



**1. assessment + calculation**

Reliable methods of **assessment** and **calculation** of measures to be developed/adopted, including the cost to install measures and their impact on running costs. Actual cold-bridging and air tightness identified and included

**2. monitoring + data**

Pre- and post-works much lower cost, monitoring, on ideally all properties, certainly initially as part of a project to develop, prove then disseminate best practice as well as identify problems later.

**3. specification + detailing**

Proper science and risk based specification, eg hygrothermal risk, not simply lowest cost based methods of material selection, and how they are put together to reduce underperformance, defects and health effects.

**Pattern Book** development

- to enable improvement
- to be interoperable with other software

**4. IT + software**

- Development of IT systems & interoperable software,
- to improve speed and accuracy
- enable choice and mass customisation,
- reduce on-costs and streamline design,
- site management
- cost estimating and control.

**5. capacity**

Developing industry capacity: Competitions or rolling competitive funds to develop designer/ contractor teams capable of delivering deep retrofits that they would be prepared to then both warranty AND roll out at scale after further R&D

**6. contracting + guarantees**

- Better contract models and delivery structures
- reduce chains of sub-contracting
- partnering contracts that reduce adversarial issues on variations
- stimulate innovation
- reduce ineffectual regulation
- eg energy performance guarantees.

**7. workforce development**

- introductions to appropriate skills & trades in schools - design > woodwork
- apprenticeships - where appropriate twinned with college courses to create suite of qualifications eg retrofit co-ordinator, retrofit multi-skills tradesperson
- trade union engagement
- greater college and university engagement in creating the right skillsets - quickly
- industry participation - eg travelling classrooms

**8. renewable energy + storage**

renewable energy and storage rollout to develop additional income to help develop demand reduction

## 9. **aggregation**

Aggregation models: to take the individual batteries' energy and package it for sale to energy suppliers and the grid

## 10. **financial vehicle(s)**

- to take in large scale low cost finance from multiple sources, distribute to fund householders works,
- make policy led decisions on offering equity loans to less well-off householders,
- hold, redeploy or share out surpluses from different elements of the programme.

## building the market

### 1. **detailed register of regional retrofits**

shows what's been done for building owners to see it, how effective it is and see other benefits, also allows better tracking for metrics.

### 2. **cost of occupation compulsory on sales particulars**

(recognised in mortgage affordability test)

### 3. **differential council tax bands**

### 4. **landlord certification scheme**

with variable fees for different energy performance

### 5. **variable tier shares in financial vehicle to incentivise going early**

but with deferred payment to keep early costs down

### 6. **co-operative air b&b**

encourages better use of existing buildings but also creates income to fund their improvement

### 7. **further development control clarification**

possibly marry up with pattern book to expand Permitted Development rights with certain protections

### 8. **regeneration schemes**

to be led by or at least partnered with retrofit

## newbuild specific

### 1. **Life cycle carbon analysis, total carbon footprinting**

### 2. **genuinely zero energy building standard**

through using very local supply chains, account for sequestration of carbon from within the region.

### 3. **homes as energy centres**

generation needs around site influencing building form - eg PV arrays and storage

## commercial specific

### 1. **differential business rates**

### 2. **centrally viewable DEC's**

encourages competition between commercial landlords