



Energy efficient or “green” mortgages represent a potential for Romania to take the lead in the region by introducing an innovative real estate financial tool for reducing energy costs, improving energy security and increasing adoption of better construction technology, materials and techniques.

This pilot project aims at creating a controlled environment through a consortium between a bank, a developer and an energy auditor to implement the concept of energy efficient mortgages in Romania and demonstrate its financial, social and environmental benefits.

The introduction of such a financial product is very timely in the context of the current European regulations on buildings that make energy efficient ratings compulsory for all new and existing buildings. Therefore, a successful pilot project of this kind will be easily replicated at a national scale upon the upcoming implementation of these regulations.

Rationale

Facts

- There is a close correlation between the energy efficiency performance of a building and the level of quality in the design, construction and operation of a building.
- Buildings account for over 30% of total energy consumption and 40 to 50% of Co² emissions in Europe
- The current buildings regulations impose only a low level of energy efficiency which leads to high energy costs for the end-users during the period of operation and ownership
- Romania has a housing deficit and faces a period of substantial residential construction in the medium to long term.
- Romania has implemented the “Energy Performance for Buildings Directive” requiring Energy Performance Certificates for new buildings as of January 2007. The cost of the energy audit, therefore, no longer represents an optional cost but a required cost of the real estate developer.
- The current economic challenges notwithstanding, energy and natural resource usage and price are expected to increase dramatically due to global economic and population trends.

Implications

- **Economic:**
 - The energy bill will constantly increase affecting households' available income.
 - Energy costs and security are becoming a big concern for Romania's economic future
- **Social:** loss of energy subsidies will affect all households for all income levels. This does, however, effect the low and middle-income class of the population as the energy bill is a higher percentage of their income and they generally live in lower quality (hence lower energy efficient) houses.
- **Environmental:** at the planned rate of construction, the negative impact is increasing significantly on the environment, the impact on the stock of fuels and sustainable supply of natural resources.

Need for action:

Given all the above facts and implications, it results that energy efficient buildings are a necessary and economically preferable solution.

Financial Barrier:

One of the most important barriers¹ that prevents energy efficient buildings from becoming mainstream is the issue of financing, especially related to the initial cost barrier. Even if buyers are convinced of the long-term benefits of an energy efficient home, the higher initial investment prevents them from buying an energy efficient house. This in its turn reduces the developers' incentives in constructing an energy efficient building. The purpose of this pilot project is to tackle and eliminate this financial barrier in a controlled environment.

Energy Efficient or “Green” Mortgages:

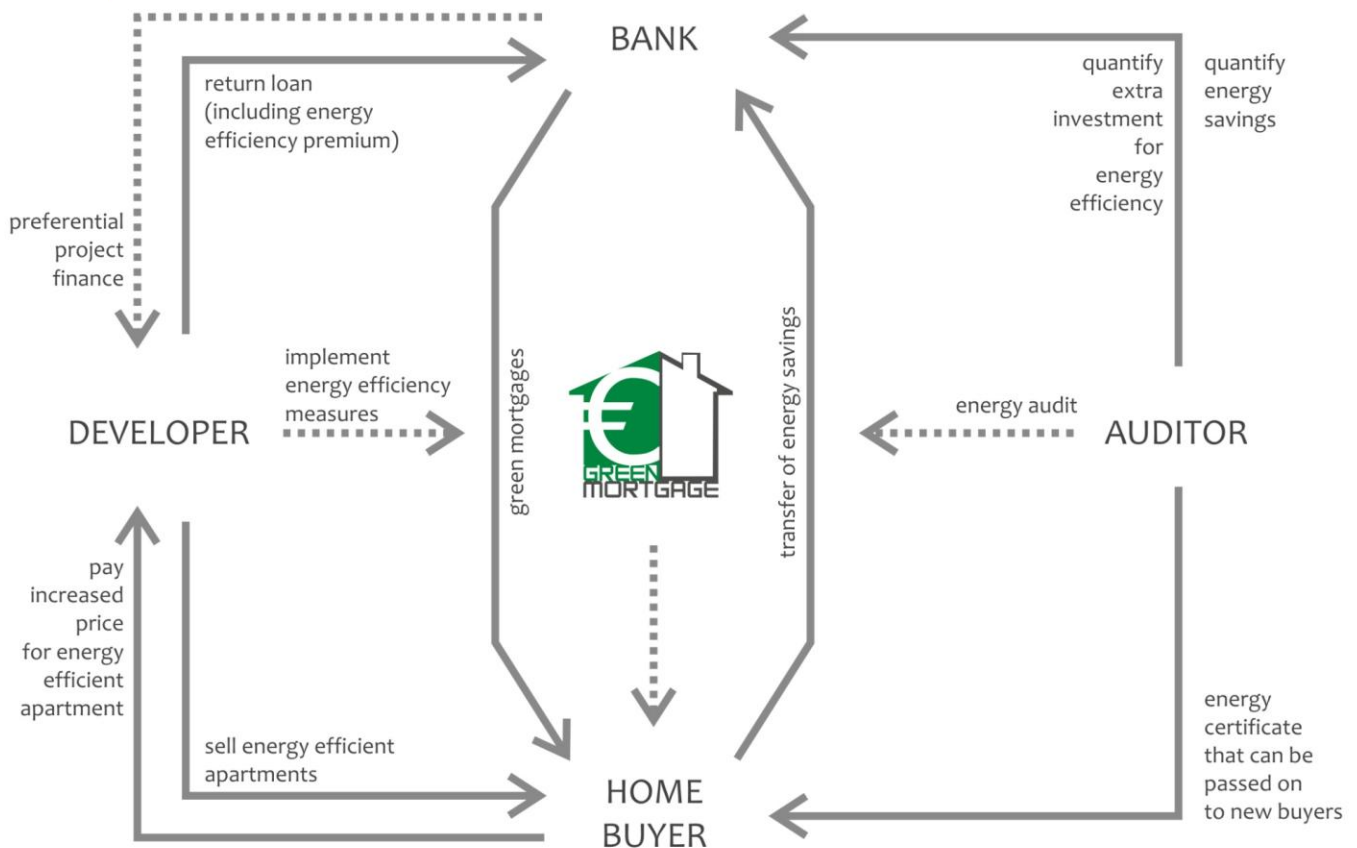
An energy efficient house reduces the utilities bill allowing households to save extra cash that can be further applied to paying back a larger loan instalment. An energy efficient mortgage covers the extra financial investment that is needed to make the energy efficient improvements upfront, recognising that the money will be recovered through the savings that occur over the lifetime of the building. This could imply larger loan amounts, increased debt-to-income ratios (a larger amount of the borrower's income can be applied to the monthly debt instalments) or other financial incentives offered.

Objective: Implementation of an innovative private sector-led financial product (energy efficient mortgages) based on the financial benefits of energy efficiency in buildings, in order to facilitate the adoption of energy efficient and ecological technologies in residential building development.

¹ Financing Energy Efficient Homes, <http://www.iea.org/textbase/papers/2007/FinancialBarrierBuilding.pdf> . Other barriers to energy efficient buildings are: information and awareness issues, standardised measures and control, the nature of the building market and perverse incentives of the players, principal agent problem, habits and reluctance to change of both constructors and home buyers, lack of skills and knowledge.

Brief description: The project proposes the creation of a consortium between a real estate developer, a bank and a certified energy auditing company.

- The **developer** would agree to create a residential development with high energy efficiency standards (targeting an “A” grade).
- A qualified **energy auditor** would assess/rate and control the energy efficiency of the development, quantify the energy savings as compared to a regular building, and issue the required energy efficiency rating certificate.
- The **bank** would evaluate the monetary value of the energy savings and will implement preferential:
 - Project finance: increased financing for the energy efficiency features (this function may be performed by an investor, not necessarily the bank)
 - Energy efficient mortgages for the buyers of the homes
- The **homebuyer** receives a more valuable home and pays the same or less for their total monthly cost due to realized energy savings.



Such a consortium creates a mechanism that allows for the energy efficiency savings to be transferred from the developer to the home buyers without any financial impact. The banks role is to allow the energy efficiency improvements to pay for themselves and to reduce both the initial financial risk of both the developer (who gains certainty of a market for the higher performing building) and the home buyer (whose upfront investment is minimized).

Benefits

General benefits of the project:

- Elimination of the initial cost barrier for implementing energy efficient residential projects
- Overcome other market failures that seriously inhibit the construction of energy efficient buildings including:
 - The “agency problem” - the different interests of the developer and buyer are aligned though bank financing
 - The “information problem” - lack of understanding of the home buyer of the reduction in the overall life-cycle costs due to energy efficiency measures is overcome by the energy audit and bank financing
 - The “rationality problem” - people do not always act rationally in their economic interests when assessing short-term vs long-term benefits. Introducing an Energy Efficiency component into financing brings a new incentive that transforms long-term into short term benefits.
- Recognizes the higher value of an energy efficient building in terms of income security, quality, and market value.
- Demonstrates a concept that can be replicated and scaled upward.

The project will also bring important benefits to all the stakeholders:

- For the **developer**, this scheme provides:
 - Secure financing for the cost increase due to energy efficiency measures
 - Transferring the increased cost to the home-buyer to the home-buyer who will ultimately benefit from the investment
 - Increased demand for a unique market offering and competitive advantage (as the home-buyer does not feel the burden of the increased initial costs that are covered by the loan).
- For the **home-buyer** the scheme provides:
 - Benefit from an energy efficient and better quality house with no additional cost (or even net benefit from energy savings: See financial calculations)

- A higher price in case of reselling the house due to an “A” energy efficiency rating and the inherent quality improvements.
- For the **bank** this scheme provides:
 - Introduction of a new financial product with predictable costs and revenues
 - A possibility to tap into a niche market with very good prospects
 - An additional indication of a housing unit’s long-term value.
 - Differentiation in a highly competitive banking market

Risks and mitigating factors

- **Lack of demand for housing.** This is a risk related to the general state of the real estate market and not this energy efficiency scheme. In effect, an energy efficient building should have a higher demand than regular buildings in every real estate market.
- **Default of home buyers.** The energy efficiency adds very little additional default risk which is related only to the propensity of home buyers to spend the energy savings rather than use them to pay back additional mortgage costs. This risk to the bank could be mitigated by creating a government program that guarantees the additional amount of loan that is given for energy efficiency houses. This reduces the perceived risk of the banks and provides a low-cost incentive for energy efficient buildings (as compared to other types of subsidies).
- **Lower than expected performance of energy savings equipment and installations mean less energy savings.** The requirements to achieve a top score provide a strong degree of assurance the building will perform to expectations. Components such as insulation and high efficiency Heating, Ventilating, and Air Conditioning (HVAC) equipment have been thoroughly researched with predictable results and, in the case of HVAC, backed by manufacturers’ guarantees.
- **Overestimation of the energy efficiency savings by the certified auditors.** This risk can be mitigated by carefully choosing the preferred energy auditors for the project. There is a defined methodology and apprentice auditors are required to work with senior auditors for an initial period.
- **Falling energy prices.** Despite current economic challenges, energy prices and energy scarcity are predicted to go substantially higher. An increasing willingness of the EU and Romanian government to “price carbon” and tax inefficient behaviour reduces the likelihood that the energy price to the end consumer will decrease. Dramatic and widespread technological advances in “green” energy might reduce long term prices but the positive economic benefits of this optimistic scenario should clearly outweigh the smaller differential in financial savings due to energy efficiency measures.

Future prospects

The European Commission has upgraded the Energy Performance for Buildings Directive to make it more demanding of higher energy performance (i.e. an “A” is harder to achieve) and requiring “nearly zero energy” buildings in the next decade . This indicates a political and economic climate more supportive of energy efficiency in buildings. It is the position of the Romania Green Building Council to strongly support a more stringent implementation of this directive.

As the energy prices continue to go up and the price of energy efficient technologies reduces, the economic reasoning for energy efficient mortgages becomes even more powerful. Ultimately, energy efficient buildings will become mainstream and all mortgages will be energy efficient mortgages.

Efforts to install individual metering since 1995 have and will continue to significantly encourage rational economic behaviour and guarantee uptake of energy efficiency and green mortgage products.

Financial Case for Green Mortgages

As stated previously, energy efficient mortgages cover the extra financial investment that is needed to make the energy efficient improvements upfront, recognising that the money will be recovered through the savings that occur over the lifetime of the building. The calculations below demonstrate the financial feasibility of such a bank product.

The green mortgage is applied to 75 sqm apartment and takes into account the current market rates and conditions of the Romanian real estate, construction, energy and mortgage market. The data is based both on secondary research and on discussions with various specialists in the construction and energy efficiency fields.