Part 3:

The plan for implementation

Delivery of the standard will depend on the implementation of low carbon asset management plans geared to a twenty year programme of investment.

Developing an asset management plan

The key to delivery of the new standard will be putting in place a low carbon asset management plan to phase the investment. It is proposed that the standard is implemented between 2010 and 2030, with improvement programmes for archetypes broken up into five year work packages 2010/2015, 2016/20, 2021/25 and 2026/30.

In order to put together a plan it will be necessary to model a representative sample of archetypes and construction types, and to understand both the 'as-built' (and/or 1990) performance and the impact of improvements carried out to date.

This will enable the 1990 baseline and carbon budget for the archetypes making up a landlords stock to be determined.

This process can then inform the programming of measures going forward. So, for example, fabric improvements might be moved to a later phase if heating systems are due for urgent replacement.

The time lag between measures also needs careful consideration, for example a heating system may need to be sized for future demand post insulation being installed but as a result the property may not be warm enough. The specific measures in each phase can be appraised for their Whole Life Costs and fed into the medium to long-term business plan.

Case study EPC/ SAP Performance 1990, 2009 & 2025

Financing the improvements

The evidence base for the Beyond Decent Homes Standard suggests that it will cost between £15,000 and £35,000 per property to achieve the 80% (EPC B/SAP 85) carbon reduction target. Some of this could be integrated into planned improvement and replacement programmes.

It is likely, however, that the full range of measures identified by the Standard will require additional capital outlay over and above provision through, for ALMO's, the current Major Repairs Allowance, Housing Improvement Programme and, for Housing Associations, their medium to long-term business plans.

Planning for progressive improvement, Sandwell Homes

Sandwell Homes appointed a specialist consultant – Rider Levett Bucknall – to provide support in managing their SAP and Energy Performance Certificate performance. A comprehensive database has been established to provide accurate information on the performance of every property. A target has been set to reach an average performance of SAP 77. Cost models have been developed in order to plan for the delivery of future carbon reductions across the stock, with the potential to benefit from strong partnerships with contractors and a single supply chain to drive down prices.

Matching sources of capital and finance are likely to be required, drawing upon a range of sources and partners:

- **Utilities:** The gas and electricity companies have funded affordable warmth programmes through EEC, CERT and now CESP in order to meet their regulatory requirements. This source of funding is likely to continue and increase into the future;
- **Energy Service Companies (ESCo's):** Specialist heating infrastructure such as CHP, biomass boilers, communal solar thermal and district heating can be funded by capitalising future energy sales to tenants and residents;
- **Energy trading:** The introduction of higher feed-in tariffs for technologies such as solar photovoltaic's and a renewable heat subsidy mechanism are likely to further assist landlords and ESCo's in raising finance;
- **Tenants and residents:** Whilst occupiers would benefit from greater energy efficiency, some of the savings may have to be recouped in order to fund the improvements, or raised using 'pay as you save' soft loans;
- **Land Trusts:** In the past there has not been a way of capturing the uplift in value from neighbourhood renewal. By transferring assets to a trust this value could be captured to fund improvement works.

The emphasis will need to shift towards creative new sources of finance, rather than assuming too great a dependance on grants and subsidies. Provision will need to be made to assist owner occupiers to pay for improvements, potentially through deferred payments and soft loans.

Archetype modelling to verify planned improvements

The process of working with the partners to assemble the evidence base for the standard has highlighted the need to carry out detailed SAP modelling of sample archetypes. This is important in order to test and validate proposed upgrade programmes and overall CO_2 emissions reductions.

RDSAP – which forms the basis for Energy Performance Certificates - is currently too simplistic for this process and tends to underestimate performance. It is therefore it is proposed that detailed SAP assessments are carried out, to include the inputting of accurate 'as-built' specifications.

Modelling should also take into account all energy use in the home – to include estimates of appliances and small power loads. This can be weighted to reflect the the size of each home and typical energy electricity consumption patterns for different household sizes.

The role of demonstration projects

To deliver the Standard piloting new or unfamiliar specifications may need first to be piloted on a smaller number of demonstrator properties. Whilst demonstrators have an important role to play, experience from the partners on projects such as the EU funded Lyng project in Sandwell suggests that they need to be designed as the lead-in and testing ground for larger scale programmes.

The learning should therefore be fully captured and recorded in a way that seeks to make practical recommendations in seeking to scale up investment – as demonstrated by South Shropshire Housing Association's evaluation of low carbon heating options (see case study).

Partner case study

Off-grid heating evaluation, South Shropshire Housing Association

The majority of SSHA's properties are not on the natural gas grid and are therefore reliant on solid fuel or electricity for heating. In order to address issues of affordability, effectiveness and reliability they have been trialling alternative low carbon options to deliver affordable warmth. These include solar thermal panels, ground source heat pumps, biomass stoves and biomass district heating. Marches Energy Agency have carried out an evaluation of the technologies in order to inform future investment decisions.

The importance of monitoring

Whilst Decent Homes has brought substantial initial investments in building fabric improvements, there is limited evidence in the form of monitored energy consumption data to verify the benefits. It will therefore be essential that modelled energy performance is compared against metered energy performance post-completion.

Where new energy systems are being installed, or where substantial improvements are being made, this could be achieved through the installation of state-of-the-art heat and power metering. This could be used to benefit tenants and residents, and there could even be opportunities to engage them in order to improve how the data is presented – as demonstrated by Family Housing Association (see case study).

In other locations sample monitoring of metered consumption is likely to be required. This could be obtained through agreements with utilities or with organisations such as Experian that are seeking to pool utility data. Data can be released to landlords if tenants give their written consent.

Partner case study

Home Energy Management, Family Housing Association

With the support of Digital Birmingham and Be Birmingham residentsTenants of properties in Summerfield and South Lozells have been participating in a European funded project to explore the impact of smart energy meters. A prototype smart meter system designed by a West Midlands-based company has been trialled and its impact of energy saving behaviour and habits monitored. This feedback has then been used to make a series of design improvements to the meter, which will then be the subject of further trials.