Financing energy efficiency: Bringing together the Green Infrastructure Bank, green bonds and policy

E3G briefing[1], Ingrid Holmes[2], May 2010

1. The macro case

A stronger focus is needed on reducing energy demand, rather than simply decarbonising an ever-increasing energy supply. As the source of ~27% of UK carbon emissions, the UK's housing stock is the most important source of rising energy demand. Tackling energy efficiency is also the cheapest way of delivering carbon emission reductions and energy security. Yet despite the supposed short payback times for householders, many cost-effective opportunities to improve household efficiency are not being taken. Tangible large-scale investment opportunities are limited – and there are very significant barriers to mobilising the estimated £111bn investment required in this sector over the next 10 years. They are:

- **For householders** — high inertia and poor opportunities to purchase energy efficiency retrofit packages combined with limited access to and opportunity cost of capital.
- **For energy services providers** — existing capital requirements for businesses means there is insufficient capital available to invest in demand reduction. (For energy utilities for example supply side decarbonisation is a priority.)
- **For investors** — perceived limited consumer demand for the energy efficiency products and high transaction costs, reflecting the very fragmented nature of this market.

Addressing these investment issues is key to creating greater demand for energy efficiency – and the key to delivering installations into homes and creating a thriving energy efficiency market. Without an innovative approach to finance,

[1] E3G is an independent non-profit organisation with a mission to accelerate the transition to sustainable development; see **www.e3g.org**
[2] Ingrid Holmes leads E3G's Low Carbon Finance programme.

policies will be left struggling to deliver at scale. Innovative financing structures are therefore crucial to building up this demand and creating a strong market for energy efficiency products.

For householders, new policies to drive demand, such as widely subsidising energy efficiency measures, offering zero or low interest loans[3], providing tools to understand and better manage energy usage (such as smart meters) and ultimately minimum standards on properties will be required. For energy services providers, provision of up front finance to householder from a source other than their own balance sheets will be critical. For investors, aggregation of the investment opportunity will be required. These last two tasks could be undertaken by the Green Infrastructure Bank (GIB). But to be successful, two key questions will need to be answered: first, where does the up front capital for householders come from – and how is it disbursed, and second, how is it paid back?

2. Providing up-front capital

A low cost capital programme funded by green bonds raised from private investors by the GIB and then blended with public subsidy would be used to provide:

- Upfront capital to householders, to be repaid as loans;
- Subsidies to householders to complement these loans – on the basis of ability to pay;
- The administrative processes — including the 'portfolio manager', which would oversee delivery of the scheme.

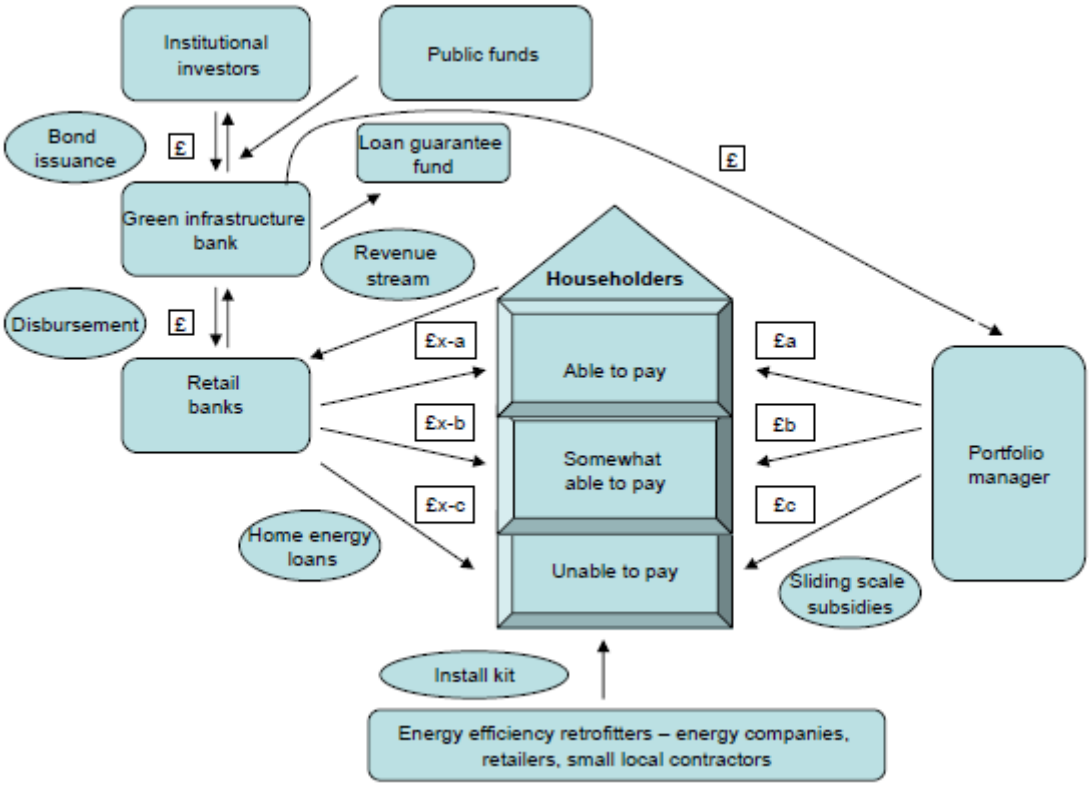
Figure 1 shows how the financial flows could work. Most of the capital would be sourced from private funds by the GIB through issuing green bonds to institutional investors and used to fund retrofits.

The Government would also raise a subsidy stream (sourced for example from a new 'energy services' wires charge routed to the GIB). This money would then be used to:

[3] Analysis commissioned by the Committee on Climate Change has indicated that subsidies are likely to be required for the foreseeable future in order to support demand for energy efficiency. This requirement is consistent with experience in Germany (where grants covering up to 17.5% of costs or loans of up to €75,000 at subsidised interest rates are awarded), in France (where 0% interest loans are being offered to households), the Netherlands (also offering grants and loans) and the US (where a variety of subsidy regimes are used).

- provide a loan guarantee facility (to underwrite loans taken out under the Pay-As-You-Save system described later);
- subsidise loans to say 3% (disbursed through the retail banks) and provide additional grants to incentivise 'deep' refurbishment with many measures (allocated by the portfolio manager according to ability to pay);
- fund the delivery agent ('portfolio manager') overseeing the delivery of energy efficiency retrofits.

Figure 1: Proposed financial flows



Risk would be managed in the system through: 1) coherent policy design; 2) location specific loans; 3) loans allocated on the basis of ability to pay; and 4) the Guarantee Fund. On the back of this financial structure, energy services providers, including the energy companies but also small local contractors or retail companies - could market, sell and install energy efficiency retrofit packages to consumers. They could make a margin on every package sold without a requirement to find the upfront capital, which would limit who could play in this market.

3. Paying back the private capital

Vulnerable 'unable to pay' homes would receive loans with near 100% subsidies, and the wealthier 'able to pay' sector near 100% upfront loans to leverage their investment. For loans, the repayment would be secured through a long-term location-specific charge – 'Pay As You Save' – proposed by the Government, which attaches the loans to the home not the occupant, enabling the loan to be spread over long periods (to 25 years) and to pass from householder to householder. Repayments would be embedded in the electricity bill/council tax bill, and passed on via the energy supplier/local authority to the original 'investor' (the GIB) regardless of who lives in the property. Crucially, they should be lower than the energy savings delivered.

Over the very long term, in the event that obligation on householders in the form of minimum standards is introduced for existing properties, 'Pay As You Save' scheme and other Government financial involvement may not be needed. The market instead would be likely to come forward with a range of financial products that consumers could use to raise finance. This would enable the public sector to step back and the private to step forward.