

The Revolving Retrofit Guarantee Fund Mechanism

November 2010



A sustainable and affordable financing solution to enable large scale energy efficient retrofitting of housing



Retrofit South East project

This project, secured by Radian via the South East England Development Agency (SEEDA) and part funded by European Regional Development Funding (ERDF), will develop a model for low carbon retrofit of social housing that will help to transform businesses and reduce carbon emissions from existing housing stock across the South East region.

It will use an exemplar demonstration project of 14 social housing properties in Petersfield, Hampshire, as the centrepiece for an innovative programme of research, business assistance, awareness raising and dissemination on the theme of low carbon refurbishment.

The 14 properties, owned by Drum Housing Association, part of Radian Group, will be refurbished to an ultra low carbon standard (70% and 80% carbon emissions reduction) using a range of energy efficiency and renewable energy measures.

This innovative exemplar scheme will be linked with others around the region to create a network, used as a focus for business assistance to the building trade, housing professionals, social housing managers and policy makers. It will develop solutions to a range of market failures (such as access to finance), and promote the business and environmental benefits of a large scale retrofit programme to the region.

Through these activities the project will support new enterprise and the creation of quality jobs which allow businesses to upsell their services into a new emerging market for low carbon retrofit.

The lead partner for this project is Drum Housing Association (part of Radian Group), with delivery partners Camco, Parity Projects & GESB. The project duration is 18 months from October 2009 to March 2011.

www.radian.co.uk/201004072131/retrofit.html

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Executive Summary

The residential housing sector contributes approximately 27% of the carbon dioxide emission in the UK. In order to achieve the Climate Change Act target of an 80% reduction in CO₂ emissions by 2050, it is estimated that approximately 500,000 existing homes require comprehensive whole house energy efficient refurbishment every year up to 2050. Based on existing examples where household carbon dioxide emissions have been reduced by 60 to 80% per annum post refurbishment, this could cost up to £10 billion each year. Therefore, cost is a highly significant barrier to progress. Failure to deliver these refurbishment targets now, as is currently the situation, will mean that a higher number of annual refurbishments will have to be completed in subsequent years.

It is clear that the cost of delivering the Government's aims poses a significant barrier. Global Environmental Social Business (GESB) has held several workshops since May 2008 in the UK and carried out research under the framework of the 'Retrofit South East' project to understand the need for sustainable financing products to implement large scale energy efficient home refurbishments. They have also studied the loan products available on the market and in development. Currently there is no mechanism available in the UK market which is able to mobilise this investment volume in a sustainable way.

The Revolving Retrofit Guarantee Fund (RRGF) mechanism has been prepared by GESB based on their proven experience in the EU housing sector. As a key part of the 'Retrofit South East' project, GESB developed a conceptual finance model of the RRGF, suitable for mainstreaming low carbon refurbishment within the South East region of England.

This represents the first serious attempt in the UK to address the financial barriers to mass retrofitting by employing an innovative financial mechanism. If adopted, it will take the energy efficient refurbishment of homes that is required from the fringes to the mainstream. Implementation of the proposal will enable a significant learning experience to be gained that will promote and encourage effective replication.

The model is targeted at social housing and the private housing sector and introduces an enhancement to the finance product currently available on the market and in development, such as the PAYS which is now called Green New Deal, Rent a Roof and EIB finance schemes.

The advantages of the RRGF mechanism over the alternative means of financing energy efficiency and renewable energy projects is that the RRGF mechanism offers all the following benefits as a package, compared to other finance schemes which are not as complex as the RRGF. These advantages include:

- Borrowing for retrofit work takes place against a guarantee fund, greatly reducing the risk of issuing loans for commercial investors. This also means housing providers do not need to borrow against their existing housing asset base for expensive large scale retrofit, so frees it up to use against important new build developments to help increase the supply of social housing.
- The volume of loans coupled with the de-risked guarantee fund enables borrowing at lower interest rates than social housing providers are currently able to access. Loans are made based on clear eligibility criteria.

- The guarantee fund, managed by an independent delivery agency, enables the scheme to operate continually in the event of loss or temporary default on loan repayments (as high as 5% default can be accommodated while the fund remains operational) and marks a move away from traditional mortgage based finance and the risk of private sector repossessions.
- Leverage rates of investment into the fund to produce low interest rate borrowing for capital works are unrivalled by any alternative funding schemes (1:20 - 1:150) and enables more retrofits for less. As repayments are made the fund revolves increasing the leverage ratio and enabling further sustainable loans to be issued.
- The fund earns interest which pays for the financial management costs of the programme and investment can be returned to original investors at eventual end of programme if required making it more attractive to fund investors.
- Flexibility to increase size of retrofit programme portfolio during the life of the operational fund or to extend programmes at the end of their lives.
- Borrowing can take place at a community level to improve loan up take rates by spreading credit risk so that equality of access to loans prevails. Energy behaviour change and local retrofit skills training are introduced as key elements of projects – e.g. using the highly successful and effective ‘Greening Campaign’ communities approach.
- Programme management has a strong social dimension and close engagement of, and working with, residents at all stages of the retrofit process is undertaken – including by Community Support staff. Loan agreements with residents are clear, concise and simple to understand and complete.
- Residents benefit from a ‘Pay as you Save’ approach whereby low monthly repayments are less than their overall annual running cost savings post retrofit. This could be paid as a service charge under a voluntary agreement; an increase in rent where current rent levels are lower than target rent; or as a result of a change in rent legislation or policy. The loan remains assigned to the property.
- Technical solutions implemented are robust and align with investment returns using specialist advice and based on evidence of performance in use.
- The fund can accommodate all available grants and income streams such as FIT, RHI, CESP, CERT, to further reduce the cost of borrowing, the amount of loan or the borrowing period.
- Fund is complementary with existing housing association management practices, including rent collection payments.
- Once operational, the fund is not affected by Government intervention and avoids uncertainty associated with short term grant availability.
- A proven sustainable financial mechanism offering secure and long term access to affordable financing continually to 2050 and beyond.

The aim of this report is to show how the RRGF works conceptually. As the next step, it is recommended to pilot a programme with 500 home refurbishments in the social housing sector and 8,000 home refurbishments in the private housing sector.

The finance mechanism has been discussed in detail with key stakeholders during the 'Retrofit South East' project course. Two stakeholder meetings have been held with members from NHF, HCA, DECC, EST, PUSH, SEEDA and various housing associations, councils and private sector representatives including construction companies, energy suppliers and commercial banks.

A consensus has been reached that the revolving guarantee fund mechanism represents a viable long term sustainable finance solution for retrofit in the UK market and it is important that it is now piloted.

Background

Radian Group Ltd. secured European Regional Development Fund (ERDF) through SEEDA in 2009 to implement the 'Retrofit South East' Project. This project aimed to develop a model for low carbon retrofit of social housing that would help to transform businesses and reduce carbon emissions from existing housing stock across the South East region. It uses an exemplar demonstration project of 14 social housing properties in Petersfield, Hampshire, as the centrepiece for an innovative programme of research, training & skills development, dissemination, awareness raising and promotion on the theme of low carbon refurbishment.

The 14 properties, owned by Radian, are refurbished to a low carbon standard (75% and 82% regulated carbon dioxide emissions reduction) using a comprehensive package of advanced energy efficiency and renewable energy measures. This innovative exemplar scheme is linked with others around the region to create a network and used as a focus for knowledge transfer for the building trade, housing professionals, social housing managers and policy makers.

Under the framework of the 'Retrofit South East' project, GESB has developed the conceptual finance model of the RRGF, which is a sustainable solution for mainstreaming low carbon refurbishment. The model targets social housing although is also highly applicable to the private housing sector and provides a route to have access to long term sustainable and affordable finance for energy efficient and renewable energy retrofit projects. Proposals are drawn on the successful experience of similar, successful financial schemes in successful operation in other European countries. The challenges and solutions have been identified in conjunction with a regional focus group of stakeholders via meetings and workshops, with proposals disseminated by Radian and GESB.

Revolving Retrofit Guarantee Fund mechanism

GESB Profile

The Global Environmental and Social Business (GESB) is a private company founded in Hungary in 2005. GESB's mission, as a pioneering company, was to target the middle and middle-low income household sector where fuel poverty is becoming an increasingly important issue as a consequence of rising fuel prices that have not been matched by similar increases in income. GESB implements energy efficient and renewable energy projects that decrease household energy running costs and that will improve the living standards in the affordable/social housing sector.

The RRGF mechanism had been developed by GESB. It is registered at the Patent Office and protected as experienced based know-how of GESB. It is a complex mechanism that provides a holistic solution for the problems of the housing renovation market. It has been extensively piloted and successfully mainstreamed in Hungary, the principles of which are used more widely in the EU.

The aim of GESB is to replicate the RRGF mechanism in the UK and other EU and non-EU countries where sustainable finance for retrofit activity is currently absent.

The company is profit oriented but highly ethical. GESB identifies itself as a social enterprise, meaning that profit earned is reinvested in new projects and not distributed among shareholders. The projects implemented also enable a business share to be distributed with the end-use customers, namely the householders. In order to reach these targets, GESB employs unique innovative financial and business mechanisms.

The UK Housing Sector Energy Efficiency and Renewable Energy Market

The building sector consumes 52% of energy in the UK, followed by transport at 33% and industry 14%. The housing sector produces 27% of all carbon dioxide emissions. The UK Government has made a legal commitment to reduce CO₂ emissions by 80% by 2050. From the 24 million existing homes, 500,000 need to be renovated yearly for the next 40 years in order to achieve this level of reduction in the housing sector.

The Code for Sustainable Homes demands all new homes have a sustainability rating (ranging from levels 1-6), with level 6 representing a net zero carbon home. The Government aspires that by 2016 all new housing will be net zero carbon and that in the meantime the housing sector will see the Code for Sustainable Homes as an incentive to make new homes more sustainable, as they will be able to use this as a selling point. From now on, all house building on that involves public money will need to be of at least a level 3, with incremental increases proposed in the run up to 2016. Following changes to part L of the Building Regulations in autumn 2010, private sector housing will need to comply with similar mandatory minimum energy efficiency standards as a Code level 3 rating.

There is also the Decent Homes Standard, which the Government implemented with the primary aims of making all homes warm and equipped with reasonably modern facilities. As a member of the EU, all new and re-let homes in the UK must have an Energy Performance Certificate issued in the range of A-G and it is expected in time, that homes with a higher rating will attract higher demand and hence a higher value.

In the UK, 70.1% of the homes are privately owned; private renting represents 11.3% of the market, housing associations (HAs) 8.3% and Local Authorities (LAs) 10.2%. Each sector is challenged by these regulations.

At present there is no mandatory environmental assessment method for retrofitting homes, however, EcoHomes XB exists as a voluntary guide. The new BREEAM refurbishment for domestic dwellings is well developed and currently in a pilot stage (Radian's homes at the centre of the Retrofit SE project forms one of 14 national pilots).

There have been a number of successful pilot projects that have been implemented in all these sectors, but very few of them have reached the 60-80% CO₂ emission reduction target. One example is the Generation Homes Project in Kingsley, Hampshire, by Drum Housing Association (part of Radian). As a result of renovations, running costs of the properties have decreased by as much as 56%, however, technical solutions must be robust and proven as referred to later in this report to take account of household user behaviour.

Radian has completed a significant number of advanced retrofits (in 2009 twenty homes were completed and a further 15 have recently commenced) and therefore ongoing linkage of outcomes from Radian retrofit projects to our research will help to provide more certainty of outcomes.

Housing associations, housing providers and private owners are motivated to implement energy efficiency and renewable energy investments not only by the need to meet the regulations, but moreover because energy prices in the UK continue to increase rapidly. The study shows that the main barrier to mainstream energy efficiency and renewable energy investments in the residential building sector is the lack of sustainable financing and market mechanisms. Because of this, and coupled with the absence of legislation to move towards meeting the targets, only small pilot projects have been implemented and seen to be successful. At present there are no large-scale mainstream refurbishment projects happening in the sector that achieve very low carbon performance and a limited number of new build examples achieving exemplar low carbon standards.

Finance Schemes under Development and Implementation

(compared to Revolving Retrofit Guarantee Fund)

Throughout Europe the domestic sector has received significant attention in terms of energy efficiency programmes. The most common type of subsidy is through existing banking networks in the form of grants, interest subsidies and loan guarantees. The cost of subsidies is the highest when the support is provided as a non-refundable grant. The most cost efficient form of subsidy is the loan guarantee, where with £1 subsidy a minimum of £20 can be raised from the capital market. In the case that the guarantee fund is operating as a revolving fund, (meaning that as the loan repayment happens, new guarantees and loans are issued), the leverage ratio can reach 1:150 in the long term. While in the case of interest subsidies the leverage ratio is between 1:2 and 1:5. This means that loan guarantee type of subsidies, can support four to ten times more projects from the same amount of subsidy available. If the loan guarantee fund is revolving 30 times, greater project volume can be supported.

Currently in the UK, besides the guarantee fund mechanism, the following financing mechanisms are under development and implementation: the Pay As You Save (PAYS), which is called Green Deal now, Rent a Roof (Generally Solar Photovoltaics only), and the social housing EIB scheme. The potential leverage ratio is not higher than 1:5 in any of these cases and all these schemes are commercial schemes.

Energy security and fuel/energy poverty is becoming an increasingly important issue across Europe. Currently there are around 27,500 'excess winter deaths' in Great Britain, (an incidence markedly higher than for countries with similar climates and living standards¹) with around 360,000 million households in the South East living in fuel poverty by definition².

Research estimates that average energy bills are likely to quadruple over the next 10 years in the UK. The average household is currently paying £1,243 (compared to £540 in 2004) and could potentially be paying £5,000 by 2020³, which means that each household who possesses less than £50,000 yearly disposable income, will live in fuel poverty in 2020. If this happens, it will generate an energy crisis, where families will lose their homes due to not being able to pay fuel bills and mortgage payments at the same time. Also, high running costs will reduce the market price of properties, as they will not be desirable and become unsustainable in the long term.

This will lead to a deeper financial crisis and a sharp increase in the number of home repossessions by banks. Those reliant on affordable housing will increasingly judge the performance and desirability of registered housing providers by the energy efficiency standards of their housing stock, particularly individual homes offered at the time of letting.

High energy prices encourage households to invest into energy efficient retrofits or to lobby their landlord for the same, however, by the time that they will be ready to make the investment decisions, they may not be able to afford the cost of the project. The traditional finance mechanisms which are under development and implementation in the UK are not designed to address this issue, as none of them are specifically designed to provide financial solutions for families who live in fuel poverty.

The RRGF mechanism has been piloted and mainstreamed in Hungary, where each average family already lives in fuel poverty, spending 9.7% or more of its disposable income on

¹ National Energy Action

² Economic Review South East - 2008

³ USwitch 2009

energy bills⁴. In Hungary 300,000 homes have already been refurbished and a further 100,000 per annum will be refurbished according to the new government's plan⁵. This means that by 2050, every home in Hungary will have received an energy efficient upgrade. The RRGF mechanism demonstrated that it can provide financing in a fuel poor environment where other finance mechanisms fail.

Creating jobs is one of most important positive 'side effects' of implementing C60-C80 retrofit projects. Latest research shows that implementation of a yearly programme of 100,000 C80 projects will generate 52,000 jobs by 2020⁶. In the current economical climate this means that C80 projects can be the catalyst to stabilise growth of the economies across Europe, as these projects will continually keep people in employment.

Based on similar European schemes over the past 20 years (in Germany and Hungary), traditional financial schemes can serve only a part of the market, simply because they have a lower leverage rate compared to the guarantee scheme. To access the entire market, these schemes need to be combined with higher leverage schemes and social mechanisms, such as the RRGF mechanism offers.

Key Research Findings under the 'Retrofit South East' project

Housing Associations, like private home owners, are not inclined (and invariably not willing) to borrow against the fixed asset value to retrofit their properties. They are more interested in borrowing against the cash flow generated from energy cost savings and feed in tariffs. It has long been viewed as a financial problem that, whilst ethical, the benefit of a HAs investment in retrofitting accrues to the residents in reduced running costs rather than repays the HAs investment. This approach is unaffordable now, with or without grant incentives, and will be even more so in the long term.

It is believed that HAs would welcome the RRGF principal because, at present, the main issue is that the energy cost savings remain with the tenants post refurbishment. These savings can be shared between tenants and landlords based on voluntary agreements only at present, which has not been widely tested. Such voluntary agreements do not give legal rights to HAs to recover defaults on payments from residents. Research shows that projected energy cost savings per home can vary greatly, up to £500 per year being possible, based on the projects Radian reviewed.

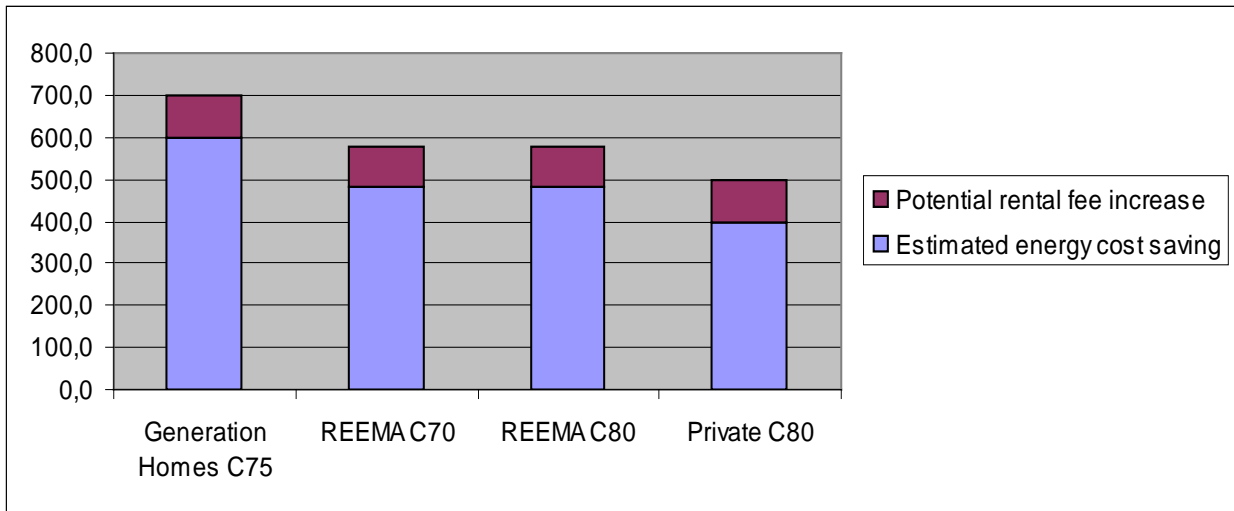
However, energy cost savings are highly influenced by user behaviour, with some of Radian's residents having potentially achieved little or no running cost saving. This represents a potential risk for finance schemes building upon energy costs as income to provide sufficient cash flow for loan repayment, such as the PAYS – Green deal scheme. Potential rental price increase, which can be interpreted as potential cost savings that tenants might be happy to share with the landlord, is thought to be in the volume of £100 – 200 per year.

⁴ CEU: Fuel poverty in Hungary, 2010

⁵ Janos Bencsik, State secretary general, National Ministry of Economics, June 2010

⁶ CEU: Employment benefit of complex energy efficient renovation projects in Hungary 2010

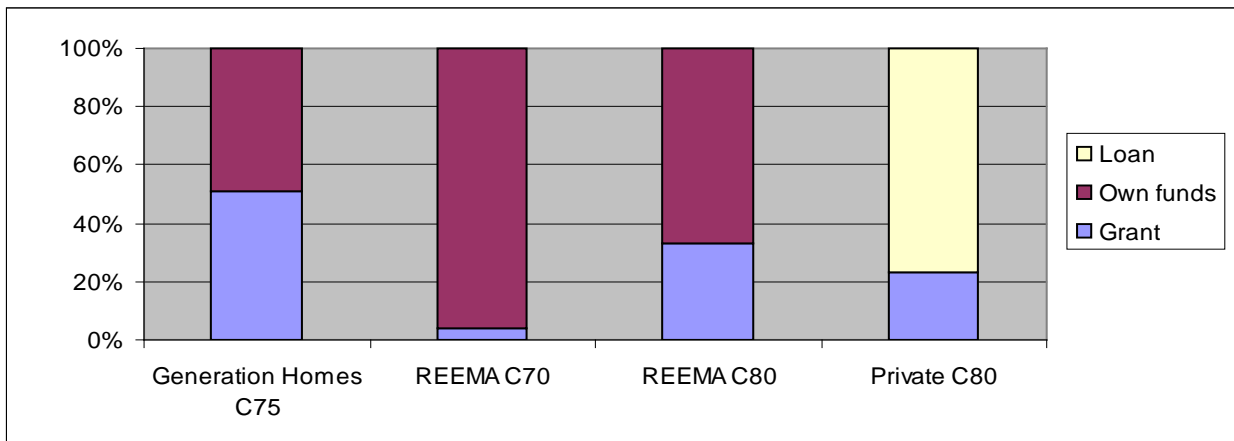
Figure 1. Potential energy cost savings and income from refurbishment projects / Radian and Private sector properties



Findings from a selection of Radian projects show that in order to make C80 projects viable, government subsidies are required. The Feed in Tariff will make a significant difference in many home refurbishment projects and can replace the previously available grant schemes efficiently. Based on these previously available grant schemes, such as the Low Carbon Buildings Programme phase II, 50% grant could be secured for projects in the social housing sector, where renewable technology was involved.

In the private sector the available subsidy was much lower, capped at £2,500 for PV. (Figure 2.) This percentage is much lower, around 25-27%. HAs typically don't borrow for retrofit projects; they finance these investments from their maintenance budgets. In comparison, loans play a key role in the private sector. If a housing association plans to implement large scale retrofit projects, they will need to apply for loans as annual maintenance budgets cannot be increased by the level required to finance these.

Figure 2: Funding structure / Radian and private sector properties

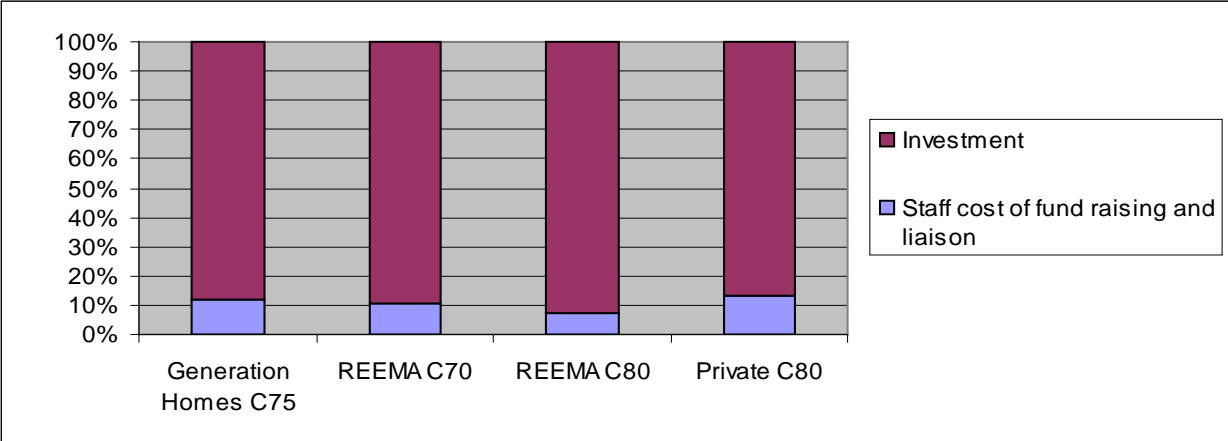


Tenants and communities cannot be forced to participate in retrofit projects. Communities can empower or sabotage large scale retrofit programmes, therefore it is very important to develop a social model which successfully engages communities and tenants.

Over and above the investment cost, there is at least an extra 10% cost of developing and implementing a retrofit project. Liaising with tenants represents major part of these extra costs or 'hidden costs of retrofit'. The research work studied Radian's project portfolio and private home refurbishment projects where they have achieved 60-80% carbon emission reduction.

The average cost of C60-80 project is £24-36k⁷. In addition to the investment cost there is the hidden 10% cost of project management and tenant. Therefore, it is important to note that if HAs target to implement a pilot RRGF programme in the volume of 500 home refurbishments, they are likely to need to appoint additional staff to manage the project or certainly redeploy their existing staff resources.

Figure 3: hidden cost of C60-80 investments



In terms of capacity, skills and product availability, the supply chain is not yet ready to serve an investment volume of 500,000 per annum.⁸

⁷ Existing Homes Alliance Paper

⁸ CEU: Employment benefit study

Main Principles and Advantages of the RRGF Concept

- Provides financing against the guarantee fund rather than against asset/property value
- Cash flow based financing instead of balance sheet based financing
- Lowers interest borrowing rates as a result of de-risked lending
- Provides equality
- 100% loan financing, no individual capital deposit is required to secure a loan.
- Social delivery and recovery procedures
- Low maintenance cost: streamlined and transparent procedures
- High leverage rates
- Cost efficient

Overall the RRGF mechanism increases the comfort level of borrowing, which will result in large scale retrofit programmes as it increases the uptake from end-users (HAs and private households.)

Revolving Retrofit Guarantee Fund Concept

In the next stage it needs to be demonstrated how the RRGF will work in practice as a highly innovative, sustainable and affordable finance mechanism. The report identifies the key barriers and challenges that need to be solved to enable the implementation of a pilot RRGF.

Taking the example of retrofitting 500 homes in the social housing sector in the South East of England with the support of the RRGF, the total investment size required is £10 million, given the average retrofit investment cost is £20,000 per property. This paper describes how the RRGF works to support the creation of a £10 million investment volume to support the conceptual pilot project.

The RRGF mechanism⁹ is built upon a closed system, meaning that all participants are defined at the very outset and enter into a contract with each other. It consists of developing a guarantee scheme and a financial scheme to provide sufficient financing for 500 home renovations in the pilot phase, as well as developing the sufficient technical planning scheme, identifying the technical solutions to be able to achieve the 60 to 80% emission reduction target and appointing the specialist contractors to install the required new technologies and micro-generation. Grant funding and financial incentives, where available, will be built into the programme to maximise income streams and produce more favourable outcomes.

Based on the 12 years experience of the World Bank program in Hungary (HEECP¹⁰), after the successful implementation of the first £10 million pilot programme, the RRGF can be extended to a scale which is able to provide sufficient financing for a 50,000 yearly home renovation target programme over the next 40 years. This represents 10% of the potential UK market each year. However, based on European examples, the programme could grow to a much larger scale and could be sufficient to support 300,000 home refurbishments each year, subject to available funding in the RRGF.

Participants of the Proposed Pilot Program

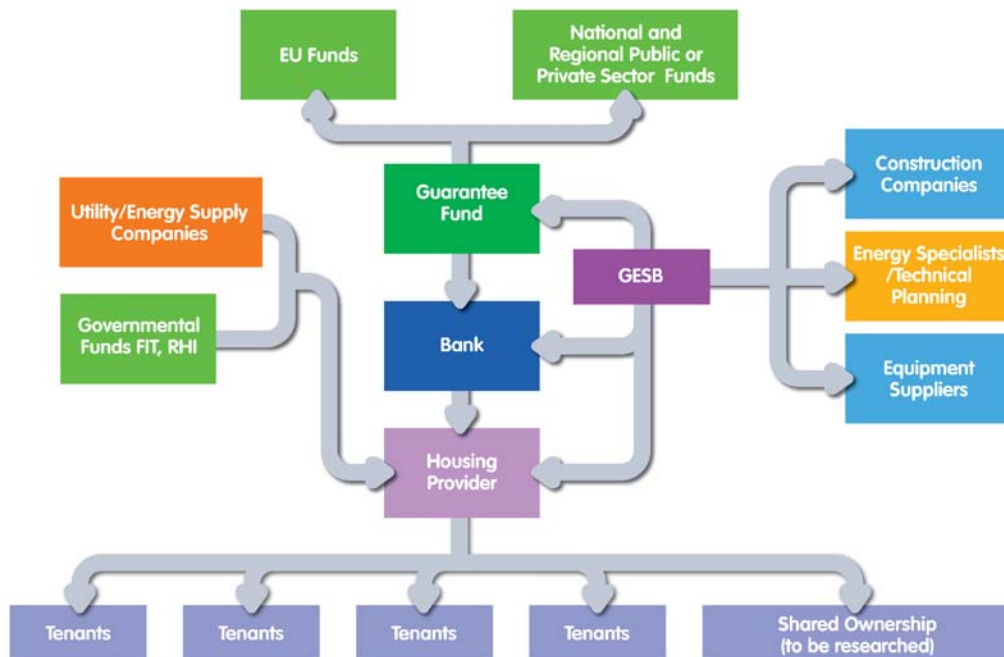
1. **Guarantee fund:** It needs to be identified who provides funding into the guarantee fund. It is proposed that that the pilot fund is pulled together from public funds, either from the European Union, or UK regional funds. It is also possible that Housing Associations provide the fund in the guarantee fund based on the Dutch model referred to later, where a very small percentage of the value of their total stock asset base is used for investment in the guarantee fund. Once the guarantee fund provider is identified, GESB enters into contract with the named Governmental Institutions/Identified Government Authorities and/or the Housing Associations/Local Authorities for establishing the guarantee fund to support the £10 million pilot loan portfolio. The guarantee fund consists of a contract with the commercial banks, providing different types of guarantees to mitigate risks related to financing energy efficiency and renewable energy projects in the housing sector.

⁹ The RRGF is based on the SHEERER (Social Housing Energy Efficiency and Renewable Energy Renovation) programme registered at the Patent Office and the SHEERER model to be used for the purpose of financing social housing energy efficiency and renewable energy renovation projects owned exclusively by GESB. The SHEERER model cannot be used for any purposes without the prior written consent of GESB.

¹⁰ HEECP: Hungarian Energy Efficiency and Co-financing Programme

2. **Bank:** GESB identifies one or two commercial banks to participate in the pilot project. GESB enters into contract with the commercial bank(s) for creating the financial product and also for developing a loan portfolio under the pilot programme. Banks enter into contract with the Housing Providers, Housing Associations, Local Authorities or private home owners (if the pilot programme is extended to the private sector) and provide loans for financing energy efficiency and micro-generation projects.
3. **Housing Associations (HAs), Local Authorities (LAs) and tenants:** According to the current system, HAs/LAs have a contract with tenants for offering rental and maintenance services, collecting rental fees and service charges. HAs enter into contract with banks as borrowers for paying the principal and interest.
4. **Utility service companies:** Electricity, gas and water companies are contracted by tenants for energy supply. Under CERTs and CESP, utility companies offer greater options to their clients to implement energy efficiency measures including FIT and potentially RHI.
5. **Government grants:** GESB will identify available Governmental and EU grant programs to support emission reductions in the housing sector. These grants will be included in the financing scheme supporting HAs / LAs and private home owners participating in the pilot programme, to apply for these funds.
6. **Technical planning/Energy specialist companies:** These companies are contracted with HAs/LAs. Their role is to properly plan the investment from a technical point of view, in order to be able to achieve the energy savings and CO2 emission reductions set as targets. They will work closely with HAs/LAs technical services staff.
7. **Construction companies:** Contracted by the Housing Providers to implement the projects. Construction companies which are specialized/experienced in energy efficiency and renewable energy projects in the housing sector will be identified initially in preference. Smaller specialized construction companies can be sub-contracted by the turn-key contractor providing full construction project management.
8. **Equipment supplier and installer companies:** To supply specialist equipment used during the renovations. Prudent clean technologies, which are able to generate the required energy savings and carbon emission reductions, will be identified.
9. **GESB:** In developing the pilot programme, GESB identifies all parties participating; provides overall management services; guarantees to make the pilot programme successful; and implements energy efficiency and renewable projects in a 500 size housing portfolio, with the support of a £10 million loan scheme and governmental grant programs (where available). The company works with the guarantee fund and commercial banks to create the financial product backed by special guarantees. It has the knowledge and experience to properly structure these schemes to reduce risks for all parties. Jointly with the technical specialists GESB works with HAs to identify and develop the 500 homes that will be renovated under the pilot programme. The banks and HAs (and their tenants) will be involved to develop social systems to recover unpaid debt services to improve payments from tenants.

Operation of the RRGF in Affordable Housing



Structuring the Pilot Programme

To support the £10 million pilot portfolio, 600k is needed to create the guarantee fund to provide 5% coverage against possible losses (defaults) on the loan portfolio. Negotiations will be initiated with Government and EU institutions to examine the possibility to reallocate funds assigned or earmarked to grant programmes into guarantee funds. GESB has extensive experience of operating programmes similar to this proposed pilot project in Eastern Europe and critical to the success of these schemes is the need to minimise the level of defaulting on loan repayments. The company's approach to managing these schemes has, to date, resulted in a zero default rate¹¹; hence the risk of loss is expected to be extremely low and manageable. This is why a 5% loss coverage is realistic.

Housing Providers can also contribute to the guarantee fund, but only a few large Housing Associations would have the opportunity to participate in the first pilot with a total property volume of minimum four or five thousand. The guarantee fund can also work by two or three HAs providing funding needed into the guarantee fund. It is also a possibility that 50% of the funds are provided from governmental/EU funds, and 50% is from HAs. However, HAs would not take 'first loss position', meaning that in the case of default, the governmental/EU guarantee would be drawn upon first. This would mean that even if there is any loss on the loan portfolio the Government/EU guarantee would be adequate to cover the losses. After the pilot programme is proven to be successful, the selected HAs, based on a Dutch model¹², could provide a maximum 0.03% of their total balance sheet to operate the guarantee fund on a long term. The guarantee fund will operate as a not for profit (but not for loss) institution

¹¹ HEECP: Hungary Energy Efficiency Co-financing Programme and CEEF: Commercialising Energy Efficiency Finance – International Finance Corporation / World Bank Group

¹² In the Netherlands large housing associations operate funds with providing 0.03% of their balance sheet value into a fund and use the fund to borrow on a low interest rate from commercial banks.

and will be assessed by rating institutions at a later stage, expected to be AAA, as is the case with the World Bank guarantee fund.

With the guarantee fund, it is necessary to demonstrate to the banks that real risks are lower than perceived risks, relating to financing housing energy efficiency and renewable projects, and that year-by-year, the guarantee coverage can be decreased. However, it has been demonstrated in Europe, that the guarantee programme could run with 5% first loss coverage on a long term (in the worst case scenario). The guarantee fund will also allow financial products to be developed, where the collateral requirement and interest rate is lower than that currently available financing the sector.

GESB has presented the idea to several HAs who showed initial interest. If further funding becomes available, it will become possible to work with HAs in the coming 18-24 months to structure and implement the pilot RRGF.

It is recommended to work with a minimum of two banks so as to be able to increase competition and help to make the financing product and mechanism more sustainable. There are two banks that have shown potential interest already, and GESB continues to negotiate with them and will liaise with HAs as well to identify further potential bank participants for the programme.

HAs need to renovate 1.7-2% of their housing stock every year to match the overall governmental target of reducing carbon emission by 80% by 2050. GESB will identify a minimum of 15-20 HAs for the pilot program so as to be able to collectively select 500 homes for renovation under the RRGF facility, while enabling exchange of learning and reduction of perceived risks. Those HAs will, in the main, be targeted: they may have already implemented successful pilot projects and want to replicate these projects on a larger scale; HAs who are motivated and ready to start with pilot projects; and those who are smaller organisations and do not have access to finance or the in-house capacity or technical skills.

It is also recommended to involve private home owners in the programme. The research work has started to identify and review successful projects already implemented in the private sector, supported by LAs in the South East. The design and implementation of the pilot RRGF programme will start working with 10-20 LAs in the South East and target the retrofitting of 8,000 private homes in the first couple of years of the pilot programme. This could be increased up to 62,500 refurbishments in the longer term, with an initial £4.8 million investment into the RRGF, anticipating that in the private sector the maximum loan size is £12,000 per property.

It is recommended to organise and run a community campaign to engage private home owners. The research has studied the methodology of the Greening Campaign and it is believed that in a partnership with the Greening Campaign, or similar organisations, it is possible to deliver a successful community programme in the private sector.

It is suggested to focus on the middle and middle-low income households. It will be important to identify their needs for renovation in the process, providing technical support family by family. Solutions will be jointly designed with the community to provide optimal and affordable energy efficient projects. The community will be supported when they apply for available loans. Based on GESB's experience 5,000-8,000 homes (both public and private) can be contacted, informed and prepared for renovation within one year if the necessary resources are available. Technical and financial planning can be done simultaneously with implementation but more time to successfully complete these projects is required. The revolving fund can operate particularly successfully at a community level where all households in a community, rich or poor, have equality of access to loans as the risk can be spread fairly.

GESB will work closely with Governmental grant funds and frameworks such as the energy supplier obligations via utility companies, especially the FiT and later the expected Renewable Heat Incentive (RHI). Utility companies offer support to implement energy efficiency and renewable energy projects and will support HAs/LAs and private home owners to apply for funding where this support is available. Grants are necessary for the pilot, however, in the long term, the aim is to demonstrate that these renovations can be sustainable without Utility and Government grants, as it is expected that sufficient grant funding will not be readily available. As energy prices and the efficiency of renewable energy and energy efficiency technologies increase, it is believed that these projects will become more sustainable without grants. Indeed, Government levels of direct funding support are likely to diminish in the future.

GESB will identify the energy specialists (technical companies) as well as contractors, installers and equipment suppliers to participate in the pilot programme. This part of the preparation work is very important, because the primary goal of the programme is to reduce energy consumption and carbon emissions, and make the projects sustainable partially from the energy cost savings. Therefore, the technical planning and installation can be done only by selected companies with references who can guarantee the technical sustainability of the projects, products and innovation employed. Technical planning companies can also participate in supervising the construction phase and provide monitoring services after implementation to be able to properly measure the results of the projects. GESB is negotiating with potential partners and has identified companies who are very interested.

Proposed Financing Product

The financial mechanism proposed has been piloted in Hungary where 300,000 homes have already successfully been retrofitted. The Government has recently announced that 100,000 homes a year will be refurbished which represents approx. 2% of existing housing stock each year. This is proportionally equivalent to 500,000 home refurbishments per annum in the UK¹³.

The aim is to replicate this model in the UK market, as the research through the 'Retrofit South East' project has revealed that there is no similar mechanism or product in the UK that ensures large scale, short, medium and long term energy efficiency and renewable energy. According to the research, the RRGF mechanism can be adopted in the UK with the necessary changes e.g. the mechanism is portable in the UK and throughout Europe.

The financial mechanism has special characteristics which include basic but stringent rules which must always apply as a package when the pilot guarantee fund is implemented. In the UK these include¹⁴:

- Loans are collateral free for the borrowers, while it is fully collateralised from the bank's perspective. There is no mortgage offered on borrowers' homes and HAs' properties to meet bank's underwriting criteria. Due to the reasons mentioned above the guarantors will satisfy commercial banks and demonstrate that perceived risks are in fact higher than the real risk in this sector
- Low interest rates: Close to zero in the case where Governmental interest or potential Utility subsidy is involved. If not, then banks work with a lower margin and build the value of the guarantees into the pricing of their financial products
- Simplified and standardized approval procedures; credit decisions are made within 5-10 working days
- Simplified loan documentation. Loan agreement is ready to be signed within 10 days after positive credit decision and is very simple to understand at a household level
- Specifically structured credit underwriting criteria, cash flow based financing, portfolio approach to mitigate risk and cross-collateralisation techniques, as well as capitalising energy savings and increase in property values (linked to Energy Performance Certificates)
- Specifically structured loan eligibility criteria. Risk assessment relies on client's payment track record
- Social and voluntary participation. HAs enter into voluntary agreements with tenants and the agreement can be transformed into a service charge agreement that remains with the property and passes to new tenants at a re let or re sale stage by simple legal agreement procedure.
- Sharing energy cost saving between HAs and tenants. It is proposed to share benefits between HAs and tenants at a fair and affordable level to both parties which is to be determined as the first pilot develops.

¹³ In Hungary there are 4 million homes and in the UK there are 26 million homes.

¹⁴ Eligibility criteria of SHEERER, HEECP , CEEF and similar models implemented by commercial banks in Central Europe

It is worthy of note that the reason for reducing carbon emissions is not only to act against fuel poverty, but it is also to reduce operational and maintenance costs. Approximately 50% of future maintenance costs can be saved after renovation and the value of the asset will increase following refurbishment. Life Cycle Costing principles can be used to demonstrate this benefit. Because of the cash-flow based loans with such an amount of savings, the banks are assured of repayment. The savings or a proportion of them can be spent on repaying the bank loan.

It is a challenge to share energy cost savings between the tenants and the Housing Association, although an incentive to proceed must be evident to ensure wide scale take up. GESB will work with HAs/LAs to develop the financial scheme to be able to share these cost savings to partially provide sufficient cash flow for the project. In addition to the voluntary agreements (which need to be developed), service charge agreements might need to be restructured to provide additional income to cover investment. Liaison with the group of residents and HAs will be undertaken to properly structure these schemes.

Issues related to developing the eligibility criteria for the UK market have been discussed with the stakeholders group and these issues will be further discussed and solved during the pilot phase of developing the guarantee fund.

Specifics of the Financing Product

The financing product will be based on energy cost saving and the property asset value increase. All eligibility and underwriting criteria will be standardised and approval procedures will be streamlined. The guarantee will be a portfolio guarantee to cover losses on the £10 million pilot loan portfolio. For the guarantee structure there are three different instruments proposed: cash deposit, first loss and pari-passu guarantees. The guarantee coverage would be between 5-20% of the loan portfolio depending on how the special financial products are structured for special market niches under the pilot programme, however, it is believed that a maximum 5% guarantee coverage will be needed because of the HAs sectors long term prudent borrowing track record.

As described earlier, it is recommended to run a pilot guarantee programme for the private sector simultaneously with the HAs pilot guarantee programme. It is possible to use the same guarantee fund and structure two different loan products under the guarantee pool, one for the HAs sector and one for the private sector.

Proposed Eligibility Criteria

Proposed eligibility criteria for the borrower under the RRGF programme.

1. Energy savings must be determined: e.g. minimum 60% reduction of carbon emission must be achieved, and a minimum target for energy cost repayments needs to be determined (between 20%-40%). With such savings the bank can be assured that the loan repayment can be made. This is especially relevant where PV is installed, providing a guaranteed income generated through FiT. An energy audit has to be made to calculate potential savings before (so that they outweigh repayments) and again after implementation, to show the real savings achieved.
2. Social criteria must be defined, that means the middle and middle-low income tenants should have access to this financing as well as those HAs/LAs who have limited funding for energy efficiency and renewable energy investments. Based on European experience these specific products can serve families living in or close to fuel poverty as well, meaning they are not to be excluded.
3. Prudent technology is required, i.e. the technology is suitable for the project, and advanced enough and readily available (including spare parts).
4. Pre determined minimum levels of home envelope insulation must be met or included in the package of measures financed for installation.

Underwriting Criteria

The **underwriting criteria** for borrowers must be satisfied and in addition the main elements of these criteria must be the followed:

1. Tenants' payment track record must be checked. A maximum limit for acceptable level of outstanding payments will be set up if there was any payment delay in a certain period during a determined time. For example, if the tenant has not delayed with rental payments for more than 90 days in the last 2 years, that family (tenant) could become eligible to participate
2. It must be determined what percentage is financed by loan, and what percentage is required as own equity from housing providers and tenants. In the original mechanism and model, banks finance 100% of the investment and there is no capital requirement from the borrower. The aim is to introduce this scheme in the UK pilot programmed.
3. It also must be determined how the energy savings will be capitalized, what percentage of potential energy cost saving can be calculated into the cash-flow and how the savings will be shared between HA/LA and tenant. Tenants should contribute minimum £2-4 per week from the energy cost savings towards the loan repayment. However, the research shows that tenants are likely to be happy to sign a benefit share agreement only if they keep £100-200 savings per year.

Securities

Securities must be determined by the risks.

1. The portfolio guarantee fund will cover 5% losses. Based on the 10 years European experience, the default rate never reaches 5% on these loan portfolios and in actual practice it is zero. In the event of the default, social engagement with the household will take place, by the HA and others, in order to help get repayments back on track for a period of a minimum of 6-9 months. During which time, the revolving fund continues to operate without problem and no direct action needs to be taken upon the family (see 2 below).

This means that the guarantee fund in itself must be adequate to provide 100% security for these projects. The guarantee can be structured to provide (1) energy saving guarantee, meaning that in case the estimated energy saving is not achieved, the guarantee covers the saving shortfall and (2) guarantee against payment defaults at borrower level (this can be given to loans where the borrower is HAs, Local Authorities as housing providers, private home owners and Energy Service Companies). Each model can be structured according to the needs of the specific market and project.

2. The guarantee can have a cash deposit component, followed by first loss coverage and pari-passu guarantees. In the case that the RRGF provides cash deposit, the bank can cover the delayed payments from the cash deposit fund before terminating the loan agreement with the borrower. This is a good solution to cover short term payment delays. If the borrower permanently delays with making payments, the bank terminates the loan agreement and calls down the first loss guarantee from the guarantee fund to cover up to 5% of losses on the loan portfolio.

Beyond the first loss coverage, the guarantee fund can also provide additional guarantees up to 50-80% as a pari-passu guarantee if needed. In the case where a pari-passu guarantee is provided, the guarantor and the lender bank shares the risk equally. Where a first loss and cash deposit guarantee is provided the guarantor takes first loss. There are several guarantee models and these can also be combined based on the requirements of the banks. The first loss coverage will be determined by the bank and agreed with the guarantee fund, based on the maximum expected loan portfolio default rate.

3. In the financing scheme, the following instruments will secure project cash flow:
 - a. Energy cost saving guarantees
 - b. FiT
 - c. Voluntary payments from tenants
 - d. Service charge increases

Approval procedure

Application for loans must be sent to the bank. The banks first check the eligibility criteria; if borrowers are suitable for the criteria, the loans must be automatically given to them. The security structure is also pre-defined, as are the eligibility criteria. Banks might ask for additional securities in certain cases, if needed. The aim is to streamline all procedures, which means the bank must make a credit decision in 5 to 10 working days based on a standardized scoring and approval system. This system is jointly developed by GESB and participating banks.

ESCO Model

The RRGF structure works for third party financing schemes as well, where the borrower is an Energy Service Company (ESCOs). This structure will be elaborated upon during implementation.

Recoveries

GESB has an additional role to play in the system, namely to make projects financially viable and bankable, and to monitor private households' and tenants ability to pay during the whole loan term, with early intervention where required. A social recovery system will be developed where a legal and social team will work closely with the housing providers, or individual home owners and tenants, to collect outstanding charges and/or principal and interest payments if necessary. Social Workers and/or Housing Officers will visit families and identify any specific problems why they are not able to pay. They will help them to overcome the barriers, for example, by introducing them into social systems to enable them to maintain their ability to pay.

GESB has worked out a social collection system, which is a socially sensitive procedure and will retain the dignity of the tenants. The portfolio must be built up and the guarantee system must be well developed, in order to assure the guarantor that they are not going to lose their guarantee.

Outputs

In the pilot phase, a RRGF will be set up in the volume of £600,000 for the HAs sector and £4.8 million for the private sector. With the support of the guarantee fund, £830 million loan volume will be raised from capital markets through commercial banks with the aim of supporting 62,500 low carbon home retrofit in the South East by 2050.

Further expected outputs:

- Existing governmental and private sector investment schemes, such as CERT and FiT, will be integrated into the programme and therefore, in total, £1.4 billion could be mobilized for energy efficient and renewable energy projects in the South East region by 2050.
- The guarantee fund will operate with only £5.6 million, which means that the fund could achieve 1:156/1:273 leverage ratio. Each £1 invested in the guarantee fund will mobilize £156 to £273 from the capital market.
- 60-80% carbon dioxide emission reduction could be achieved in target properties
- Commercial loan products, developed under the programme, will be fully mainstreamed into daily operation of commercial banks by the end of the programme operation.
- It is estimated that the programme will create 5,500 jobs in the first five year of operation across the South East in the construction, SME, raw material production and equipment manufacturer sectors. Because the programme has a long term operational goal, it is possible that all the 5,500 jobs can be maintained. A yearly 10-20% increase could also be achieved.
- The programme will transfer ultra low carbon technologies into the regions and will build capacity in the local SME sectors across the entire supply chain, including builders, suppliers, surveyors etc. Approximately 370 SMEs will receive capacity building support in the South East over the first five years of programme operation including retrofit skills training where required.
- The programme will transform commercial banks and businesses and enable sustainable economic growth via the implementation of carbon emissions reduction projects across the region and nationally.
- If the programme is successful, it can be transformed into a national financing programme.

RETROFIT

South East

Next steps

Radian has secured additional ERDF funding via SEEDA for a second phase of the 'Retrofit South East' project that will commence late 2010. The principal aim of this follow-on project is to develop the RRGF to a bankable and pilot-ready stage. Fundraising will be undertaken in the next 18 months, so that the first pilot programme can be structured for the social housing sector in the South East region with the aim of retrofitting at least 300 homes. It is possible that more than one pilot of the RRGF will operate in different geographical areas simultaneously.

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