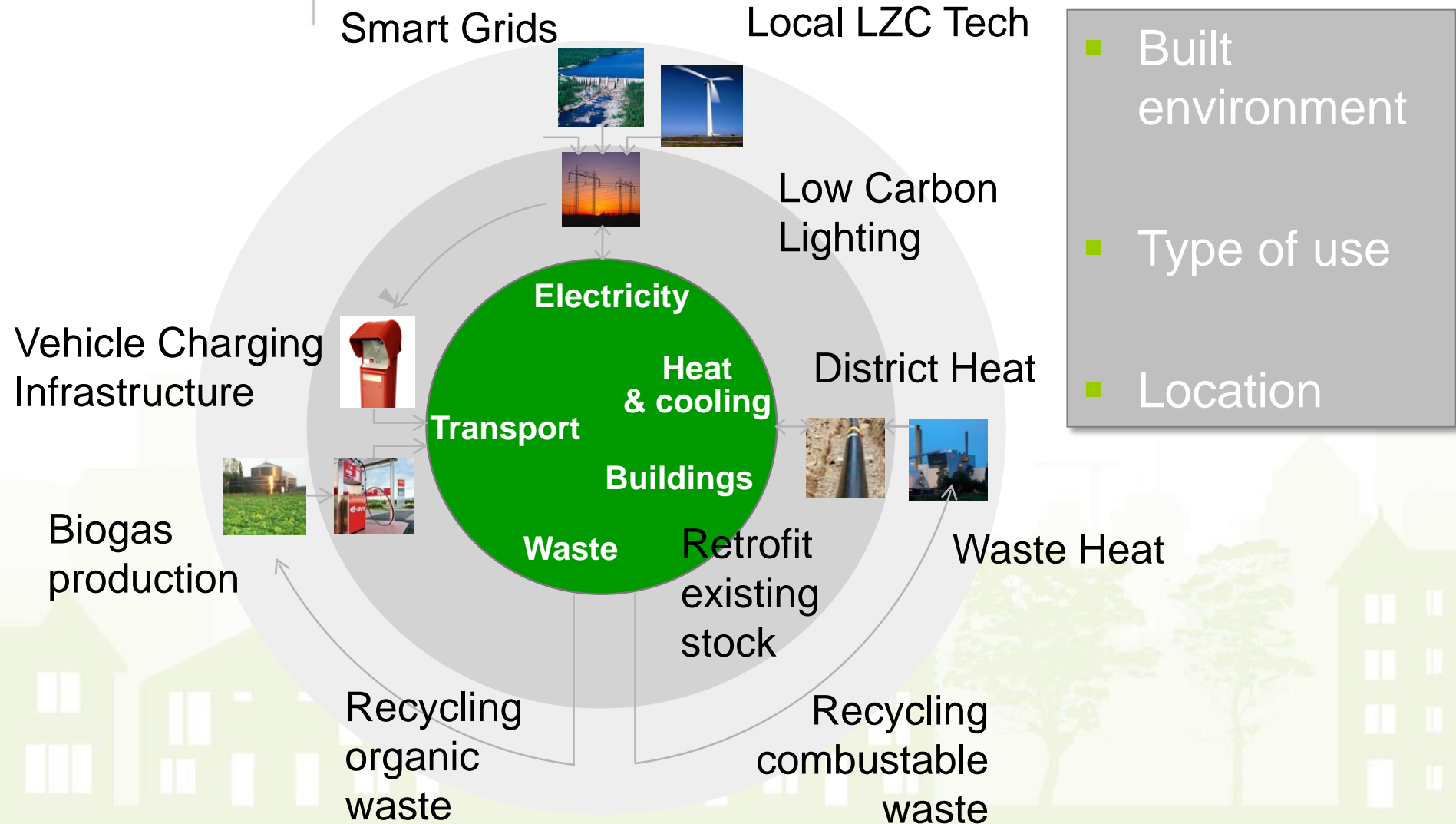
Offsite LZC electricity with direct physical connection

Efficient appliances and controls

Improve existing stock fabric



Scope of Allowable Solution measures?





2016 ALLOWABLE SOLUTIONS

Developer makes an Allowable Solutions payment for a particular development

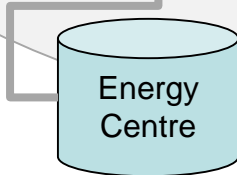
A workable, verifiable process

Developer receives a Certificate showing that the required carbon savings (to meet zero carbon standard) have been achieved



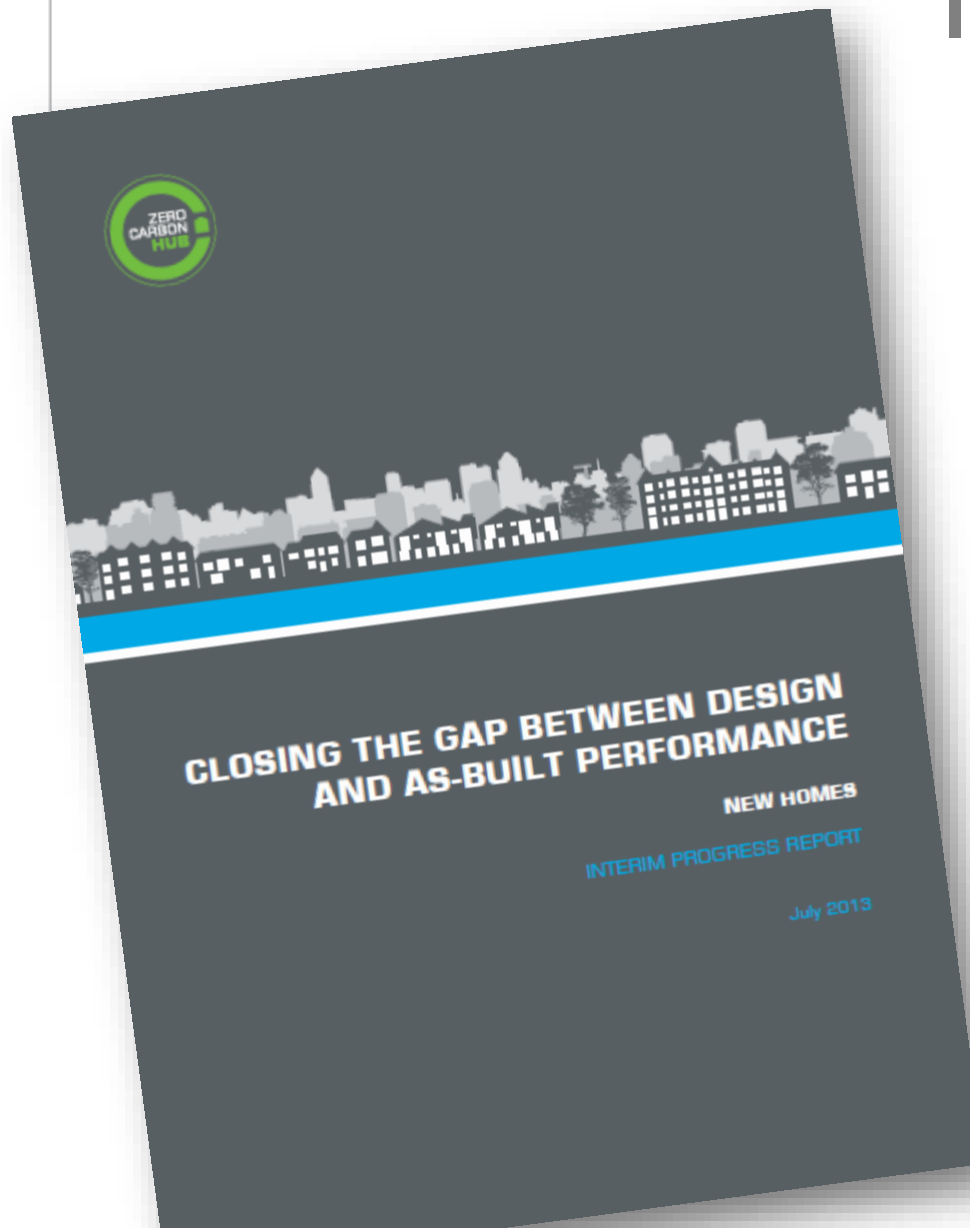
Allowable Solutions framework – Commercial developments

**NOT AN OPTION AT
THIS TIME**





PERFORMANCE GAP Interim Report







Thank you

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